Intranet Design Annual

The Best Intranets of 2010

Amy Schade, Patty Caya, and Jakob Nielsen

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Nielsen Norman Group

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REPORT AUTHORS





Amy Schade, Patty Caya, Jakob Nielsen

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Executive Summary

The 10 best-designed intranets for 2010 are:

- Enbridge, Inc., a leader in energy transportation and distribution in North America (Canada)
- GE, a diversified technology, media, and financial services company (US)
- Howard Hughes Medical Institute (HHMI), a nonprofit medical research organization (US)
- Huron Consulting Group, a consulting company (US)
- Jet Propulsion Laboratory (JPL), a NASA Center that manages robotic spacecraft exploration of Earth, the solar system, and the universe (US)
- The MITRE Corporation, a not-for-profit organization managing four federally funded research and development centers (US)
- SCANA Corp., a Fortune 500 energy-based holding company (US)
- Trend Micro, Inc., a leader in Internet content security (Japan)
- URS Corporation, a leading provider of engineering, construction, and technical services for public agencies and private sector companies (US)
- Wal-Mart Stores, Inc. (Walmart), a retailer with more than 8,000 retail units under 53 different banners in 15 countries (US)

Walmart also won in 2002 for its previous intranet, and thereby joins a very small group of companies that have won the award multiple times: Deloitte Touche Tohmatsu has won for both its worldwide and Australian member firm intranets, and Cisco Systems' intranet has also been recognized twice.

While many of this year's winners are from the US, we also have a winner from Canada and, for the first time, a winner from Japan.

Breaking with past trends, this is the first time in 10 years without any winners from Europe or from the financial sector. (GE does have a finance business, but it's not a dedicated financial services company.) The lack of banks, brokers, and insurance companies might be explained by the finance crisis: these companies had other things to occupy their attention and smaller (if any) budgets for intranet design. In contrast, there's no excuse for the poor showing of European intranet designs given that Europe accounted for 31 percent of the winners from 2001 to 2009. Let's see some more good European intranets next year, please.

GROWING INTRANET TEAMS

This year, the median company size among our winners was 6,350 employees (the median is a better metric than the mean this year because Walmart is so huge that it would skew the calculation of an arithmetic mean.) From 2001 to 2006, ever-bigger organizations tended to dominate the awards, peaking in 2006, when the average company size was 107,000 employees. From 2007 to 2010, however, smaller companies became more prominent among the winners. This trend likely shows a maturing of intranet technologies: it's becoming easier and easier to build a good user experience without access to the substantial resources found in 100,000+ employee companies.

An alternative interpretation is that companies of all sizes are giving intranets higher priority and giving intranet teams more resources. The average team size this year was 14 people, which is 27 percent higher than the average team size in 2006 when the winning companies were much larger.

MOBILE INTRANET SITES

This year, 30 percent of the intranets had special mobile features. In previous years, we might have heralded this as a big number, but now that mobile is the big trend on the open Web, our conclusion is the opposite: intranets appear to be lagging in mobile device support.

One fairly obvious explanation might be that most intranets are accessed from the office. Also, as one team found, employees who express a desire for mobile access might not be familiar enough with their own mobile devices to actually use them easily.

Neither explanation is likely to remain true for long. Although most intranet use probably does occur at work, people will increasingly expect "anytime, anyplace" access because that's what they get from those big websites that set user expectations. Also, employees who frequently travel often account for particularly high-value use cases (such as sales calls). Finally, employees will get better at using mobile devices to access intranet content, services, and applications for two reasons. First, they'll be getting more experience as their mobile Web use grows. Second, mobile devices are getting significantly more usable with every generation (and mobile revs every year), which will make it increasingly easier for users to perform all mobile tasks.

Given our general research on mobile usability,[1] we strongly recommend that you create a separate design for mobile users. User performance declines significantly when people attempt to access a general-purpose website—that is, one that's desktop-targeted—from a mobile device. All three winners followed our recommendation, but in different ways.

The JPL team built a dedicated application, rather than a site, to optimize the design for a single platform—the iPhone—and thereby offer a richer user experience.

Both Enbridge and MITRE created special mobile-targeted sites, with scaled-back offerings of critical content and applications. This more general strategy supports a wider range of users than a single application. Even so, MITRE designed mainly for BlackBerry, though people with other smartphones can also use the site.

These examples highlight an important difference between mobile intranets and mobile websites: for enterprise use, you can target a specific device if it is already the company's preferred platform. On the Web, of course, you must serve all comers or lose business.

SOCIAL FEATURES ON INTRANETS

In addition to being the year of mobile, it was definitely the year of social networking on the Internet at large. On intranets, this second trend was echoed more strongly than the first.

[1] Please see http://www.nngroup.com/reports/mobile

Social features were common on the winning intranets. Many of the issues in designing social features for an intranet are similar to those in designing social features for a website.[2] But there are important differences as well.

Most strikingly, there are two levels of social networking on intranets:

- Social features for employees as individuals
- Workgroup support and other features that encourage work-related connections

Examples of social features targeting individuals include Walmart's discussion and profile pages; Trend Micro's *TrendSpace,* which included employee-contributed content; MITRE's social bookmarking service, which lets employees share their favorite links; and GE's commenting and rating features.

Work-oriented social features include the URS technical forums, where engineers collaborate and share best practices; MITRE's *Expertise Finder*, which helps users locate coworkers who have specific knowledge; and HHMI's project pages, where teams collaborate directly and share information.

Another major difference between social intranets and social websites is the significantly increased accountability within the enterprise, which again can lead to higher quality and more widespread participation if handled right. It's common to avoid anonymity.[3] Trend Micro goes a step further with an elaborate system of reward points that accrue to employees when they contribute to the intranet's community features. Points don't just give bragging rights; they can be redeemed for real prizes.

BEYOND BOSS BLOGS

For several years, we've noted the trend of CEO blogs on better intranets. This is almost a special subgenre of social networking; CEO weblogs often include social features such as discussions and/or comments.

Such blogs were again strong this year, but included enhanced features to show executives with a "human face" and help make them more approachable. On Walmart's intranet, for example, the executive profiles go beyond work experience to highlight personal experiences and interests. And Trend Micro combined executive blogs with semiannual online meetings where employees can engage directly with the executives.

CHANGE MANAGEMENT; INTERNAL MARKETING

Users hate change. That's as true for intranets as for websites. At the same time, intranets are often bad enough that change is desperately needed. Even a good intranet can vastly increase employee productivity through a few improvements, given that people use it every day. (If people don't use the intranet every day, that's a sign in its own right that it's not good enough.)

Still, most users really do prefer to muddle along with a familiar user interface, which raises the question: How can you resolve the tension between the need for change and the pain that change entails?

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[2] Please see http://www.nngroup.com/events/tutorials/social_features.html

[3] For further discussion about anonymity in intranet social features, please see our separate report on *"Enterprise 2.0,"* http://www.nngroup.com/reports/intranet/social

Many of this year's winning intranets took explicit steps to manage design change and encourage users to try out new and improved features. For example, many teams conducted extensive user research before deciding on their design direction. This definitely keeps teams focused on user needs and lowers the risk of releasing something that people will resist. If you get bad feedback, at least you get it *before* launch, giving you time to overcome employees' objections. Besides the actual feedback, usability studies serve a second function as an explicit signal of the team's willingness to listen. Research is one way to engage stakeholders and let them know you care.

Beyond user research, several teams engaged a wider range of stakeholders in early communication that continued throughout the design process. As designs became more defined, some teams fielded special early-access programs that let smaller groups of people use the new design before it was rolled out to everybody. For example, SCANA did a one-month beta test with 150 employees who later became "ambassadors" for the new design.

Finally, once the new design launched, explicit internal marketing campaigns helped promote early uptake. Don't assume that employees will discover new features for themselves. People are too busy and just aren't as interested in the intranet for its own sake as you are. This year's promotional initiatives included an IT expo, cafeteria demos, posters, road shows, and emails, as well as SCANA's grass-roots campaign to enlist the beta testers as site ambassadors. SCANA also created internal commercials, using employees as volunteer actors.

EMERGENCY PREPAREDNESS

Maybe it's a sign of our unsettling times, with threats ranging from mutating influenza viruses to terrorist attacks to global warming. Whatever the reason, 40 percent of winning companies designed intranet features with the explicit goal of addressing unexpected emergencies. Walmart and URS were both impacted by Hurricane Katrina a few years ago, creating an impetus to ensure that their intranets could be quickly adapted to help out in future emergencies. Of course, *after* a disaster hits, it's too late to start a project to figure out what to do; by then it's time for action. The Boy Scouts had the right idea with their motto, "be prepared."

This year's winning intranets offered a range of emergency features, including a homepage alert system that pops up emergency information without waiting for a page refresh; separate emergency-specific homepages that can be activated on short notice; dedicated homepage sections that appear during emergencies; and a full-blown emergency operations center.

The trend toward using the intranet to help manage emergencies is a sign of maturity: intranets are becoming recognized as a key part of the organizational infrastructure.

CONTINUING TRENDS = CONTINUOUS QUALITY IMPROVEMENT

Many trends among this year's winners are continuations of long-term trends that we've identified and commented on in past years. Some of these include:

- Frequent use of SharePoint
    - Many other technology platforms were common as well, including Google Search Appliance; no one solution guarantees a great intranet
- Reliance on page templates to ensure consistent user interfaces

- Firming up the editorial workflow to ensure content quality; at Enbridge, for example, each page has a named content owner to guard against stale information
- Many interesting presentations of news streams on the homepage
- Role-based personalization to focus users on the content and apps most useful to their jobs
    - Widespread customization let users adapt the UI on their own, including improved designs for the ever-popular *Quick Links*/*My Links* feature
- Focus on improving search, including interesting approaches to advanced search
    - Even so, intranet search remains a sore point, and many teams relied on manual tweaks (such as offering "Best Bets")
    - *People search* remains an extremely popular feature
- Extensive use of usability methods, from simple user testing to card sorting, field studies, and personas
- Poor monetized ROI[4] metrics, but some promising measures of increased usage and employee satisfaction
    - In one hard ROI example, Trend Micro saved $1.6 million per year by hosting meetings on its intranet

For these—and many other—issues, this year's best intranets show steady improvements over previous years' designs. It's not that these things haven't been done before, it's that the new designs build on the previous ones and become ever-more refined. In other words, we're benefiting from a process of continuous quality improvement for intranet user experience. In virtually every other field, CQI is known as the way to true quality, so seeing it in intranets is a further sign of this field's growing maturity.

And thus we have this year's meta-trend: intranet design is maturing. We see this growing maturity in many aspects of the winning intranets, from team size to the reliance on CQI. So with this, the 10th *Intranet Design Annual*, we mark the anniversary of the award not only with great winners, but also with kudos to the entire field for having come of age.

[4] ROI = Return on Investment. Ideally you want good measures (or estimates) of both elements in this ratio: how much was gained by the redesign, and what did it cost? Improvement metrics are typically in the form of faster employee performance, reduced training costs, fewer user errors, increased employee satisfaction (resulting in retention), and better decisions or other job outcomes.

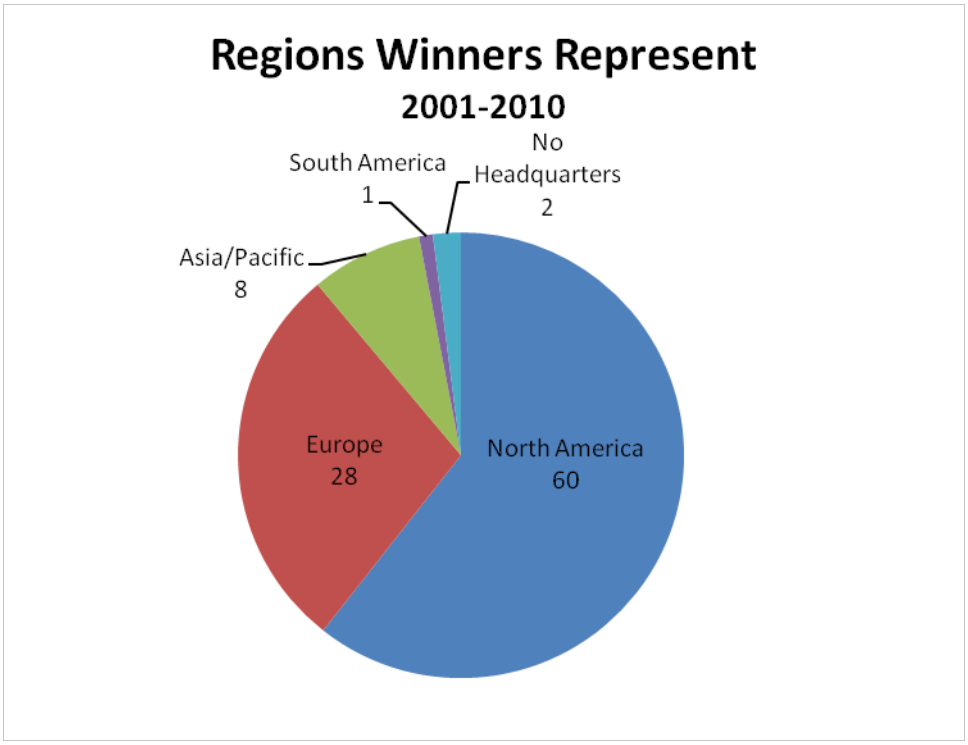
Overview of the Winners

SPANNING THREE COUNTRIES AND NINE INDUSTRIES

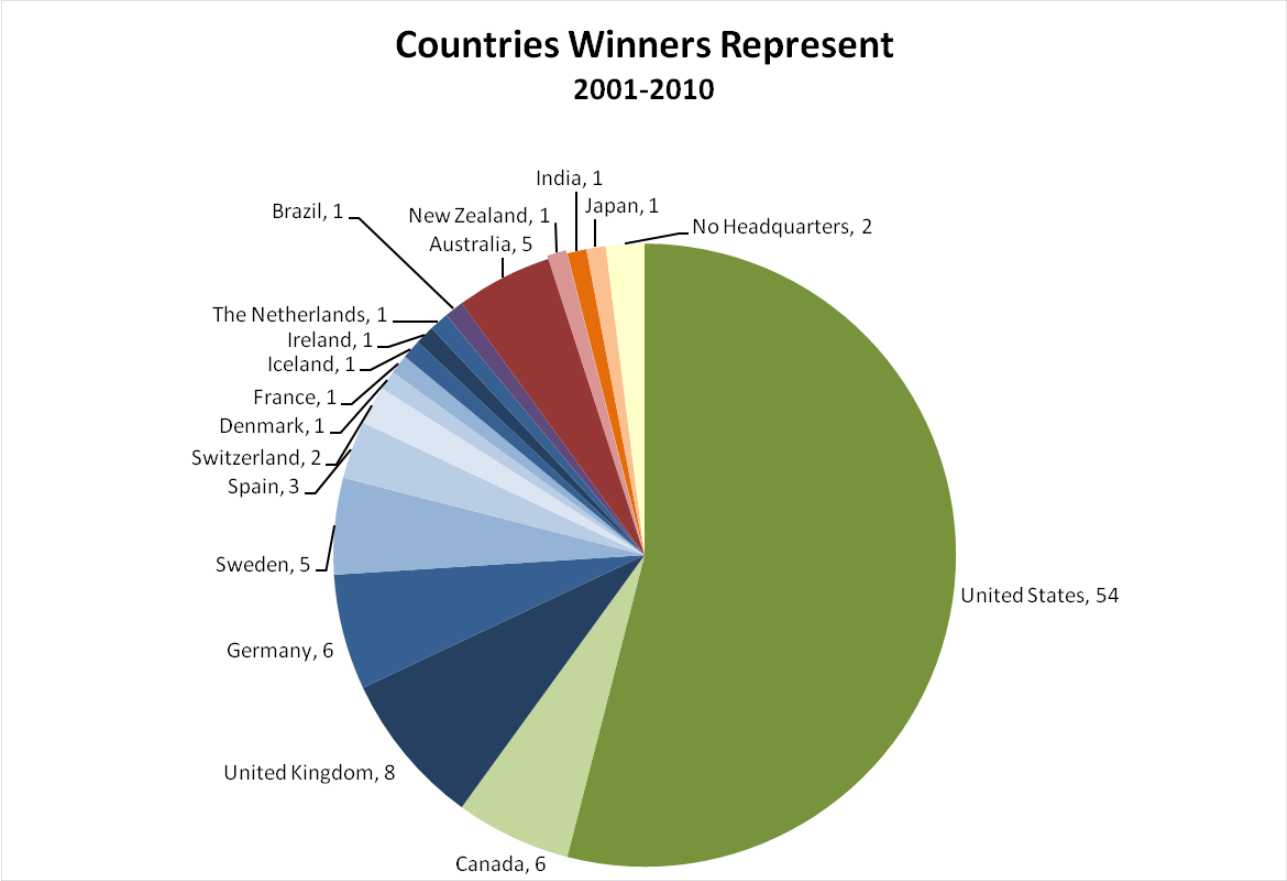
This year's 10 winning intranets serve organizations based in three countries: the US had eight winners, and Canada and Japan had one winner each. This marks the sixth time a Canadian company has won, and the first time a Japanese company has been honored in a *Design Annual*.

2010 WINNERS	
COUNTRY	**NUMBER OF WINNERS THIS YEAR**
UNITED STATES	8
CANADA	1
JAPAN	1

While most of this year's winners are from the US, over the years, *Design Annual* winners have represented a total of 17 different countries from around the world.



Pictured: Since 2001, 60% of *Design Annual* winners have been from North America, with 40% of winners scattered throughout the rest of the world.



Pictured: Since 2001, 17 different countries have boasted *Design Annual* winners. Two organizations had no headquarters: one was a global network of organizations, and the other considered itself to be global rather than located in any one country. In this chart, winning countries are organized by region, going clockwise, starting with North America, then Europe, followed by South America, the Australia/New Zealand (Pacific), and Asia.

This year's winning intranets come from a variety of industries and specialties. For the first time, they include a media company (GE). Technology, financial services, and consulting companies appear in the top 10 for the ninth year in a row (the 2004 annual focused exclusively on government organizations). This year also marks the first time two nonprofit organizations have made it into the winner's list.

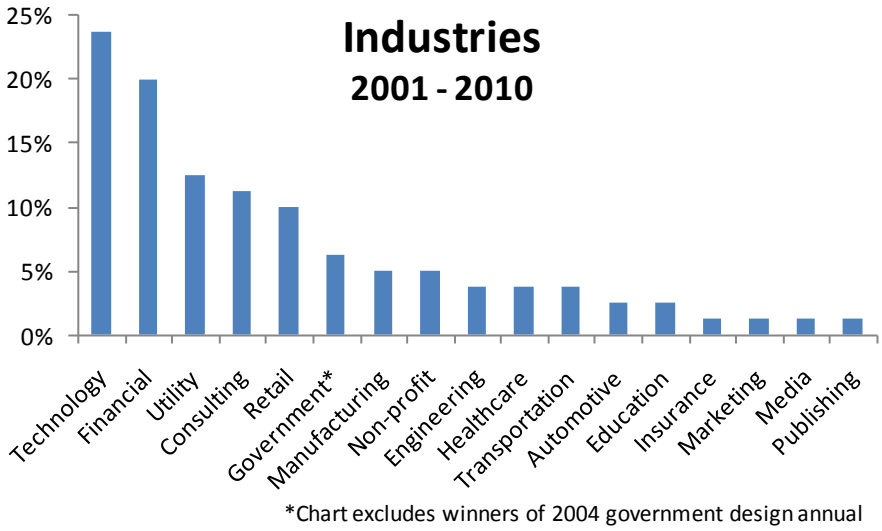
This year's winners represent the following industries:

- Nonprofit (2)
- Technology (2)
- Utility (2)
- Consulting (1)
- Engineering (1)
- Financial (1)

- Government (1)
- Media (1)
- Retail (1)

Note that the above list includes 12 industry designations for 10 organizations. The reason is that one of this year's winners, GE, is a media, technology, and financial services company.

The following chart shows the industries represented by winning intranets since the first *Design Annual* in 2001. With the inclusion of two energy companies in this year's annual, utility companies have now surpassed consulting firms to become the third most popular industry represented by *Design Annual* winners.



Pictured: Since 2001, technology and financial services organizations have produced the most award-winning intranets. The two energy companies in this year's *Design Annual* moved the utility industry into third place, overtaking the consulting industry. (In 2004, we focused our *Design Annual* on government agencies, so we've excluded those 10 winners from this chart.)

SMALLER WINNING ORGANIZATIONS

When we started the *Design Annual* 10 years ago, the majority of winning organizations were quite small. Each year until 2006, the average organization size increased. (An exception was in 2004, when the *Design Annual* focused exclusively on government organizations.) Over the past several years, we've again seen more winners from smaller organizations.

This year, the median company size among our winners was 6,350 employees. Seven of our 10 winning intranets support fewer than 10,000 employees, with four of the seven supporting 5,000 employees or less.

We calculated this year's average company size twice, for one reason: Walmart. The organization's site has the potential to support 1.4 million US employees, making it almost 1,000 times the size of our smallest winner, Huron Consulting, which supports 1,600 employees. Because the company's enormity clearly impacts a

calculation of average size, we calculated the average both with and without Walmart.

With Walmart, the average organization size was 175,200 employees. Without Walmart, the average organization size was 39,100 employees. This number is very close to last year's *Design Annual*, when the average organization size was 37,500 employees.

This year, the inclusion of Walmart (1.4 million) and GE (300,000) drove up the average size considerably; without them, the average organization size was 6,450 employees. Clearly, you don't have to be a big guy to create winning intranets.



Pictured: The average number of employees that winning intranets supported rose from 2001 to 2006, but has returned to lower numbers for the past three years. Smaller companies are well represented this year, with the median size being 6,450 employees. The top datapoint for 2010 indicates the average size across all 10 intranets—including Walmart, which supported 1.4 million employees. The lower number for 2010, shown with a dotted line, indicates the average size after removing Walmart from the mix, which brings down the size considerably. (The 2004 *Design Annual* included only government organizations, so that year's average doesn't represent organizations across industries.)

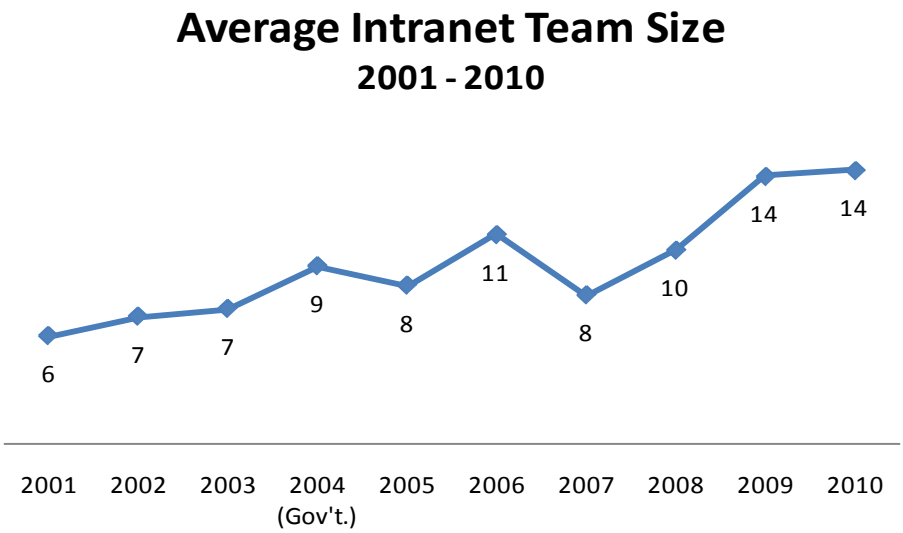
TEAM SIZE HOLDING STEADY

The size of intranet teams has grown since our first *Design Annual* back in 2001. Between 2007 and 2009, team size for winning intranets almost doubled, growing from 8 to 14 members. This year, the average size held steady at 14—the same as last year.

Overall, organization size is smaller this year than in many previous years, making it significant that team size held steady. Team sizes ranged from a maximum of 23 for Walmart (supporting 1.4 million employees) to four for Trend Micro, supporting 4,300 employees. The total team size includes in-house personnel working full- and part-time on the site, as well as people working on the intranet from outside the organization, such as design firms or external consultants.

Larger team sizes don't necessarily translate into more hours allocated to the intranet, however. Many team members focused on the intranet only part-time. And, while teams are larger than in the past, team members still reported tight deadlines, overworked team members, and long nights during the redesign process. At these crucial redesign phases in particular, it's worthwhile to hire or assign extra resources to help ease the transition to a new and improved site.

The lack of growth in team size this year might reflect the current economy, where resources may be scarce for supporting intranet development. Or, it might reflect the relatively small size of the organizations represented by this year's *Design Annual*. In any case, we're happy to see the general growth in intranet team size through the years, as it reflects an increased emphasis on and awareness of the intranet's importance to an organization.



Pictured: Generally, intranet team size had been growing steadily, but this year it holds even at an average of 14 people working on the winning intranet teams. (For information about individual team structures, see the "Intranet Team" section in each profile.)

BUILDING THE BEST TEAM: USING INTERNAL AND EXTERNAL RESOURCES

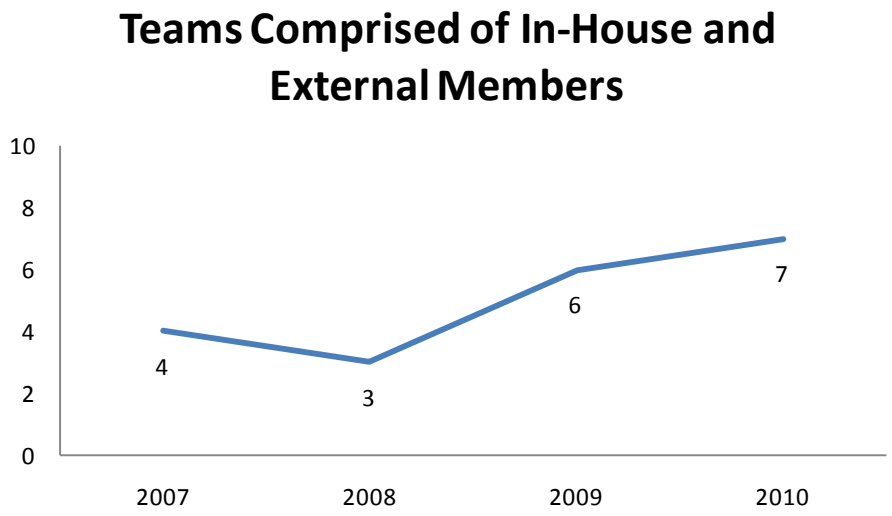
Only three of this year's winners created their sites using in-house resources alone. Seven relied on some outside resources, whether design firms, software consultants, or other external advisors. None were designed solely by an external agency.

The trend toward mixed in-house and external intranet teams over the past few years indicates that intranet teams are recognizing their own strengths and weaknesses. One team this year admitted that its site looked like it had been designed by engineers—which it was—and so its members worked with a design group to fix that problem. Another team couldn't get SharePoint to do what it needed, so it found a consultant to help.

The move toward working with both in-house and outside resources indicates that both groups need each other to create the best possible intranet. Intranet teams might have particular weaknesses or time constraints that make hiring outside

consultants the best solution. And, by working *with* rather than for in-house teams, consultants and agencies can ensure the design and technology solution fits the organization's needs and is sustainable without ongoing assistance.

Prior to 2007, third-party Web design firms created most of our winning intranets. Starting in 2007, we tracked how many organizations used a combination of in-house resources and outside firms or consultants. In 2008, only three of the 10 winners combined internal and external resources, while seven of this year's winning teams worked with outside agencies.



Pictured: The number of intranet teams that combine individuals from outside the organization, such as external design firms or outside consultants, together with in-house team members has increased over the last four years. (For more information on individual teams and their collaboration with outside firms, see each organization's individual profile.) Seven of the 10 winners this year used some outside resources to build the site. (Prior to 2007, most winning sites were created solely by third-party Web design firms.)

THE 10 WINNERS *IN ALPHABETICAL ORDER*	
Enbridge, Inc. (Energy; Canada)	Personalization is key to letting the Enbridge team provide the right information to employees across the organization's six business units. Content contributors are led by an Editor–in-Chief, who ensures the content's quality. The team created a "lite" site for mobile or remote use to provide quick access to the most critical information and applications.
GE (Technology, Media, and Financial Services; US)	With no way to communicate information company-wide, the GE intranet team had to create a central source with flexibility to support 300,000 employees working in three different industries around the world. Distributed content and cleanly designed templates keep content fresh and pages clean, while opportunities to rate and comment on stories invite employees to interact and engage.
Howard Hughes Medical Institute (HHMI) (Nonprofit Medical Research; US)	The HHMI team strove to create a site to support all users and fill the institute's unique needs. To achieve that goal, the intranet team worked closely with employees to understand the needs of HHMI users—from biomedical scientists to researchers to support staff and even "pre-employees" (who have limited site access). The resulting HHMI intranet is structured to allow quick access to personal content via the *My Home*, *My Department*, and *My Projects* tabs, making the site's most relevant information easy to quickly access.
Huron Consulting Group (Consulting; US)	Traveling consultants need to find the information they need when they need it, and be confident they've found the right information. The Huron Consulting Group intranet met this challenge with its iNet intranet, providing the organization's 2,100 users with a clean, focused site design and clear navigational structure that makes it easy for users to know where they are on the site at all times. Because the site was designed with users in mind and has an effective and reliable search, users can get in, get what they need, and get on to their clients.
Jet Propulsion Laboratory (JPL) (Government Aerospace; US)	JPL's technical team joined forces with its Office of Communications and Education and an outside design firm to enhance the intranet's technology, content, and appearance. Enhanced search provides quick access to key information, and an iPhone app lets users access basic information from their phones.
The MITRE Corporation (Nonprofit Technology; US)	When faced with challenges and opportunities, the MITRE intranet team focused on coming up with creative, user-focused solutions. An explosion of content led to a quick search feature called *FastJump*. The importance of knowledge sharing led to a robust employee directory and expertise search. Recognition of the power of communication among employees led to social tools such as *onomi* social bookmarking and *MITREpedia*. Whatever the challenge, MITRE's team strives to build practical solutions to fit users' needs.
SCANA Corp. (Energy; US)	SCANA team members started with a unique problem: they had no additional budget. None at all. Yet, despite budgetary, technical, and organizational challenges, they still rose to the occasion, developing a site with a clear focus, interesting content, and useful navigation design. They showed what a team can do with a lot of creativity, some resourcefulness, and a good helping of problem solving. The result of the team's efforts is a well-designed, clutter-free site that

	serves its users well.
Trend Micro, Inc. (Technology; Japan)	The Trend Micro intranet focuses on informing, engaging, and even rewarding employees. The site provides many opportunities for communication, interaction, and participation, creating a dynamic site that continues to engage users. It uniquely blends up-to-date executive communications, social networking tools, company news, and a points system that encourages participation into a single cohesive approach to enterprise communication.
URS Corporation (Engineering; US)	The URS team relied on user feedback to make sure the site emphasized the right information. A focus on people, not just work, is clear from the homepage and throughout the site. The team also included employees in the development and launch of the new site, easing the transition.
Wal-Mart Stores, Inc. (Retail; US)	Walmart listened when associates said they wanted a place where they could interact with one another. So, rather than build a traditional site, Walmart has built a successful social networking intranet. Instead of focusing on corporate information and allowing interaction among associates as a secondary goal, the team flipped their priorities and set out to build a social network that would convey corporate information while allowing and encouraging associates to build relationships, connect around shared passions, and share information with one another.

Common Themes Among the Winners

Some things change, and others stay the same. As in every *Design Annual* for the past 10 years, our 2010 winners frequently used personalization to drive the right content to the right individuals. And several of our winners saw the redesign as an opportunity to rethink how content is created and managed at their organizations, using new tools (or using existing tools in new ways) to allow content contributors to add and edit content for themselves. In addition, we noted the following trends particular to this year's winners—some having to do with specific features, and others with how teams approached the redesign process.

SOCIAL SITES: CONNECTING AND ENGAGING INDIVIDUALS

There has been a trend toward making intranets more social, with a variety of tools aimed at connecting employees with their colleagues and executives in a more casual or personal way. Last year, we saw this through features such as executive and employee blogs, collaboration spaces, and polls. As we noted last year, user expectations for the intranet often come from their experiences on the Web. As these Web-wide experiences become more social, users expect similar features and content on their intranet sites as well.

This year's winners reflect this continuing move to better serve individuals and small groups by connecting people in unexpected ways. In the intranet context, we can define social networking as anything that lets employees communicate with or learn about each other. It's about connections.

Some sites created areas based on social networking tools:

- Walmart built its site aimed at US associates as a social networking site. Initial research indicated users were interested in connecting with others at the company, so team members set aside plans for a more traditional intranet and instead built a social networking site that provides corporate information. The site encourages employees to connect and interact with one another by creating profile pages and participating in discussions.
- On Trend Micro's site, an area called *TrendSpace* lets employees create personal pages where they can publish blogs, photos, videos, and documents.
- The MITRE site offers *onomi*, a social bookmarking site á la Delicious where employees can share links to internal and external resources. Tagging helps users locate items of interest.

Other areas built on social connections as well:

- The URS intranet homepage features stories focused on individual employees.
- Employee profiles on Huron's intranet include *Fun facts*, such as personal interests and favorite foods.
- Commenting and rating features on news stories and videos on the GE intranet lets employees interact in a new way and provide feedback about which content engages them and which does not.

Echoing another trend from last year, several sites featured approachable executives:

- Executive profiles on Walmart's intranet are written specifically for the site, focusing on work experience but also including personal experience and interests.

- The highly engaged executives on Trend Micro's site publish blogs and hold semiannual performance meetings online, where users are allowed to ask questions directly.

While some tools and content allow employees to connect as individuals, other tools are focused on nurturing work-related connections:

- Technical forums on the URS intranet let engineers and other technical personnel collaborate and share best practices.
- MITRE's *Expertise Finder* lets users do keyword searches of various repositories to find individuals with specific knowledge. Results return people, followed by relevant documents or data associated with them.
- HHMI's project pages allow teams to collaborate and manage projects directly on the intranet.

The common thread among all these features is engagement: engagement with the site, engagement with colleagues and executives, and engagement with daily work.

MOBILE: THE INTRANET IN YOUR POCKET

Making a huge corporate intranet fit on a small screen is no easy task. Three of our winning intranets offered mobile access to intranet information to support employees on the road or in remote locations. They were all faced with the same challenge of translating a full site's worth of information into a well-designed mobile experience.

Two solved the problem by designing small-scale websites available for any mobile device, while a third built an iPhone app. None expected users to access the full intranet site, designed for a large screen and full of heavy downloads, on their phones.

The team at JPL decided to build for iPhone users first, with plans to support BlackBerry users in the future. The decision to build an app rather than a mobile website was based on the relative ease of developing an app for the iPhone, as well as the opportunity to build a richer experience by focusing the design on a single platform.

Both MITRE and Enbridge created small-scale websites, offering mobile versions of selected content and applications. MITRE's team designed with the most common corporate-issued Blackberries in mind, but built the site so that it's flexible enough to run on any smartphone platform. They specifically designed applications to present the most important and relevant information first, reducing the need to scroll on the phones' small screens.

Enbridge team members created their "lite" site to accommodate two main audiences: mobile users and remote laptop users with low-bandwidth connections. The team built the site with the flexibility to support both user types, with style sheets that accommodate the use of a phone or laptop. Understanding their users and their users' particular challenges led this team to view mobile as an opportunity to fill a need for multiple user groups.

Considerations for Mobile Intranet Access

The companies who provided mobile intranet access learned valuable lessons when making key decisions. For instance, in initial research into providing mobile access, the MITRE team found that even though their employees are highly educated and many requested mobile intranet access, many didn't know how to use their phone to

access a website. Others could access a site, but were unable to type in a username or password. Such findings can help temper ambitious aspirations for mobile content and bring expectations back to reality.

The intranet teams' experiences highlight key questions to address when building mobile intranet sites, including:

- **Assessing the need:** Do employees have smartphones? Do they know how to use them? Do employees need quick access to intranet content via their phones? How many users would find this kind of access helpful? How many would find it indispensable?
- **Type of phones to support:** Do all employees have company-issued smartphones? If so, do they all have the same model, or must the site or application work on several different platforms, models, or screen sizes?
- **Optimal screen resolution:** What screen resolution is most common? Can stylesheets accommodate multiple small screen sizes, as well as remote, low-bandwidth access on a laptop if necessary?
- **Platform decisions:** Should developers build on a specific platform—such as BlackBerry or iPhone—or build a "small" website to enable access across platforms? Does the possibility of a richer platform-specific experience outweigh the advantages of building the site once for access across many platforms? What platforms are most commonly used across the organization or in the target audience for the mobile site?
- **Security:** What information can be securely transmitted? Can users type well enough on their phones to enter a username and/or password for mobile access?
- **Network speeds:** How will the potentially slow speeds of mobile access compare to speeds users are accustomed to seeing on the internal network on computer-based intranet access? Should data be stored locally on the phone, or accessed on servers? What should be stored where?
- **Information/tools to provide:** Users don't need remote access to everything on the intranet. What tools, features, or content does it make sense to provide in a mobile environment? What might users need to do remotely (look up contact information, report hours spent at a client site, see the latest industry headlines, check travel reservations)?
- **How to prioritize tools and information supplied:** What do users need to see first on the screen? Second? What elements of the application or content can you omit for a mobile edition? How can you minimize tedious small-screen scrolling?

PREPARING FOR CHANGE

Surprising employees with a new site design never goes well. This year's winners recognized the need to prepare employees—and stakeholders—for upcoming changes, and some went to great and creative lengths to prepare and even excite users about the new designs.

No matter how bad a previous intranet was, people knew how to use it. Any change to the site, even if it improves the user's experience tenfold, will meet with resistance. Expect an adjustment period for the new site.

The fact that many teams prioritized user research kept them in close contact with users throughout the design and development phases. This helped keep the team

focused on end users and made efforts to inform the organization about the impending change a no-brainer.

Engaging Others

Engaging stakeholders and employees was one effective way to prepare them for change:

- Enbridge communicated the business reasons for the changes early on (and often) to encourage buy-in when the new site was launched.
- URS communicated about the new design to hundreds of executives, operations managers, and members of support departments, asking for feedback and requirements. As a result, each group felt like it had ownership of the new design.
- GE's team shared information about the new site during the year prior to rollout with business communicators, who in turn informed employees about the upcoming changes.

Providing Early Access

Offering early access to the site helped introduce users to functionality and design. Early access was typically done for testing purposes or due to a staged rollout, but doubled as a way to create interest in and buzz about the new site:

- GE did an initial release with 500 users, then a second with 60,000. To encourage early users to provide feedback, the team offered them a chance to win a prize.
- SCANA did a beta test on the site a month before launch, with 150 employees who then became "site ambassadors."
- URS gave stakeholders and managers a preview of the site to incorporate their feedback and build excitement among users.

Advertising Changes

Some organizations did explicit marketing for the site when it launched:

- JPL offered brief demos of the new site at an IT expo, as well as in the cafeteria and at team meetings.
- Enbridge's rollout marketing included posters, road shows, and emails.
- To alert employees to changes, SCANA team members created a "grass-roots" campaign. Among their efforts were to involve their beta testers as site ambassadors to hang posters and wear stickers about the launch. The team even created internal commercials, using employees as volunteer actors.

KEEPING AN OPEN MIND: LEARNING FROM OTHERS

Many of this year's winning intranet teams relied on help from others to fill in gaps in their own knowledge or bring additional expertise or experience to the team.

Seven of the 10 winning teams worked with outside resources to complete work on the intranet. Other teams looked for help internally, joining forces or borrowing resources from other areas of the organization. Several teams also looked to the Web or to other companies' intranets for possible design inspiration and solutions.

Examples of work with outside agencies included:

- Walmart worked with an outside agency on design and production.

- Huron turned to an outside agency for SharePoint expertise.
- JPL looked to a design firm to consult on look and feel.
- HHMI worked with an outside agency on everything from strategy to design, and that agency brought in additional technical experts to help with implementation.
- Enbridge worked with an outside agency for its knowledge of best practices, design, and planning.
- GE relied on an agency for primary research, information architecture, and design concept, as well as front-end technical expertise and code.
- URS hired two independent consultants. One helped with information architecture, navigation, and usability testing; the other helped with graphic design direction and design templates.

Other teams made the most of working with internal resources:

- Trend Micro's Human Interface Engineering group provided feedback to help the team improve the internal site's user interface and usability.
- The SCANA and Walmart teams borrowed appropriate findings from studies done during redesigns of the organizations' external websites.
- JPL's intranet team partnered with JPL's Office of Communications and Education to help keep content on the site current and relevant.

Some teams looked to other organizations or to the Web for inspiration:

- URS looked to public-facing websites for design inspiration for handling both complex navigation (Amazon, Yahoo!, Best Buy) and the presentation of news (MSN, CNN, and BBC).
- MITRE's team looked to community resources, such as Boston's active user-centered design community, to make connections and gain access to other organizations' intranets.
- The GE team conducted on-site benchmarking visits to companies such as Google, Microsoft, and JP Morgan.

Teams were influenced by other websites as well. The influence of Internet trends was clear among this year's winners. In addition to the social networking features that are creeping on to intranets, many of this year's winners followed other popular Web designs, including rotating news areas on the homepage and faceted search results.

QUICK SEARCH?

Ever since the first *Design Annual*, we've seen intranets with lists of quick links that are used as bandages to fix lousy site navigation. Users can't find the timesheet because it's hidden under *Department* > *Finance* > *Forms* > *Workday Forms* > *John's Forms* > *Other* > *Timesheets*? Just make it a quick link! That will fix the problem!

Today, we see many sites implementing quick links in a far more thoughtful and productive manner, providing links to those site areas that are most essential to the daily work of most employees. Even better yet, some provide customizable lists that let employees create their own bookmarks for the content that's most essential to them.

However, we're now seeing a trend toward the search equivalent of quick links—a *quick search*, if you will. Many sites struggle with searches that return irrelevant

results, despite the search tool's robustness. Some of these problems stem from settings in the search and others from problems in the target content, such as inadequate, non-existent, or incorrect metatags; numerous different data repositories to search; inadequate or missing site content; or content hidden in PDF or Word documents.

In response, several of this year's winners implemented some variation on a quick search, which hardwires the best search results to particular keywords or queries. This is a helpful way to direct users to the information they need the most. These results are sometimes called "Best Bets," "KeyMatches," or "Recommended Results," depending on the search tool used.

Quick search results can be incredibly helpful in cutting through the clutter. That said, most teams acknowledged that these results themselves were an ongoing project, requiring maintenance and monitoring to ensure they stay relevant over time. And most teams were simultaneously addressing the larger issue as well—that is, that the search tool wasn't working optimally with the content it was searching.

A good search tool is never finished. Implementing a new search tool—no matter how powerful or how great an improvement over its predecessor—isn't enough. To make the most effective use of a site search, the search or the site content must be continually tweaked to ensure that the best results are returned.

Teams were engaged in various efforts to address search results challenges, including:

- Monitoring successful and unsuccessful search queries on a monthly or weekly basis
- Collecting explicit feedback, via links on search engine results pages, about users' satisfaction with search results
- Addressing unsuccessful queries by evaluating the content or the search tool
- Updating hardwired results to return the most relevant results

THE INTRANET IN AN EMERGENCY: INSTANT ACCESS TO CRITICAL INFORMATION

In an interesting trend this year, several companies began using the intranet as a way to communicate during emergencies.

Hurricane Katrina, a devastating storm that struck the southern US in 2005, directly affected employees at two of the winning organizations: Walmart and URS. This disaster motivated both companies to find a way to quickly adapt the intranet to provide employees with information in emergency situations:

- Walmart is developing an *Emergency Operations Center* to assist and inform associates in times of local or national emergency.
- The URS intranet can instantly enable new homepage sections to provide resources and information following hurricanes or other disasters affecting workers' safety. The project emerged in response to Hurricane Katrina, when the team created a page to help locate employees in that area, verify their safety, and ensure that their immediate needs were met. The site provided a form for employees to contact the company with their whereabouts and needs, and offered relevant emergency information, such as links to insurance assistance and emergency healthcare information. The team also created bulletin boards for employees to post requests for assistance as they

transitioned to temporary residences. The site is now built to accommodate the addition of such a module in a matter of minutes.

Two other organizations also built site sections to accommodate immediate and unexpected situational needs:

- JPL's intranet includes an alert system that pops up without requiring a page refresh to alert users to either computer or physical security situations.
- SCANA's site includes a separate storm-specific homepage, which can be activated on short notice to replace the standard homepage. Because storms are critical events for the utility company, the storm template includes important storm links, outage updates, and radar maps. The storm homepage retains the regular homepage's news headlines, which are typically storm-related and constantly updated during an event. The storm homepage also includes important information such as time codes to use during the storm and contact information for Public Affairs. Further, employees can use the site to offer their homes to those forced to evacuate during severe storms or hurricanes.

Enbridge, Inc.

Using the intranet:

Enbridge, Inc. is a leader in energy transportation and distribution in North America. It operates the world's longest crude oil and liquids transportation system (in Canada and the US) and owns and operates Canada's largest natural gas distribution company.

Headquarters: Calgary, Alberta, Canada

Number of employees the intranet supports: 6,000

Company locations: 200 locations across North America, including Edmonton, Alberta; Calgary, Alberta; Toronto, Ontario; Superior, Wisconsin; and Houston, Texas

Locations where people use the intranet: Canada, the US

Annual sales:

$16 billion (2008)

Design team:

In-house: Lauren Linnell, Acting Director HR & Facilities; John Hanlon, Project Manager; Jennifer Cageorge, Advisor, Web Communications; Andrea Legault, Advisor, Web Communications; Glenn Fullerton, Enterprise Architect; Ken Street, IT Project Lead; Sean Stratton, Manager IT Shared Services; Mark Murray, Manager Enterprise Systems; Leandra Schrag, Program Manager; Brent Poohkay, Chief Information Officer

In-house leadership: Brent Poohkay, Jane Haberbusch, D'Arcy Levesque, Colin Gruending, Leon Zupan, Mark Maki, Jody Balko, Byron Neiles

Outside firm (Sapient): Daniel Barnicle, Director Program Management (Enterprise Portal Practice Lead); Ankur Shrivastav; Beth Cherry, Manager Information Architect; Swaroop George, Manager Technology; Gaurav Ganeriwal; Divya Dhar, Senior Associate, Program Management

SUMMARY

With six different business units, each with its own leadership and culture, the Enbridge intranet team found itself trying to create a central information source that would meet everyone's needs while still preserving a sense of each business unit's culture. It also wanted to increase access to the site, particularly for employees with little site access due to their remote locations or poor connection speeds. But the team had a long way to go. A survey revealed that 69 percent of users were either not satisfied or very dissatisfied with the previous site.

Team members initially invested time in reaching a consensus across business units to make sure that the new site would accommodate all employees' needs, provide information relevant to each business unit, and still maintain a sense of unity—and community—across the organization. They used iterative design to continually enhance the user experience and were open to making changes along the way.

They created a site that incorporates personalization to address different needs across the organization and incorporates opportunities for interaction and customization. Personalization delivers targeted content, while customization lets users set preferences and see the information they want. A mobile website gives users on BlackBerry devices or slow network connections in remote areas the most critical and important site information. And distributed content management, relying on more than 300 employees throughout the organization, keeps information current, fresh, and interesting to the company's various user groups.

The homepage offers personalized content based on the user's login, reflecting the user's business unit and location. The team knew it made more sense to give users what was relevant, rather than making them dig for it in a confusing site structure. To keep communication open, they also let users change their view of the content by switching their preselected business unit or country using dropdown menus that appear at the top of the page.

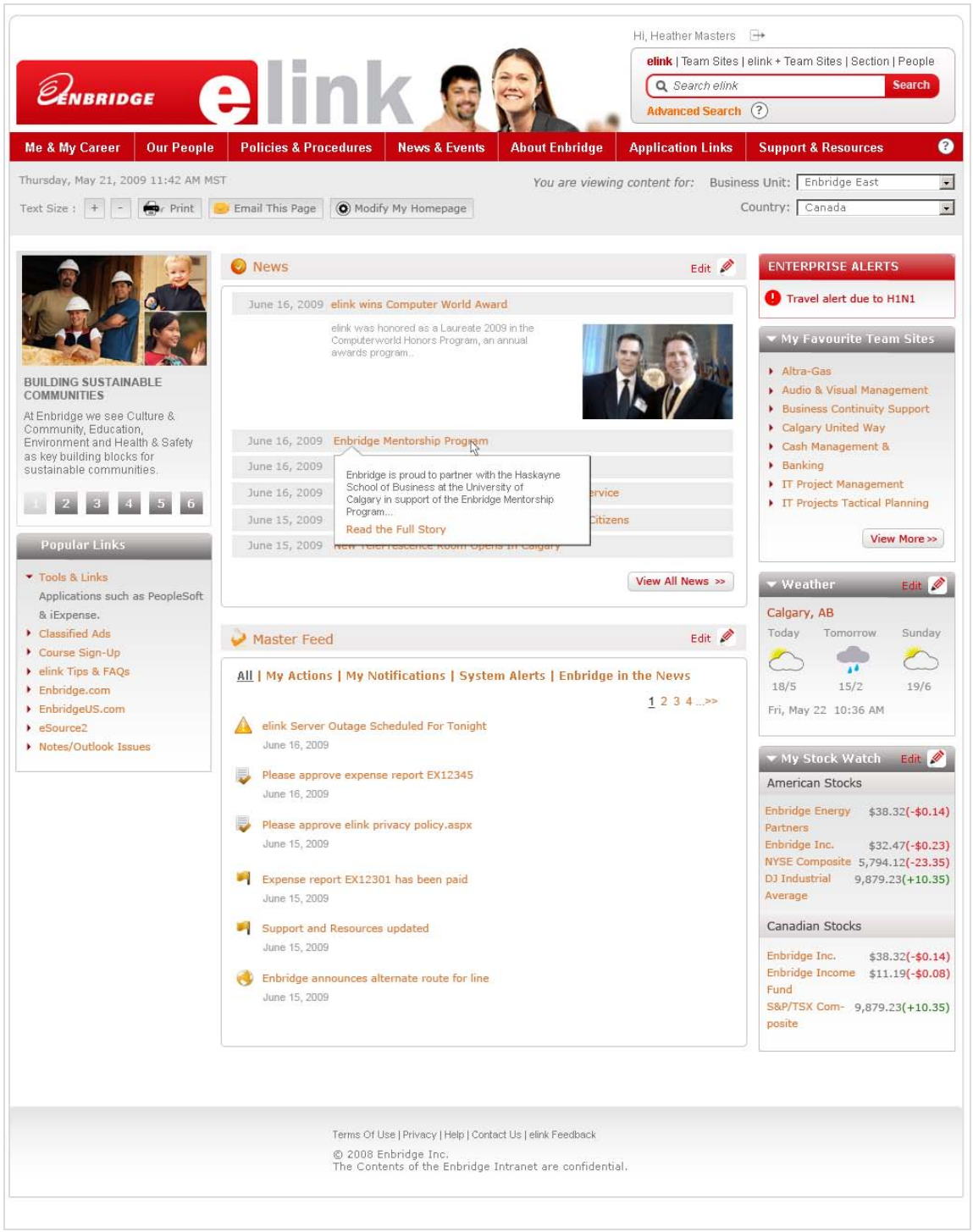
To emphasize new and relevant information, the team combines a *News* section with a *Master Feed*. These areas are central to the homepage content. *News* contains standard company-wide and business unit-specific information. Each news item is listed as a headline with the posting date. Users can click on each or rollover the headline to see a brief summary and a link to the full story.

The *Master Feed* collects information from a variety of sources and summarizes them in one list, similar to the main feed on social networking sites such as Facebook. This feed contains outstanding actions, notifications, system alerts, and news items. Users can view them all or select a particular type of communication. Items are listed in reverse chronological order, with the most recent listed first. Each item is dated, and an icon indicates the type of communication, such as an exclamation point for alerts, a checkmark for actions, a flag for notifications, and a globe for news.

Users can customize the feed and choose which types of information to see. Some are mandatory, such as *System Alerts*. Users can turn other options on or off through an easy interface reached by clicking the screen's *Edit* button.

The page also contains a space for Enbridge "ads" in the upper left-hand corner of the screen. This area lets the company highlight particular news stories or important information. Clear headlines are accompanied by related images and brief summaries. Users can click through the series to see each item. Stories also rotate on their own, changing every few seconds. This content is determined by the site's editor-in-chief and is personalized, like other site content, based on the users' business unit and location.

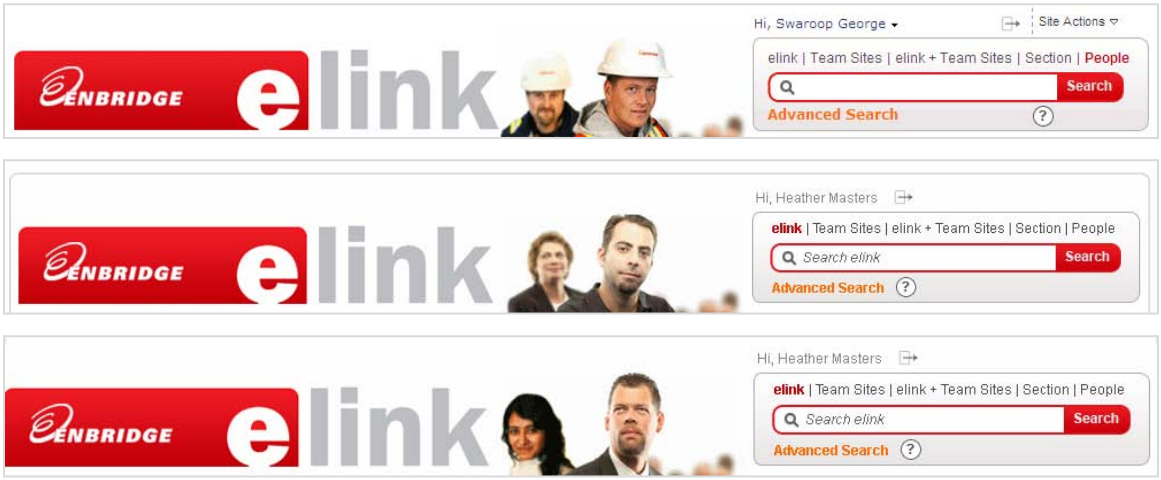
The page also includes popular links, which are personalized and vary by user. Enterprise alerts can be displayed in the upper right-hand corner of the screen, providing company-wide information. Users can also customize their *Favorite Team Sites* and weather and stock information.



Pictured: The Enbridge intranet homepage combines personalization, which is specific to a user's business unit and location, with customization, which offers the user a personal and relevant site experience.

As one way of emphasizing the site's personal nature, the masthead features pictures of real employees who fill different roles throughout the organization. The team made it a priority to make the site feel personal. Using real employees' photos,

personalized content, customizable pages, and information specific to individuals—including service milestones and information about new hires—give the site a personal feel.



Pictured: The site's masthead includes pictures of Enbridge employees working in different roles in different locations.

To ensure that content was current, interesting, and relevant, a large part of the site overhaul consisted of finding a usable method of managing content. Content governance was a huge consideration and quite an undertaking with more than 300 people across the organization contributing, approving, or editing site information. Business units and groups are responsible for their own content, and a structure is in place to ensure that information is updated regularly, follows site guidelines, and is presented to the appropriate audiences.

When setting up distributed content, the team focused on finding people who could best take on content responsibilities. Team members looked to those in the company who were already in a communication role, whether they were creating content on the existing portal or communicating with employees via email. These natural communicators were a good fit to take on intranet responsibilities.

The site was designed so that general users wouldn't need training to use it, but training content contributors was a large undertaking. Using SharePoint templates limits content contributors to three main page styles, helping keep the site design consistent. Approval processes are built in to the publishing tools and approvals are handled within the content contributors' group, freeing the intranet team from direct involvement with content.

Content contributors create content throughout the site. Explanatory text in the editing forms helps employees understand each field's purpose. For instance, the form tells users that the *Short Description* "appears in search results to describe this page as well as in article teasers." Such explanations can help users understand what to enter in each field and why the field is important.

Content contributors can add images and captions, create sidebars, select a publication date, and even target content to a specific audience via the editing tools.

The site has an editor-in-chief, which reflects its focus on high-quality content. The editor oversees the quality, timeliness, and appropriateness of content. This role helps to ensure that the site's writing, tone, and language are appropriate. The

editor is further responsible for ensuring that confidential information isn't shared on the site and has editorial control over enterprise-wide news content.



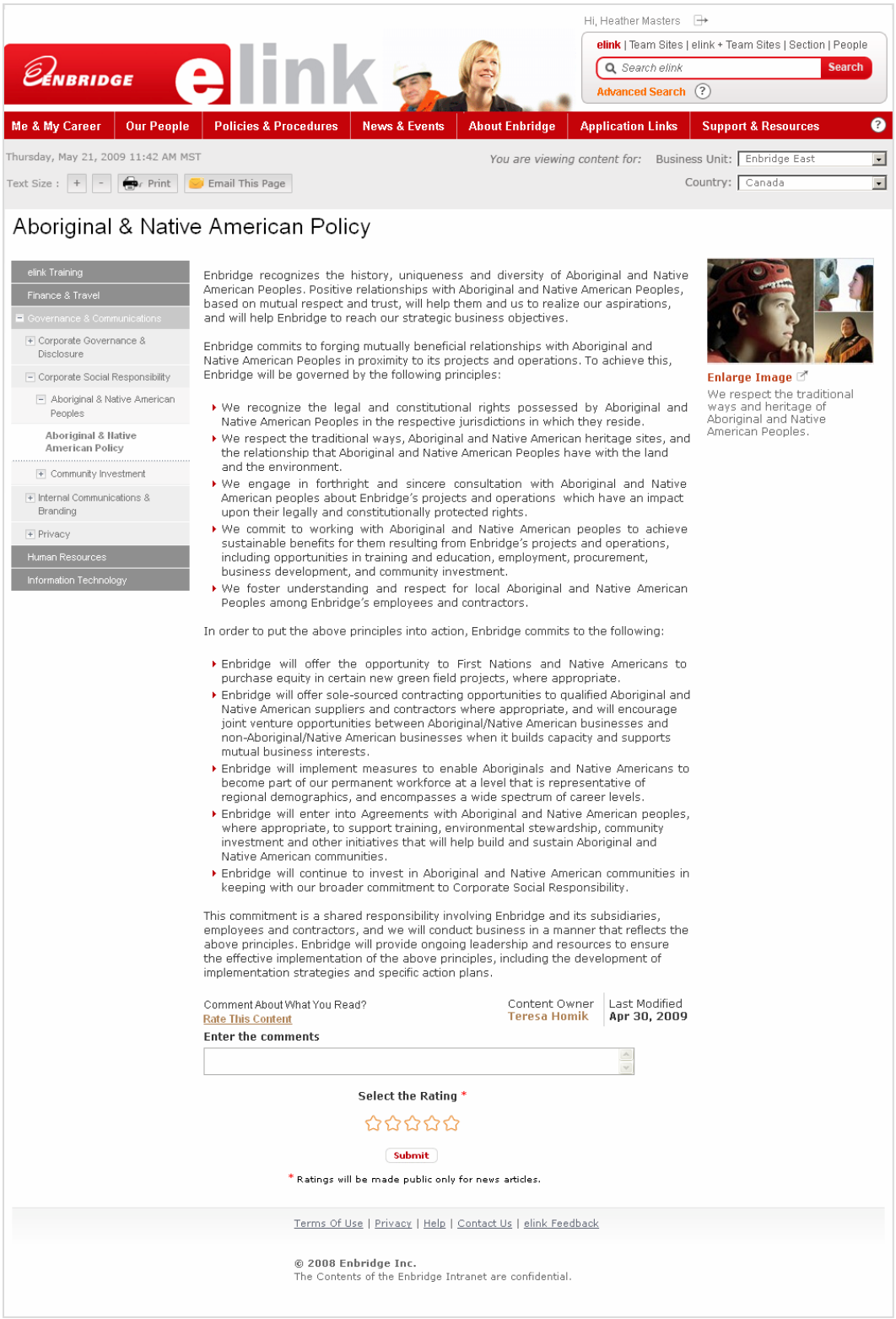
Pictured: Each of the 300+ content contributors across the organization can edit content directly through the site.

Even with so many people involved in content creation, the site maintains a consistent and clean design. Because this design creates a cohesive site experience, users can more easily navigate the site. The consistent global navigation is designed to be user-centric, rather than department-centric. The team did not want users to have to understand organizational structure to find content, so they organized the content in ways that make sense to users—such as offering *Policies & Procedures* in one area and *Application Links* in another. This type of structure is typically much more effective than organizing site information according to department or divisions.

Each content page includes a heading at the top defining the page's content. Side navigation appears with expandable menus showing users where they are and where they can go within that section of the site. Links clearly stand out from text due to their color.

The site incorporates aspects of social media throughout. Article pages allow users to comment on or rate the content. Comments can be entered at the bottom of each page and users can rate content by clicking on any of five empty stars at the bottom of the story.

With so many content contributors, it's important to know who is responsible for what site content, both to govern the content as well as for employees to know who to contact with questions or problems. Each page has a page content owner listed at the bottom, along with the date that the item was last modified.



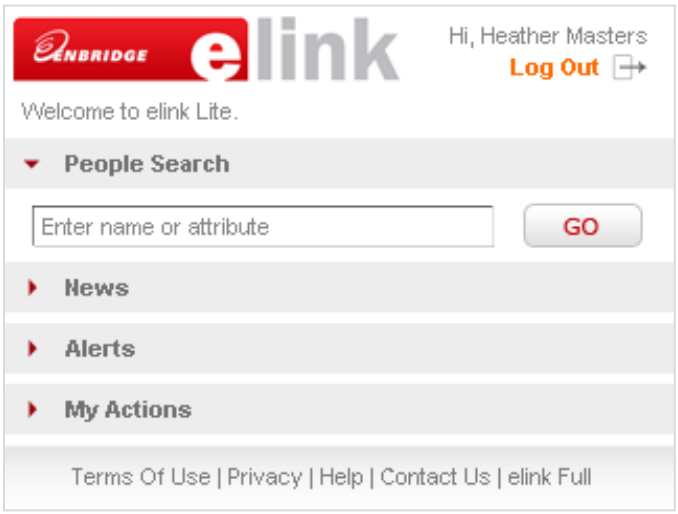
Pictured: The site's clean design is maintained through the use of templates in the CMS. Each page includes the name of the content owner and the date the information was last modified.

Team members recognized a need for all employees to have access to the site, whether those employees were accessing information at desktop computers, through cell phones, or in remote locations with low-bandwidth connections.

Rather than subject mobile and low-bandwidth users to a poor experience using the main, feature-rich site, the team used style sheets to create elink Lite. The Lite not only enables quick downloads, its content is also carefully considered to provide users with only the most essential information.

The Lite provides a subset of the main site's content, with an emphasis on providing information that is most useful or most frequently updated. It offers four simple homepage links—to people search, news, alerts, and actions—giving users quick access to the information they're most likely to want and need. The Lite is carefully crafted to work on all company-issued BlackBerry models, but is optimized for the most popular model.

Because a main goal in designing the Lite was to engage all employees, determining the best way to accommodate them—whether they were at a desk, out in the field, or working a pipeline construction project—was a critical task.



Pictured: The elink Lite mobile homepage offers limited but carefully considered content. The site provides access to mobile users as well as employees in remote locations on slow connections.

Each consideration in site development and enhancement to the Enbridge site reflects the company's focus on providing a central source of information to employees. The employees themselves are a crucial element on the site. The importance of employees is shown in every aspect of the personalized site, from employee photos in the masthead, to the 300 content contributors working to keep content fresh and interesting, to the specialized site designed specifically for remote or mobile users.

BACKGROUND

In 2007, when Enbridge announced a large growth strategy initiative, the company didn't even have an effective method to communicate with employees in all business units. "The existing portal was plagued with outdated content, structural deficiencies, and poor content organization," says Sean Stratton, Manager IT Shared Services.

"Many employees were dissatisfied due to the difficulty in using the platform, the ability to find relevant information, and difficulty navigating through the website and using the search tools."

The employee survey illuminated the great dissatisfaction users had with the site; as we noted earlier, most users said they were "not satisfied" or "very dissatisfied." As a result, employees were using other communication channels to get information, such as individual business units using and maintaining multiple newsletters. Given this, creating an effective communication solution was a priority for the company's leaders.

"Senior management was keen to find an intranet solution that would meet the needs of employees and provide a single source of communication for the company," says Stratton.

A Phased Approach

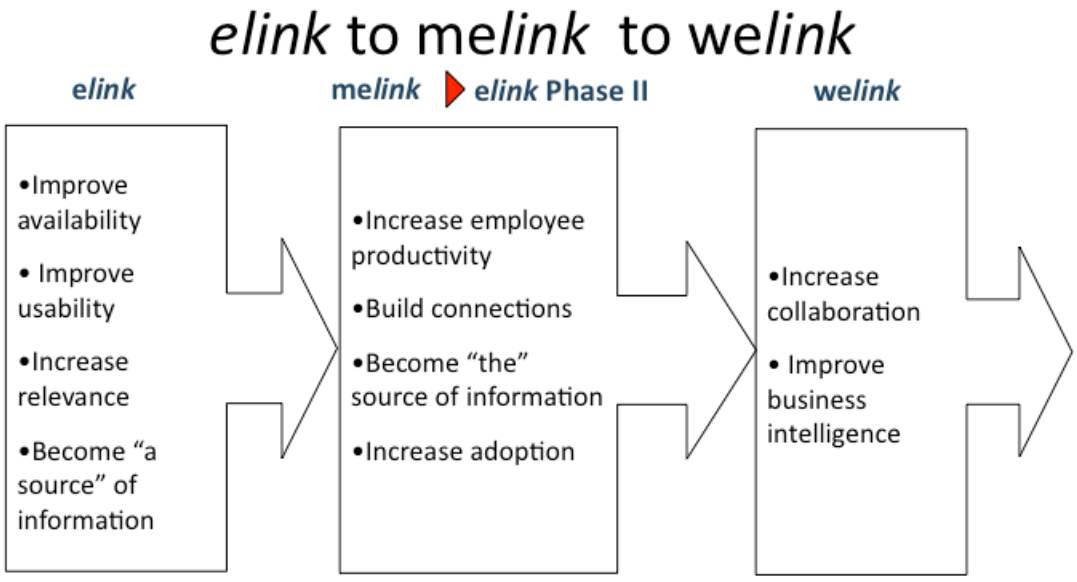
Company leaders decided to address the site's shortcomings by initiating a complete site redesign. To make this work, senior management adopted a phased approach. The project's planned progression is from *elink* (Phase I) to *melink* (the site as it stands today) to *welink*, a moniker adopted by the team to express the site's direction toward enhanced collaboration:

- **Phase I (*elink*):** This first phase focused on delivering most of what employees had been asking for and what they had identified as deficient in the previous intranet. This included a dedicated section for communicating company news to employees as well as HR, Finance, and IT content. Policies and procedures were also added to the site along with added functionality, including automatic authentication based on the user's system profile. The personalized authentication enabled the company to provide relevant information for each user. Access to external applications was also provided and search was added as a global element on every page. Users could conduct people or content searches; the team also added section-specific search to the site.
- **Current site (*melink*):** Rather than being a distinct phase, melink is more of a transitional stage the site is passing through as it progresses from providing core functionality to its fully realized incarnation as a single source of all things Enbridge for users across the organization.
- **Future phases (*welink*):** Building on the success of the site so far, the company is now poised to move forward again. The chart below provides a visual explanation of the planned progression. The overarching direction is to provide users increased functionality and collaboration tools.

  Though "welink" isn't a formal name, it conveys the sense of community the site is moving toward. Whereas Phase I was focused on providing basic functionality and establishing a base to work forward from, melink moved elink toward greater usefulness for the customer. It did this by increasing connections between users and user groups and increasing adoption of the site as the key source of information across Enbridge.

  The next logical in the progression from "me" to "us" is welink*,* which will provide even greater collaboration functionality, business intelligence capabilities, and more in-depth integration between tools and systems. Thus,

elink will truly be the “one source” for Enbridge staff to access everything they need to work effectively and efficiently, as individuals and as groups.



Pictured: This diagram shows the site’s progression from providing basic functionality to its current user-focus (“me”) toward the planned community (“we”) focus to better serve the organization.



Pictured: An example of the previous intranet before the redesign project.

Looking Ahead

Any smart intranet team recognizes that an intranet requires constant attention if it's to remain valuable for its users. The Enbridge team is committed to that kind of constant tending.

"It requires constant attention, development, and evolution to keep pace with user expectations and demands—as well as new technologies," says Mark Murray, Manager Enterprise Systems.

Therefore, the company's roadmap includes a continuing and deeper integration of the intranet with the existing SharePoint environment. "This is resulting in an increasingly seamless blend between the intranet and the Enterprise 2.0 features of *Team Sites* and *My Sites*," says Murray. "Additionally, time will see the addition of business intelligence content, initially in the form of formatted content, and later in the form of searchable and user-developed content."

The intention of ongoing enhancements is to continue to increase the site's value to users and the relevance and timeliness of elink information.



Pictured: This is one of the print ads created as part of the elink launch communication plan. The plan was put in place to drive awareness and adoption of the new site.

INTRANET TEAM

Seven people comprise the core intranet team at Enbridge:

- Program manager
- Program administrator

- Business analyst
- Editor-in-chief
- Technical support staff (3)



Pictured: The intranet team. (Back row): Swaroop George, Mark Murray, Sean Stratton, Jennifer Cageorge; (front row, left to right): Brent Poohkay, Lauren Linnell, John Hanlon, Andrea Legault, Glenn Fullerton, Leandra Schrag.

Evolving Ownership

During the project's planning phase, IT leadership engaged business sponsors from across the company to ensure the successful deployment of the new intranet. The first step in this process was to ensure that the project was not viewed as an IT project. This strategy, of both distancing the project from being "an IT project" and also engendering cross-organizational support is a tactic many teams use to garner the kind of support needed to get an intranet project off the ground and ultimately solidify its place within the organization.

"We pulled together a team of top thinkers from across business functions to contribute ideas, hone project parameters, and rally the organization to embrace change," says Brent Poohkay, Chief Information Officer.

Leadership was shared across HR, Corporate Communications, Finance, and IT. Over the course of the project, more than 100 employees were directly involved in the design.

"By involving business leaders and employees during the critical design phase, we were able to garner widespread support for this initiative, building the strategic foundation needed to get results," says Poohkay.

A long-term communication plan was developed, highlighting the project's business impact. Communicating the project vision in this way generated enterprise-wide excitement.

"The project received unprecedented cooperation and buy-in from all of Enbridge's business units," says Poohkay. "Today, 95 percent of employees use elink, and the new communications capabilities are fundamentally changing the way employees interact, work, and access information."

Over time, Corporate Communications, Finance and HR have become key partners with IT in delivering and evolving the elink intranet. "This is very different from our previous intranet deployment, and is one of the major reasons for our success this time," says Murray.

Along with the site redesign came the need for a more comprehensive editorial staff. This new staff includes an editor-in-chief, site managers for each business unit, and content owners, authors, and approvers. Close to 300 people from across the enterprise and a range of functional areas (such as HR, finance, and health and safety) are now involved in the intranet content in some capacity.

BUDGET

Most companies are unwilling to disclose actual budget figures for projects such as this; Enbridge is no different. But the company did say it had a "fair-sized budget" for the project.

"We benchmarked with a research firm to ensure that it was an appropriate amount for a company of our size," says Murray. "Much of the cost of the initial deployment, however, was time spent properly planning in terms of needs, gaining employee input and feedback, and building an effective partnership between IT and the appropriate business areas—primarily, Corporate Communications, Finance, and HR. With these partnerships firmly in place, further investment has been less costly and it's been far easier to gain agreement on the direction of our intranet going forward."

Murray also says that, operationally, the ongoing technology costs are relatively low given the company's reliance on an established SharePoint platform. "We have three dedicated IT staff to provide various levels of technical support," he says, "and dedicated Corporate Communications staff operating as the editor-in-chief."

In addition, there are many content authors and approvers in place across the various functional areas and business units within the company.

GOVERNANCE

Roles and Responsibilities

The following table outlines the roles and responsibilities of each of the various constituencies involved in managing and maintaining the new Enbridge intranet:

INTRANET TEAM RESPONSIBILITIES	
Role	**Responsibilities**
elink Steering Committee The elink Steering Committee is composed of executive members recruited for their ability to develop support for the number and nature of changes required for this initiative. The elink Steering Committee is a static executive committee that is accountable for the overall elink Program and rollout plan across Enbridge.	• Establish the program vision and strategy • Approve the elink Program Charter, including success factors and budget information • Approve the program's key-performance indicators (KPIs), metrics, and targets • Drive the alignment of the strategic direction for the elink initiatives across business units • Ensure that the program adequately addresses regulatory requirements • Oversee progress of the elink Operating Committee and make recommendations for changes where required • Approve the Operations Committee's recommended actions in a timely manner for all major risks, issues, and change requests (for example, exceeding contingency) • Act as champions for the elink Program's implementation within the respective business units and across the enterprise
Operating Committee The elink Operating Committee is the decision-making committee made up of a team of people from across business units and across functional areas. They have the responsibility to develop business-driven implementation plans and execute on the plans required to implement the roadmap.	• Create and manage a road map for elink initiatives based on the business requirements determined by the Steering Committee's vision and strategy • Establish the elink Program Charter • Determine the allocation of the approved program budget between the various initiatives • Review and approve any recommended changes to project or program budgets as presented by the elink Program manager • Present any requested budget adjustments to the Steering Committee for approval • Define, rationalize, and recommend elink initiatives to achieve program objectives • Define success factors, KPIs, metrics, and targets, and measure progress against these throughout the program • Ensure the overall functional quality of the elink product user experience • Identify other governing bodies to initiate relationships with • Communicate and coordinate the activities of elink initiatives with various parties across business units and organizational functions • Recommend that elink solutions are deployed in a way that adequately supports regulatory requirements across the organization • Approve requests for new functionality of the elink product • Escalate issues to the elink Steering Committee

	• Organize smaller “task groups” and assign specific elink tasks and activities • Define and recommend alignment with and employment of enterprise architecture initiatives and standards • Define and recommend alignment for all elink initiatives with all stakeholders and raise any alignment issues to the Steering Committee
Content and Branding Task Group The Content and Branding Task Group supports the business units in achieving their communications goals and objectives via the use of elink as a primary source of access to people, information, and technology. Key members of the team are responsible for specific duties that support the mandate.	• Define and maintain overall adherence to the editorial/style guidelines • Contribute to developing the elink system’s business requirements and future direction • Determine and adjust the style and content management structure (roles and responsibilities of site managers, owners, approvers, editor-in-chief, authors) • Approve requests for new functionality requirements of the elink product in collaboration with the elink Operations and Applications Task Groups • Make recommendations for new functionality approval to the Operating Committee as necessary
Editor-in-Chief The editor-in-chief ensures that the content’s overall quality, timeliness, and appropriateness meets the objectives set out for the intranet.	• Ensure writing and style standards established for the site are adhered to by content owners, authors, and approvers • Ensure that voice and language are consistent and overall tone and quality is appropriate • Maintain editorial control of content on the enterprise-wide news section to ensure content appropriateness, quality, and appearance • Maintain editorial control of the elink homepage to ensure appropriateness of structure and appearance • Provide a final check to ensure that sensitive or confidential information isn’t disclosed on elink • Provide site managers with effect guidance and advice on content • Measure and evaluate elink to ensure it is meeting its objectives
Program Manager The program manger is responsible for ongoing execution of the elink Program and is viewed as the operational leader of the entire elink initiative. This person’s mandate is to lead the elink Program to successful integration	• Provide effective leadership of the overall elink Program implementation • Establish success factors, business measurements, and milestones for the elink Program • Resolve matters that adversely impact the elink Program • Manage elink Program resources • Manage coordination, scoping, planning, reporting, and execution of the approved program charter

across the enterprise.	• Select and manage vendors • Develop and deliver an effective change and incident management program • Manage program communications • Ensure the development and maintenance of the elink Program roadmap and manage the approved budget and resources • Create subcommittees as required and ensure their effectiveness
Site Managers Site managers ensure that the overall quality and appropriateness of content from their respective business units meets the objectives set out for the intranet. They also provide support to business unit content contributors.	• Monitor the overall structure and design of respective elink business unit pages • Monitor the business unit page content on an ongoing basis • Support leaders, content owners, authors, and approvers in using elink as a communications tool by providing guidance on the type of content that can be added to elink and where that content should be located • Collaborate with other site managers to ensure consistency of content between business units • Collaborate with content owners, authors, and approvers on a timely basis to ensure they understand their accountabilities and authorities • Provide a third-level check to ensure that sensitive or confidential information isn't disclosed on elink
Content Approvers Content approvers post content for their respective business units to the appropriate elink sections.	• Ensure that content is factually correct and complete to the best of their ability • Ensure that published content adheres to the established publishing standards • Provide a secondary check to ensure that sensitive or confidential information isn't disclosed on elink • Review material and ensure it's approved in a timely manner • Ensure that content is being published in the correct location and targeting the appropriate business units
Content Authors Content authors post content to the appropriate business unit's elink pages.	• Create and post content that is both factually correct and complete in a timely manner • Monitor and adhere to the established publishing standards • Review content to ensure that it's consistent with other business units and not duplicated across business units
Content Owners The content owner ensures that content is relevant to the needs, goals, and values of their business	• Ensure that content for a particular elink page/site is properly collected, reviewed, published, and maintained on a timely basis • Review and adhere to elink editorial guidelines on a timely basis • Manage business unit content submissions from

unit and that content is accurate and timely.	inception to post • Maintain quality control and quality assurance for the business unit's elink content • Promote and encourage effective business unit use of elink • Manage business unit content according to expiry schedule • Ensure that sensitive or confidential information isn't disclosed on elink • Ensure expired or irrelevant content is removed or updated on a timely basis • Review other business unit content to ensure consistency of content and avoid duplication of content



Pictured: This chart shows how various groups within the organization participate in elink governance. Their roles and responsibilities are outlined above.

Timeline and Milestones

The redesign started in April 2007 and the new site launched in September 2008.

"Prior to April 2007, a significant amount of effort was undertaken to validate and ensure all stakeholders were committed to the need for an intranet, and the fact that

our current intranet was not viable," says Murray. "This was the beginning of our end-user engagement as well—initially through a survey to solicit feedback about the current intranet and the level of demand for one. The value of this time spent cannot be overlooked, as it was instrumental in a successful new deployment."

PHASE I	
Functional Track	
April 2007	Discovery/conceptualization fusion
May 2007	Scoping, estimation, and planning
June–July 2007	Detailed design/executable architecture release
August 2007–June 2008	Development, functional testing, and performance testing iterations (a total of five agile-based iterations)
July–August 2008	Pilot release Warranty period
September 2008	Go-live
September 2008–April 2009	Support of minor enhancement releases
Content Track	
August–September 2007	Content cataloging and identification
October 2007–June 2008	Content migration/creation, review, and approval
Governance	
May 2007–July 2008	Content governance process establishment, role definitions Resource identifications and role-resource mapping in various business units/departments
June–August 2008	Technical governance model and federated support setup

PHASE II	
Functional Track	
February 2009	Discovery/conceptualization fusion
March 2009	Scoping, estimation, and planning
April 2009	Detailed design
May–September 2009	Development, functional testing, and performance testing Testing iterations
August 2009	Release 1 live
October 2009	Release 2 live
October–November 2009	Warranty period
Content Track	
March–September 2009	Content migration/creation, review, and approval for remaining tenants
Application Migration	
May–December 2009	Application migration for remaining tenants

GOALS AND CONSTRAINTS

One of the primary goals for the new site was to figure out the best way to accommodate the needs of constituencies from across the organization. Company leaders wanted to find ways for these users to take ownership over their parts of the site. However, this goal was also a constraint for the design team, as it had to find solutions that met the needs of the individual groups without compromising the holistic vision for the site.

Enbridge is comprised of six different business units, all with different leadership and culture. In redesigning the intranet, the design team spent a lot of time reaching consensus on how to accommodate each of the business units' individual needs while providing a sense of unity and community in one fluid design.

Many of the user complaints from the previous portal were related to stale content. In redesigning the intranet, it was decided that each functional area needed to own its content. So today, close to 300 people are part of the editorial team, but "selling" the various functional areas on their responsibilities—and then training them accordingly—required significant effort from the team.

Working with Agencies

The design of the intranet was a collaborative partnership between an outsourced agency, Sapient, and the internal team. Sapient brought best practice experience and design expertise to the planning and design process. Sapient was also charged with site development, while the internal team handled content and user support.

"Sapient brought a wealth of knowledge and best practices on building intranets," says Stratton. "Their facilitative approach helped our internal team make knowledgeable decisions."

Today, all intranet team roles are internal including program management, governance, editorial, and technical support. Only planning and development for major enhancements is outsourced.

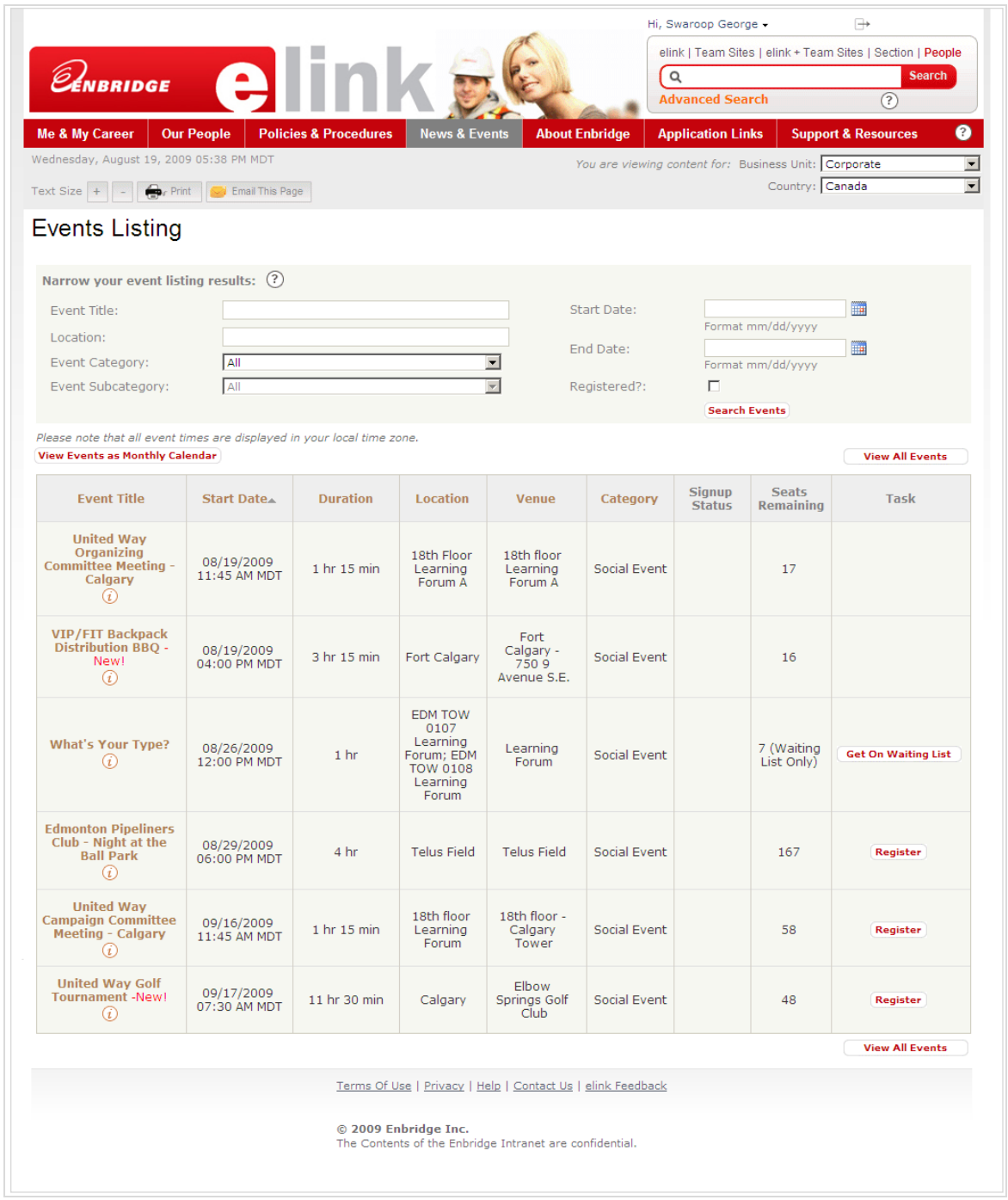
USERS

The Enbridge intranet's users are all of the company's 6,000 employees and additional contractors who work in more than 200 locations across North America. These users spread across the organization's six separate business units. Enbridge intranet users represent a wide variety of roles from managers to accountants to engineers to field workers such as truck drivers and pipeline construction workers.

USER TASKS

Site users can accomplish many tasks, including:

- Access timely news and information
- Search the people directory and access *My Sites*
- Find answers to questions through FAQs
- Access centrally managed links to *Team Sites*
- Obtain information and sign-up for training and events
- Share ideas through comments and blogs
- Access tools, including those for Finance and HR
- Access employment information such as policies, benefits, and pay stubs
- Check weather, stocks, and RSS Feeds
- Buy and sell personal items and volunteer services



Pictured: The event sign-up page where users sign-up for company events.

DESIGN PROCESS AND USABILITY

The design team took an iterative design approach to develop the new site, starting in August 2007 when the first prototype was developed. Then they conducted extensive user testing. Information obtained from the user testing was incorporated into the next iteration of the design. This process was repeated five times from August 2007 to June 2008.

"We knew we needed to deliver a solution that would meet the needs of employees," says Stratton. "As a result, we chose to do a lot of user testing along the way."

So, instead of setting a plan at the onset, the team used an iterative design process to guide its direction. As Stratton points out: in August 2007, team members didn't know what they would be working on in December 2007. So, they relied on user feedback from the prototype testing to direct plans for the project. The research methods they used during the iterative design process included:

- Detailed email user surveys
- Stakeholder focus groups
- Sapient's industry best practices
- User experience testing of the design prototypes
- Examination of server logs
- Feedback gained from the "user feedback" link on the site pages

Following is a description of how some of these methods played out.

User Testing

The team relied on user testing to test the IA and graphic design. "We conducted a number of rounds of user experience testing to test our proposed IA and graphic design," says Jennifer Cageorge, Advisor, Web Communications. "As we did with our design efforts, we reached out to individuals from across the company in different business units, geographic locations, and roles to ensure we were hitting the mark with everyone."

By reaching out across the organization, the team gained the trust of the users. The users were happy to have their opinions heard and they were willing to share them freely. For example, participants responded positively to having employee photos in the masthead but were quick to say they wanted all Enbridge employees represented, including office types *and* field workers.

"There was a lot of concern that the intranet wouldn't provide the specific business unit information they needed and wanted," says Cageorge. "Using an enterprise tool to communicate and share information was a big cultural shift and they shared their concerns. Everyone was pleased we were taking the time to ask what they thought and testing the design."

Satisfaction Surveys

The team also administered pre- and post-redesign satisfaction surveys to query users on their opinions about certain aspects of the site. The surveys produced several findings:

- **Satisfaction with elink was high.** Users expressed high levels of satisfaction with elink overall (61 percent rated it 4 or 5 out of a possible 5). This was significantly higher than measured for the previous intranet in 2006 (when only 18 percent rated it 4 or 5). This score was also the highest that the independent survey provider had seen for intranet satisfaction.

- **Users had positive perceptions of functionality, navigation, and site appearance.** Survey participants said they experienced significant improvements over the previous intranet on all measures. Specific components that users perceived positively included availability of language choices, size of the text/fonts, credibility of information, and the site's overall visual appearance.
- **"Ease of use" was the strongest driver of satisfaction.** Advanced analysis of the data revealed that the site's ease of use was the most important driver of overall satisfaction. Content quality and the site's look and feel were also strong drivers of satisfaction.
- **"Ability to add value" was the strongest driver of likelihood to recommend.** While the site's ease of use and content quality were important drivers of users' likelihood to recommend, the biggest factor was the site's ability to add value (that is, to provide information/tools users need to do their jobs well, and to facilitate their ability to customize information and stay connected with colleagues).

Usability Best Practices

Throughout the design process, the Enbridge team learned a lot about what works and what doesn't. Here, they share some of their insights:

- **User-centric, not department-centric.** "Users don't really like the departmental organization of a site. They want to be able to get to information with as few clicks as possible. Organizing the site according to user functions/tasks seems to be a big win with users."
- **Make it personal**. "Try and appeal to the users by making it personal using a variety of methods such as mastheads with photos of real employees; personalized content, such as business-unit specific news; capability for customizing the homepage to show selective content; room for recognizing service milestones or welcoming new hires; and delivering user specific information, such as *My Actions*."
- **Bring social media to the enterprise.** "Employees love having their own personal space in the intranet as much as they love the collaboration capabilities provided by a *Team Site*."
- **Improvements in participation come from increased communication channels.** "Communication channels such as leadership blogs, forums of discussion, and feedback capabilities including content rating and comments are big wins towards usability."
- **Know your users and keep it simple.** "Understand the user demography—average age, fields of work, etc. For example, a totally 'cool' looking site with a lot of Flash/Silverlight components might not always work with some of the senior employees. Keep it simple. The purpose is to provide productivity while providing a sense of belonging. Employees have to relate to the intranet.

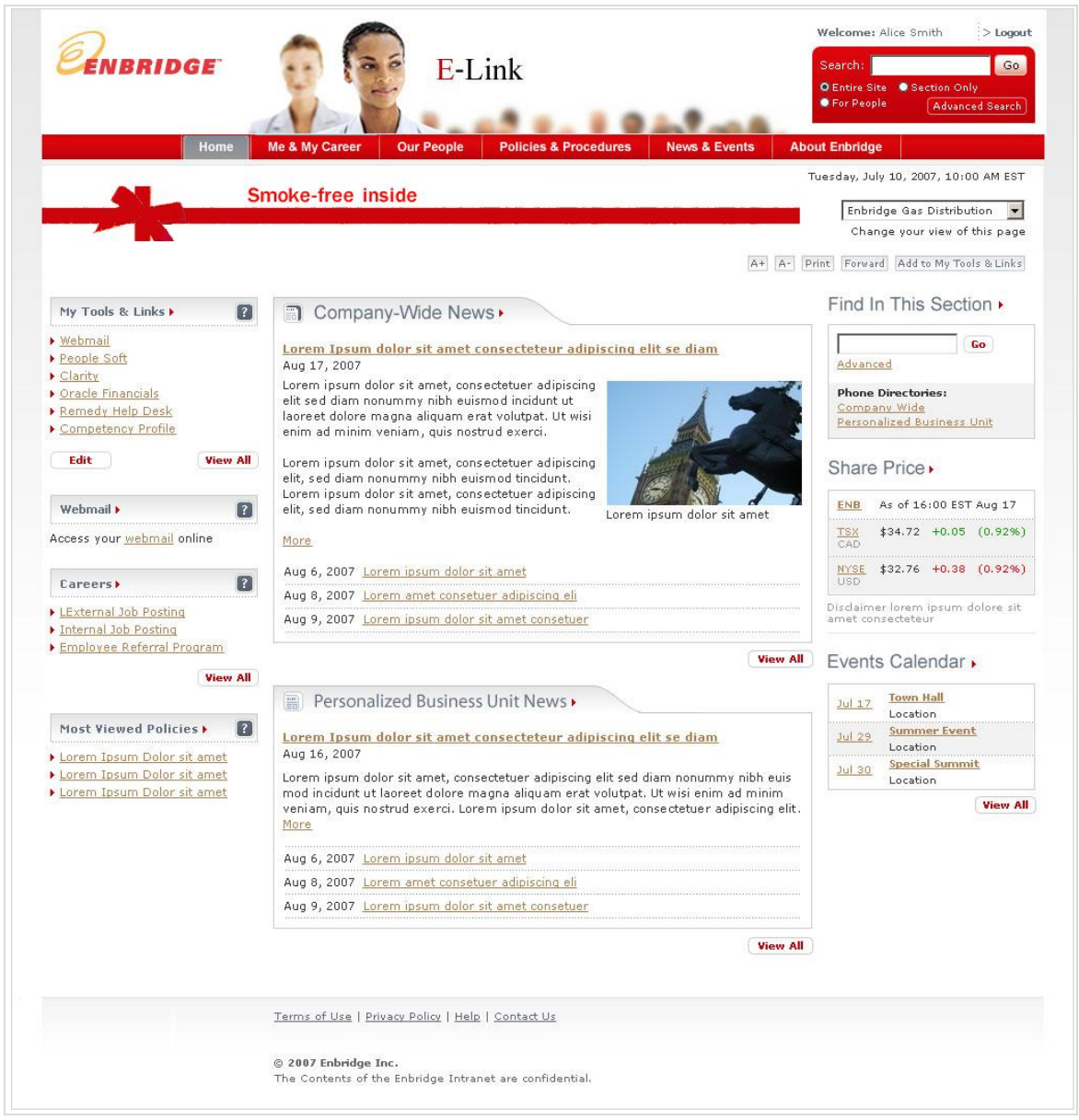
- **The most important page is the homepage.** “Home is all about putting things in front of users that they might not necessarily navigate to or be aware of. It's also the place where we put some of the big adoption drivers, such as links to frequently accessed applications, and things that drive traffic like the stock price, the weather, etc.”
- **Sticking to user-centric design is exceptionally important.** “It was a hard cultural change for our internal team to move away from a departmental-organized site design. But, as it turns out, users really don’t like the departmental organization.”
- **Let the site manage the complexity rather than leaving it to the users to decipher.** “For example, in the previous portal, if an employee was looking for information on travel, they would have to know that the travel policy is owned by two different departments. They would have to look in two locations to get all the information they needed about travel. And, on top of that, there would be six different versions in each spot based on the different business units. They then would sort through which one relates to them. Our new design sorts all that out for the user.”



Pictured: This screen and the ones that follow show the evolution of the site design based on user testing. This screen is an example of the first prototype developed.



Pictured: An example from the second prototype developed for user testing.



Pictured: An example from the third prototype developed during the design phase.



Pictured: An example of the fourth prototype developed.

URL AND ACCESS

The URL for the Enbridge intranet is: https://elink.enbridge.com. All computers are issued with elink as the default start-up page, but users have the ability to change it. External access is available by https and mobile BlackBerry.

TECHNOLOGY

Evolving the Technology

The previous portal used Livelink and Plumtree. The current intranet uses Microsoft SharePoint 2007 and takes advantage of a full workflow-approval process.

Technology Breakdown

The Enbridge tech team breaks down all the technologies used throughout the site in the following tables:

DEVELOPMENT SOFTWARE	
Software	**Purpose**
Visual Studio .Net 2005	Integrated development environment
SQL Server 2005	Database SQL server
MOSS 2007	SharePoint Server

SharePoint Designer	Creation of master pages and page layouts
Adobe Photoshop	Image creation
Adobe Dreamweaver	Webpage design
Log4net	Application logging framework
XML Spy	Creation of XSLT's
Tortoise SVN	Managing source code and project artifacts
Araxis Merge	Used for two or more files/folders and merge changes
Image Sprite	Performance utility to create image sprites
CSS Tidy	CSS formatting and cleanup

TESTING SOFTWARE	
Software	**Purpose**
Mercury Quality Center 8.1	Defects, next steps, issues tracking. Functional test scripts repository and test tracking, including test runs and test statistics
Mercury Load Runner 8.1	Performance testing, including testing from remote locations

SYSTEM SOFTWARE	
Software	**Purpose**
Windows Server 2003 SP2 Standard Edition (64 bit)	Windows application server
Microsoft SQL Server 2005 SP2 Enterprise Edition (64 bit)	Database SQL server
Microsoft Office SharePoint Server 2007 SP2 (64 bit)	SharePoint server
MS Cluster v5.2	SQL server cluster

HARDWARE			
Physical Environment	**Hardware Specification**	**Purpose**	**Number of servers/parts**
Production	2 dual-core Intel Xeon 3.0+ GHz processors (64 bit), 4 GB RAM, 50 GB HDD—NTFS formatted file system, 1 GB NIC	Front-end Web server	3
	2 dual-core Intel Xeon 3.0+ GHz processors (64 bit), 4 GB RAM, 100 GB HDD—NTFS formatted file system, 1 GB NIC	Application/index server	1
	4 dual-core Intel Xeon 3.0+ GHz processors (64 bit), 8 GB RAM, 200 GB HDD RAID 5, SCSI array device, 1 GB NIC	Database server	2

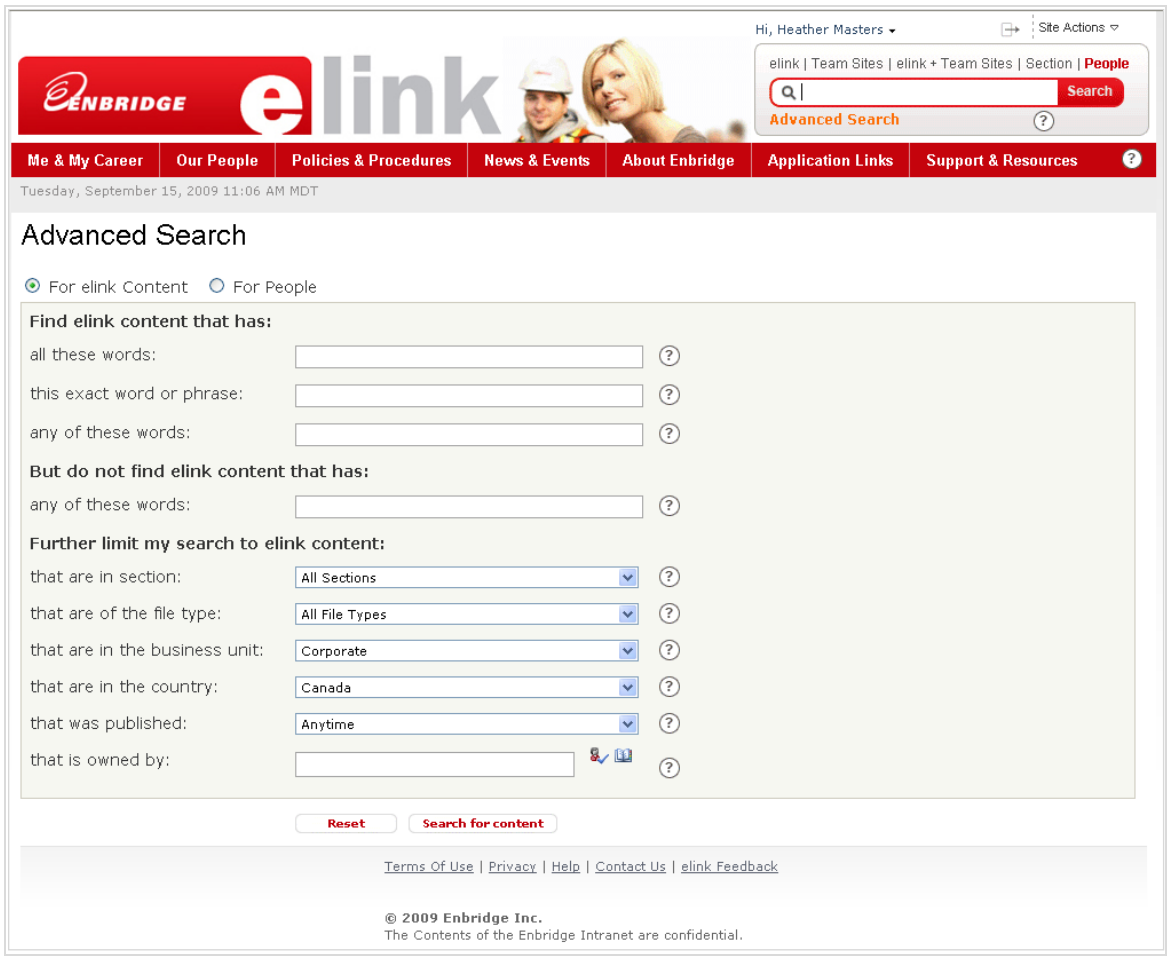
SEARCH

The site uses Microsoft SharePoint Search.

SharePoint search is the latest step in an evolving search platform for the company. One of the criteria the team used in choosing SharePoint was that it contained native search capabilities. “In looking at what technology we would use to support the redesigned site, we looked for a product that had search capabilities,” says Leandra Schrag, Program Manager.

“Our search has been through a few iterations,” says Murray. “elink currently leverages SharePoint technology to search elink and *Team Site* content. The current limitation is that search only applies to the intranet, *Team Site*, and *My Site* content.”

“We are looking at enterprise search,” he says. “As Enbridge digs deeper into enterprise search, elink will be a key interface into that search functionality.”



Pictured: The *Advanced Search* options. Users can do people and intranet content searches.

MOBILE

elink Lite offers users mobile access to the intranet. This version of the site was created for mobile users as well as users in remote field locations who have access to only low-bandwidth network connections.

The Lite version was created using different style sheets than the complete version, so users can also access it from a normal desktop and it will fit desktop screens accordingly.

This low-bandwidth site version features only a subset of the content and functionality available on the complete site. "Functional and content pieces were identified based on feedback from field users on the Phase I capabilities as well as the understanding of what is more valuable for someone who is mobile," says Murray. "The key was to make the most useful and the most changing pieces available on elink Lite."

elink Lite access includes the following core content pieces from the site:

- **People search.** Based on usage statistics, people search is the most used functionality within elink.

- **News.** Employees look to elink to keep updated about the company. News is the site's most frequently updated section, generating as much as 200 articles a month across the different business units (elink content is business-unit targeted).
- **Alerts.** This section features important business alerts and system outage alerts.
- **Actions.** Actions are business-sensitive items that require the user to act.

elink Lite was designed for two resolutions—320 x 240 and 240 x 260—to accommodate devices in the company's BlackBerry device allocation policy, reflecting the density of certain models in use. Murray says specific attention was given in testing to the following BlackBerry models due to high usage at the company: 8830, 8703, 8310 and 8330.

CONTENT AND CONTENT MANAGEMENT

The SharePoint platform also provides content management for the intranet. To fit its editorial needs, the team customized the technology, focusing on the native workflow feature.

As mentioned earlier, one of the redesign's goals was to get functional areas to be more directly responsible for contributing their own content to the site. To that end, the new content management process is decentralized. Each functional area is responsible for managing its own content, including authoring and approving. Site managers are appointed for each business unit with a mandate to ensure the overall quality and appropriateness of content within their business unit.

"Having people in the business areas take ownership of the content on elink has been critical," says Murray. "Not only is this how content is deployed into elink, but every page in elink has the name of the content owner at the bottom. This ensures that users can 'go to the source' when they have questions or concerns, and also when updates are required."

The methodology for managing content on elink is significantly different from what was used on the previous portal. "The content 'owners' or business groups who create and maintain the content, are now responsible for all aspects of the 'lifecycle' of content on elink," says Murray. This means that the groups had to designate staff members whose regular duties included creating content, uploading it to the system, and ensuring it's kept up-to-date and changed when necessary. They are also responsible for creating their pages and making any updates, additions, or changes to those pages.

This required several steps:

- Gaining approval to have managers include these duties as part of the job evaluation
- Establishing contacts within the functional areas that contribute content to elink
- Developing a training plan, materials, and processes to training three different groups of elink content administrators
- Coordinating training sessions

- Working with content administrators to encourage ownership of content management
- Ongoing support of the content administrator group, including remedial training, provision of support guides and Quick Reference Cards
- Providing the local support desks with information to troubleshoot authoring issues

"We have also included named owners for every page of content in elink, which is different from before," says Murray. "This ensures that the owner is the person contacted if content is stale, confusing, or other follow-up is required in the future."

This system also enables the editor or IT to contact authors regarding their content if needed. "In our previous portal, content could become abandoned with no real way to identify its source," says Murray. "This led to outdated content and confusion about when to retire it and its relevance and currency."

Today, close to 300 people are involved in the content process. The editor-in-chief is responsible for ensuring that writing and style standards established for the site are adhered to; generating reports to show dated content and dead links; and ensuring that the proper content owners are notified to resolve problems.



Pictured: The list of reports available to intranet authors to support them in adding and maintaining content on the intranet. It's located in the upper right part of the page for quick retrieval.

Choosing Content Owners

Individuals across the company were already creating, maintaining, and disseminating content, either through the previous portal or through email and so on. The project team felt it made the most sense to have these same individuals

continue content ownership and distribution, except now they had one central, easy-to-use environment to share that information.

Workflow

The editorial workflow is multistage and includes participation of these three roles:

- **Content owners** are subject matter experts who provide the site content. Their names appear on all the pages they publish.
- **Authors** create the site content, ensuring proper formatting and applying the writing and style standards.
- **Approvers** receive content from authors via automatic email notification; the approvers then accept or reject the content as the final step of the process.

Approved content is automatically published to the production site.

Templates

There are three main templates available in the authoring environment: news article template, standard article template, and policy article template. All three are similar, with subtle changes such as certain Web parts being available or positioned in different areas. Most authors use the standard article template.

"Distribution and enforcement is simple as we only make the relevant templates available within applicable sections of the site," says Andrea Legault, Advisor, Web Communications, adding that this makes it "easy for authors to choose the correct template."

The team has established writing and style guidelines that all authors are expected to adhere to. These guidelines are reviewed during the training phase and are made available on the site for all authors to access.

FEATURES

The site has many useful features. They fall into four categories—user productivity, community building, user adoption, and improved content management—to ensure that the content is always fresh and accurate. Murray explains each of these categories as follows.

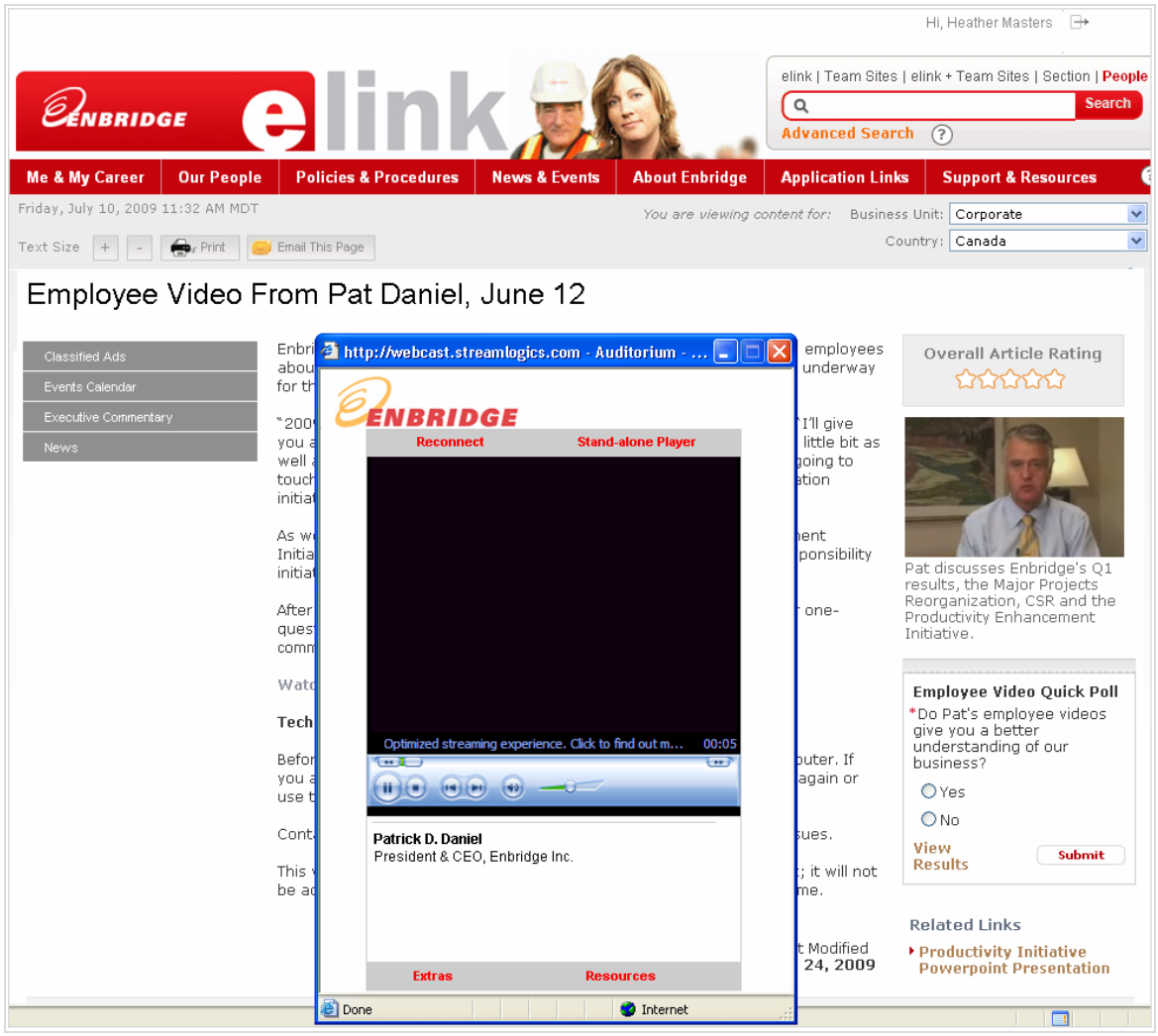
User Productivity Features

- **Homepage *Master Feed.*** The *Master Feed* section of the homepage provides each user with personalized work- and task-related updates to help them be more productive. These include: *My Actions*, *My Notifications*, and *System Alerts,* which all pull content from internal Enbridge systems. *Enbridge in the News* pulls content from external sources. The user can customize the *Master Feed* section to meet their preferences by clicking on the associated edit button.
- ***Advanced Search*.** On the right side of the banner, a prominent open search field lets users search elink, *Team Sites*, and the people directory. Search can be refined further based on a variety of personal information. Advanced people search is the most popular feature of elink.

- **Mobile homepage.** One of the business goals of the intranet redesign was to build a sense of community. This meant that all employees, including those in remote field offices and pipeline construction sites, should have access to the information they need on the intranet. Many of these employees connect to the intranet through a low-bandwidth connection or a BlackBerry. elink Lite was created to provide a quick view of the information users regularly access in their day-to-day work.

Community Building Features

- **Leadership use of Web 2.0.** Enbridge business unit leaders use social media tools including videos and blogs to share information and insight into Enbridge's strategy and help better connect upper management with employees.



Pictured: The CEO of Enbridge uses video on the site to communicate company messages to staff.

- **Classified ads.** These online ads give employees the opportunity to buy and sell products and volunteer their services. Users can filter ads by category, subcategory, and location. Ads include space for a photo and description. This feature has proven to be a huge draw for the site, with an average of 17,000 hits a month.

Hi, Heather Masters

ENBRIDGE elink

elink | Team Sites | elink + Team Sites | Section | People

Search elink Search

Advanced Search

Me & My Career | Our People | Policies & Procedures | News & Events | About Enbridge | Application Links | Support & Resources

Thursday, May 21, 2009 11:42 AM MST

You are viewing content for: Business Unit: Enbridge East

Text Size : + - Print Email This Page

Country: Canada

Classified Ads

- Classified Ads
- Events Calendar
- Executive Commentary
- News

Classified Ads

Search

Location: All

Category: All

SubCategory: All

View Ads Posted By Me Go

1 2 3 4 5

Modified	Description	Category	Sub Category
Jul 06, 2009	**1997 Chev Tahoe** 1997 Tahoe, 265k, 4x4, one owner, fully loaded, tr..	For Sale	Vehicles & Parts
Jul 06, 2009	**1998 Ford Winstar Van - FOR SALE** 1998 Ford Winstar Van Well maintained with 191,000..	For Sale	Vehicles & Parts
Jul 06, 2009	**1999 Sunfire for Sale - $2000** 1999 Pontiac Sunfire SE	For Sale	Vehicles & Parts
Jul 06, 2009	**2007 Polaris Sportsman 800**	For Sale	Vehicles & Parts
Jul 06, 2009	**2007 Toyota Camry LE in Excellent Condition!** 2007 Toyota Camry LE, 4 Cylinder, ..	For Sale	Vehicles & Parts
Jul 06, 2009	**Diamond Ring For Sale** For Sale	For Sale	Clothes & Jewelry
Jul 06, 2009	**Dining Table and 4 Chairs** **Dining Table and 4 Chairs - Rectangular di..**	For Sale	Furniture
Jul 06, 2009	**Fire Wood for sale - $60 per truck load** I am selling a mix of dry (with some green) "..	For Sale	Business
Jul 06, 2009	**Fort McMurray Townhouse for Rent to Professionals** Beautiful, professionally furnished, quiet townhou..	For Sale	Household
Jul 06, 2009	**Honda XR250 dirt bike** I am looking for a used Honda XR250 dirt bike. So..	Wanted	Vehicles & Parts
Jul 06, 2009	**House For Rent in south west, edmonton** For Sale	Household	
Jul 06, 2009	**Lake Okanagan Resort Cottage - For Rent** **La Casa Cottage Resort on Lake Okanagan**	For Sale	Household
Jul 06, 2009	**Lion King on Broadway - July 3, 2009 - Edmonton** **Synopsis**Over 45 million people wo..	For Sale	Tickets

- Upload Your Image
  Please note that all images must be 300 pixels wide x 300 pixels high.
- How to Create a Classified Ad
- Create A Classified Ad

Terms Of Use | Privacy | Help | Contact Us | elink Feedback

© 2008 Enbridge Inc.
The Contents of the Enbridge Intranet are confidential.

Pictured: An example of the company's classified ads, a popular feature of elink.

User Adoption

- **Personalization and customization.** Personalization features on the site have been a big win for the company. Content on the intranet is "contextually aware," meaning the content appears based on the individual user's location and business unit. In addition, a number of customizable items give users the ability to make the space their own. These include: my favorite team site list, weather forecast, stock quotes, and a homepage layout they can modify themselves.

Improved Content Management

- **Workflow management.** In creating the new intranet, the team knew it was important to create a community of practice that promoted and supported ever-evolving content. The former portal was plagued with out-dated content and that was a source of constant complaint amongst users.

  A company-wide editorial group was formed, which includes site managers, authors, and approvers. This group is now responsible for keeping the content up-to-date and relevant. Currently, this group is close to 300 people. All authors and approvers go through a one-day training session.

  In order to support this group in their new responsibilities, the site needs to provide them the tools to easily manage their own content. Content is entered through an online form. The form assists the content author in adding content, creating links, adding photos, and changing font sizes. Once complete, the built-in workflows electronically send the content to area approvers to approve before publishing to the intranet.

PERSONALIZATION AND CUSTOMIZATION

Impact

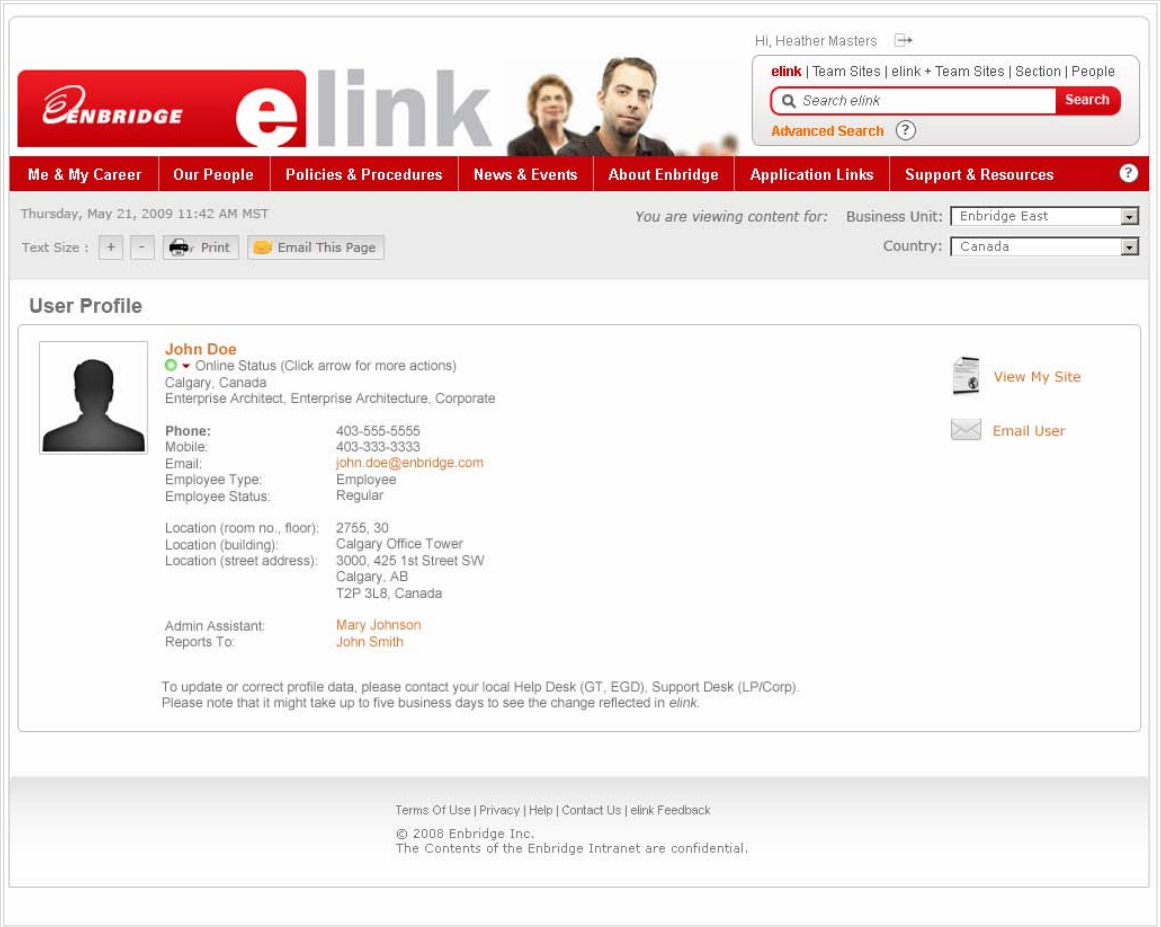
Personalization and customization are important aspects of the Enbridge intranet. "It makes the intranet look fresh and vibrant. It meets our business goal of making the intranet relevant to users," says Schrag.

"The personalization has made a big difference in the impact of the intranet," says Stratton. "The previous portal did not have personalization by business unit and location so it relied on the individual user to determine what information was relevant to them."

In fact, lack of personalization was one of the key issues that led to user dissatisfaction with the previous site. "We learned that we need to build a site that did the work of sorting out what is relevant for the user," he says. "It shouldn't be the user that has to do the work."

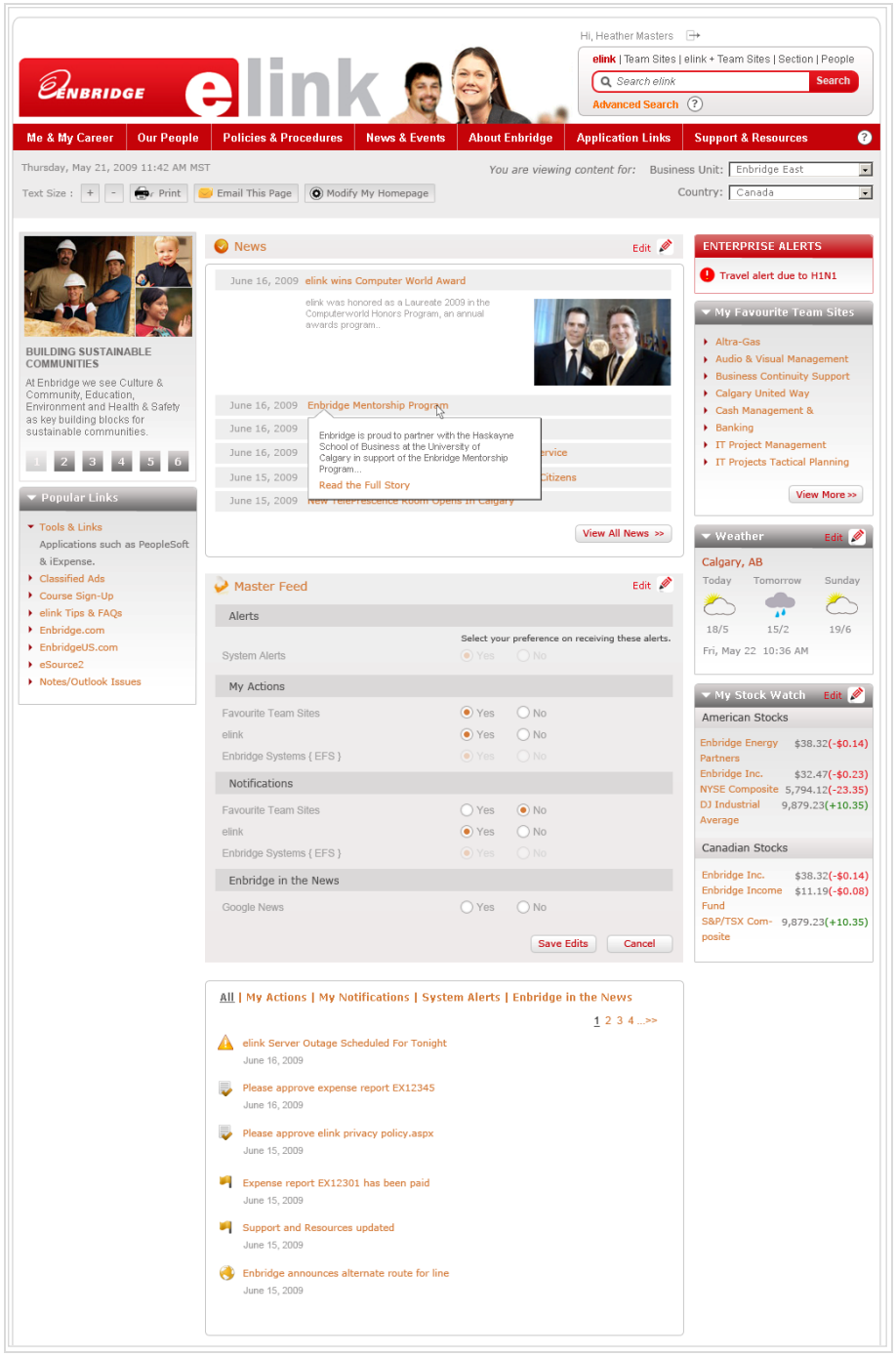
Personalization Features

- **Personalized and customized homepage.** The homepage offers a mix of personalized and customized features. The user's location and business unit dictate some of these features and others are chosen by the user's personal preference. Content is pulled from many different sources inside and outside of Enbridge's IT environment, ensuring that users have the information they need to maximize their potential and their contribution to Enbridge. Content is personalized by default, but users can customize it. For instance, below the top navigation menu, in the right corner, a dropdown menu appears with choices for business unit and country. The intranet has auto authentication, so by default the users own business unit and location are chosen. However, to build a sense of community, all users can view content in each business unit and location by simply changing the dropdown selections.



Pictured: The screen users see after they've selected a particular person in the people directory search results. This page has functionality to IM directly, an email link, and a *My Site* link to view information shared by the user.

- **Personalized *Master Feed*.** The *Master Feed* provides each user with personalized, work-related updates. *My Actions*, *My Notifications,* and *System Alerts* are pulled from internal system feeds and *Enbridge News* is pulled from external RSS feeds. The user can customize the *Master Feed* section to meet their preferences by clicking on the associated edit button.



Pictured: The *Master Feed* edit feature on the homepage. Users can customize their feeds to help them be more productive.

- ***My Favorite Team Sites.*** *Team Sites*, a collaborative online workspace based on Microsoft SharePoint, are widely available at Enbridge for project team and work group collaboration. A list of links to the user's favorite *Team Sites* is included on the right-hand column. Users can customize their list of links to meet their preferences.
- **Customized weather forecast.** Current weather is available in the right-hand column. Users can select the location that will be displayed by clicking on the associated edit button.
- **Customized *My Stock Watch*.** *My Stock Watch* is located in the right-hand column by default. Users can customize which stocks they follow by clicking on the associated edit button.
- **Personalized ads.** Enbridge ads appear in the left column. The ads rotate every few seconds and promote activities at Enbridge. The content is determined by the editor-in-chief and is personalized based on the user's location and business unit.
- **Personalized popular links.** In the left column of the homepage, under the ads, users can find popular links to pages within the site and other Enbridge sites. The content differs based on a user's location and business unit.

ENTERPRISE 2.0

Enterprise 2.0 features are abundant on the Enbridge intranet. These include RSS feeds that let users customize the content that is most important to them within their elink homepage, and a Facebook-style aggregation of those feeds. Other 2.0 type features are integrated with the company's Microsoft SharePoint deployment, which was implemented simultaneously with the intranet. These features include SharePoint *Team Sites* and SharePoint *My Sites*, with features implemented that include blogs, wikis, group calendars, subscription to pages, calendars, and issue lists.

"Our roadmap includes a continuing, deeper integration of the intranet with our SharePoint environment," says Murray, adding that this "is resulting in an increasingly seamless blend between the intranet and the Enterprise 2.0 features of *Team Sites* and *My Sites*."

This is being accomplished through direct links to SharePoint content (including wikis and blogs) and increased connectivity to *Team Sites* and *My Sites* through links, search pages, and so on.

ROI

Measuring Success

Successful intranets can be measured through hard numbers, anecdotes from users at work, or even real-world examples of how a site is used for the benefit of the employee and the company. Enbridge uses a smattering of all of these to provide the company with a well-rounded snapshot of the site's success.

"Although hard ROI is difficult to measure on an intranet, studies have shown that the best way to measure success is through the tracking of user satisfaction with and adoption of the system," says Schrag. "With this in mind, measurement for elink was

originally based on comparing elink's usage and adoption to the usage and acceptance of the previous portal. The measures used to date have been a combination of user surveys, regular monitoring of usage, and system operations statistics."

Survey Measures

The first major user survey was conducted six months after elink was first launched. It benchmarked elink's success in meeting users' needs to that of the previous portal. The survey's main goal was to gauge user satisfaction. It employed the following measures (which were the same measures used for the previous portal's satisfaction survey).

Ease of use

- Ease of finding relevant information
- Ease of navigating
- Ease of using search tool(s)
- Accuracy of search results
- Ease of understanding headings

Content quality

- Ease of understanding information
- Comprehensiveness of information
- Frequency of information updates
- Relevance of information
- Credibility of information

Site look and feel

- Visual attractiveness
- Size of text/fonts
- Organization and layout
- Availability of technical help or support
- Ability to choose language

Daily Measures

In addition to the measures obtained through the satisfaction surveys, the team also maintains regular daily measures. These are reported to the governance bodies for the program and include:

- **Total individual user count:** The number of users that accessed the system at least once (measured weekly and monthly).
- **Total page hits:** The number of pages accessed by users across the corporation (measured weekly and monthly).
- **Number of help desk calls and types of calls:** This measure helps determine issue trends and can be used to develop user communications and education plans.

- **Operational measures:** These measures include unplanned outages and defect escalations.

Leadership Measures

Another aspect of the site measurement is the metrics that leadership has defined for the site. “We (leadership) have defined some metrics that are tracked to ensure we are meeting or exceeding our expectations,” says Poohkay. “Things like utilization, employee perception, reduction of help desk calls regarding policies and procedures, etc.”

Results

Listed below is a sampling of the new intranet’s measurement results:

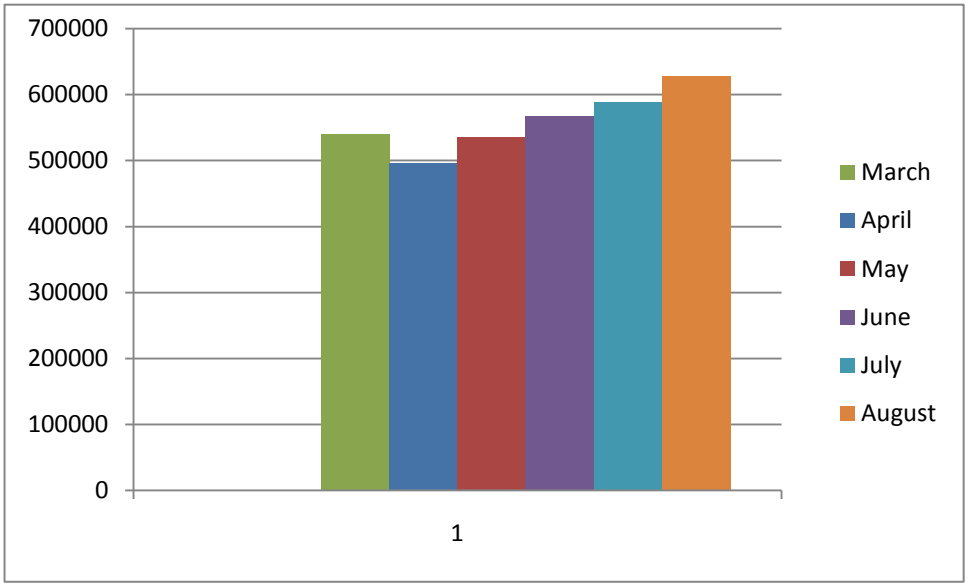
- Nearly two-thirds of users are satisfied with elink overall, which is significantly higher compared to the previous intranet (61 percent rated the new site 4 or 5 out of a possible 5, compared to 18 percent for the old site).
- Adoption is high; nearly 92 percent of employees use elink.
- Over the last six months, elink has averaged 559,500 hits per month.
- The top three features, based on hits, are:

  People search

  Application links

  User profile

- Total hits in the last six months (March–August 2009) are illustrated in the following chart:



Finally, the following table illustrates user feedback on some aspects of the site:

USER FEEDBACK ON SITE ATTRIBUTES		
What They Like	**Context**	**Direct Feedback**
User friendly / easy to use	Users perceive elink to be user friendly overall Users find elink easy to navigate	"I am very pleased with the user-friendly style of elink." "elink is a great tool that I use daily. It's easy to navigate and to walk employees through if they need information."
Easy to find information	Users are pleased with how easy it is for them to find relevant information	"I can easily find the information that I am looking for without doing a lot of searching."
Improvement over eSource2 (previous intranet)	Users were quick to point out the improvement elink is over eSource2, both in terms of its functionality and appearance	"elink is a great replacement to eSource2. Things are easier to find, and if you can't find something by navigating, it almost always turns up in the search engine." "Compared to eSource2, I think the layout and the visual display of e-link is great." "I am very satisfied with elink because it's a quantum jump ahead of anything we had before."

LESSONS LEARNED

In the following, members of the Enbridge team share some of their lessons learned.

- **Have a strong content governance structure.** "An intranet is only as good as the relevancy and currency of its content. The previous portal failed in that aspect. The team went to great lengths to ensure that roles are defined; owners, authors, and approvers are trained; content management functions are built into the job responsibilities; and process champions are identified." (Daniel Barnicle, Director Program Management)

- **Ensure user adoption.** "Due to the federated structure of the organization, early measures were taken to ensure that the project team had inputs from different business units and departments during the course of the project. Several rounds of usability testing were conducted during the design and development of the intranet. Several road shows, timely communications through emails and Web meetings, and efficient marketing through posters and other props were conducted throughout the rollout. The team also reserved time for a long beta testing round where a subset of users from different organizations did multiple 'test drives' and provided feedback." (Barnicle)
- **More isn't necessarily better.** "The old portal had a lot of content that was outdated. During the planning stages of content migration, it was easily identified that the majority of the massive amount of content that existed was outdated or irrelevant. The team decided to start with a white board, did several content identification exercises with tenant departments, and migrated or created new content as applicable." (Barnicle)
- **Strong search is important**. "Search is the most frequently used functionality on any intranet, be it people search or content search. Provide different ways of searching, but keep it simple. The majority of users like to just key in a keyword, press 'enter' and be provided with relevant results. To quote an employee who has been in the organization for 20-plus years: 'This intranet is one of the best things to have happened at the company in all my years… and will help many people be more productive. They can really use their time to full potential instead of trying to find information for half the time.'" (Barnicle)
- **Listen.** "Listen to what users have to say. Provide multiple avenues for gathering feedback and, more importantly, be open to feedback regardless of how harsh or positive it might be. Listening to the users is the best way of identifying user behavioral patterns. You will be surprised by the number of brilliant suggestions a well-motivated user group can make." (Barnicle)
- **The intranet isn't an IT-driven initiative.** "Many companies think of the intranet as an IT-driven initiative. This isn't true and should not be the way an intranet is approached. At Enbridge, elink provides a communications and collaboration service to the business areas within the company. As the department responsible for improving communications, Corporate Communications has become the champion for the majority of our intranet's functionality. It has been a complete partnership, with IT bringing new ways of using the technology to the forefront and enabling the company's communicators through tools that support their communications-related workflows." (Murray)

GE

Using the intranet:

GE is a diversified technology, media, and financial services company focused on solving some of the world's toughest challenges. With products and services ranging from aircraft engines, power generation, water processing, and security technology to medical imaging, business and consumer financing, and media content, the company serves customers in more than 100 countries and employs more than 300,000 people worldwide. GE has a strong set of global businesses in infrastructure, finance, and media aligned to meet today's needs, including the demand for global infrastructure; growing and changing demographics that need access to healthcare, finance, information, and entertainment; and environmental technologies.

Headquarters: Fairfield, Connecticut

Number of employees the intranet supports: 300,000+ employees, plus contractors

Company locations: More than 100 countries around the world

Locations where people use the intranet: All

Annual sales: $183 billion (2008)

Design team:

In-house marketing/communications: Erik Manley, Manager, Digital Media, Corporate Marketing; Sangita Malhotra, Manager, Corporate Communications

In-house IT: Cem Ezberci, IT Team Leader, Digital Media Technologies; Andrew Bond, Project Manager, Digital Media Technologies; Lisa Minott, Project Manager, Digital Media Technologies; Hemant Mulwani, Project Manager, Digital Media Technologies; Dan Murphy, Project Manager, Digital Media Technologies; Nandakumar Devanathan, Project Manager, Digital Media Technologies

frog design: Monique TeSelle, Creative Director; Kris Konno, Program Manager; Jody Hankinson, Principal Designer; Vicky Fang, Senior Interaction Designer; Ranee Chung, Senior Designer; Ed Hicks, Technical Director; Kyle Crouse, Principal Technologist; Collin Olan, Technologist; Adam Silver, Strategist

SUMMARY

Too many sites with too much information aimed at too many audiences. This was the problem GE's intranet team faced when trying to redesign the company's site. In an attempt to provide the right information to the right people, several intranet sites had sprung up throughout the company. And many of these sites were crowded with information, with the hopes that providing a lot of different information would mean that something was relevant to someone. Instead, these crowded pages were a jumbled mess.

Something had to be done. The company found it was impossible to communicate information company-wide and provide information relevant to users' business, location, or function. To solve this problem, the team made a flexible central source, which would accommodate information needs in different areas of the organization.

The first step was to retain central control over the technology on the site, but to release the content to contributors across the organization. The team retains control over the architecture, hosting, and CMS, and centrally manages permissions to make changes to content. Templates enforce design consistencies. But all aspects of content and communications are distributed throughout the organization.

The second step was to use personalization to limit and focus the information presented to employees. Users log on to the site and see information appropriate to their role in the company, as well as company-wide communications. In an organization of more than 300,000 employees across more than 100 countries, personalization was a missing piece in getting the right information to the right people.

In such a large organization, not every fit is perfect. Some users might be officially part of one group, but do work relating to another. So, the team included flexibility for the user to customize the site experience by selecting another, more appropriate view if the preselected one was not a good fit. On the site, users can select a view using a menu in the upper left-hand corner of the homepage.

The result of these changes is a clean, crisp intranet that makes it easy to find the information users want and need. The homepage delivers content based on the user's credentials, allowing news specific to individuals to be delivered directly to them.

The clean design emphasizes relevant news and information and is a vast improvement over the previous design, which featured more than 15 different content areas on a long, scrolling page.

The homepage has an emphasis on news, giving users up-to-date information relevant to their daily work. The page nicely balances corporate level news and business news.

The top of the page includes seven highlighted stories. Five are highlighted within a rotating area that features one large image and associated headline and summary at a time, allowing users to page through the featured stories using forward and back arrows. Two additional stories appear next to the featured area, with one a corporate-level story displayed for all employees, and the other a business-specific story presented to employees working within that business.

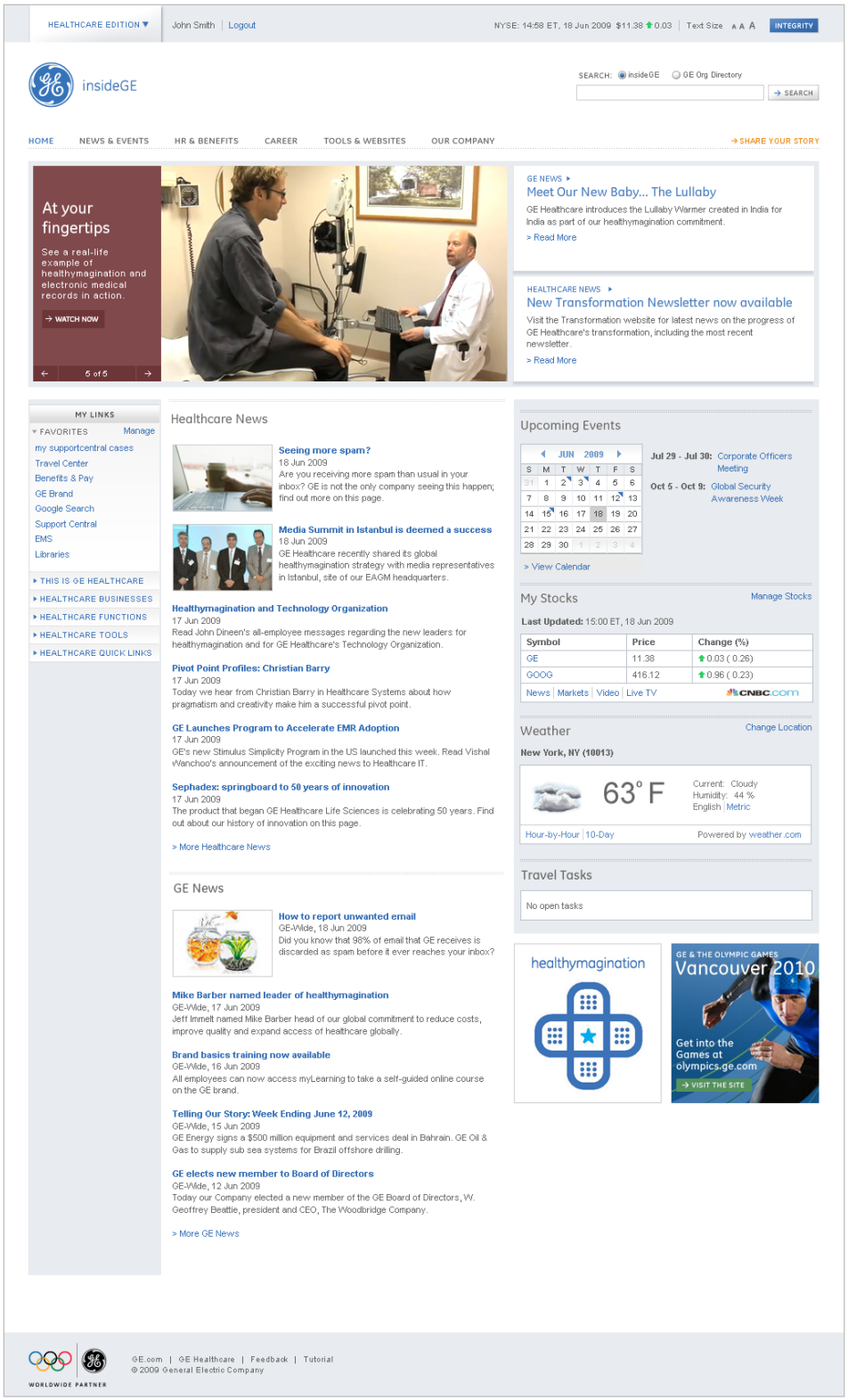
The page includes additional news headlines as well, with a section devoted to business-level headlines and another aimed at corporate headlines. All news stories are presented in a clear way, with concise, descriptive headlines and summaries. Headlines and links are easy to identify because of the consistent use of blue text to indicate links. Users can easily click on a headline to see the full story. Each story is accompanied by the date it was posted, helping users understand that the information is current and constantly updated.

News items are popular on the site. Users show particular interest in stories related to innovations as well as stories focusing on individuals. Particularly in such a large company, users are interested in knowing the cutting edge work the company is engaged in and learning more about colleagues and their accomplishments.

The page also includes an event calendar and several areas where users can customize content. Users can create stock portfolios and track stocks through the site. Users can also receive local weather information and see any outstanding travel-related tasks.

The final area of customization on the homepage is the list of *My Links* that appears on the left-hand side of the page. Users can create their own list of shortcut links to important content. This area is accompanied by a list of links specific to the users' business.

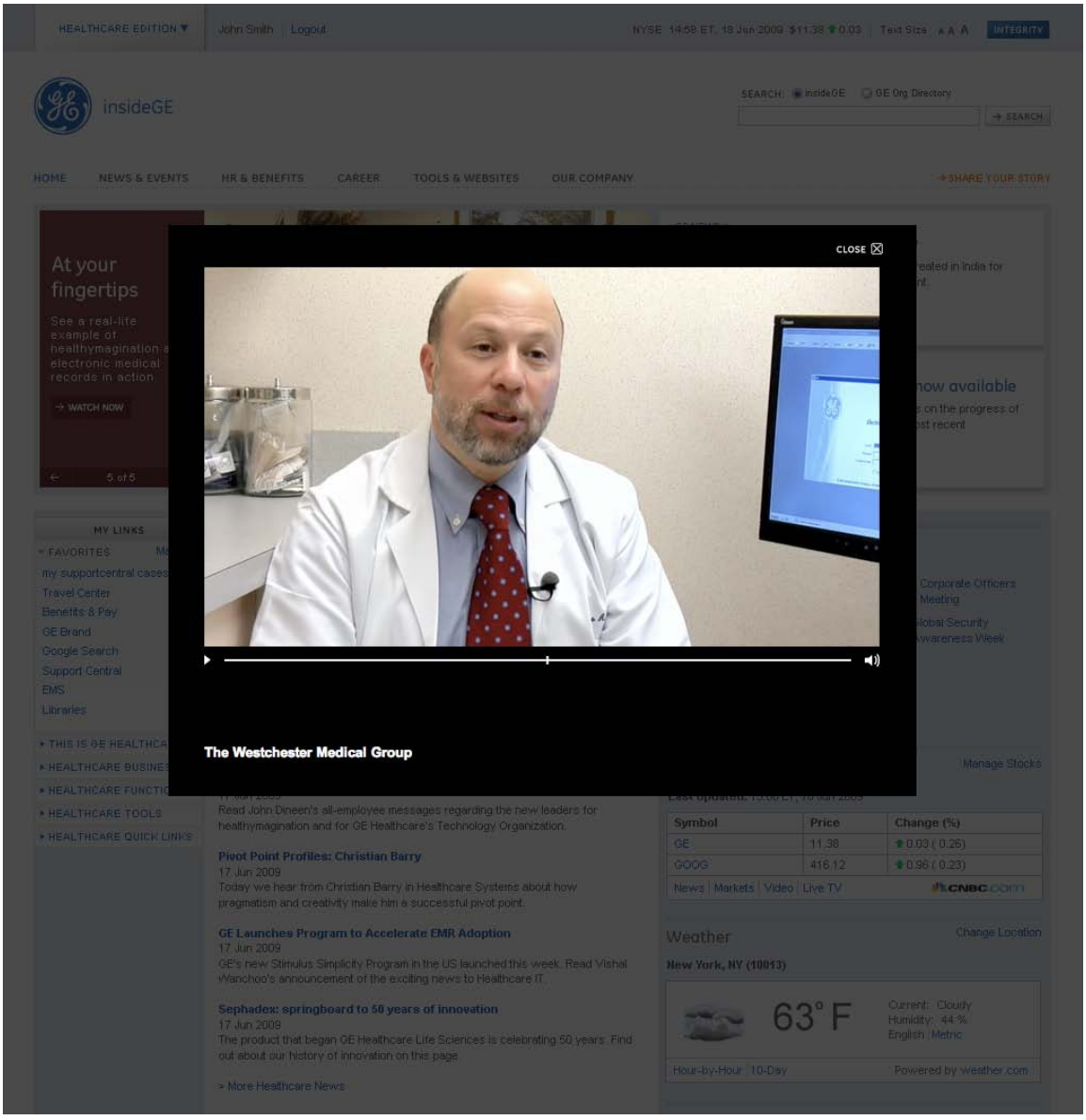
Another nice touch on the homepage is the inclusion of links to increase the text size on the site. This allows users to change to a personal preference, whether they want to enlarge text to see it more clearly or shrink text to see more on a page.



Pictured: The insideGE homepage for an employee working in Healthcare. Users can easily read news headlines relevant to them due to the clean and focused design of the personalized homepage.

The intranet team makes an effort to teach content contributors about the importance of writing content specifically for the Web. The team provides training and guidelines around writing for the Web. The CMS helps enforce some guidelines, such as allowing only a limited number of characters for story titles and summaries in an effort to enforce guidelines for concise writing.

The site structure accommodates straight news stories as well as video or audio content. The featured item on the following screenshot shows an example video. Clicking *Watch Now* opens a video window (as shown) where users can play or pause the video as well as adjust the volume. The use of video and audio content adds another dimension to information on the site.



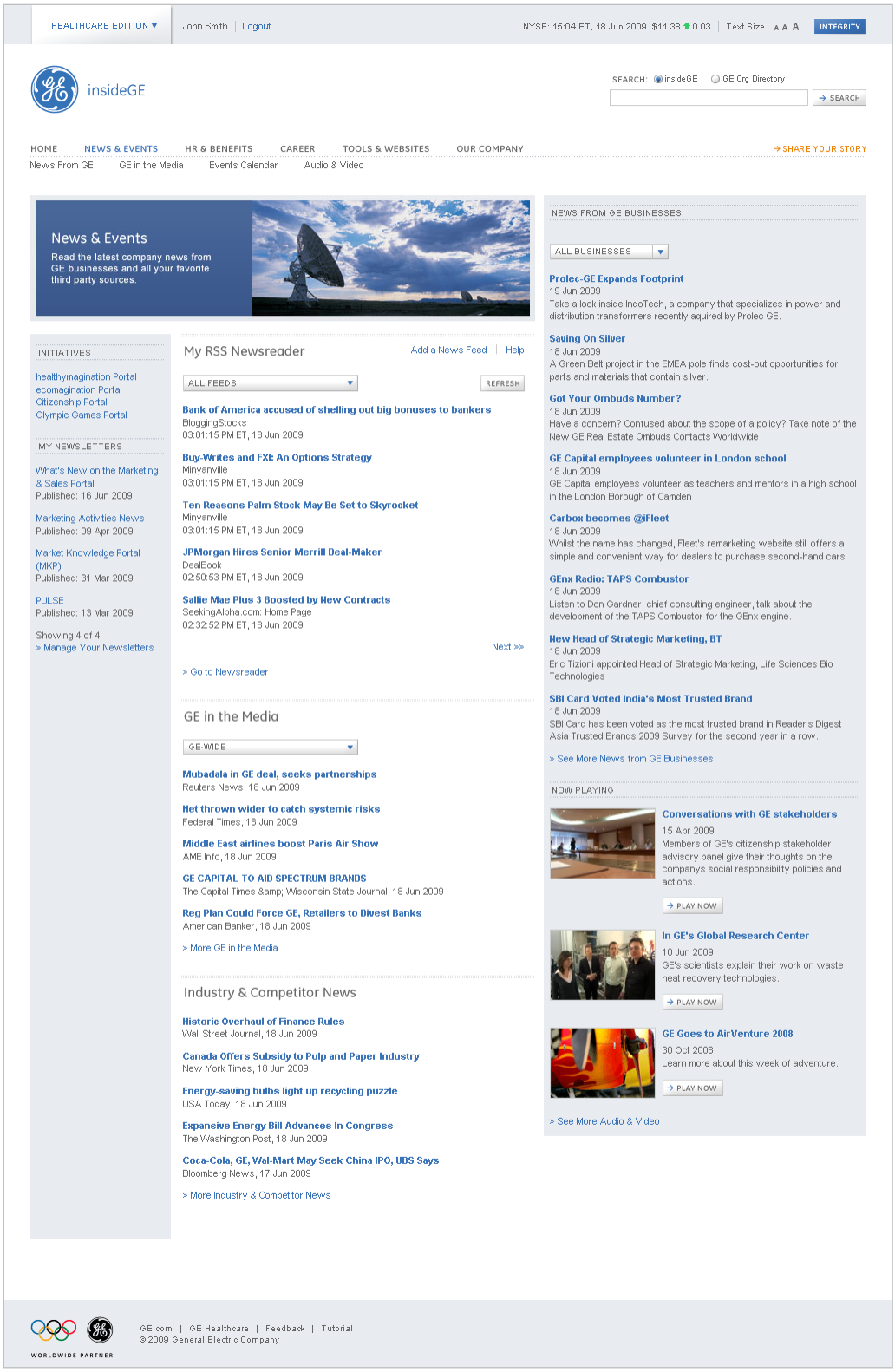
Pictured: Videos launch within the site, opening as overlay windows where users can play or pause content and control the volume.

News plays a major role on the intranet homepage and users can delve into even more news within the site's *News & Events* section. This section is dedicated to pulling information about the company, its industries and its competitors into one central location. The news combines an RSS newsreader, *GE Business News*, news about GE in the press, and industry news all in one central location. Users can change their views of business news and news about GE to see information about all areas of GE or to narrow the information to a specific business.

The *Newsreader* is another area where users can customize their site experience. Users can select feeds from a central list of available feeds, which allows them to subscribe to what others in the company are reading. They can also add a new feed to the repository, which makes that feed available to others as well.

Videos are featured on the page in a *Now Playing* area. Video titles are accompanied by stills from the video, the video date, and a brief explanation of content.

Users can access more content in any area—including feeds, headlines, and audio and video content—via clear links at the bottom of each section. The page also offers links to internal initiatives, such as the healthymagination portal, and to newsletters relevant to the user.



Pictured: A consolidated news page offers users control over headlines via a customizable RSS newsreader as well as providing company, business, and industry news.

News stories have clear, brief headlines and informative pictures where appropriate. All stories are dated in international format, with the name of the month spelled out rather than shown as a number. Stories also include the source. Inline links within the story link to related information, which can be valuable in leading users to new intranet areas.

The end of each story includes links to related content, which can take a variety of forms, such as links to a blog, a webisode series, a podcast, or even a series of announcements. Different ways of communicating reach and appeal to different audiences and give users a wide variety of ways to learn more about a topic.

MY LINKS

FAVORITES Manage

my supportcentral cases
Travel Center
Benefits & Pay
GE Brand
Google Search
Support Central
EMS
Libraries

THIS IS GE HEALTHCARE

GE Healthcare Branding
GE Healthcare Fact Sheet
GE Healthcare in the News
GE Healthcare Integration
GE Healthcare Media Policy
GE Healthcare Medical Services
GE Healthcare website
GE Healthcare Volunteers
healthymagination
Leadership Org Charts
Overview Presentation
Quality Policy

HEALTHCARE BUSINESSES
HEALTHCARE FUNCTIONS
HEALTHCARE TOOLS
HEALTHCARE QUICK LINKS



INNOVATION

Paris Air Show deals now total $8 billion

18 Jun 2009
Source: *Cruz, Eden Grace M*

With its unveiling of the fastest selling large jet engine in GE history - the GEnx - and its strategic agreement with Mubadala Development Company, GE and its joint ventures announced more than $8 billion in orders at this week's Paris Air Show.

GE, along with CFM International - which is a 50/50 joint venture between GE and Snecma - and the Engine Alliance - a 50/50 joint venture with Pratt & Whitney - announced 17 deals and partnerships in total during a four-day span. Services, repair and overhaul contracts - whose values reflect the life of the service contract -accounted for $5 billion in sales. Total engine sales - which reflect the list price - came in at $3 billion.

"Every two years, the global aviation industry arrives in Paris to showcase its leading edge technologies and develop the relationships which keep the world flying," said John Rice, Vice Chairman of GE. "Our GEnx engine is proof that fuel-efficient, lower emissions innovation remains critical to aviation customers - and the GE/Mubadala agreement further emphasizes the growing global nature of the industry and world-class companies who are increasing their aerospace commitments."

The week began with the GEnx being unveiled for the first time on June 15 as Rolling Stones music blasted in the background.

As *Aviation Week* described it: "'Paint it Black' may have been aimed at a slightly more care-free audience when it was a hit in 1966, but at Paris 43 years on, it will be used by GE to help deliver an eco-centric message. This time when the music blares and the curtains are drawn back, it will reveal the engine maker's GEnx-1B - the first time GE has publicly exhibited the powerplant for the Boeing 787. The 'black' represents the unprecedented amount of carbon composite structure used to make the engine's fan blades and fan case. The latter saves around 400 lb. per engine, or around 800 lb. plus per shipset, which GE says translates directly into fuel savings. On top of the engine's in-built low fuel burn and reduced emissions, GE says "black is the new green.'"

A day later, Etihad Airways, the national airline of the United Arab Emirates, announced a number of GE-related deals worth more than $4.5 billion. Etihad will be buying GEnx engines for its fleet of 35 Boeing 787 Dreamliners and GE90 engines for its 10 Boeing 777s. The engines, and a multi-year service contract also signed, total $3.9 billion. But Etihad also signed a deal with Engine Alliance - which is a 50/50 joint venture of GE and Pratt & Whitney - for GP7200 engines to power its 10 new Airbus A380s. That deal, which also includes a service agreement, totals more than $1.3 billion - bringing the GE-related total to over $4.5 billion.

David Joyce, President and CEO of GE Aviation, (left) and James Hogan, CEO of Etihad Airways, are pictured above following the signing at the Paris Air Show.

At the same time, GE announced that it has expanded its strategic partnership with Abu Dhabi's Mubadala Development Company with a new aviation deal. It calls for Mubadala affiliate Abu Dhabi Technologies, or ADAT, to join GE Aviation's renown global engine maintenance, repair and overhaul network - and to be the first network provider for the new GEnx engines.

This announcement comes less than three weeks after GE and Mubadala finalized their joint venture in Abu Dhabi that establishes an $8 billion commercial finance company and the Abu Dhabi Leadership and Development Center. It's part of a broader strategic partnership that also encompasses clean energy research & development, industry, corporate learning and aerospace.

As part of the historic air show, which runs from June 15-21, GE Aviation created a series of GEnx webisodes, podcasts, and a live journal with a GE engineer blogging from the show. Check the sites each day for new updates from the GE Aviation team.

* Read updates on the **GEnx Blog: Live Journal from the Paris Air Show**

* Watch the **GEnx TV webisode series**

* Hear firsthand from our technology experts with the **GEnx Radio podcast series**

* Read the announcement about the 4-day total of deals
* Read the Etihad announcement
* Read the Mubadala announcement

Comments

Sounds like the deals inked at the Paris Air Show were well worth the T&L. I didn't realize those types of deals were ink there. Impressive!
— Posted by: John Smith at 03:44 pm ET, 18 Jun 2009 | Report Comment

STORY LINKS

Provide Feedback
Suggest a Story
Send to a Colleague
Print this Story
View Reader Comments (14)

Click to add your rating to this story:

20 Helpful 0 Unhelpful

You can provide additional feedback on this story below:

well written
informative
strategically relevant

Comments

SEND CANCEL

MOST VIEWED STORIES - LAST 10 DAYS

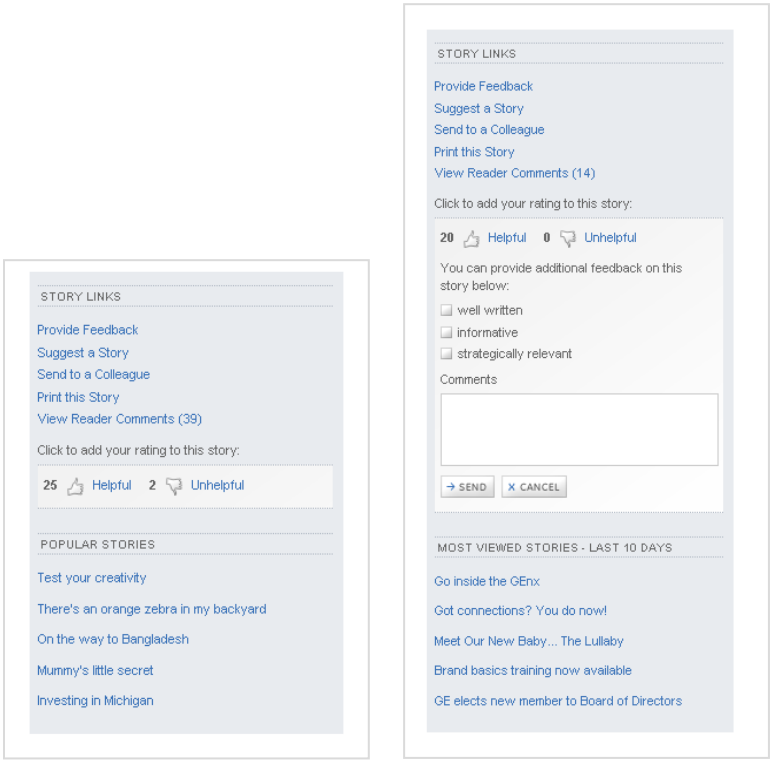
Go inside the GEnx
Got connections? You do now!
Meet Our New Baby... The Lullaby
Brand basics training now available
GE elects new member to Board of Directors

Pictured: Inline links within the story, related links at the end of each story, and links to popular stories on the side of the page all give users options to explore more information available on the site.

When users click through to read a full news item, they have the option to rate the story as well as comment on it. This makes what could be a very static section of the site much more dynamic. News stories become opportunities for collecting feedback and stimulating discussion among employees. Both the ratings and the employee comments about stories are used to help evaluate the information presented on the site. The team uses the information to help gauge the success of different types of content.

Users can easily rate a story by clicking the *Helpful* (thumbs up) or *Unhelpful* (thumbs down) links that appear next to each story. These labeled icons appear together with the number of "votes" each has received. Once users have rated the story, the area expands to let them provide additional feedback. If they clicked *Helpful*, for example, they can indicate if they found the story *well written*, *informative*, or *strategically relevant*. There is also a comment box for users to enter open-ended feedback about the story. The number of votes for the story is displayed next to it, showing users how many of their colleagues found the story helpful or unhelpful.

This area of the page includes other options to provide additional feedback, suggest a story, or send the story to a colleague, encouraging further interaction and information sharing. The site also leads users to other content, providing lists of headlines leading to popular stories or the most viewed stories.



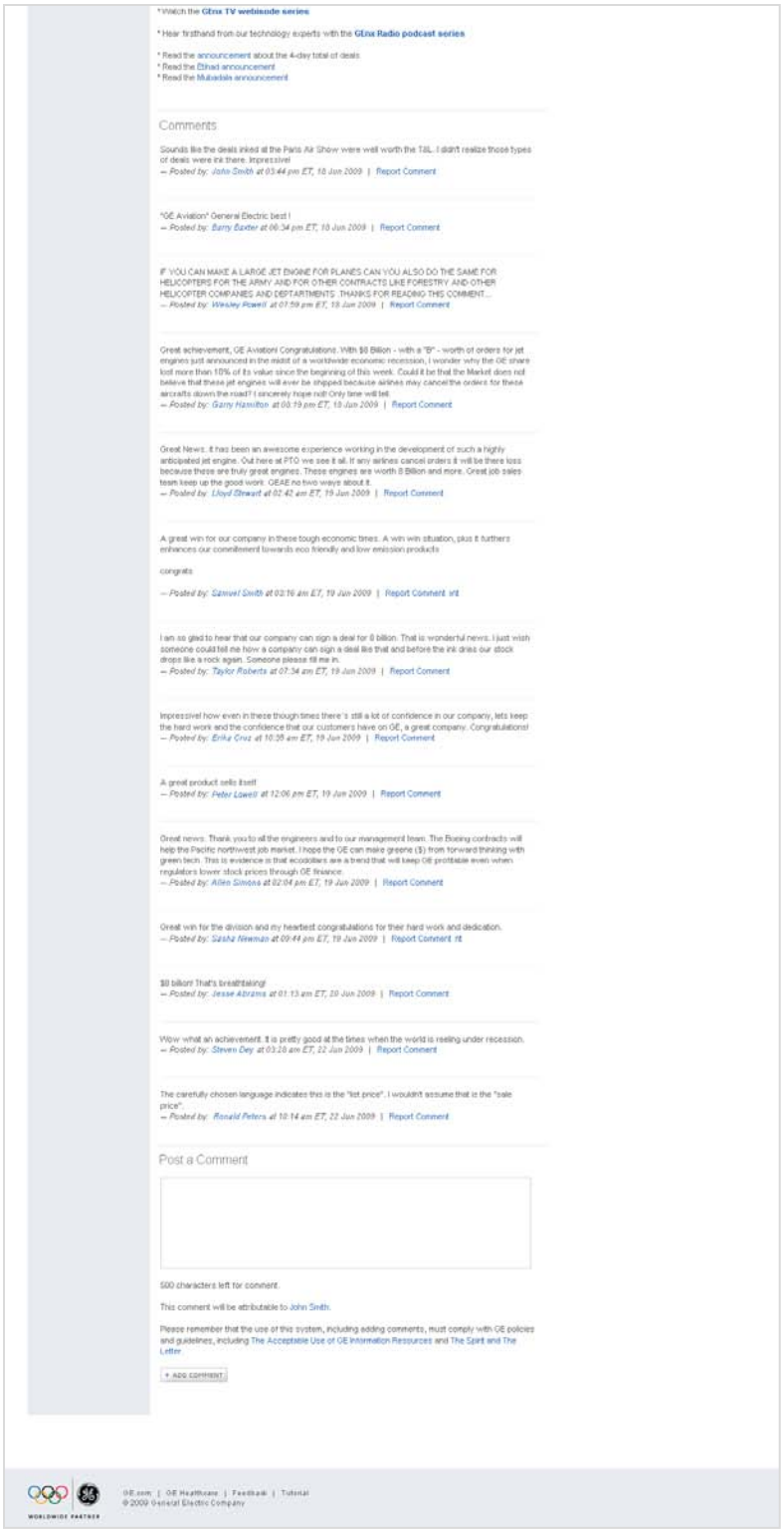
Users can rate a story's quality using *Helpful* and *Unhelpful* icons that appear next to the story. The initial box for feedback (left) expands to allow further feedback (right).

Users can also comment on news stories. An open text field allowing users to post comments follows each story. Comments are displayed at the end of each story in the order in which they were posted. Each includes the name of the person who

posted the comment, which is also a link to email that individual. The date of the posting is shown as well. There is also a link to report a comment as inappropriate. This link does double duty: it tells users they can report a comment, but also reminds users to make sure their comments are appropriate for the site.

Users can type their comments in the open text field at the bottom of the page. Comments are limited to 500 characters, which is noted beneath the field. The number of remaining characters is updated as users type, giving them a running count of how many more characters they have to play with. This is a nice touch, helping users know when they're approaching the limit of the comment field.

Beneath the word count, a single line reminds users that comments are not anonymous; the user's name will be posted alongside the comment. The line states, for example, that "This comment will be attributable to John Smith." Finally, the page reminds users that site use is subject to policies and guidelines, and provides links to documents that contain those guidelines.



Pictured: Employees are encouraged to post comments about news stories, providing an opportunity for interaction with their colleagues.

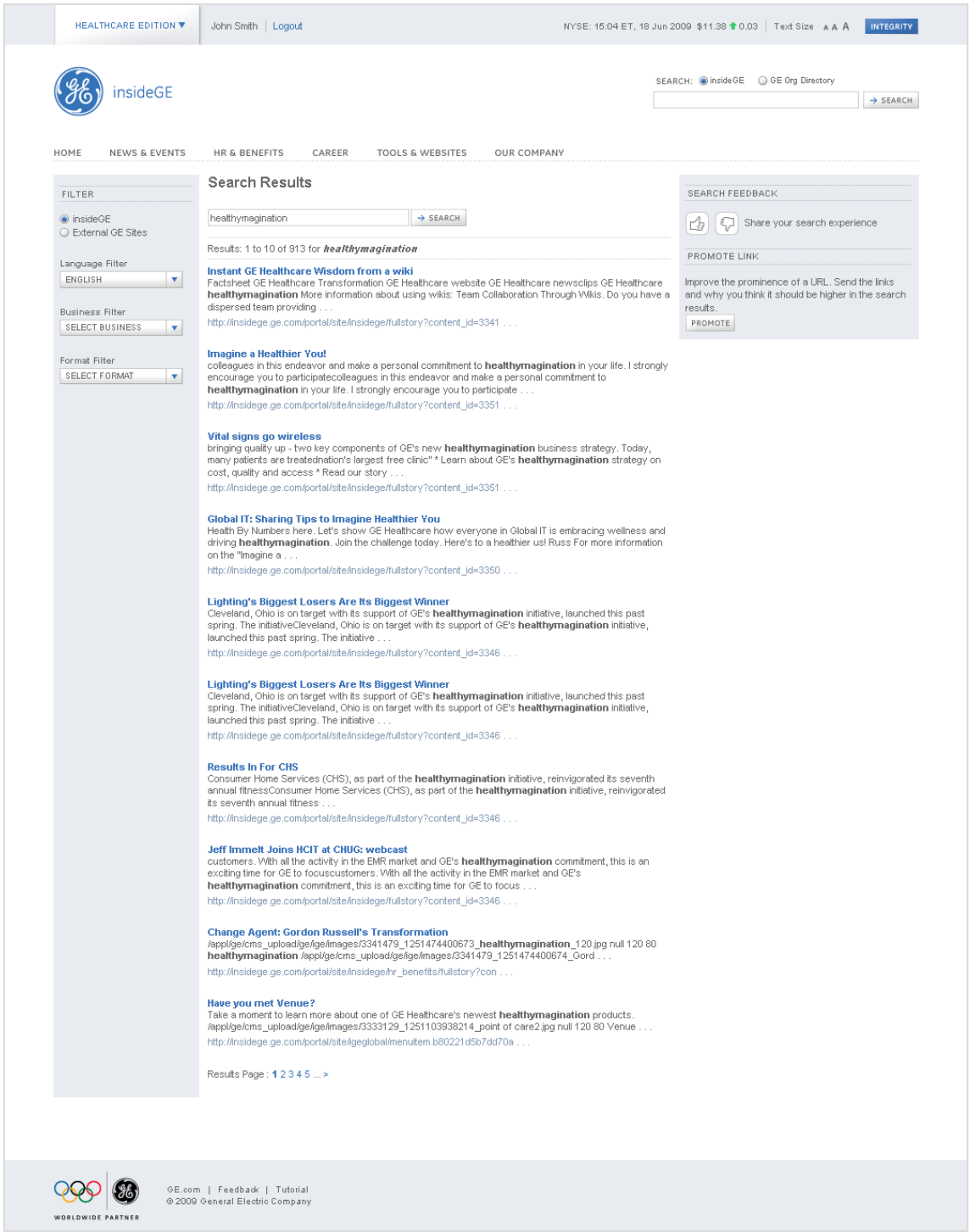
The news section isn't the only area of the site where users are encouraged to provide feedback. The team continually collects feedback from users about the success of the search engine. They use this feedback to try to adjust the search to give users the best possible results.

Users can search via a *Search* box clearly located at the top of each page on the site. Users can search either the intranet (insideGE) or the employee directory (*GE Org Directory*), and can switch the search's scope via a radio button that appears above the box. The search defaults to an intranet search.

Search results are clearly presented, with the search query repeated at the top of the results along with the total number of results found. Each result includes a clear title and a clip from the document or page with the query term highlighted in bold.

To further refine the search, users can also use filters on the side of the page. They can switch the search from insideGE to *External GE Sites* to change the scope. They can also select one attribute from each of three filters: *Language*, *Business*, and *Format*.

The team continually collects feedback about the site search through links on the side of the page. Users can simply click a "thumbs up" icon if they find the content they need through the search or a "thumbs down" icon if they do not. Users can also take the more complex route of suggesting that a certain result should be higher in the search results. Users can "promote" a link by sending the URL and an explanation of why it's a good result for that search term to the team.



Pictured: Search results are clearly presented. The team collects feedback about the success of search results through links on the side of the page.

The latest iteration of insideGE was a big change—for the better—from previous designs. The new clean design helps users focus on the content and not on the design of the page. Personalization presents the information that users want and

need. Customization and options for feedback and interaction make the site more interactive and engaging.

Even with all these enhancements, the team knew early on that they could not simply launch a new site one day and expect every one of the company's 300,000 employees to love it. Showing their awareness of this, the team involved employees and stakeholders throughout the development process. They kept in constant communication with business communicators around the organization, who then communicated with their employees about the new site.

The team did more than tell users a new site was in the works. They showed them, and let many of them use the site before it was officially launched. The team had an alpha launch to 500 employees, asking for their comments and opinions through an online survey. They followed this with an opt-in beta launch, in which 60,000 of 300,000 employees took part.

For both pre-launches, a random drawing for prizes enticed users to provide feedback. Users were also allowed to switch back and forth from new design to old if they wanted to. Knowing they weren't "stuck" with the new design if they participated likely enticed a higher number of users to experiment with the new site. These early launches helped the team gather feedback, but also helped build interest in and anticipation for the new site.

The result of this hard work and attention to user feedback is a focused, flexible design that allows communication across the company as well content relevant to employees' business.

BACKGROUND

The current version of insideGE, GE's corporate intranet, is the latest iteration in a long line of intranets the company has had through the years. Like most intranets in the early days, GENet, one of the company's early intranets, began in 1996 as a collection of links whose primary audience was US corporate employees.

The first "insideGE" launched during the first quarter of 1999 to replace GENet and was an attempt to unify all the separate businesses' intranets into a single look and feel. Again, the audience was primarily US employees and the content was offered only in English. Andrew Bond, Project Manager, Digital Media Technologies, explains: "The main features of the site were a common masthead (cross-business), favorites, corporate news with some business content, and some personalization."

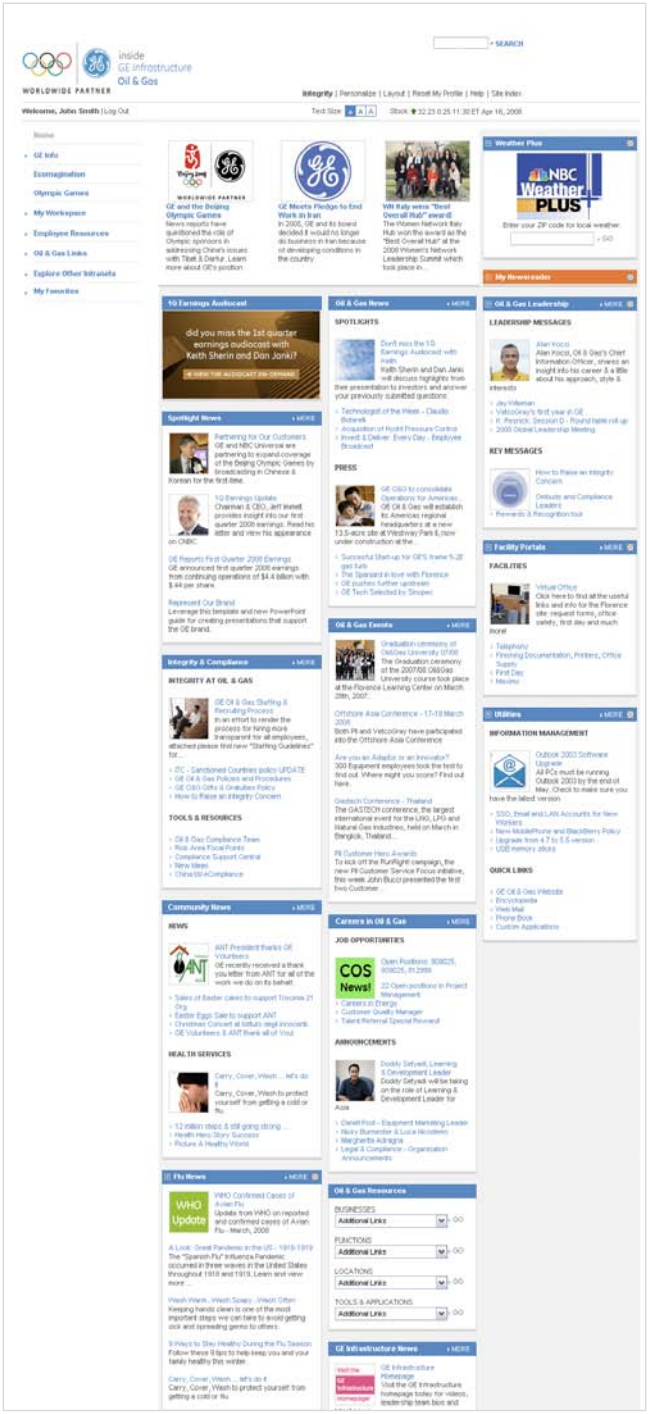
In 2001, the company entered the portal space with the second version of insideGE. "The second version of insideGE addressed growing global challenges of GE," says Bond. "A multilingual version of insideGE was launched. The audience was all the GE businesses globally."

That site included features such as "alert channels" for different businesses, favorites, corporate news, story metrics, and business-specific content and personalization.

In 2004, the company raised the bar on its corporate intranet through a series of enhancements and expansion of the intranet to the global GE population. "We raised the bar with the third launch of insideGE addressing the high cost of infrastructure, an inflexible architecture, a new brand campaign, and overdue site enhancements," says Bond. "The audience was all GE businesses globally."

With the introduction of that site, the company reduced the number of intranet sites from 153 to 73, developed a lower cost infrastructure, better corporate user directory integration, user profiling, portlet personalization, and federated search.

The design iteration discussed in this document was complete between 2008 and 2009 and added significant features and functionality to the site.



Pictured: The homepage before the insideGE redesign. There were more than 100 of these intranet sites with over 3,000 content modules, requiring a great deal of maintenance and duplicate publishing without the ability to achieve the sophisticated targeting that insideGE has today. The system was relatively inflexible and supported only fragmented communications with no coordinated storytelling effort.

INTRANET TEAM

insideGE is owned functionally by Marketing and Corporate Communications and benefits from the technical leadership provided by the company's IT team, which is the group most involved with the site on a day-to-day basis.

GE intranet team members include developers, three IT project managers, two communicators who manage the company-wide intranet, and about 15 or so staff members, across the company, who handle the site's business-specific communications.



Pictured: The Mad Men-ized GE intranet team. (Back row, left to right): Vicky Fang, Ed Hicks, Ranee Chung, Collin Olan, Jody Hankinson, Adam Silver, Sue Bishop, Erik Manley; (front row, left to right): Kris Konno, Andrew Bond, Sangita Malhotra, Monique TeSelle, Kyle Crouse, Cem Ezberci, Lisa Minott, Dayan Anandappa; (far right, holding the donut): Jen Walsh.

Working with Agencies

Overall management of the GE intranet, including communications strategy, content management, and feature/product requirements, is handled internally. However, the company relies heavily on an agency, frog design, for graphic design expertise and occasional front-end development (JavaScript, Flash, and so on). For the redesign project, frog design conducted primary research, developed the information architecture and design concept and provided front-end technical expertise and code. "frog design was a true partner in the redesign of insideGE," says Erik Manley, Manager, Digital Media, and Corporate Marketing. "While frog is an outside agency, we consider them our extended team."

"It [having frog design involved] has certainly raised the bar for quality in the design and overall user experience of the intranet," he says. "frog also brought a more objective perspective to the redesign process, which I think was critical."

GOVERNANCE

Governance is a combination of centralized governance (the technology platform) and cross-organization distribution (content).

On the technology side, the back-end architecture, hosting, and CMS are centrally owned and maintained by GE Corporate. “Any new features or design elements are typically initiated and developed by GE Corporate,” says Manley. “Although suggestions and requests are encouraged across the organization.”

Communications ownership is widely distributed. Businesses and departments within GE have their own communications teams, develop their own communications strategies, and manage/publish their own content. Nothing beyond permission levels (for example, the ability to publish content in certain areas of the site, for certain people to see) is governed centrally.

TIMELINE

The redesign project began in November 2007 and was completed in a roughly one-year timeframe from kick-off to launch. The timeline was extended once. After the team settled on a design approach and was able to more accurately determine how long development would actually take, adjustments were made to better-forecast deliverables. Major project milestones included:

- **February 2008:** Research review and initial design recommendation. The team conducted an online survey of more than 10,000 employees, visited with past top-10 finalists of Nielsen Norman Group’s *Intranet Design Annual* report, interviewed stakeholders, and conducted extensive secondary research.
- **March 2008:** Final design review/selection. Based on the research, the project went through several rounds of design revisions before settling on a final approach.
- **August 2008:** Opt-in alpha launch to 500 employees who were invited to preview the new insideGE and provide feedback via open comments and an online survey; the team received 108 responses. To incentivize employees, the team held a random drawing for gift certificates and let participants switch between the “old” and “new” insideGE whenever they liked. Team members conducted 15 one-hour, one-on-one interviews with employees to determine any necessary changes to the design approach, and they made several revisions accordingly.
- **October 2008:** Opt-in beta launch to 60,000 employees. For the beta, the team invited GE Corporate, the Global Research Center business, and the GE Healthcare business (approximately 60,000 employees) to preview the new insideGE. As with the alpha launch, employees could submit open feedback and complete an online survey (5,300 responses), were incentivized with a random drawing, and could switch between the “old” and “new” whenever they liked. In addition to the survey and feedback, the team conducted another 29 interviews with select employees in the US and Europe to determine any necessary changes to the design approach.

- **January 2009:** Beginning of three-month staggered rollout across all business units (300,000+ employees). Team members began rolling out the new insideGE across all businesses in late January 2009. Throughout the previous year, they had frequently communicated the upcoming change to business communicators, who relayed the message to their employees. They developed a rollout schedule, and encouraged employees to try out the new insideGE beforehand, so that there wouldn't be any surprises. Elements of the design continued to be developed even as the site was rolled out. The team recognized that waiting until everything was perfect would delay the launch "indefinitely."

GOALS AND CONSTRAINTS

The redesign project had many goals, among them were:

- **Improve the overall user experience.** This aspect of the site had been proven through research to be sub-par on the former insideGE site.
- **Reinforce the brand.** "Brand management is just as important internally as it is externally," says Manley. "We wanted insideGE to reflect the spirit of GE: innovative, dynamic, and approachable."
- **Consolidate.** Over the years, more than 80 separate business intranets had been developed to communicate business-specific messages to employees. This fragmentation had led to what Manley calls "a maintenance nightmare" and had created incredible inconsistency. "We needed a platform that could support the distinct communications needs of all the businesses without requiring separate sites," he says.
- **Create consistency and balance content.** As part of the consolidation, the company also wanted to ensure that GE-wide communications (for example, stories that are relevant to all employees, regardless of their business, function, or location) were balanced with business-, location-, or function-specific content. "This had become impossible to do with the spread of distinct business sites/pages," says Manley.

The Universal Constraint: Time

Nearly every team interviewed for our *Design Annual* reports struggles with the most common project constraint: time (or a lack thereof). GE's project was no different. "Time was our greatest constraint," says Manley. "We had less than a year to research, redesign, redevelop, and launch the intranet to more than 300,000 employees without disrupting any existing processes."

So the team decided that ongoing changes would have to be incremental improvements, such as increased customization, additional two-way communication outlets, further integration with other GE employee tools (such as HR applications), and community platforms.

USERS

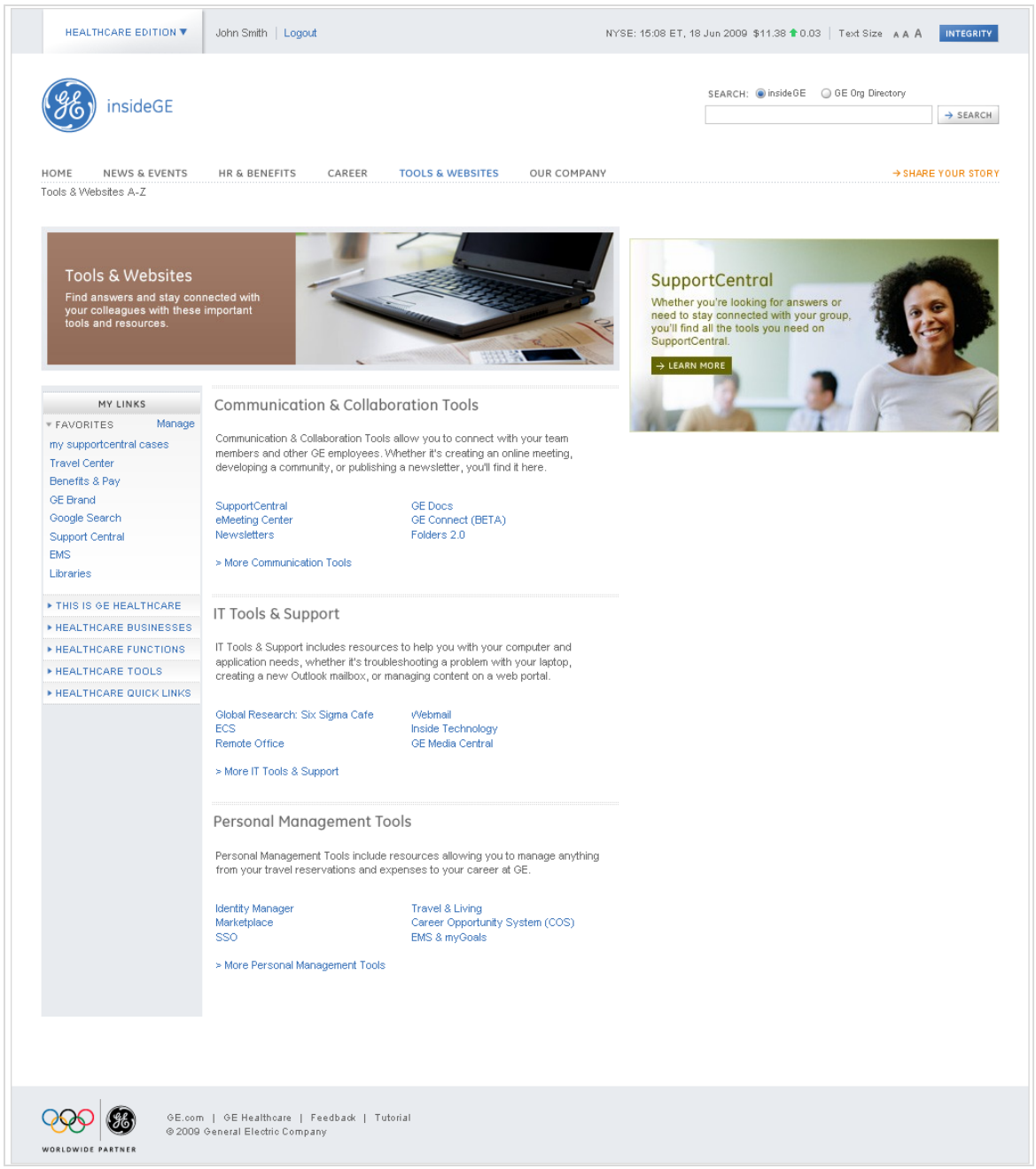
insideGE is the main internal hub of communications for all GE employees—who number more than 300,000 across 100-plus countries. Employees use insideGE for a variety of reasons that range from obtaining easy-access to sales, technology, and research tools, to getting the latest internal and external news, sharing events,

accessing other portals, and handling internal processes such as travel and accounting processes.

USER TASKS

Because the global intranet is used as GE's main internal communications hub, the company uses the site to share news and information with employees, to solicit feedback from employees around specific topics, and to encourage discussions. This news can be GE-wide and/or specific to a sub-business, function, or location. It can be news targeted to a particular team, or contain general industry news that is pulled from an external news provider.

The intranet supports a searchable employee directory, HR information, facility information, weather, stock news, and notification on pending travel requests. It also allows employees to add their favorite internal and external links and serves as a central place to share other business tools and applications.



Pictured: The *Tools & Websites* section provides users with a consolidated area to access the overwhelming numbers of internal and external online resources available to them. The most popular ones are surfaced on this landing page, with links to delve deeper, including into a comprehensive A to Z list. All content owners across the businesses can add tools and resources via the CMS and target as appropriate to keep all tools on one, simple page.

DESIGN PROCESS

In late 2007, GE's intranet redesign began as a project to improve the GE intranet experience for users, content contributors, and the overall company. To reach that

goal, the design team conducted a rigorous design process involving users throughout. Users were engaged via international employee surveys, stakeholder interviews, and in-person usability testing. Along with user research, the team also conducted external benchmarking, secondary research, and metrics analysis. The new insideGE launched company-wide in January 2009 to employees across the globe in all GE businesses. There were three iterative phases of research and design, which rolled out incrementally to select GE businesses until the final company-wide release. The three phases are as follows:

Phase I—Foundational research (Q4 '07)

The initial phase consisted of a robust foundational research phase focused on identifying key needs and design principles for the intranet redesign. Foundational research included the following activities:

- Online survey of 10,000 employees worldwide
- Secondary research (Forrester, Jupiter, Nielsen Norman Group, etc.)
- On-site benchmarking visits (Google, Microsoft, JP Morgan)
- In person conversations with the HR and benefits teams
- Conversations and questionnaires for intranet owners and publishers worldwide
- Conversations with corporate stakeholders
- Conversations with tech teams
- Web analytics

Based on the foundational research, the intranet team was able to define goals and design principles to guide the process. The new unified site adopted an editorial news-magazine approach with highly targeted content, improved content organization, streamlined navigation, cleaner visual design, better legibility, an optimized homepage, and a new events calendar.

Phase II—Alpha launch (Q3 '08)

During this phase, the site launched as an Alpha launch to 500 employees in two GE businesses. Interface, design, and content targeting were tested through the following activities:

- In-person usability sessions with 15 employees (US)
- Online survey of 108 employees
- Analysis of Omniture metrics
- Analysis of site feedback submissions

Based on the Alpha research results, targeting algorithms were adjusted to better meet the needs of the users. The homepage was tweaked to provide even easier access to the most important information, through improved legibility and organization. Design began on more radical improvements, such as introducing user selected "news editions" to accommodate some unique targeting needs based on organizational complexities.

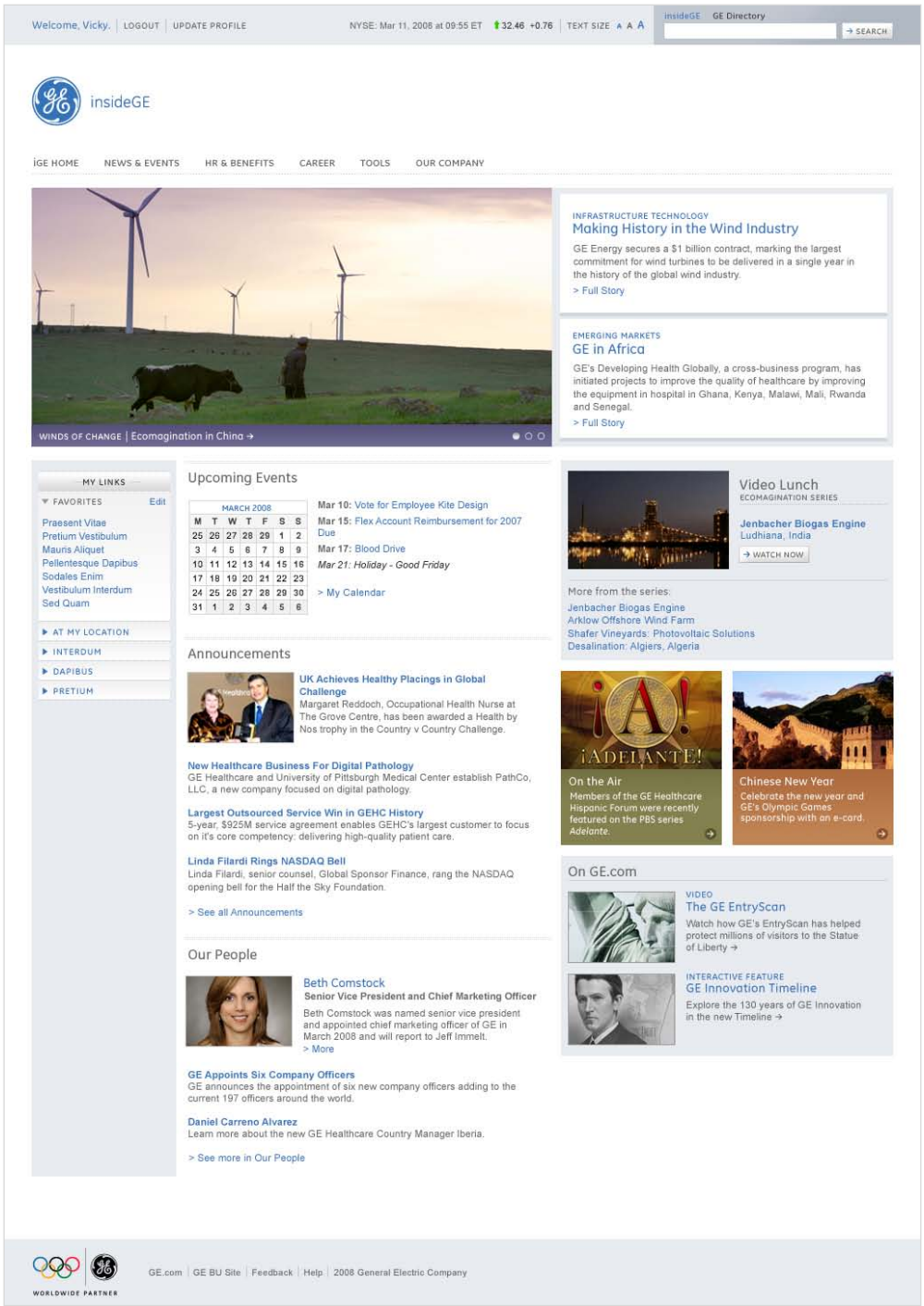
Phase III—Beta Launch (Q4 '08)

The site launched as a Beta to 60,000 employees in three GE businesses, where the adjusted targeting was tested again, with a broader look at international audiences. The Beta launch included the following activities:

- In-person usability sessions with 29 employees (in the US, England, Germany, and France)
- Online survey of 5,395 employees
- Analysis of Omniture metrics
- Analysis of site feedback submissions

Based on the beta research results, the targeting system was refined even further, adjusting select algorithms and user-filtered areas. Additional features identified in earlier research phases were rolled into the site and tested for usability.

The results of this rigorous approach to the redesign show clearly in site usage. The site now regularly receives more than 100,000 daily unique visitors and more than 500,00 daily page views.



Pictured: An early design iteration of the homepage. From initial design to final result, the iterative research and design process yielded significant improvements in a range of subtle and explicit ways for the GE team. Some of the changes are visible in the evolution from this version of the homepage: Targeting algorithms were refined, the top image was streamlined to reduce scrolling and improve legibility, features were added or removed, information was reorganized in a more useful way for users, and nomenclature was tweaked.

URL AND ACCESS

The GE intranet can be accessed at: http://inside.ge.com. By default, it's the start page for each user, but they can change that if they wish. Outside the company offices, users can access the site by connecting in through one of the remote access or VPN solutions that GE uses.

Users without computers, such as those on shop floors, can access the intranet via shared terminals. For example, shop floor terminals are configured to display customized information relevant to that user's business. The version of the intranet that most employees visit is automatically customized based upon their user profile to display the user with relevant information.

TECHNOLOGY

Technology Evolution

The technology behind the GE intranet evolved as the site evolved:

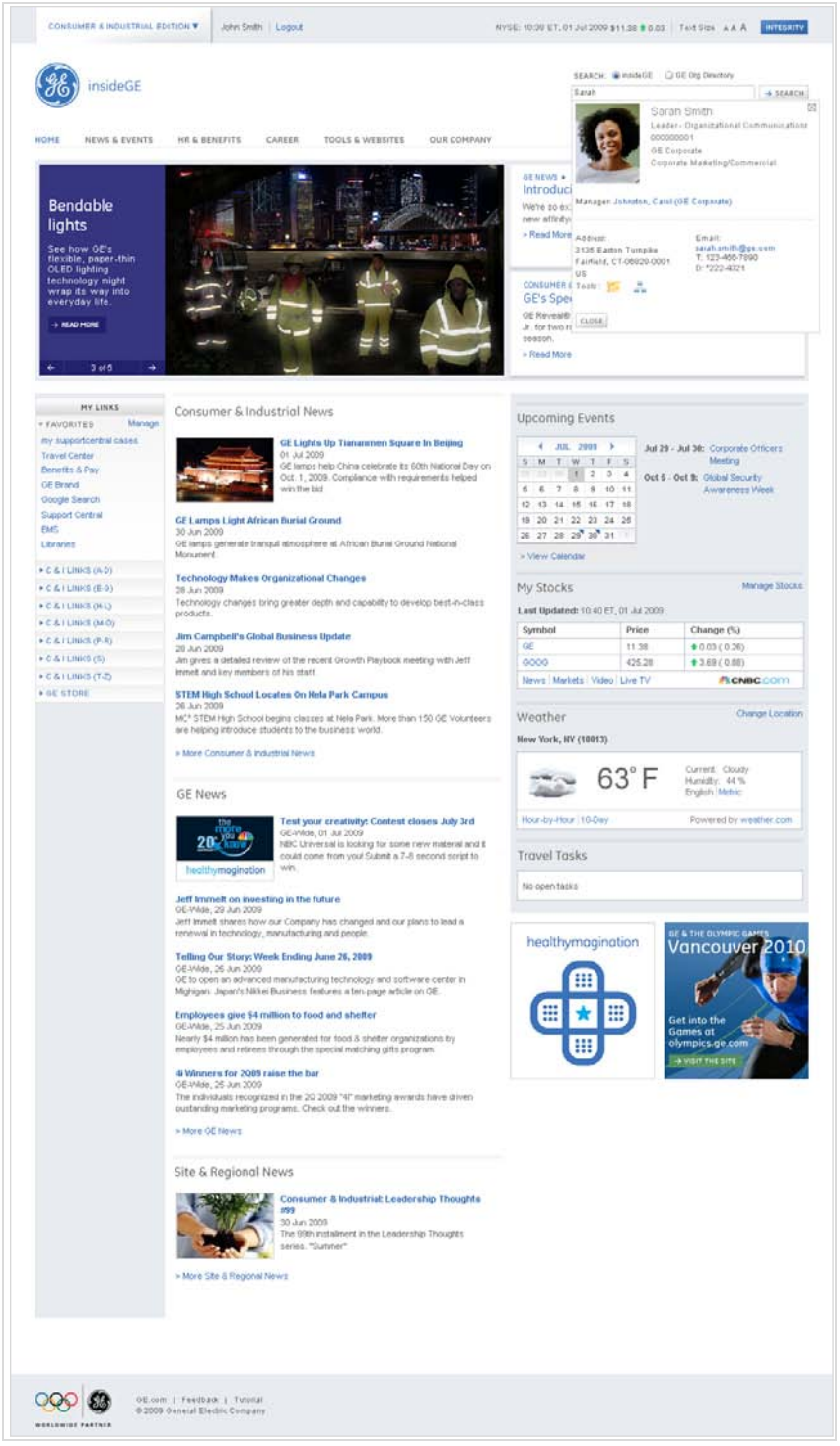
- **1996:** Windows NT, IIS, SQL Server, and ASP
- **2001:** Sun ONE Portal version 3.0, Sun iPlanet application server, Sun Solaris, Oracle 8, Sun iPlanet LDAP, and Sun ONE Search
- **2004:** Apache HTTP Server, Apache Tomcat, Oracle Database 9i, Vignette Portal version 7, and FAST Search

Currently, the site's developers use Eclipse. The portal environment runs on Apache HTTP Server, Apache Tomcat, Oracle Database 10g, and Vignette Portal version 7. The CMS exists within the portal environment. They use JIRA for bug tracking.

SEARCH

Search is one of the aspects of intranet development that, if done well, never really has an end date. The GE team knows that search is important to users, so it considers search an ongoing process that involves continual monitoring, adjustment, and improvement. "Over the years, we have continued to perform search engine optimization, including adjusting which items are included in the index and adding canned search results," says Bond. "During our intranet redesign, improving search quality was a major initiative, and the insideGE QA tester spent a noticeable portion of his time solely on investigating search quality."

The team continues to work to actively improve search by keeping abreast of advancements in search technology and also re-evaluating leading search providers as they emerge. "We are always evaluating search and continuing to find ways to improve results," says Bond. "We track which searches are the most common and we evaluate the quality of results to these queries and add/adjust canned results where needed."



Pictured: The directory search is incorporated into the persistent search bar at the top of every page on insideGE. The system provides real-time suggestions as a user is typing. Through AJAX implementation, selecting a result reveals contact information in a visual business card, allowing users to search and view contacts without having to navigate away from the page they're on.

CONTENT MANAGEMENT

Like many other aspects of the GE intranet site, the site's content management capabilities have evolved over time, increasing in functionality and becoming part of an overarching enterprise CMS.

The 2001 iteration of insideGE introduced the *insideGE Wizard*, which is part of an overarching Enterprise Content Solution tool developed internally at GE.

An upgrade in 2004 added flexibility to the content management tool and fully integrated it with the portal. The CMS tool runs on top of the same portal environment that powers insideGE. It handles the creation of stories, links, and freeform content for display within pre-created portlets on insideGE.

The most recent insideGE redesign involved adding targeting fields to story edit screens within the CMS, as well as the ability to choose background colors for banner spaces and so on using color palettes derived from uploaded images.

CMS Technology

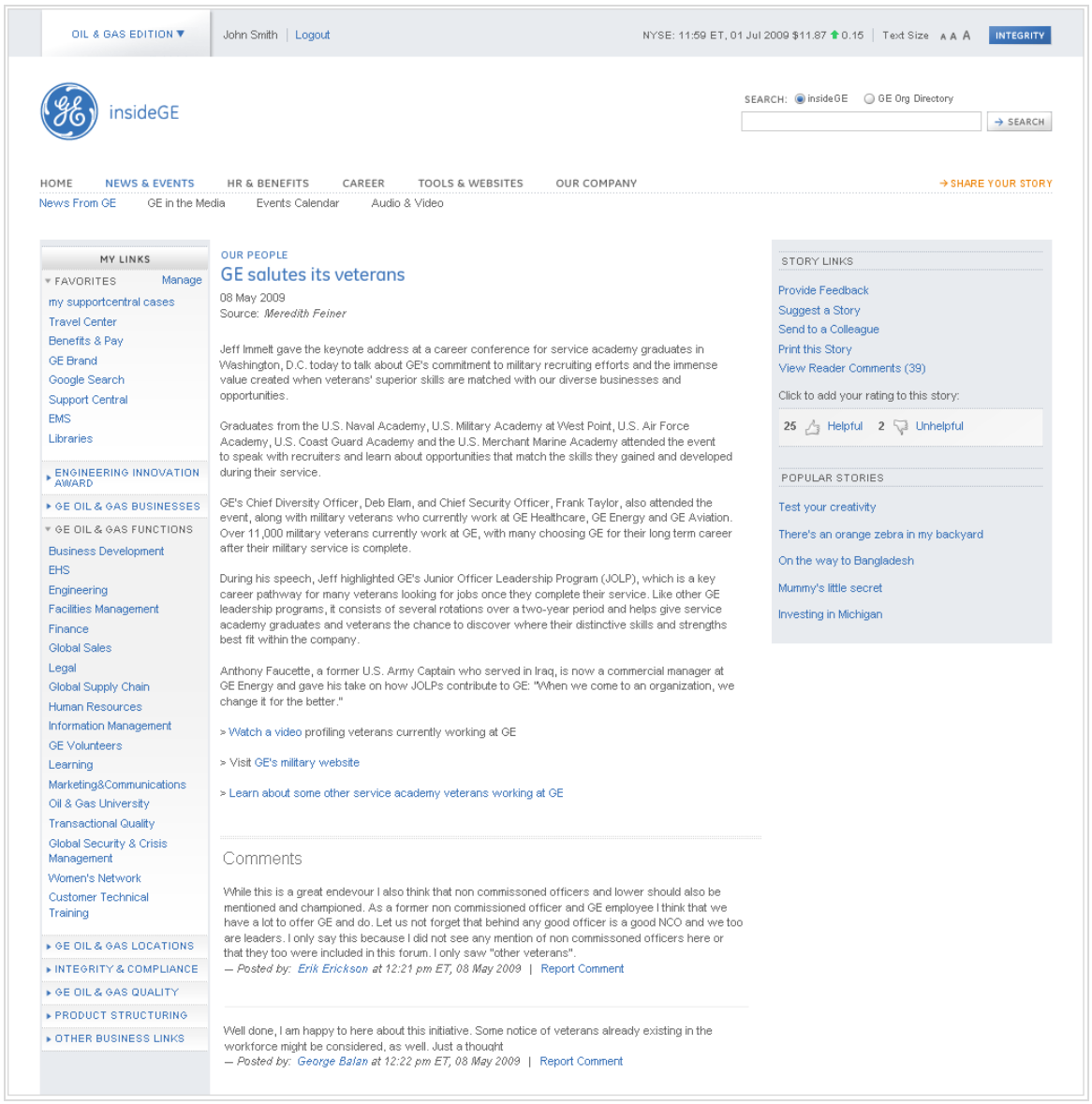
The *insideGE Wizard* is a Web-based application using Java on the backend. The environment that it runs on top of uses Apache HTTP Server, Apache Tomcat, Oracle Database, and Vignette Portal version 7. JavaScript, XML, and Flash are also used within the tool.

Ownership

GE corporate teams centrally own the content management platform, but ownership of the content itself is distributed across the organization. The GE Corporate Communications team members are the only ones who can update certain sections on insideGE, while other sections mix content between the GE Corporate Communications and business communications teams. The content management tool has built-in permissions to allow only authorized users the ability to edit content. For stories, the content management tool has buckets that can be applied to the content: "staging," "ready-to-go-live," "production," and "archived" stories.

Templates

The content management tool has predefined story templates and files. Content is plugged into certain predefined areas on the page to help users adhere to design guidelines and standards for both content and images. "We also disable certain functionality/HTML tags from within the content management tool to prevent users from posting content that is too far outside standard branding guidelines," says Bond.



Pictured: An example story page on insideGE. The stories follow a set of provided templates, supporting varying text and image needs. User rating and commenting appear on each story page, along with a sidebar featuring the top stories of interest.

Taxonomy

Controlling taxonomy is often a struggle for companies with large intranets and decentralized content authoring. Open systems tend to become bloated with many similar categories. Prior to the redesign, GE communicators could add new categories; as a result, many existed in the system, including many categories with inconsequential differences. After the insideGE redesign, business communicators can no longer add new categories. Instead, they associate stories with one category from a predefined list of categories to help improve search and also share stories in a more consistent manner.

FEATURES

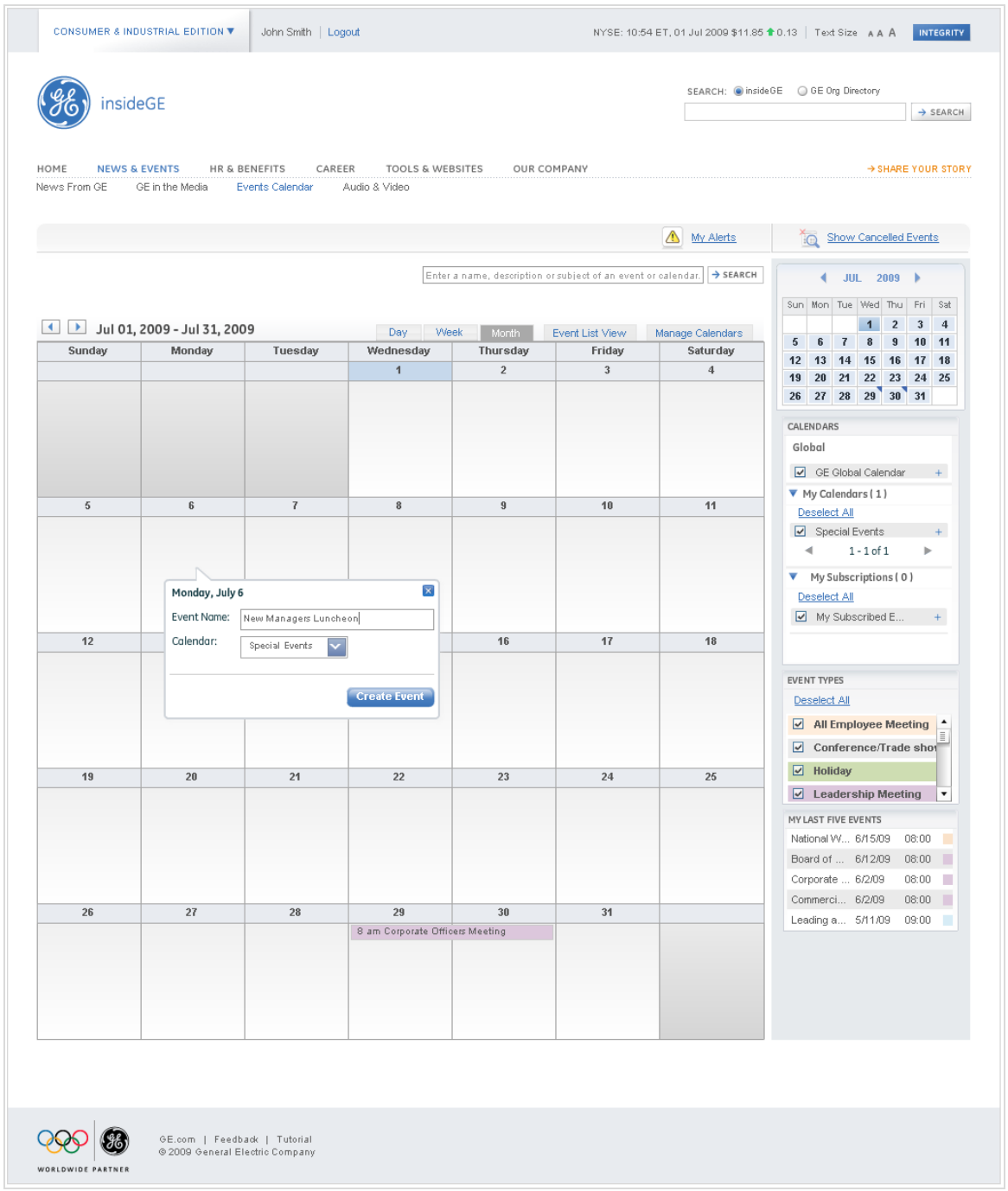
Although the GE intranet has many useful features, the following four are important because they allow users greater personalization and customization:

- **Content targeting.** Developing a CMS that allows communicators to target any news story to employees based on employee profile criteria—specifically, business, location, and function—has allowed the GE team to not only consolidate what used to be disparate sites into a single intranet, but also to ensure that employees are seeing the most relevant content. "The real beauty is that most employees don't even know the content is targeted to them, because they don't have to do a thing," says Manley. "Based on their login, they automatically receive news that was written and published for them to see."
- ***My Links*.** On the homepage is a pane that includes links to GE's vast network of intranet and Internet sites and pages. Communicators are allowed to publish groups of links and target them to specific employees, much like they would publish stories. Further, users are allowed to manage their own links/bookmarks. "At the end of the day, if our content is uninteresting to an employee, and the navigation is unintuitive to an employee, that person can always rely on his own customizable and targeted links to find what he's looking for," says Manley.



Pictured: The *My Links* feature appears on the homepage, giving users quick access to important links. The *Favorites* tab is fully customizable, allowing users to enter their own links and/or select from a recommended list. Additional tabs are targeted to the user by their business, function, and location, providing the top quick links to business-specific tools and resources.

- **Consolidated news page.** The design team created a page that is effectively a one-stop news page, consolidating news from a user's own business, all other businesses, and external news sources. The external news sources are provided by a custom-built RSS aggregator which is customizable, but centrally shared, so that any feed any employee adds to his or her own reader is also added to a central repository of feeds from which other employees can select.
- **Community calendar.** The calendar tool allows any employee to create community calendars based on distribution lists. "This is incredibly valuable because GE has hundreds, if not more, interest-based networks throughout the organization," says Manley. "With the 'old' insideGE, events typically had to be published as stories, and were therefore not targeted to the right groups, but rather there for everyone to see (taking up space for a majority of people)." Now, for example, if a business or a particular campus has a series of guest speakers, or if there is a local running group, any related events can be published through the calendar. Employees can subscribe to particular calendars just like they might subscribe to a newsletter. It's similar to how the Google calendar works.



Pictured: The insideGE calendar application allows users to create, manage, and publish calendars. Calendars can be targeted to individuals or to distribution lists, ensuring that employees see only relevant events. Users can also subscribe to public calendars. This application lets users publish all relevant information for an event, including date, time and location, registration details and links, and the ability to submit questions for a speaker or panel. A summarized feed of upcoming events automatically appears on each user's homepage.

PERSONALIZATION AND CUSTOMIZATION

Targeting Content

Personalization on the site is handled based on each employee's unique single sign-on (SSO) ID. "This allows users to see content targeted for them by the publishers without them having to do a thing," says Manley.

"For the most part, employees don't even have to think about this kind of personalization (which is exactly the point). They receive integrated, targeted content, so the news, information, and tools are most relevant."

Users also get both the company-wide and business-specific communications on one simple website.

Although users are given the targeted content first, they have the ability to control that content as well and change it by simply changing their edition. For example, healthcare employees will see insideGE's *Healthcare Edition* by default based on their login. And, on certain parts of their homepage, they'll see healthcare-specific content, such as content that was targeted to healthcare employees in the CMS. But if for any reason the user wants to see, for example, insideGE's *Energy Edition*, they can easily switch, effectively overriding (or substituting) their SSO information. In a large organization such as GE, where users can be part of one organization but deeply interested in another, such a feature is invaluable.

"This was completed in order to meet the needs of our diverse organization, where an employee may work in one business and support others," says Manley.

For the sake of simplicity, the editions are kept at the business-level, but in fact, an employee can override any of the targeting criteria used, including location and function. "So, insideGE offers personalization by default, with the flexibility of full customization," says Manley.

Providing users this level of targeted content is a big plus because users are unaware of the mechanism that drives what they see, they just see content that's relevant.

"One of the greatest things about personalization is that users don't have to think about it," he says. "Employees don't necessarily know that they are seeing something based on their SSO, they only know that the news is now more relevant (or, rather, that there are fewer irrelevant news items on their page)."

"Personalization has greatly increased the value of the news that is displayed to users while allowing us to consolidate insideGE sites," says Manley. Prior to the redesign, if a business wanted business-specific content, they had to create their own separate version of insideGE. "Over time," he says, "this became a maintenance nightmare. Further, the design across sites became inconsistent."

"The integrity of the brand was lost, because there was no real central control over the design," says Manley. "Now that we've been able to target content more effectively, we've been able to consolidate the sites and regain control of the layout and design, ensuring a great user experience while providing relevant content."

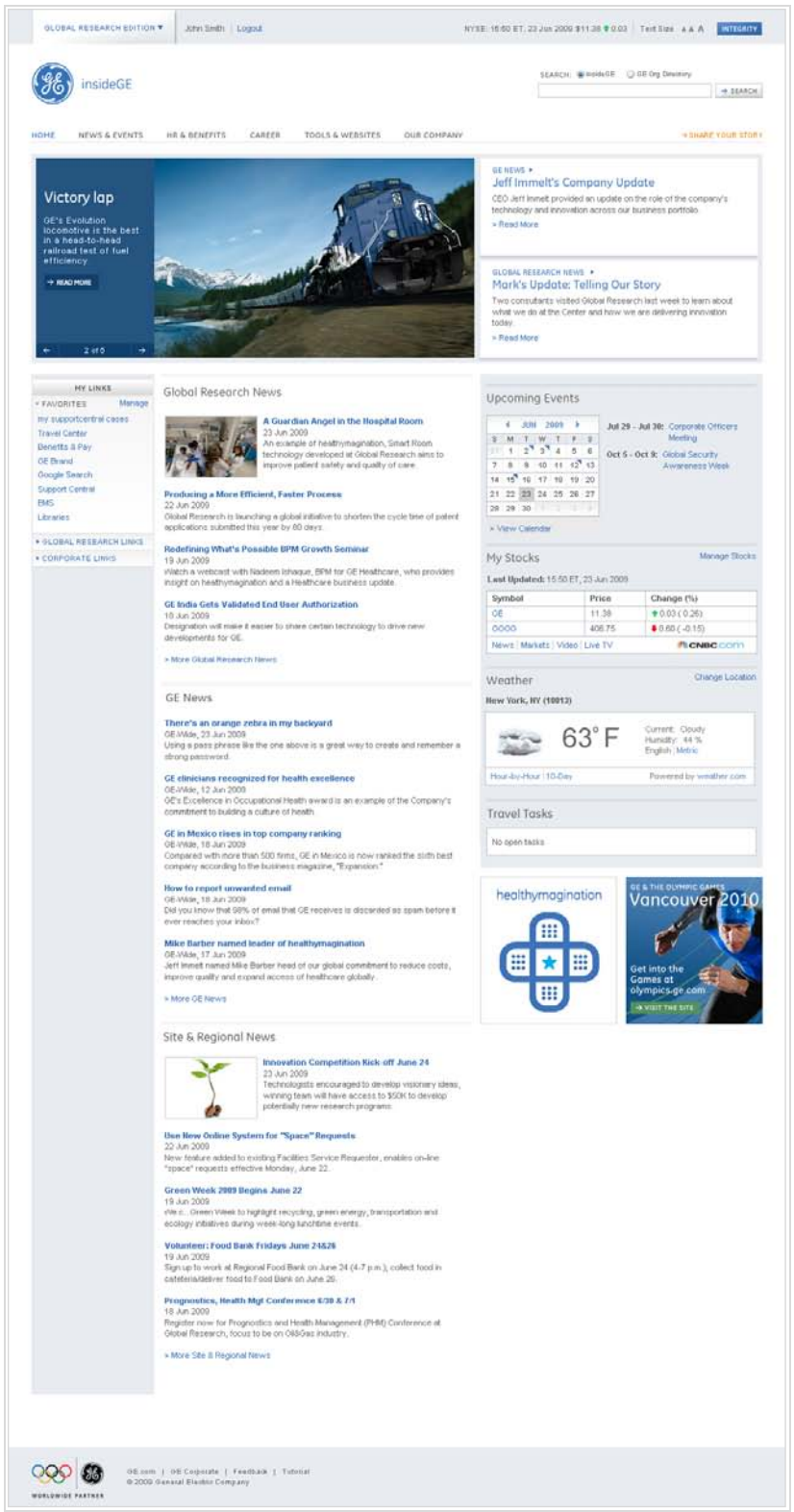
The Challenge of Targeted Content

Targeted content such as that in the GE model isn't without its challenges, especially in an organization of GE's size and complexity.

“Targeting/personalization was a huge challenge because of GE's organizational complexity,” says Manley. “It is not uncommon, for example, for an employee who works for one business, such as Global Research, to “sit” in another business (such as Aviation).”

The employee's SSO may technically mark him as a Global Research employee, but Aviation news might be more relevant to him. The same is true of locations.

“These are just a few of the many examples where targeting based on SSO is imperfect,” says Manley. “So, we've allowed people to change their editions (business, location, and function), effectively overriding the default targeting criteria that is based on their SSO.”



Pictured: This screenshot shows the homepage as it appears for a GE employee in Global Research. News and links align with the user's business, while seamlessly integrating with both company-wide and personal information.

Customization

User customization is also allowed throughout insideGE, where employees can add internal and external links of their choosing, manage their stock portfolio, view weather, and manage their company travel accounting. “These are tools employees constantly use and like, therefore we made sure they were visible on the new website,” says Sangita Malhotra, Manager, Corporate Communications.

“We have, on the other hand, heard feedback that employees would like more customization of the layout of the site, such as the ability to move certain elements of the page around,” says Manley.

Giving users the ability to customize their experience is sometimes a risk. Although users often request this type of control, it must be granted with some restraint or risk compromising the user experience.

“This has to be balanced with the need for businesses to communicate their messages; so, we continually work to increase customization without compromising the integrity of the design,” he says. “I do actually believe that a lot of users can unwittingly ruin their own user experience if they are given too much freedom to customize.”

ENTERPRISE 2.0

Most of GE's social media applications, such as wikis, blogs, and so on, live on Support Central, a knowledge management and community platform that is distinct from insideGE. “We did not want to develop any competing platforms when we redesigned insideGE,” says Manley. “However, the redesign did incorporate commenting and ratings on stories, which encourages dialogue among employees.” And there are two social tools on insideGE: the *GE Newsreader* and the community calendar.

These tools are similar in functionality to Google Reader and Google calendar, and are closely integrated with employee's SSO data. The insideGE *Newsreader* lets users add RSS feeds to a central repository, share and comment on external and internal news stories, and become “publishers-by-proxy.” Employees can, for example, subscribe to other employees' feeds, giving them the opportunity to keep up with what others are reading.

The calendar tool allows any employee to create a series of events for other employees in a distribution list and also lets organizations develop specific event calendars and target them to shared-interest groups. “Teams are using calendars to share ‘out of office’ schedules for example, and larger affinity networks,” says Malhotra. “Like the Asian Pacific American Forum is using this calendar application to promote events and share registration information.”

The GE calendar lets employees view events, subscribe to calendars or events, and provide feedback to and contact event organizers. Employees can also send events to their Outlook calendars to better manage their schedules.

Malhotra says the social media features for commenting on and rating each insideGE story or video have been incredibly successful. “Employees are engaging in robust conversation around stories of interest and truly enjoy the open discussion forum,” she says.

Rating selections are also available, and both commenting and rating features are transparent and available for all employees to view. “These social media features are

also great tools for communicators to review truly open feedback and use the feedback when creating new content with the understanding of what employees find interesting and what they prefer not to read," says Malhotra.

BEST PRACTICES

The GE team has a wealth of experience and a long lineage of intranet development. Here are best practice insights gleaned from the most recent redesign project, according to Vicky Fang, Senior Interaction Designer, frog design:

- **Support serendipity along with providing targeted navigation structure.** "While customizing the user experience and delivering targeted content based on the user's login can greatly simplify the experience, it's important to also allow users to easily find and navigate to broader content. No matter how intelligent the targeting algorithm is, there will be exceptions or unanticipated needs. Targeting can be an invaluable tool that helps users quickly find the information that is most relevant to them, but it should not hinder them from finding broader information. Make a point to identify exception cases and reach out to all parties involved (users, publishers, technologists) as early as possible."
- **Build a system that can accommodate varying amounts of content as well as varying types of content.** "When creating a targeting system, where custom content is delivered based on the user's login ID, consider not only the audiences and content pieces that must be targeted, but also the amount of content that will be published. Different audiences will receive varying amounts of information from day to day, which requires a display system that is flexible enough to accommodate."
- **Support company culture.** "Look for ways to support and respond to the particular needs of your company's culture. Take advantage of the opportunity to design a custom tool and tailor it as closely as possible to provide unexpected value to your employees."
- **Solicit feedback from the design team.** "When developing features with an internal team, keep in mind that your developers and designers are also users, and that they can provide valuable insight and feedback throughout the process."
- **Test and verify with users.** "Ensure tools are tested and verified through a phased rollout with your employee base. Introducing and validating new technologies and user experiences gradually can pay dividends in terms of user acceptance and adoption."
- **Balance flexibility with structure.** "When dealing with a number of publishers, set strict guidelines and limitations, particularly with homepage real estate. Provide flexibility, but ensure that the system can't be abused."
- **Collaboration can't be forced.** "Collaboration can't be forced so collaboration elements must be seamless, natural, and optional. Focus more on features and functionality that improve relevancy rather than focusing on collaboration. The latter will naturally follow from the former."

RESULTS

ROI is measured through qualitative means at GE. "We did not have quantitative goals that we needed to meet, beyond what could be quantified as the benefits of consolidation (purely from an IT management perspective)," says Manley. "Now that the intranet has been live for some time, we are planning our post-launch survey to measure before-and-after satisfaction levels, but we don't have that data as of yet."

A measure of site success is often what can people do now that they couldn't do before. There are a number of measures in that regard on the GE site, including these important ones:

- **People can find what they're looking for much more easily.** "The design is so much more clean, people can quickly scan. Targeted and customizable links allow users ultimate control. The site has become much more simplified." (Manley)
- **Content has been significantly improved.** "We are seeing much more engagement from employees in the content as it is creating a discussion. Our technology/innovation stories are well-received and personal employee stories or announcements continue to be great hits. The balance and relevance of content for employees has also significantly improved, allowing employees to know where to look and when, and enforcing the priority of content so the website is easy to skim and scan, a key factor in 'writing for the Web' guidelines. We can also now share stories via video and audio, which are great additions to our company-wide storytelling efforts." (Malhotra)

And the final measure of a site's success is often a happy customer. At GE, users like the new site and like using it, as evidenced by these comments:

- From a marketer:

  "Much greater site! More intuitive design and faster browsing... Good change, because the old one really needed an overhaul like this!"

- From a scientist in the Global Research Center:

  "It looks significantly enhanced…. I'd say it has 3-4x the amount of capability potential for actually having a nice, centralized resource, so I like it."

LESSONS LEARNED

Following are some lessons learned from the GE redesign project:

- **Base the design on research.** "I think one of the most critical keys to our success was basing the redesign heavily in employee research. We needed to manage the expectations of dozens of stakeholders whose publishing processes and communications strategies were effectively being changed, sometimes against their wishes. We were always very easily able to explain and defend our decisions by pointing to the exhaustive research we'd done upfront and throughout the course of the redesign, such as during alpha and beta testing." (Manley)

- **Communication is key.** "The other critical key to our success was constant communication. No one was kept in the dark, so there were no surprises by the time we launched. We frequently invited communicators from across the organization to review the research, design direction, testing results, etc. At every milestone, dozens of communicators and other stakeholders were kept informed of redesign decisions. Further, we encouraged collaboration. We learned a lot by listening. It would've been impossible to try to meet the needs of such a complex organization without hearing from those who were in the thick of it." (Manley)
- **There is no such thing as too much research.** "I'm not sure we would do anything differently, just more: more research, more iterations, more testing. At some point, you do just need to make decisions and move forward, but even one year was a tight time frame for a project of this size." (Manley)
- **Users will surprise you. You must include them.** "I was admittedly surprised by some of the things employees insisted be on their homepage, the local weather, for example, and some of the differences between employees of different countries. US employees, almost universally, really wanted customizable stock quotes on their homepage. European employees didn't seem to care. But that just shows the value of testing and iterative design." (Manley)
- **A phased approach is critical to success.** "The phased approach of our insideGE launch was also very critical, as it allowed us to implement new strategy and tools based on survey research and benchmarking but then add personalized areas like travel and weather, that turned out to be very important to employees." (Malhotra)
- **Listen to everyone, but put users first. "**With so many stakeholders and so many content contributors, we were so open to listening and employee feedback that sometimes it was difficult to balance the views of content contributors and communicators versus employees. At times it was a constant sell and it was important to push-back on content contributors and move forward with what was best for our most important users, GE employees globally." (Malhotra)

Howard Hughes Medical Institute

Using the intranet:

Howard Hughes Medical Institute (HHMI) is a nonprofit medical research organization that ranks as one of the nation's largest philanthropies and plays a powerful role in advancing biomedical research and science education in the US. Over the past two decades, HHMI has made investments of more than $8.3 billion for the support, training, and education of the nation's most creative and promising scientists. The Institute employs about 3,000 people, commits more than $700 million a year for research, and distributes $100 million in grant support for science education.

Headquarters: Chevy Chase, Maryland

Number of employees the intranet supports: 3,000

Company locations: Across the US

Locations where people use the intranet: More than 70 US locations

Annual disbursements:
HHMI commits more than $700 million a year for research and distributes $100 million in grant support for science education.

Design team:

TandemSeven did the design and requirements gathering for the project. TandemSeven and CapTech Ventures (subcontracted through TandemSeven) jointly handled the technical architecture and implementation. An in-house team assisted with all aspects of the project.

In-house team members: Leslie Forte, Director, Web Applications; Alycia Eck, Senior Intranet Editor; Kris Weinhold, Senior Web Applications Developer; Kate Forte, IT, Project Leader; Dave Tabor, Manager, Web Engineering; Bill Dorris, Senior Project Leader Oracle

TandemSeven design team: Kenneth McDowell, Principal User Experience Architect; Andrew Schechterman, Senior User Experience Architect; Paul Eisen, Principal User Experience Architect; Carrie Notte, Principal Visual Designer; Frank Donofrio, Senior Visual Designer

Technology team: Stephen Wyman, Vice President and Project Manager, TandemSeven; Alessandro Barroso, Technical Architect, TandemSeven; Ron DiFrango, Technical Architect, CapTech Ventures; Scott Duncan, Content Manager, CapTech Ventures; Niran Fajemisin, Principal Technical Architect, TandemSeven; Phil Kedy, Lead Technical Architect, CapTech Ventures; Mundi Morgado, Principal Technical Architect, TandemSeven; Vincent Schoenfelder, Solution Architect, CapTech Ventures

SUMMARY

Not every intranet team talks about fulfilling the “behavioral, intellectual, and emotional needs” of its users, but that’s exactly what the team behind the intranet for Howard Hughes Medical Institute (HHMI) considered when building the site. Inspired by the Institute’s philanthropic work, team members worked closely with employees to understand the needs of users, from biomedical scientists to researchers to support staff. Even “pre-employees” have limited access to the site, with access planned for outside vendors and collaborators as well. The team strove to create a site to support all users and fill the unique needs of the Institute.

Site use varies from users who manage large amounts of data to more traditional users who check benefits information and news headlines to users managing projects through the site or tracking vendors. Given the nature of the organization, much information on the intranet is sensitive, so providing the right information to the right audience is crucial. As such, personalization is integral to the site’s structure, with permissions set for individuals and groups.

The HHMI homepage emphasizes the site’s personal aspect, with information directed at the individual. The site is structured to allow quick access to personal content via the *My Home*, *My Department*, and *My Projects* tabs, making the most relevant information on the site easy to quickly access.

Users can customize the homepage to reflect their own priorities by moving content portlets or reorganizing the information within them. (The functionality to add and

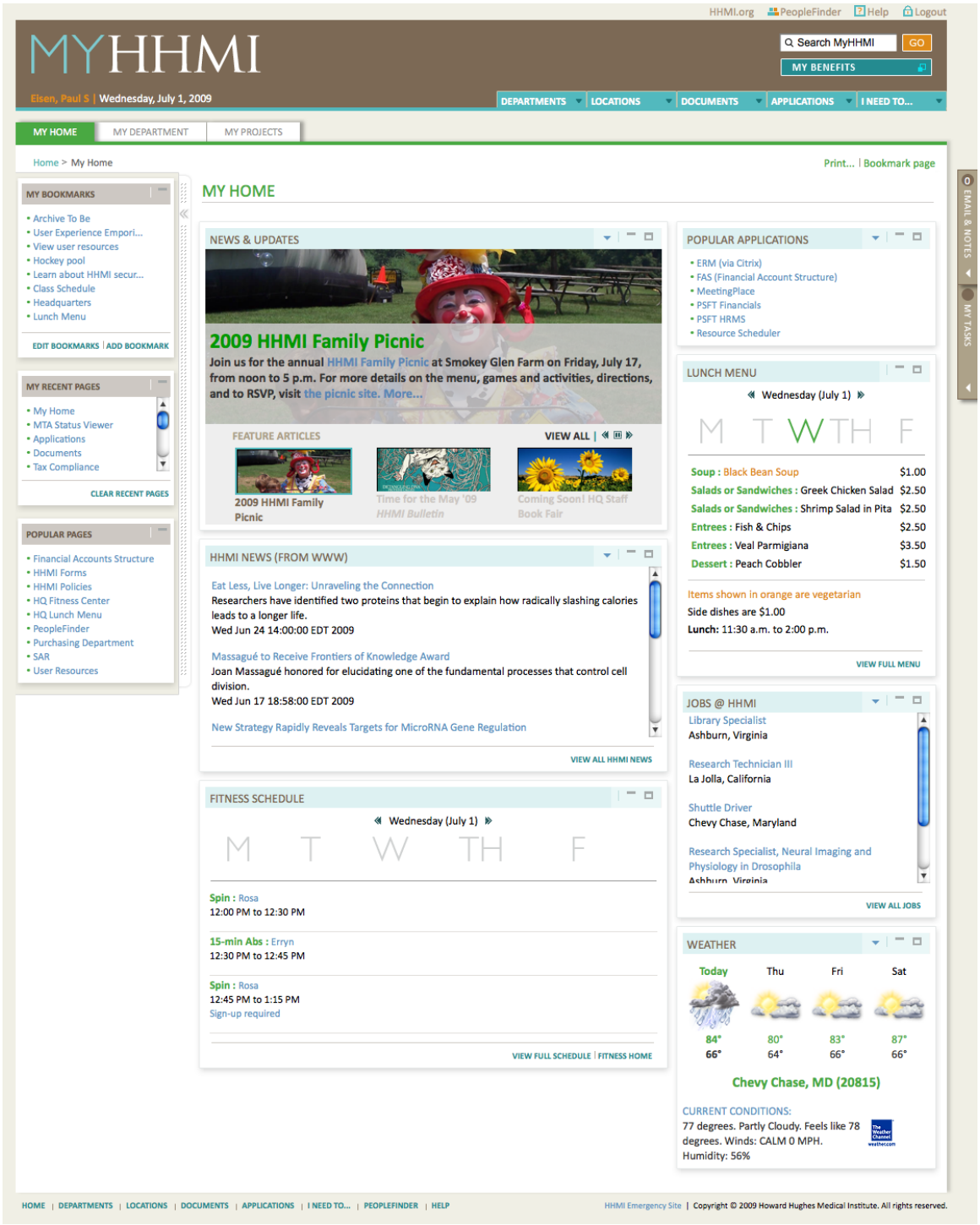
remove portlets is developed, but not yet in production.) For instance, users can customize a list of *My Bookmarks* with shortcuts to important content and can prioritize the links within that list. Tools such as *My Recent Pages* give users one-click access to pages recently visited, on the assumption that if users visit the page once, they might need that information again. A list of popular pages leads to commonly used site areas, including *Forms*, *Policies*, and the *PeopleFinder* employee directory.

The body of the *My Home* page contains *News and Updates* front and center, always providing new information for users to view. A rotating view shows users multiple featured stories. The area's design lets users see each featured article's headline. Users can click on any headline (whether it's in the main pane or not) or page through the headlines at their own pace. When headlines are featured in the main pane, they're accompanied by brief blurbs with key information and relevant links to more information.

HHMI news is featured below the update area, with concise headlines, clear blurbs, and the date and time the information was posted. Users can scroll through the latest headlines or follow the link to view all news headlines. Other areas feature up-to-date information, such as the fitness schedule, lunch menu, and weather. Everything on the page is relevant, personal, and up-to-date.

Navigational options appear in the upper right-hand corner of the page, with menus giving users direct access to content within those sections. There's also a prominent link to *Benefits* information at the top of the page. This placement, separate from all the other links, indicates that the benefits and payroll information is being drawn from a separate, third-party application. *MyHHMI* provides a number of convenient points of integration for this information, including the pervasive link in the header.

A link above the main site search lets users go directly to *PeopleFinder*, the employee directory. This link is accompanied by links to the public site, HHMI.org, *Help* information and a link to *Logout*—which is particularly important in a single sign-on environment where secure information can be accessed.



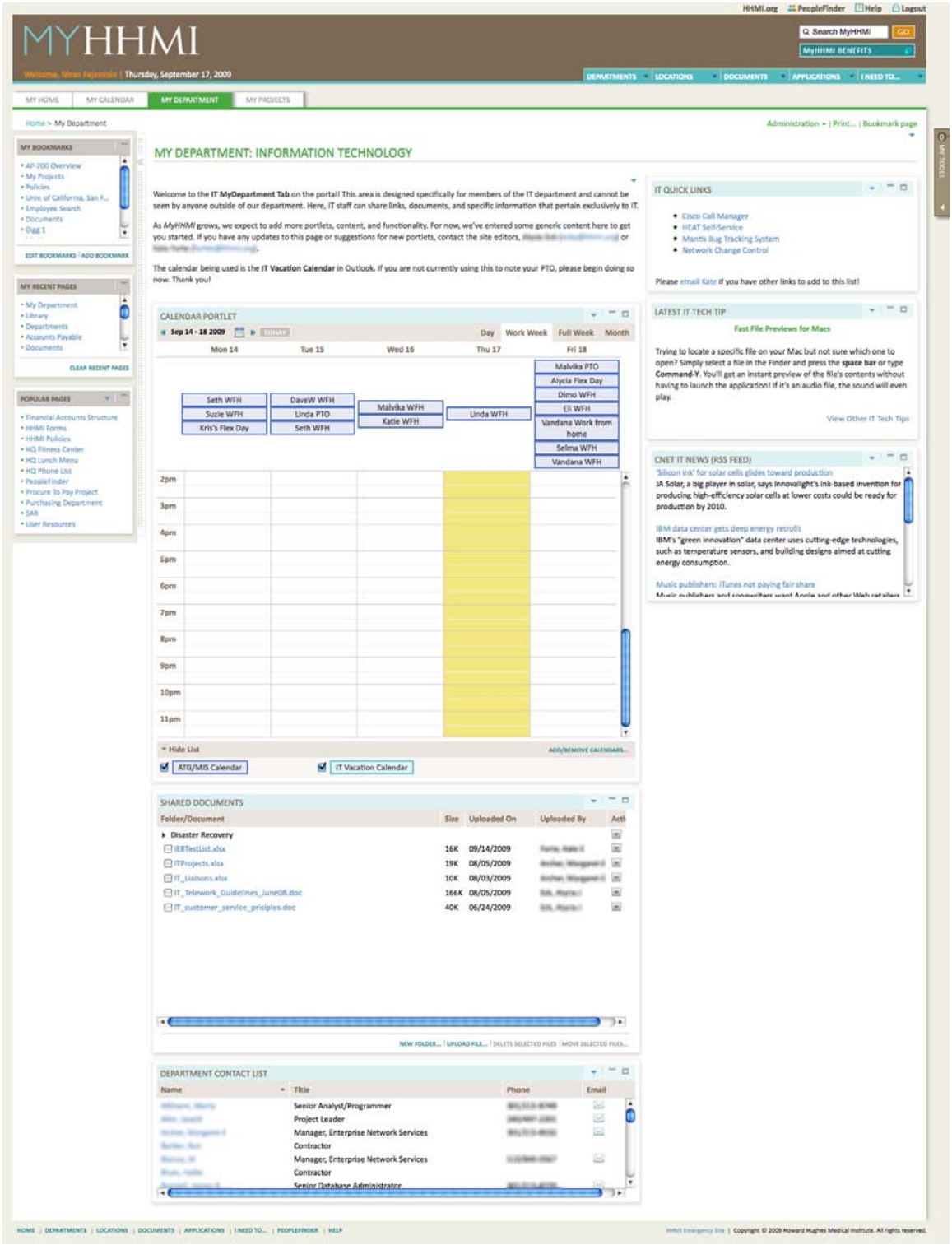
Pictured: The *MyHHMI* homepage presents relevant, personalized, and customizable information to the user, providing quick access to departmental content, project information, and areas of personal interest.

On many intranets, department pages simply define what the department does and link to contact information or forms created by the department. *MyHHMI* has similar pages, but also adds a feature called *My Department*. These workspaces are

intended for each department's internal use. Employees within a department are provided tools, information, and team collaboration spaces essential to their department. The page included below shows the Information Technology department page in its early stages, when, as the page notes, "we expect to add more portlets, content and functionality." Although the page shown was only recently added, it already contains helpful information, including a group calendar with employee schedules that indicates who's working from home, taking a flex day, or has personal time off. Shared documents are also featured, along with a full contact list for the department.

IT Quick Links direct employees straight to the tools of most interest to the group, such as *Cisco Call Manager* and *Network Change Control*. Messages on the page and in the portlets make it clear that content owners are open to suggestions for what to add, remove, or feature on the page. For instance, a note to *email Kate* if they want to add to a list of *Quick Links* shows employees that they can have an impact on what appears on the page. This changes the *Quick Links* from a potentially static piece of content to a list that can be influenced by employee needs. Asking for feedback on a site, even in little ways like this, can go a long way toward making users view the site as a helpful tool rather than something they have to use.

The page is rounded out by a tech tip and RSS feed from CNET, making it a nice combination of useful content, practical details, and helpful shortcuts.



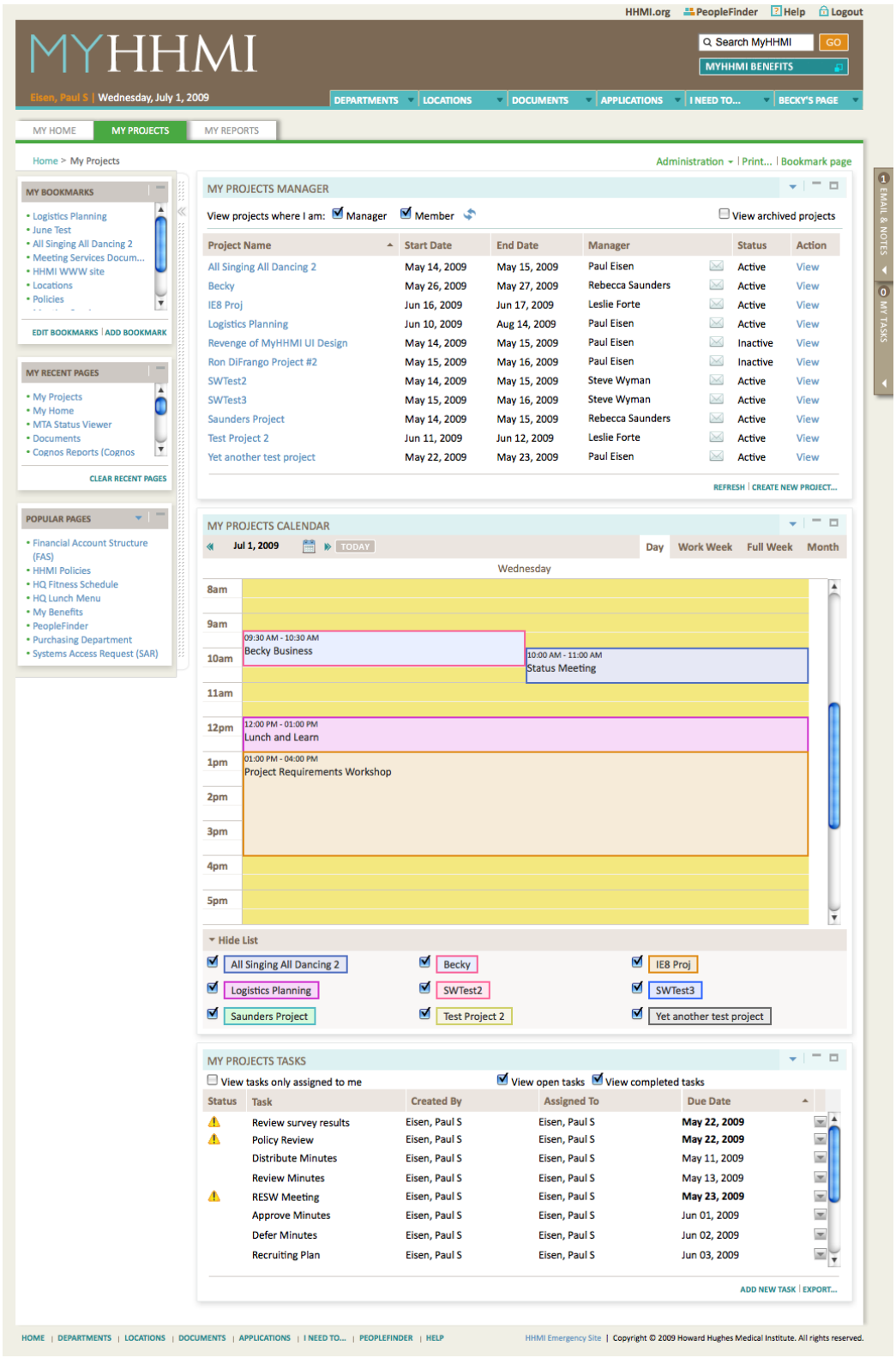
Pictured: Department pages are restricted to employees of that department, making it possible to share information to which the general *MyHHMI* audience doesn't have access. The screen here shows a *My Calendar* tab for the user's Microsoft Outlook calendar. Users who don't have an Outlook calendar won't see that tab.

A defining element of the HHMI intranet is that it allows users to create, share, and view project information through the site. Employees have a *My Projects* tab, which shows all projects for which the employee is a manager or a member. Employees can set up new projects as well. The employee who sets up the project is automatically the manager, and other members can be designated for the project and given specific permissions for seeing, using, or editing the project's content.

The *My Projects* page shows users all of their projects, with start and end date, manager's name and email link, and status information. A projects calendar lets users view all projects on a single calendar. Projects are color-coded to help users distinguish them from one another. Users can view all projects, no projects, or selected projects. This allows employees juggling multiple projects to see all meetings and calendar items in one view.

Project tasks are listed as well. Simple checkboxes let users choose whether they want to view only tasks assigned to them or view all tasks, as well as to view open tasks, completed tasks, or both. Completed tasks are indicated with a green checkmark next to them, while exclamation points indicate items that are overdue.

Each project page lists tasks for the specified project only; there's also an aggregated view of all of a user's projects and associated tasks on the landing page for the *My Projects* workspace. In the aggregated view, users can sort tasks by project.



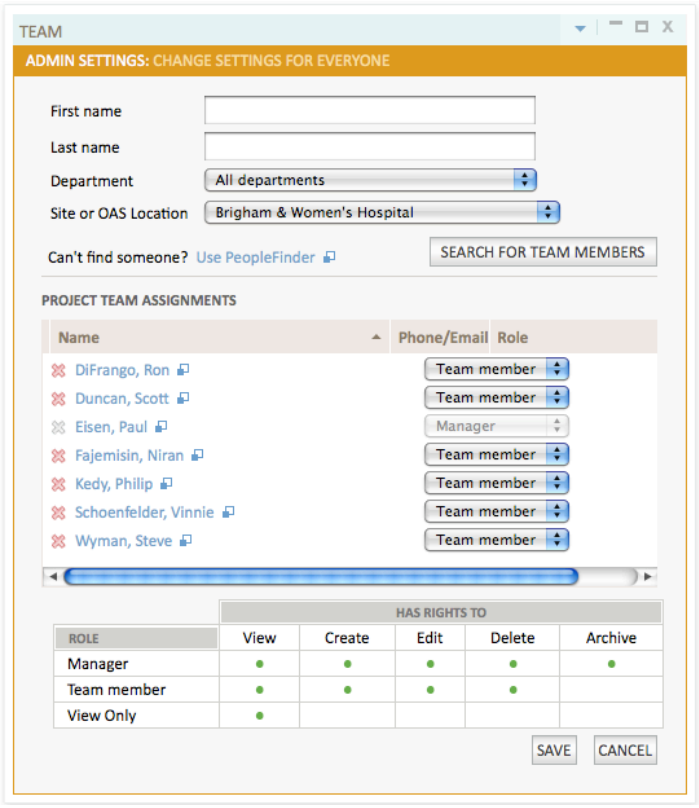
Pictured: The *My Projects* area of the site summarizes all projects that an employee participates in, either as a manager or member. Flexible tools allow users to see all projects at once or focus on specific projects.

Project managers can add or remove project members and assign particular permissions based on user types. The *Project Team Portlet* lets users search for team members based on first or last name, department, or site or OAS location. A link to *PeopleFinder*, the site's complete employee directory, is provided to help anyone having trouble locating a team member using the portlet.

Team members can be added to the project and assigned a role within the project. Employees can be designated as member or manager, or can be given *View Only* access, meaning that they can't make any changes to the project site, but they can view it. Managers have rights to view, create, edit, delete, or archive information. Team members can do everything other than archive.

The roles are predefined combinations of access. People's roles can be changed among the access levels: manager (full access), member (add, edit, and delete, but not manage or archive), and view-only, but a project manager can't subselect types of access within access levels.

Managing access rights can be a tricky and complex task, but the site has simplified it to a handful of roles with defined access. Managing team members on the project page is as easy as adding them, assigning a role, and clicking the *Save* button.

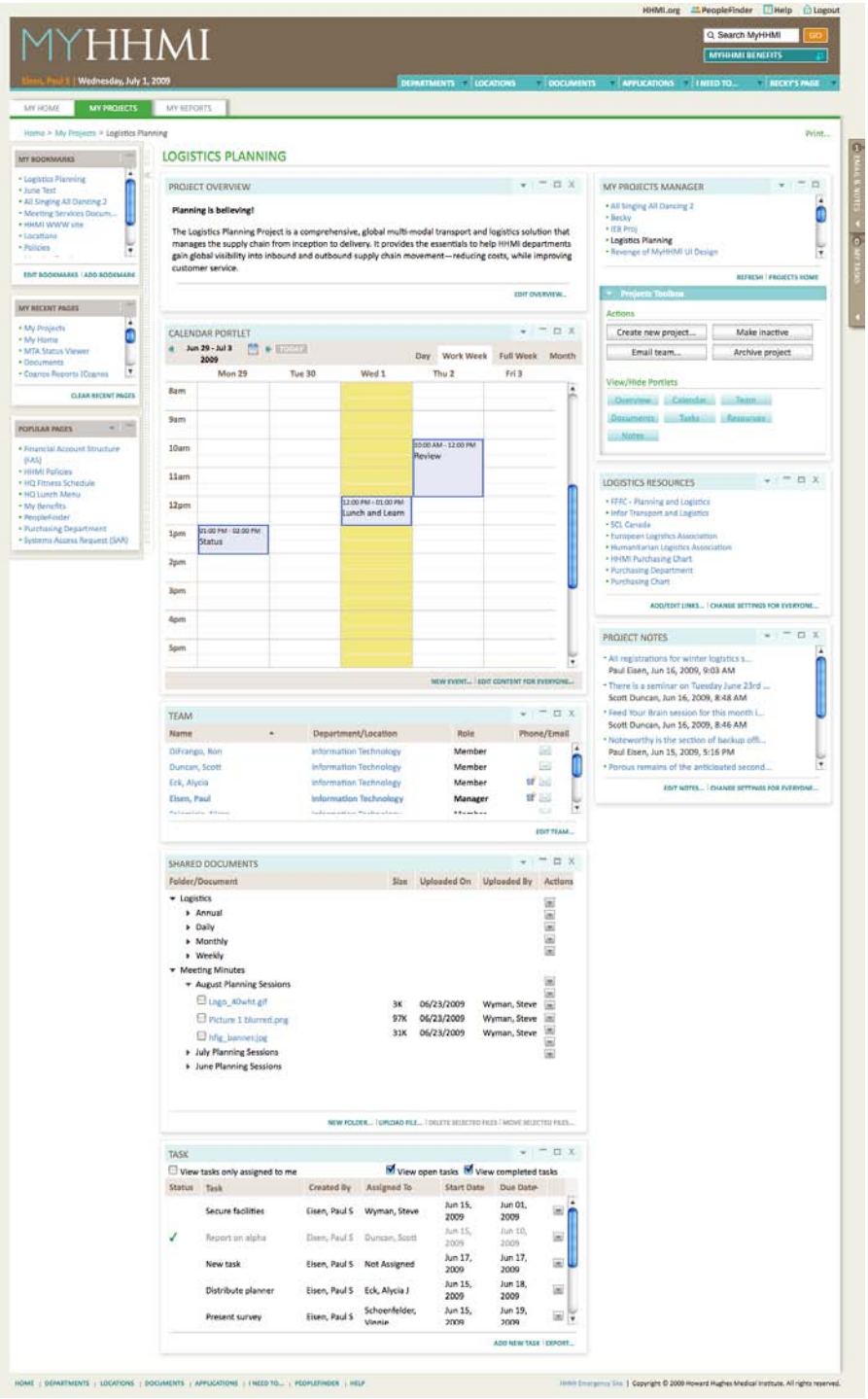


Pictured: The *Project Team Portlet* allows the project manager to easily add project team members and assign roles and their associated permissions.

Project pages are a central location for teams to share and collaborate. Project pages can incorporate team calendars, shared links to resources, project notes, shared documents, and complete project task lists. A list of all team members allows quick access to contact information for each member. Project managers can make a project inactive—meaning it's invisible to others—or archive the project at its

conclusion. A single button enables project managers to email the full team, allowing quick communication.

Having a single place to view information about the project helps keep all team members up-to-date and informed while sharing knowledge across the team.



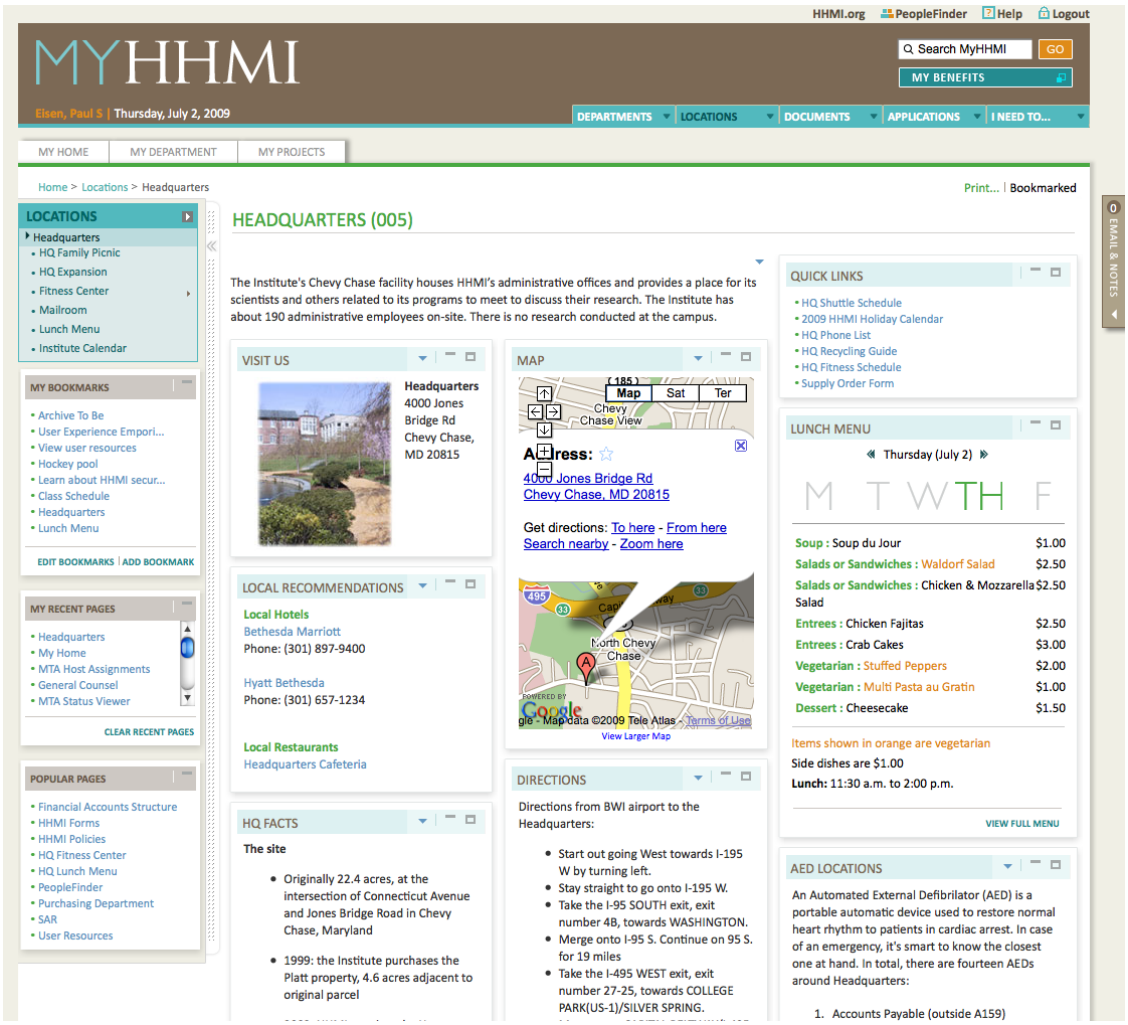
Pictured: Project pages summarize key information and allow for shared resources, including task lists, notes, calendars, and documents.

The site has a clean design throughout, making it easy for users to move from page to page without having to determine how each page works. Consistent navigation lets users know where they are on the site. The text color changes in the currently selected tab and local navigation appears on the side of the page, above the other page portlets. Breadcrumb navigation also shows users where they are in the site, indicating their current location. Breadcrumbs are nicely placed between the top navigation and side navigation.

The site makes it easy to find and use standard intranet information as well as the personalized content. Even pages with standard intranet fare are often enhanced with high-quality content. For instance, each location has its own page on the site, providing information both for and about that location. The Headquarters page shows a picture and address, but also offers information helpful to anyone coming to Headquarters, whether an HHMI employee, vendor, or visitor.

The page provides local accommodation and restaurant recommendations. Facts about the location give brief historical or interesting facts about the site, and directions and a map give users quick access to essential information for arriving at the office on time and without trouble. *Quick Links* lead to popular or important content, such as the shuttle schedule, holiday schedules, and recycling guides. The daily menu provides updated content on what could otherwise be a relatively static page.

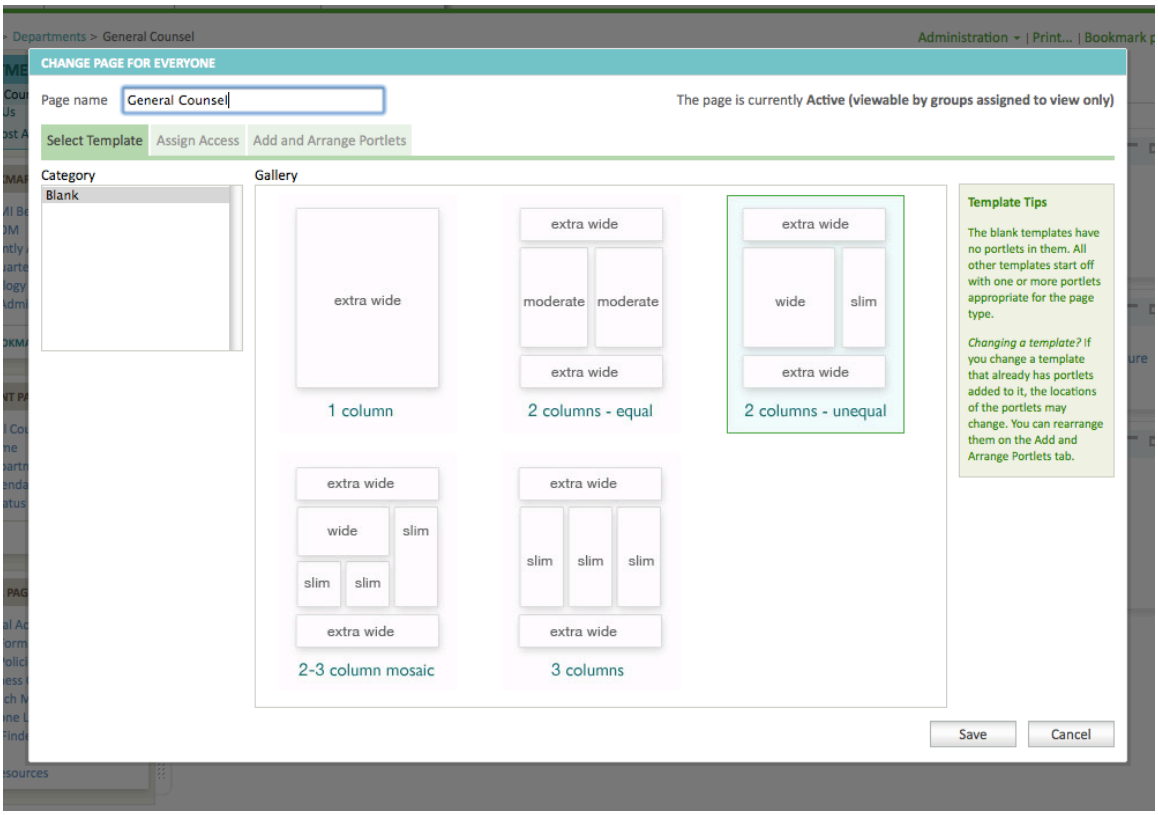
The use of portlets for conveying information gives every page a similar clean design. Each portlet has a clear title in the title bar, and consistent colors for text, links, and design elements make the page easy to scan and quickly understand.



Pictured: Location information goes beyond just an address. It includes location facts, directions, lunch menus, and more.

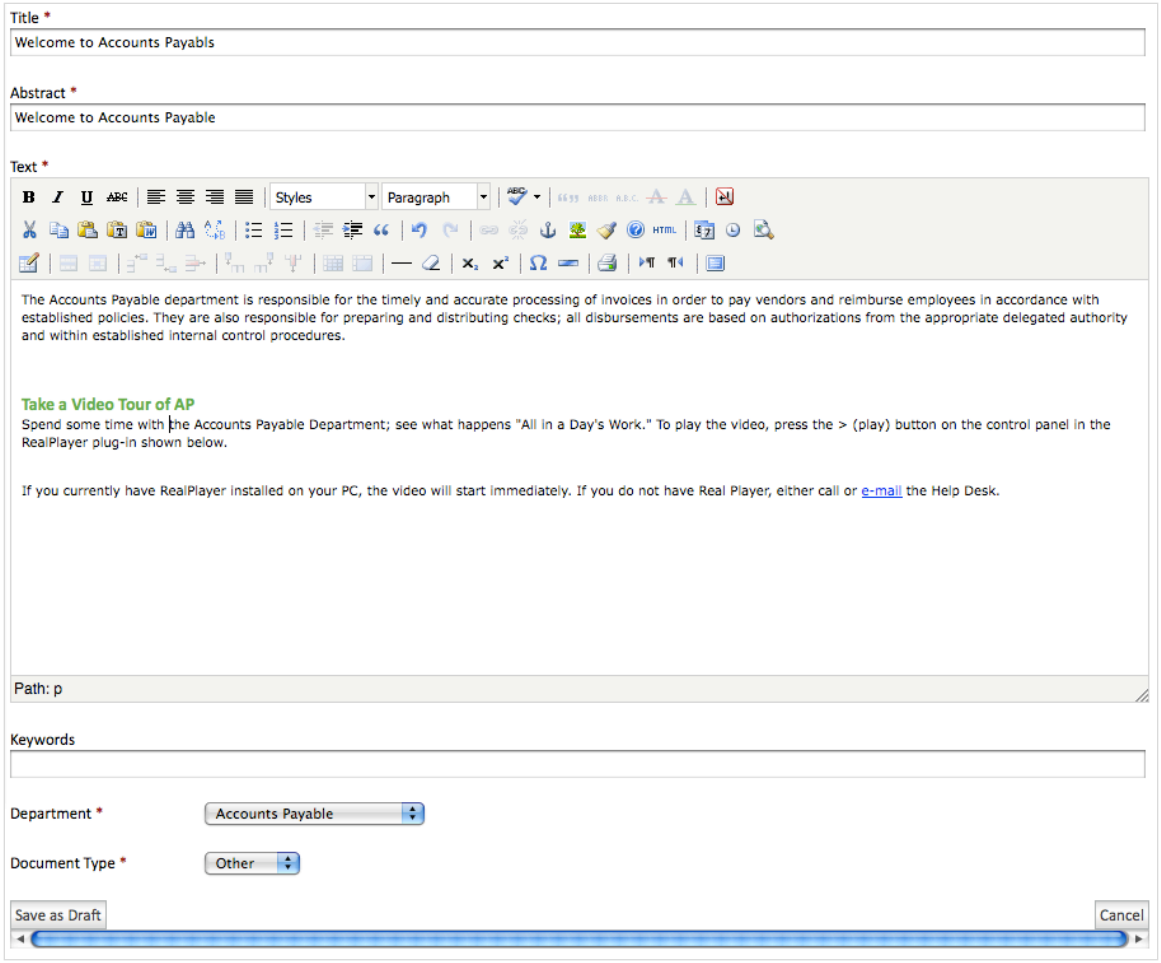
Content contributors are scattered throughout the organization. The team thought it essential that contributors could edit within the site itself, so making changes would be as simple as possible. Easy administrator interfaces and usable editing tools encourage contributors to take charge of their own content.

Content contributors can edit content through their site, and can send a preview of the changes to selected reviewers. Administrators can use the portal interface to select from one of several page templates, which allows some variety while still restricting page design to ensure site consistency. Simple diagrams show what each option looks like. Administrators can easily select a template, assign access to it, and then fill the template with content by adding content portlets.



Pictured: Administrators choose from a pre-defined selection of page templates.

Contributors don't need to learn a separate CMS to make changes. All options are within the site and are built with the user in mind. Content edits are simple. Users simply need to fill in a form. If users know how to use standard text editing tools, they can create areas of content on the site. The content form requests a title and abstract, and then provides a large open field for text entry. The WYSIWYG editing tool lets users change text colors, add links, use bold or italics, and many other actions through a simple interface. Users attach keywords to the content as well, which allows authors to tag content with terms not included in the text. Users can also select the appropriate department and document type. The tagging facilitates the faceted searching in the *Documents Catalog* and general search areas.



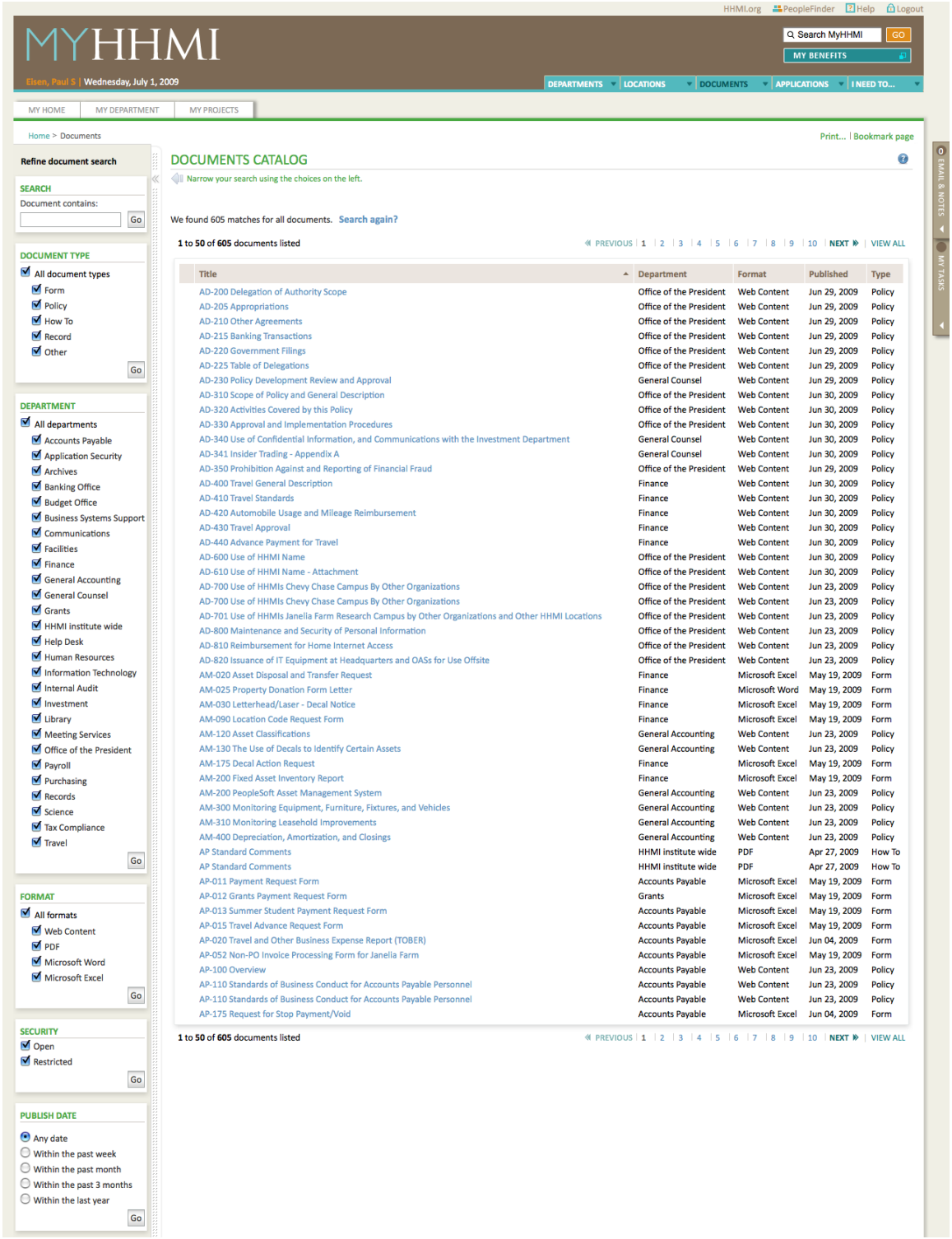
Pictured: Simple text editing tools make the task of updating or adding content to the HHMI intranet easy.

Knowledge, often in the form of documents, is essential to getting work done. At HHMI, the sheer number of documents and need for them to be easily accessible inspired the team to design a tool that they kept tweaking to ensure the best possible experience for users. The *Documents Catalog* allows users to search by both keywords and criteria. The tool is constructed around a faceted search that lets users select particular document criteria to narrow their search results. Users can search within a department or for a particular document format (such as Word) or document type (such as policy). Users can search unrestricted documents or protected documents, but see only the secure results that they have access to. Users can also search by publish date, recent documents, or all documents.

The faceted search acts as an advanced search, but in a simplified presentation. On most intranets, users need to click an *Advanced Search* link to see additional options for narrowing searches. By using faceted navigation, those advanced criteria are not only visible, but easy to understand and use. Users can choose to run the equivalent of a simple search by not selecting any criteria. Or, they can narrow their results to meet their specific needs by making selections. During the design testing, the team realized that it was important to users to not only select multiple criteria, but also to select several options within a specific criterion. For instance, users might want to

find secure Word and Excel files that had been recently updated. The presentation of the faceted search makes this easy and intuitive.

Users can make any selections from the criteria on the side of the page and use the *Go* button to submit the search. The search results page shows the total number of documents found, displaying 50 results at a time. In addition to filtering results, users can sort the documents found by title, department, format, publish date, or type.



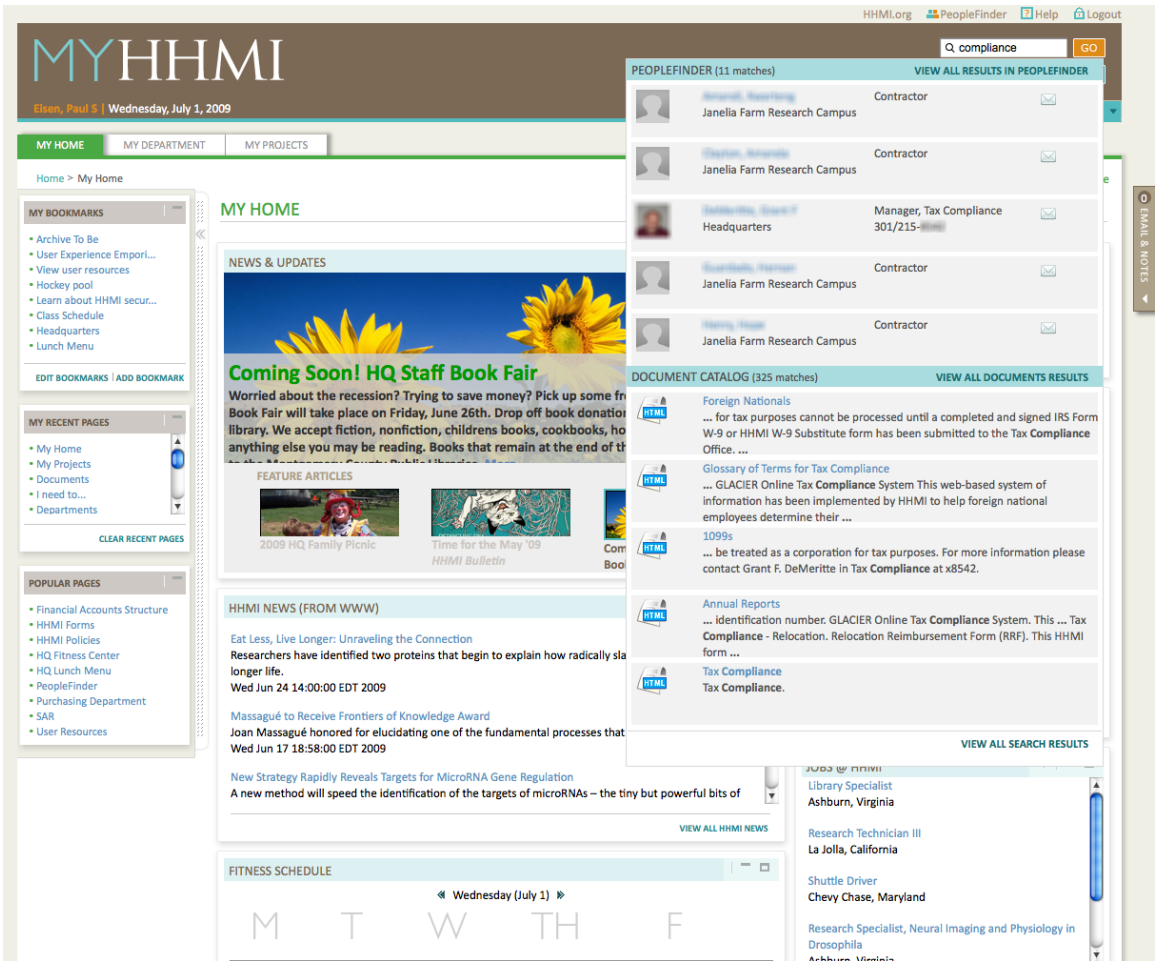
Pictured: The *Documents Catalog* lets users do a standard keyword search or specify certain attributes, such as document type or format.

The site also offers a federated site search. The team implemented "search as you type" results to give users quick access to the information they needed, with the

additional option to submit the search and see a complete search results page. The top five matching results appear in a box beneath the search box as the user types. Users can go quickly to one of these top results or click *Go* to submit the search and see the full search results page.

This added feature was particularly helpful for conducting speedy people searches or searches for particular pieces of information where a specific keyword was known. For instance, if users were looking for Becky Smith's phone number, they could see her result pop up as they were typing her name. If they were looking for a particular document with a known title, they could enter the title and see results without even having to click through to the search results page.

Designs like this, when well implemented, can go a long way toward making the site even easier to use. Attention to small design details goes beyond just letting users get the information they need; it makes the task as simple and quick as possible.



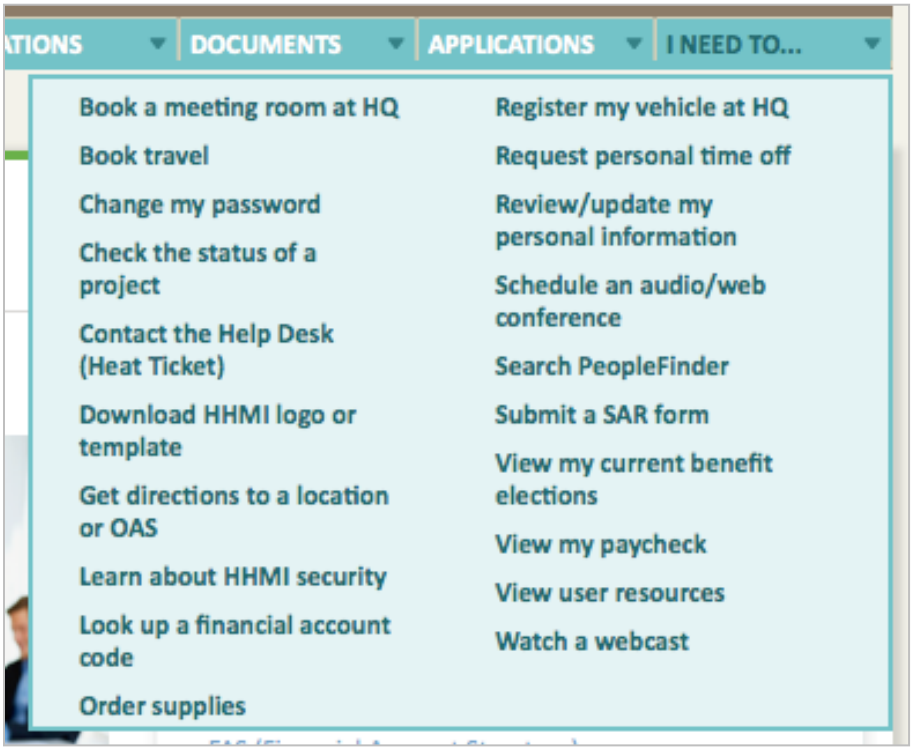
Pictured: The quick search panel appears as users type their search queries, presenting them with the top-five people and document matches for a particular query.

In creating the new site, the HHMI intranet team considered not only how the site would work on its own, but also how it would work compared to the previous site. Many intranet teams fail to adequately consider the full impact of a new intranet. No matter how bad a previous intranet might have been, employees were used to it.

Even if an intranet changes from a static, out-of-date, irrelevant tool to a dynamic, engaging, efficient one, users know how to use the old site and often react badly to the new site. The transition can be difficult, particularly if little is done to engage, prepare, or support users in the transition.

In addition to including various users from different areas of the organization in planning for the new site, the HHMI intranet team took several other steps to engage the audience.

When the new site launched, the team knew users would be reluctant to spend time "learning" the new site, no matter how intuitive the site structure was. To facilitate the transition, team members created an *I Need To* menu. They did this to help ease users' struggles to find information they previously knew how to locate and needed on a regular basis. The menu appears in the main site navigation and lets users do critical or common tasks like book travel, schedule a Web conference, or order supplies.

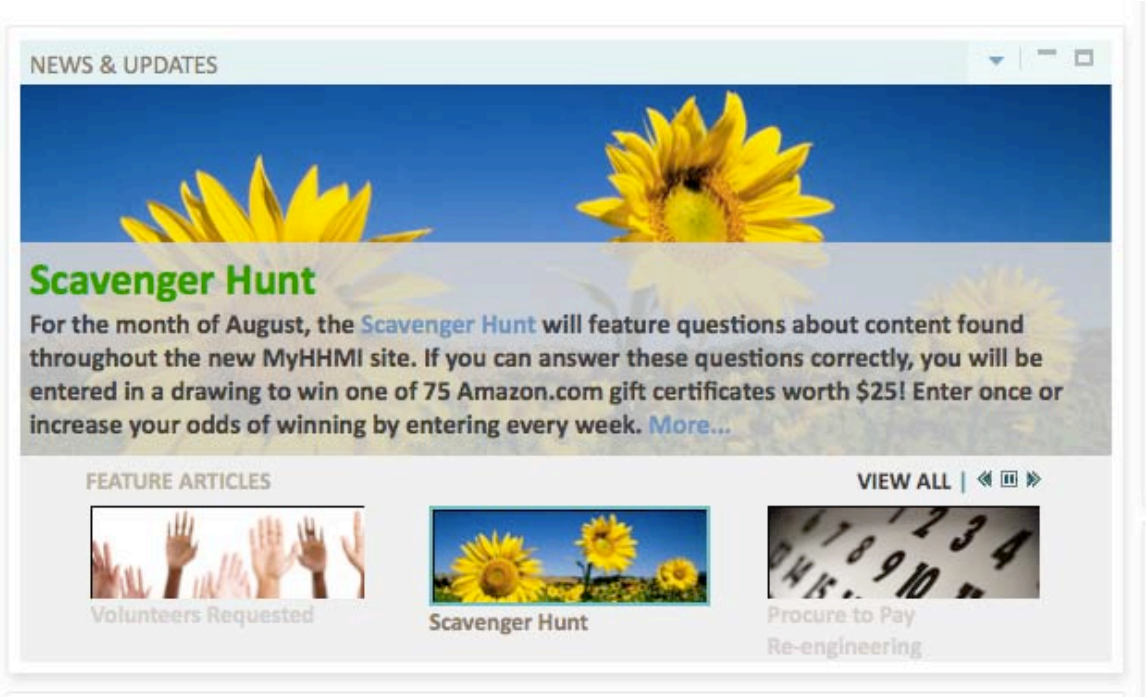


Pictured: The *I Need To...* menu was key to helping users find important content on the new site when it first launched.

The team also considered ways to encourage users to explore the new design. Users don't tend to browse an intranet, even if it's new and improved. They want to find the information they need and get on with their jobs. Because of this, users typically know only the features and content that they use regularly or that someone else mentions to them. They rarely stumble upon new content or tools they could use. In usability studies, we often hear users exclaim how useful a page of information or a tool on the site is, only to then complain that they never knew it was there.

There are several approaches that teams can use to gently persuade users to explore the site beyond their typical stomping grounds. One simple, yet potentially effective approach is to do a scavenger hunt on the site, offering prizes as an enticement for

participants. HHMI's intranet team held such a hunt, offering the possibility of winning a $25 Amazon gift certificate in exchange for users answering questions about information found throughout the site.



Pictured: A scavenger hunt encouraged users to explore the new site, introducing employees to new content areas.

Small touches as well as structural details throughout the site show the thought that went into the redesign. The search-as-you-type feature gives users quick access to results. Customizable pages let users see what they want. A focus on the user's own homepage, department, and project pages makes the site not just a reference resource, but also a work tool. Lists of recent pages viewed or recent employee searches give users information based on specific behavior on the site. The end result of the team's hard work shows their emphasis on users' needs—behavioral, intellectual, and emotional.

BACKGROUND

HHMI's first static intranet was built in 1993 and has gone through a number of relaunches, most of them focusing on design changes. The early site suffered from lack of use and outdated and often incorrect content. "It [the first intranet] was not heavily used, and most of the content updates were done in the IT department even though users could take training and update it themselves," says Leslie Forte, Director, Web Applications. "As IT is not always the first to know everything, the content was often outdated and incorrect."

In 2007, some of the company's VPs decided that a more modern site was needed to stay current with technology, enable collaboration, and provide a single access point to all HHMI network resources. At that point, the company reached out to a portal design firm, TandemSeven, to build the new portal. The resulting site was a giant leap forward for the company. "We went from a static and outdated site to a modern, clean, dynamic, and personalized site," says Forte.

INTRANET TEAM

The HHMI internal team is quite small. In fact, there's only one full-time person whose primary responsibility is the portal. A number of other developers and administrators provide assistance to the portal on an as-needed basis.



Pictured: (Top row, left to right) in-House HHMI Team Members: Leslie Forte, Alycia Eck, Kris Weinhold, Kate Forte, Dave Tabor, Bill Dorris; (middle row, left to right) TandemSeven Design Team: Frank Donofrio, Paul Eisen, Kenneth McDowell, Carrie Notte, Andrew Schechterman; (bottom row, left to right) Technology Team: Steve Wyman (TandemSeven), Alessandro Barroso, (TandemSeven), Ron DiFrango (CapTech Ventures- not pictured), Scott Duncan (CapTech Ventures), Niran Fajemisin (TandemSeven - not pictured), Phil Kedy (CapTech Ventures), Mundi Morgado (TandemSeven), Vincent Schoenfelder (CapTech Ventures).

Ownership

HHMI is learning what many large companies learn about intranet ownership: Although the project is often an IT initiative, IT isn't the department best suited to either own the intranet or be responsible for its content and communication needs. At HHMI, the portal is currently owned by IT, but a search is underway to hire a new communications staff member who will share ownership of the site with IT and keep the site's focus on communication.

"We have not historically had anyone focused on internal communications and the portal is a perfect match for that," says Forte. "Having it owned solely by IT has not worked for us in the past and we are hoping this new arrangement will provide more timely content updates for the site."

Working with Agencies

Right from the start of the redesign project, HHMI planned to engage an outside firm. The internal team partnered with the TandemSeven team, which contributed to everything from strategy to design. The visual design concept was provided by VSA Partners, who also designed HHMI's public website. TandemSeven brought in CapTech Ventures to assist the firm's technical team with development and implementation of *MyHHMI*.

Project management and oversight was handled by HHMI, while TandemSeven provided most of the design and implementation deliverables. HHMI IT staff members provided assistance with back-end server support and configuration. This partnership has been beneficial for the organization. "[Working with TandemSeven] provided us with a breadth of experience we would not have been able to provide on our own," says Forte.

The TandemSeven team executed on the following deliverables:

- Led creation of the vision and strategic roadmap
- Conducted user and stakeholder research to understand unmet needs, pain points, and opportunities
- Surveyed the existing technology environment, developed a vendor RFP, and defined technical requirements
- Created the information architecture, the interaction, and the visual design
- Designed, developed, integrated, and deployed the platform and supported applications

INTRANET TEAM RESPONSIBILITIES	
Role	**Responsibilities**
Portal Stakeholder Group	• Provides governance, program management, and other executive support • Responsible for the content and features available on group intranet level
IT/Communications Portal Team	• Promotion • Major content updates • Usability • Communications • Training and support of the content owners
Content Owners	• Responsible for the updates and consistency of their sections • Able to delegate some part of the updates or changes to other members of the team/department

TIMELINE

The timeline for the redesign project included the following milestones:

- **October 2007:** HHMI began the process of finding a consulting team
- **January 2008:** HHMI hired TandemSeven to do an initial requirements gathering to determine the feasibility of a portal

- **April 2008:** Work began on the project
- **July 2009:** Portal launch

Future Plans

We often talk to intranet teams just as their redesigned sites launch. At that point, they're often just beginning to think about what needs to happen next. The HHMI team is now grappling with many of the follow-up details that come quickly on the heels of project completion. "We are still working on our roadmap for the portal as it has only just been launched," says Forte. "We are currently using an outsourced solution for our HR-related content and applications as we could not build them all internally before this season's open enrollment period."

"The plan is to move all of our HR-related materials to the portal and build custom pages and applications in that framework," she says. This migration will take place over the next two years. Other short-term goals include adding more social and collaboration features to the site, such as wikis, a blog, and discussion forums.

GOALS AND CONSTRAINTS

The overarching goal for the portal was to develop a secure, single point of access to all departmental and enterprise-wide information, knowledge, policies, and applications.

Among the specific goals were to give employees:

- A common interface for all content housed by various systems, providing employees with self-service access via single sign-on
- Real-time access to data and applications
- Secure project areas to increase engagement and foster collaboration among teams within the organization

Constraints

Budget is always an issue with intranet projects, especially for nonprofit organizations. But the HHMI project had a time constraint on top of the ever-present budget restrictions. "We had a firm deadline to get the portal launched a few months before our benefits open-enrollment period," says Forte. "We were changing out benefits packages and all 3,000 employees were now going to be doing their benefits elections online for the first time."

Because employees had to access the benefits application via the portal, the company wanted all employees to be familiar with the site and able to log in before open enrollment began.

USERS

Universal access for all employees was one of the design goals of the HHMI portal and a wide variety of users in a broad range of situations use the portal and its features. "The portal's ultimate goal was that it serve any employee of HHMI, at any location—at home in the evening or over the weekend, at the HHMI home office, regional and administrative offices, government and private organizations, universities, and scientific settings, such as laboratories," says Andrew Schechterman, Principal User Experience Architect, TandemSeven. "Even 'pre-

employees' (in the stages of ramping up) and students are given some access to the portal, facilitating a smooth and effective transition to their roles/jobs."

Supporting a Wide Variety of Users

HHMI users include executives; nonprofit business, organizational, finance, and legal professionals; scientists; and a full range of clinical management, executive, and frontline administrative support staff. A sampling of roles (and rights) include staff from the following areas: Records and Archives, Conference Services, Grants, Travel (domestic and international), IT, Business Systems, Legal Counsel, Education, Supplies, Food Services, Labs Management, Science, Executives, HR, and so on.

The major user groups for the site include: headquarters personnel (contract, hourly, salary, and emeritus), personnel located in regional offices throughout the US (primarily mid- to upper-level administrative), and scientists and their clinical and administrative teams, also located throughout the US.

The following five main groups use the intranet:

- **HHMI scientists and lab and administrative staff** who design and conduct research, administer and manage labs and staff, engage in lab procedures, make presentations, and publish research
- **HHMI Institute employees** including executives, directors, managers, administration, and other staff members who provide leadership, direction, management, and comprehensive support for all employees and the general public
- **Vendors, collaborative institutes, and organizations** who do business with HHMI; in future releases, these groups will have limited access (likely to the project workspaces)
- **Non-HHMI lab personnel** who might work in a lab with one of the organization's investigators, but who don't work directly for HHMI

USER TASKS

Supporting a Wide Variety of Tasks

How and why people use the HHMI portal varies almost as widely as the types of users. Most of the site's users provide the day-to-day support for scientists engaged in research efforts. "Many users rely heavily on tools provided within *MyHHMI*, such as those that structure, guide, or scaffold complex searches for different types and formats of information, searches for and the creation of employee groups (for communication, research and planning, volunteer and committee membership), for the creation and management of within-department and across-Institute projects, for rich collaborative calendars and group planning tools, tasks, and alerts, and for shared documents," says Schechterman.

Some of the site's users turn to the portal for specific, vertical purposes such as data management and analysis. Some users engage with the portal for broad purposes, such as managing employee benefits or vendors and supplies, including tracking requests, requisitions, and fulfillments. And finally, some users access the portal like

a personal homepage, as a source of communication and information. Such users participate in groups and committees, learn about employee accomplishments (such as the HHMI investigator who received a Nobel Laureate), and let others know about the work underway in their department.

Common Tasks

Some of the most common tasks the intranet supports include:

- Accessing local and network software, applications, and tools
- Accessing the World Wide Web (seamlessly)
- Adding, deleting, and editing bookmarks
- Assigning rights, roles, and access to the intranet
- Bookmarking pages as favorites
- Creating, editing, archiving, and distributing content
- Creating, editing, managing, and subscribing to calendars
- Creating, populating, editing, managing, and archiving projects
- Customizing a homepage, including moving and editing portlets
- Emailing an individual or group from within selected applications
- Finding a document, form, or policy
- Finding and researching a department, lab, office, or location
- Finding and researching a person, their department, and their affiliations
- Getting online support (help) via a range of flexible resources
- Accomplishing frequent tasks (quickly) via pre-built shortcuts (such as *I Need to…*)
- Requesting limited or ongoing access to applications and content that might be secure or confidential
- Reviewing and making changes to personal benefits
- Searching, sorting, and refining search results via traditional and faceted options (for example, searching news stories, documents, persons)
- Viewing, creating, and saving (favorite) reports
- Viewing popular pages
- Viewing recently viewed pages and recent searches across a range of content
- Writing quick notes and to-dos

DESIGN AND USABILITY

Applying Multiple Methods

As stated previously, TandemSeven was hired to provide guidance in the strategy, vision, roadmap, design, and development of the new portal. The HHMI team felt it was important to apply a variety of methods of user engagement to inform decisions

throughout the project. “HHMI was committed to TandemSeven’s experienced-centered approach; this was their commitment to their employees who delivered biomedical research as ‘products and services,’ addressing, for example, cotemporary human diseases such as cancer,” says Schechterman.

With that user-centric commitment in mind, the teams included many user research activities as part of the design process. These included:

Single Day Field Studies (Rapid Ethnography)

The teams used field studies to observe and learn from users who were outside of the immediate HHMI home office locations. Stakeholders concurred with the team’s opinion that there was only a modest understanding of how, for example, scientists, lab staff, and to some extent, even regional administrators and teams, were utilizing the current intranet tools and doing their jobs. Stakeholders wanted to better serve this “family of constituents” and recognized that there were likely many latent opportunities that were still fully unknown. The only way to reach these users was to go where they work and learn from them.

Users who were identified for these studies allowed the researchers to spend time with them in sessions lasting anywhere from a few hours to a full day so they could learn “in situ.” The team hoped to gain granular insights that are otherwise unseen or unknown.

Most volunteers were curious but unconvinced that these sessions mattered, until the researchers spent time with them. “At the end of the day, they were excited and sold,” says Schechterman. Though users were not provided diaries or disposable cameras (or other survey instruments), team members did ask them to keep in touch. And many did, sharing insights as they occurred in the course of every day work over time. Some of these users even continued their relationship with the researchers by becoming part of subsequent usability studies.

This in-person research paid off for team members, who gleaned insights that would have never come to light without seeing the users in their native environments.

“One of the most revealing and perhaps sobering insights from field studies were that users were unaware of the existing tools available to them, had difficulty using or accessing the tools (such as multiple sign-on demands), could not use tools of systems in parallel reflecting their actual work, frequently and routinely made informal phone calls to HHMI home office staff to submits reports, make requests, obtain information, etc.,” says Schechterman. “Additionally, we uncovered and better understood the very human elements of the ‘us versus them’ culture that exists.

“Well known is that such tacit, often intangible human elements will trump even the best-intended designs and technologies,” he says.

Contextual Inquiries

The research team used a variety of contextual investigation methods, including iterative prototyping, informal user reviews, user surveys, use cases, screen flows and navigation model validation, and informal usability testing. To conduct this research, the team went out to their pool of users with tools in hand (clipboards, notebooks, cameras, and so on) to learn how users accomplished certain goals in context—at their desk, at their computer terminal, as they spoke with coworkers down the hall, or walked documents across the atrium to another office.

These contextual inquiries were focused on gathering the information necessary to map the requirements, flows, tasks, and goals (fulfilled or unfulfilled) that were identified as most critical for users to succeed based on their roles.

The study participants included stakeholders and subject matter experts who were also heavy users, and perhaps most important, users who were simply "end users"—that is, the many ground floor personnel who keep HHMI running smoothly. "These users offered remarkable insights into patterns of use, roadblocks, frustrations, opportunities, and workarounds, which could be properly designed for and integrated into the intranet over time," says Schechterman.

As a next step, the team brought some planning and architecture documents (conceptual diagrams, visualized use cases and flows, screen designs, and wireframes) to these users (as well as to new users) and gathered feedback on those.

The research activities provided team members with valuable data that informed their thinking and helped them throughout the project at critical times, such as when selecting among alternative design approaches. The data also helped them correct their assumptions and misinterpretations.

Development of User Types

Early on, the HHMI and TandemSeven teams discovered a large range of distinct users (such as executive vice president, department manager, legal secretary, senior scientist, administrative assistant, and more). "We agreed to build user types to capture the large breadth of cognitive, affective, and behavioral needs of these employees," says Schechterman. "Our user types also informed, for example, roles and rights for single sign-on governance. Because we had significant complementary user data available to us, and had easy access to users on a regular basis, our user types proved valid and reliable design and technology benchmarks."



- **Background** 12 years HHMI Southeast Region D, serving five OAS offices (TN, KY, NC, SC, GA), 400+ employees (including Scientists). Previously, one year at HQ, three years at Durham, NC OAS. Offers expertise in budget management, procurement, human resources.
- **Work environment** Primarily office, conference rooms, travels 1x/month within region, 1-2x/year to HQ.
- **Works closely with** OAS MAS. Supervises regional staff, immediate department (e.g., Purchasing Coordinator, Fiscal Manager, HR Manager, Administrative Assistants).
- **Usage patterns** On-going email, phone. 1-2x/day FedEx. Relies on PeopleSoft (all staff can view but not enter).
- **Triggers for action** and **Sample scenario of use** Purchasing issue where "an error can mushroom," has debt/credit implications. Problem with an order fulfillment going directly to a Lab. Paper inbox and voice mails accumulate quickly if not always attended to. End of month, request, review regional data, produce summary report for HQ.
- **Needs** Easy access to ERM, benefits ("self-service paycheck"), inventories, debt schedules. When producing monthly regional summaries, sometimes needs drill down capability.
- **Wants** Centralized purchasing. Color coding of calendars/reports to flag critical data/changes. Start of day to-do lists including items needing approvals. Move from paper based to digital. Ability to produce custom reports. Easier ways to design, implement policies/procedures, ensuring consistent interpretation. Detailed reports of specific region activities.
- **Tasks, Goals, Motivations** High level on-boarding and off-boarding processes, security clearance processes/flows across systems. Provide leadership, training, vision, motivation. Establish standards and measurements. Quality control.

Pictured: An example of the user types the HHMI team developed during the site redesign process.

Collaborative Planning (CLASS) Sessions:

Because the HHMI team gathered data through so many channels, it was inevitable that the data analysis would be fairly complex, but team members applied the same rigor to the analysis that they applied to their research activities.

They arrived at a set of potential features and functions through a process that began with developing requirements matrices and rankings and culminated in a series of collaborative planning (CLASS) sessions where the team worked with stakeholders to both convey the findings and guide the group to consensus. The CLASS sessions included guided PowerPoint presentations, colored Post-It Notes on posters and walls, and white boarding. During these sessions, stakeholders discussed, weighed pros/cons, and ultimately prioritized sometimes hundreds of variables and opportunities.

"As the stakeholders had already been exposed to some (but not all) of the user research, they were able to consider user needs along with business goals and technical parameters," says Schechterman.

Although it was a balancing act on the part of all parties, the planning sessions and ranking surveys paid off. Informal usability testing revealed that the team's collective efforts were largely on target.

"Applying multiple methods helped us be better informed where a user might be inadvertently denied access to something routinely or occasionally needed, or where a user might be afforded unnecessary access to a part of the system that would cause undue burden on both the user and the system," says Schechterman. "As such, one thing we were able to inform (and design for) was governance—a complex but overarching set of rules, assumptions, practices, and audit trails that were defined by feature and function matrices, rankings, and collaborative discussions."

Involving Stakeholders

The TandemSeven team worked hard to involve stakeholders throughout the design process to keep a steady flow of feedback coming into the project as it progressed through the design and development stages. This contributed to the project success on many levels.

"We first interviewed stakeholders at HHMI headquarters," says Schechterman. "Next, extensive and ongoing user research was conducted with a full range of employees, as well as within science labs with staff and investigators, to understand unmet user needs and connect them to business goals."

The team also surveyed the existing technology environment, developed a vendor RFP, and defined technical requirements. "After analyzing the findings," he says. "We created a vision consisting of two scenarios to illustrate the experience of the portal from a user perspective and a future technical architecture to deliver it."

Team members solicited and obtained user feedback on a regular basis—sometimes weekly, sometimes bimonthly—and often informally, in the context of use. "Input was constructive, instructive, sometimes confirming, sometimes negating," says Schechterman. "Frequent adjustments were made, some subtle, some more overarching."

Using multiple perspectives, an iterative approach, and creative methods, the team helped crystallize the organization's needs and created an effective roadmap to deliver an enterprise portal that meets the company's goals of fostering collaboration and supporting content creation among the geographically dispersed employees.

Engaging Beta Testers

Prior to release of the new intranet, 150 beta testers were engaged for a two-month period in a controlled release of functionality. "Scripts for beta testers were written so that these users could deliberately exercise elements of the intranet's features and functions, also allowing them to more easily submit their feedback to the team. Hundreds of results were sent in," says Paul Eisen, Principal User Experience Architect, TandemSeven.

Overall, results of the beta testing revealed that users were excited about the portal and anxious for it to go live. Their enthusiasm was tempered somewhat by the reality that what they were seeing was a first iteration. During this period, the testers provided many suggestions for future enhancements and applications, and the team listened carefully to the feedback. "We reviewed all the feedback and added as many of the quick changes as we could in the time frame," says Eisen.

Expert Reviews

Although the team didn't usability test the existing site prior to the redesign, they did employ informal expert review sessions at the beginning of the project. "We also routinely returned to the current intranet to learn what was working and what was not and why," says Schechterman. "We used the information to provide expert opinion to HHMI.

Additionally, during the stakeholder interviews, contextual inquiries, and user interviews, the team learned which features and functions were effective, and which were problematic.

They also had a significant opportunity to collaborate with subject matter experts who provided a unique perspective on the intranet's usability from an advanced user role.

All of these interactions with users informed the choices the team made as the project progressed and gave the them numerous data sources to rely on so that as questions or decisions arose, they could refer back to the users rather than relying solely on their own opinions or experience.

Success Factors

The HHMI team benefited from the depth of experience of many of the TandemSeven team members who have contributed to multiyear portal or intranet projects for other companies. Having intranet veterans on the team helps, but so does regular access to users.

"The team was also inspired by the scientists in the field we met with [and] their laboratory and support teams," says Schechterman. "Some of these teams provided us entry into their daily work lives that were in turn translated directly into the conceptual, tactical, strategic elements of the intranet."

Having repeated access to end users, many "just down the hall or just across campus" offered the team constant reminders, a steady stream of fresh eyes, and an

appreciation of the tacit and small design opportunities that are often overlooked. Interfacing with end users also provided a healthy dose of reality as the project progressed.

Surprising Results

Schechterman cites a number of surprising (or larger than expected) results. Through the research, the team learned that users wanted:

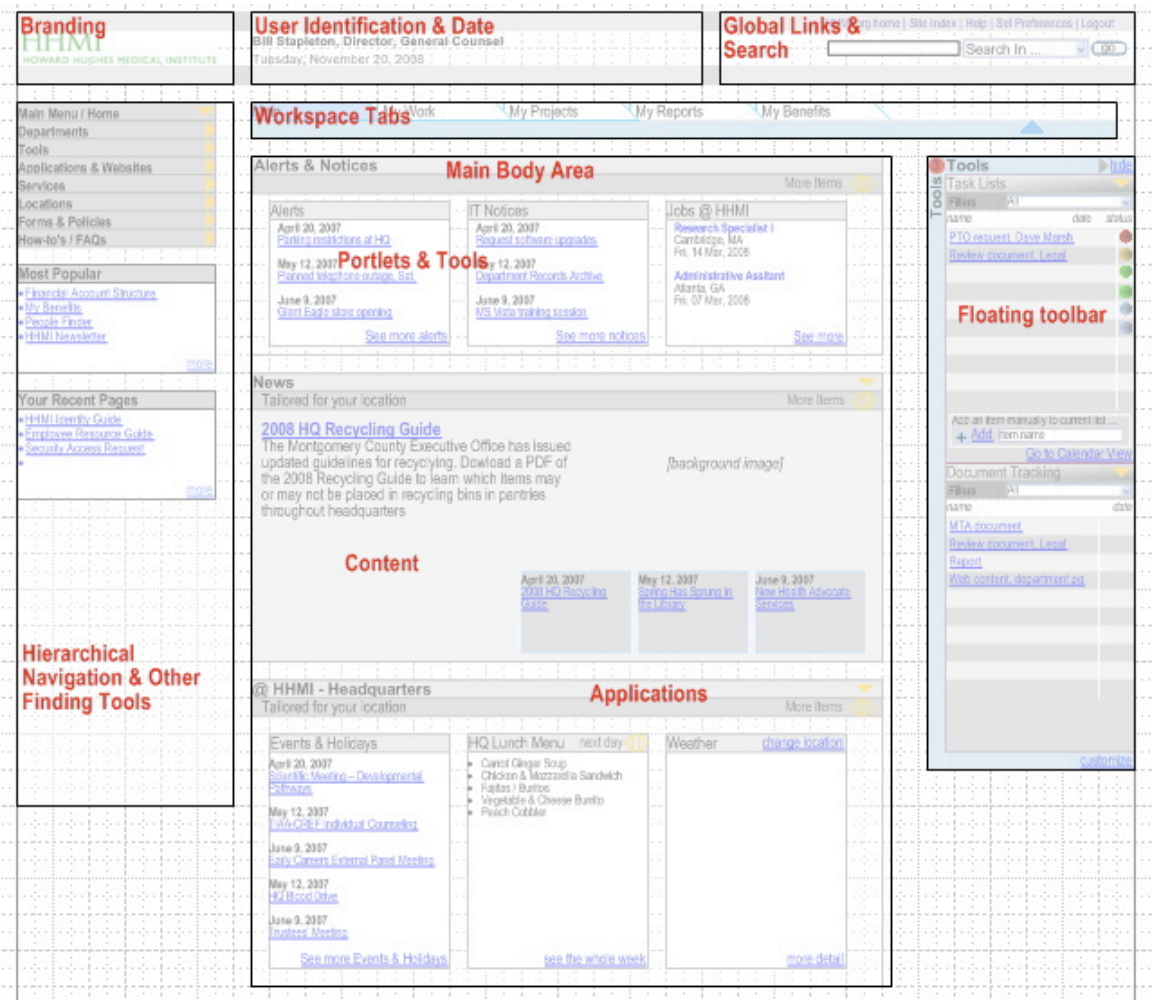
- Better/more community and communication among employees who were widely dispersed
- Tools that are easier to access and use on a daily basis (such as the ability to search for something very specific within multiple databases)
- More frequent updates (or access to) progress indicators, such as for events that users participate in or initiate
- Tighter integration of back-end resources, a personalized and highly customizable homepage, and the ability to easily modify content

Metrics

Throughout the project, team members obtained qualitative metrics, primarily via user reviews of architecture approaches, concepts, flows, screen layouts (see examples below), and interactions. Because they took both single measures (with a new user each time) and repeat measures (using the same users for some designs), Schechterman says the team was "able to better define failure, workarounds, and success."

The team didn't conduct formal usability studies. Nonetheless, Schechterman says "the team did see a diminishing number of problems with our designs over time, via 'fail-first-fast' contact with users. Sometimes on a daily basis."

The first sets of quantitative metrics are being obtained as of this writing. With those in hand, the team will have the opportunity to learn more about the outcome of its design and development efforts and will be able to gauge both next steps and possible enhancements.



Pictured: An early IA sketch of a page from the intranet showing how the information areas will divide the page.

Project Phases

The HHMI portal project was broken out into two main phases: Vision, and Design, Architecture, and Build.

Phase I: Vision

A combined design and technology team conducted the Vision Phase, which lasted four months and included the following tasks:

- Stakeholder interviews (both design and technical)
- User research
- Requirements gathering
- Current state definition
- Future state vision of the portal and roadmap definition

Phase II: Design, Architecture, and Build

The Design, Architecture, and Build phase had the added complexity of integrating the design team's efforts with the development team consuming their output. This phase took roughly a year to complete and contained the following tasks:

Design

- Conduct contextual task analysis at headquarters and various field locations
- Align requirements for pilot and future releases
- Design information architecture for the overall portal framework
- Create visual design for the framework
- Run multiple integrations of design sets—including wireframe creation, development team reviews, gathering and incorporating user feedback, detailed design annotations, and visual design—before turning it over to development

Architecture

- Select the vendor
- Design the physical architecture
- Set up the development environment
- Build technical proof of concept

Build

- Build portal framework (iteratively)
- Conduct multiple Agile portlet and framework sprints including wireframe and visual design review, user interface development, services development, integration of UI and devices, testing, and deployment
- Set up production
- Beta test (with iterations), including: test specific functionality, fix issues, QA, and redeploy
- Deploy production

Usability Best Practices

After conducting user research, teams often learn valuable lessons about what works and doesn't work. HHMI team members describe a few of the usability best practices they learned along the way:

- **Maintain frequent, informal contact with users through quick iterative reviews.** "'Low fidelity' mock-ups, and participatory prototyping was essential to 'moving the mountain one stone at a time.' Frequently assessing the intellectual and emotional needs of the users and not just the behavioral needs accelerated our ability to co-create a cohesive product and service that was a usable (behavioral), useful (intellectual), and meaningful (emotional) intranet. This was particularly important as HHMI's 'product and service' is the support and advancement of science—in part, to ameliorate human suffering and pain." (Schechterman)

- **Apply user-centered design.** "A user-centered and experience-centered design approach, with a fully delineated though flexible method and process, was fundamental to the success of the project. The freedom to dial-up and dial-down a particular phase allowed us to flexibly plan for and respond, rather than just engage in standard protocol. Two engagement leads (HHMI and TandemSeven) were critical to keeping a bird's eye view on the many moving parts of the project." (Schechterman)
- **Keep technology and design teams integrated.** "Having an integrated design and technology team helped keep the designs grounded. This approach enabled us to take advantage of strengths and avoid some of the weaknesses of the various technologies used to develop the portal. It is always critical to design not only with the end users in mind, but also the technologies that will implement the designs." (Stephen Wyman, Vice President and Project Manager, TandemSeven)

URL AND ACCESS

The site's URL is: https://my.hhmi.org/. Though many users make the portal their start page, they are not required to do so. Remote users account for most of the user population. They connect via a Juniper Networks SSL VPN.

TECHNOLOGY

The portal is built on JBoss Portal running on Red Hat Enterprise Linux, and content is stored in Alfresco running on the same. Java code for portlets, servlets, and so on is developed in Eclipse, and code is version controlled using an SVN repository. Bug tracking is handled using Mantis. Web content stored in Alfresco has versioning, so a change history is kept for each document.

Choosing the Technology Platform

The TandemSeven technology team facilitated a full vendor selection process for HHMI. JBoss was selected for its robust architecture, and because it offered a lightweight, easy to maintain platform. "There were several areas in which we had to enhance the platform," says Vincent Schoenfelder, Solution Architect, CapTech Ventures. "And, because JBoss is open source, we were able to directly extend the product."

The enhancements included:

- **Decentralized governance**. JBoss allows for a single administrator to maintain the portal; the custom extensions allow for decentralized administration. Department administrators can be limited to administer only their portal sections. This includes custom page creation, assignment of portlets to pages, and security administration.
- **Microsoft Exchange integration.** The custom extensions take advantage of the Exchange Web Services, providing email and calendaring information directly on the portal. The custom calendar portlets let users display multiple calendars in a single calendar view.
- **In-place editing and workflow.** This product enhancement lets content editors directly edit content from within the portal. Content changes can be made live immediately, or sent to another user for review. Options allow for reviewers to view current and draft content.

Also, the team extended the portal platform to support the interaction design. "In order to support the interaction design, our portlets had to utilize AJAX to make partial updates to the page," says Phil Kedy, Lead Technical Architect, CapTech Ventures. "We extended a well-known framework called 'Spring Portlet MVC' to be able to handle AJAX functionality (Portlet 2.0 specification)." With these types of custom extensions, the technical architecture was able to support the interaction design.

Visual Design Tools

The interactive design was created using MS Visio. Once the initial framework was agreed upon, the team designed tabs with corresponding portlets using annotated wireframes, also in MS Visio. All design documents were stored in a SharePoint folder with final documents being moved into an approved folder. TandemSeven, in conjunction with the HHMI team designed and developed the visual design in Photoshop. The combined TandemSeven, CapTech Ventures, and HHMI technical teams took the Photoshop files and annotated wireframes and coded them in HTML, JavaScript, and CSS so that they could be integrated with the portal environment.

Collaboration is Key

Many technology platforms have limitations when it comes to optimizing the user interface. Companies often choose a platform because it delivers the functionality they require, while knowing that there will be trade-offs when it comes time to customize the UI. This means that tight collaboration must exist between the design and development teams to ensure that the UI doesn't take a back seat to the functionality. The HHMI team knew that this collaboration would make the difference between good customization and bowing to the technology constraints.

"A primary take-away from this effort would be to place a high degree of emphasis on a tight collaboration between the visual designers, user experience architects, and technical resources as early in the process as possible," says Niran Fajemisin, Principal Technical Architect, TandemSeven. "This provides some boundaries around the final visual design output and vastly reduces the challenges of integrating the visual design into the portal infrastructure."

JBoss Portal, the portal product deployed for the HHMI intranet, provides a rich set of APIs to facilitate development of a strong visual design. Team members therefore developed a design theme to facilitate a consistent look and feel across the portal. Creating that theme required some compromise, however, as they had to strike a balance between keeping the original visual design and branding, and contending with the performance requirements and technical limitations inherent in HTML browser rendering capabilities. "An extensive amount of cross-browser testing was required to balance the compartmentalized nature of portlet development with varying levels of support provided in each version of targeted browsers," says Fajemisin.

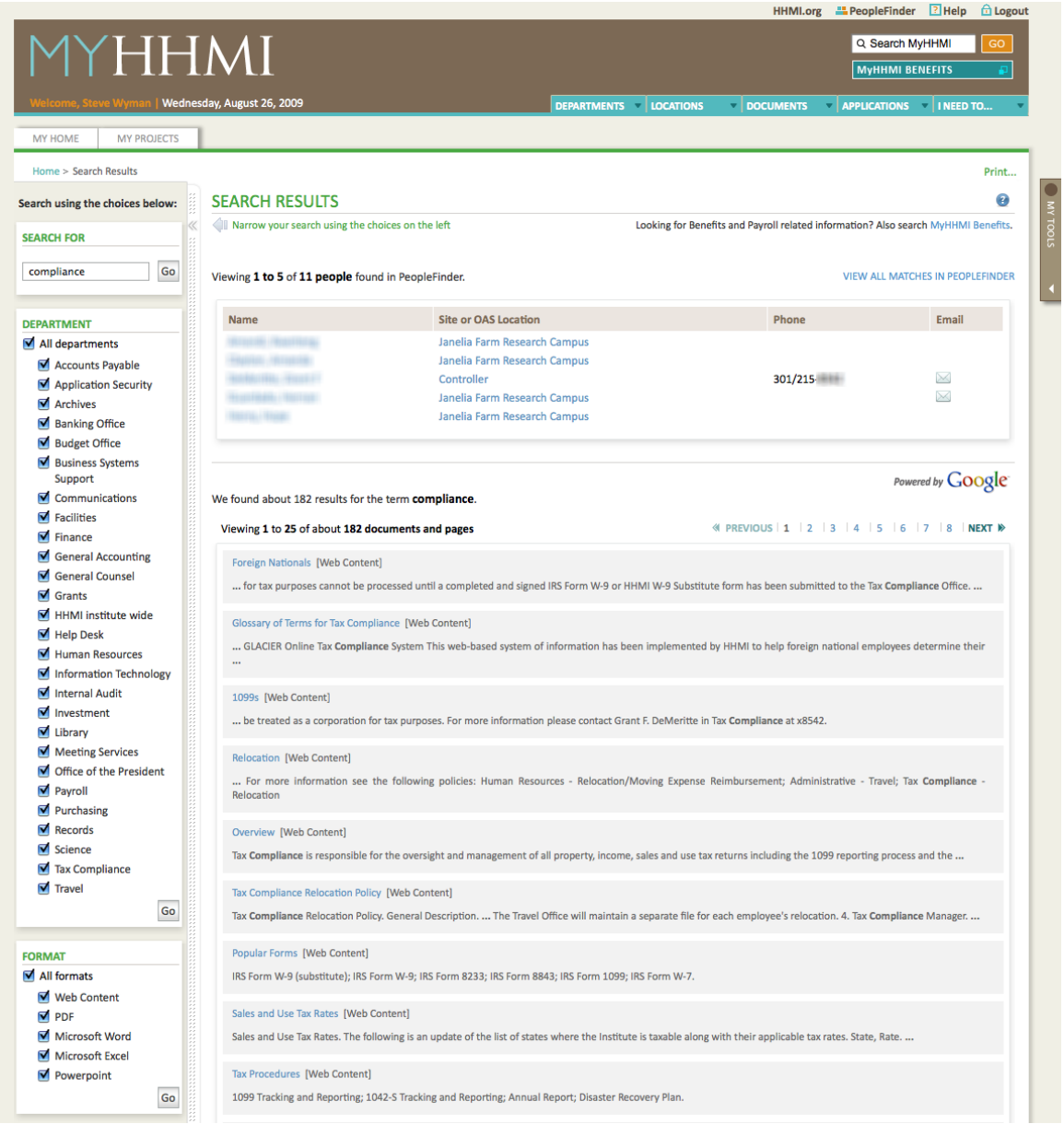
SEARCH

The HHMI site uses Google Search Appliance (GSA) and instead of a "crawl" approach, it takes advantage of GSA's ability to accept pushed content. In the crawling process, a search engine methodically and routinely gathers site information. Pushing allows for manual control, letting administrators send data to

the search engine and include more details that can support a more robust governance model, faceted searching, and other more advanced features.

“Although GSA is very good at crawling sites, enterprise portals introduce complexity [related] to role-based security and governance models. The basic crawl functionality isn’t adequate for these purposes. In order to meet the business requirements, we developed custom feeds (pushing of information) that included metadata to support these business objectives,” says Schoenfelder. “GSA provides a robust API that allowed us to push content into the search appliance while enforcing our governance model.”

“Our push-based feed approach affords us sufficient control over what results get returned by searches to meet HHMI's business requirements,” says Ron DiFrango, Technical Architect, CapTech Ventures. The site search utilizes GSA’s robust APIs, and the team installed a search architecture to provide a gateway that could service all portal search capabilities. Searches ranging from documents and Web content to people data are presented in various formats to meet the high user expectations for search results. In addition to extending the search, GSA allows users to effectively limit search results as well, enabling them to find information much more quickly.



Pictured: The *Search Results* page provides text-string and facet-choices and is structured like the *Documents Catalog* to let users narrow and adjust their searches.

MOBILE

The site's technical architecture wasn't optimized for mobile devices, but the site is accessible to users on mobile platforms that support browsers, such as iPhone or BlackBerry devices.

CONTENT MANAGEMENT

CMS Technology

Content for the HHMI portal is stored in Alfresco 3.1, a third-party open-source product that TandemSeven recommended after conducting a requirements gathering and analysis effort. The Java-based Alfresco software uses a combination of a relational database and a file system with Lucine indexes to store content items. Alfresco exposes much of its functionality to clients via a RESTful services API.

Web content is stored using Alfresco's Web Content Management, while documents such as spreadsheets, PDFs, presentations, and Word documents are stored using Alfresco's Document Management.

Content Ownership: A Mixed Model

Many companies commit to either centralized content management or a decentralized model. HHMI's approach is more of a mixed model with some departments managing their own content and others working through a central content manager. Because the governance plan for *MyHHMI* is flexible, both approaches work simultaneously and successfully.

Content is displayed on *MyHHMI* via portlet windows. "Portlet windows are instances of portlets, where each instance has its own security rules," says Scott Duncan, Content Manager, CapTech Ventures. "For example, portlet windows on the *Human Resources* page are created using a Human Resources content portlet instance." People who manage content for their departments are placed in LDAP groups that have administration permissions on the appropriate portlet instances.

"This gives them access to *MyHHMI*'s inline editing feature," he says. "The inline editing feature allows a user to edit content from within a portlet window."

The *MyHHMI* content manager has the necessary access to edit content for any portlet instance, such as for any department or group.

Administration and content management are integrated right into the portal interface. "This allows creation and editing of pages and content directly from the portal," says Eisen, adding that the alternative would be to use "the very cumbersome UIs" provided by JBoss and Alfresco.

Instead, the approach the team chose offers "a huge benefit to the organization," he says. "The simplified editing process and mechanics will lead to increased frequency of content publishing, which increases the vitality and relevance of the portal, encouraging more user engagement."

Editing Workflow

Scott Duncan explains the workflow for editorial approvals on the site: "For document management content, there is no workflow," he says. "For Web content, the workflow model is loose.

"An author may choose reviewers from the corporate directory and invite them to comment on content before the author approves it," says Duncan. "The author may approve the content for publication at any time, and may even opt to not allow for any review at all."

The following screens illustrate a typical content-editing sequence:

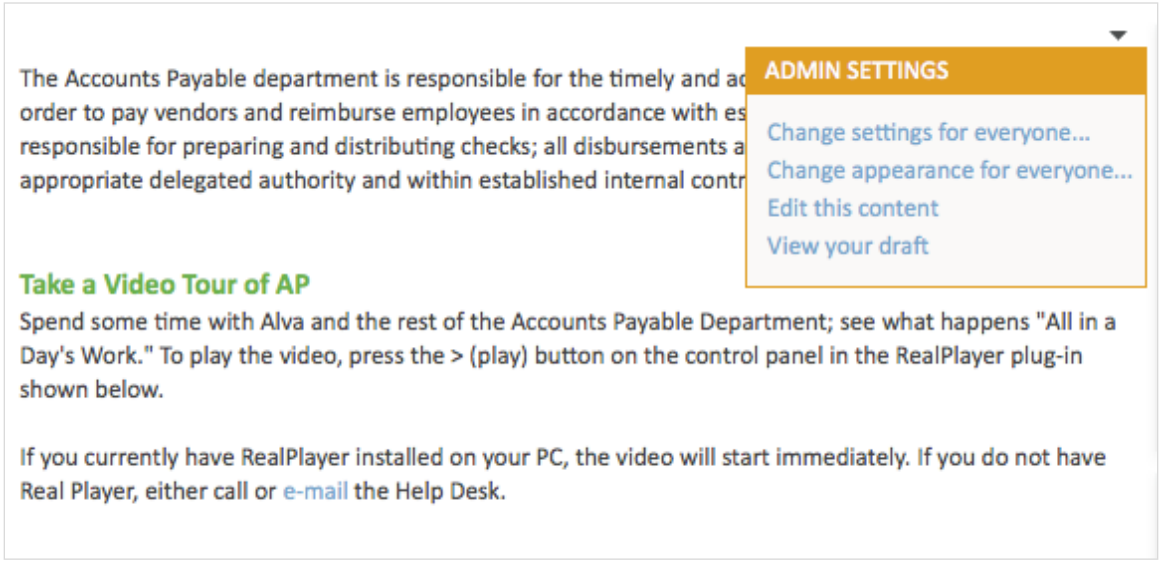
The Accounts Payable department is responsible for the timely and accurate processing of invoices in order to pay vendors and reimburse employees in accordance with established policies. They are also responsible for preparing and distributing checks; all disbursements are based on authorizations from the appropriate delegated authority and within established internal control procedures.

Take a Video Tour of AP

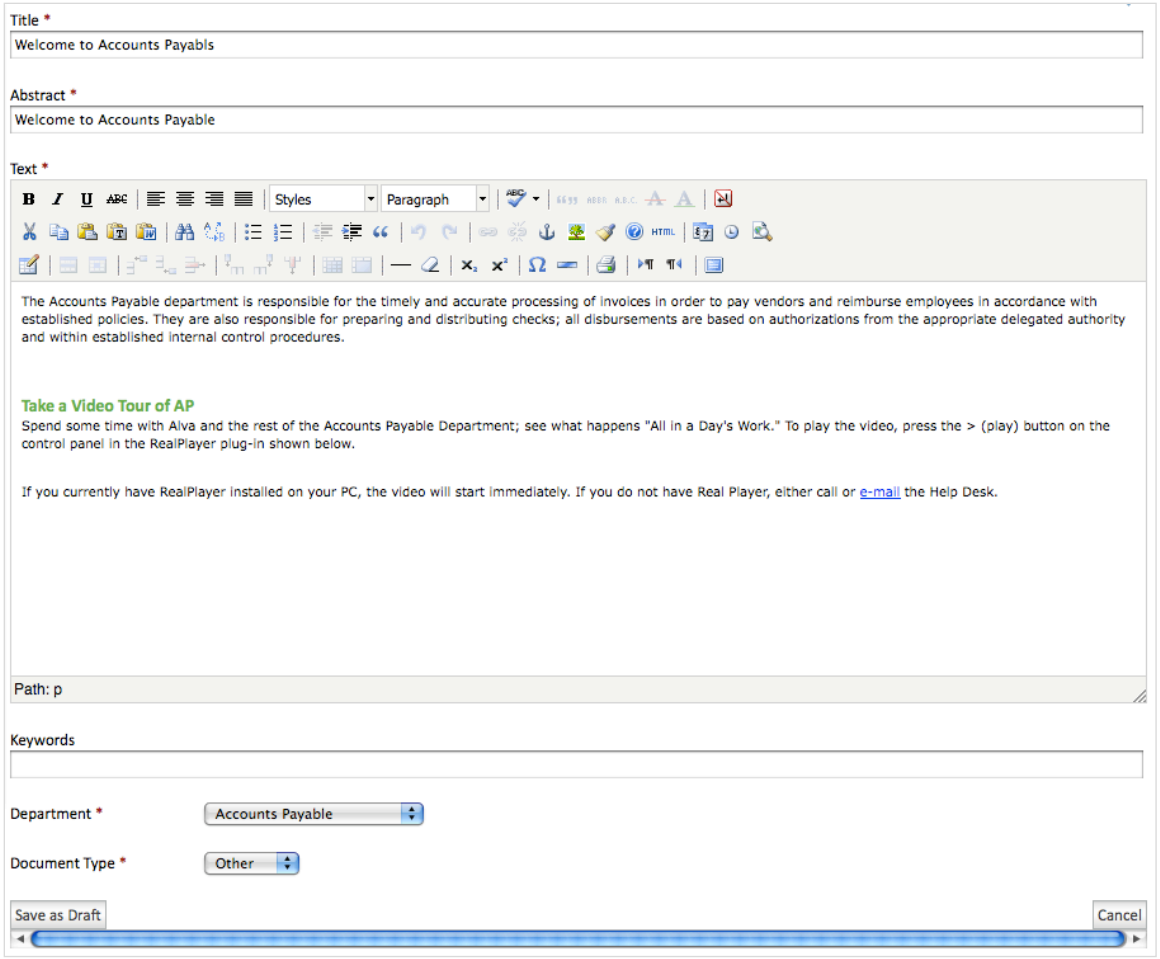
Spend some time with Alva and the rest of the Accounts Payable Department; see what happens "All in a Day's Work." To play the video, press the > (play) button on the control panel in the RealPlayer plug-in shown below.

If you currently have RealPlayer installed on your PC, the video will start immediately. If you do not have Real Player, either call or e-mail the Help Desk.

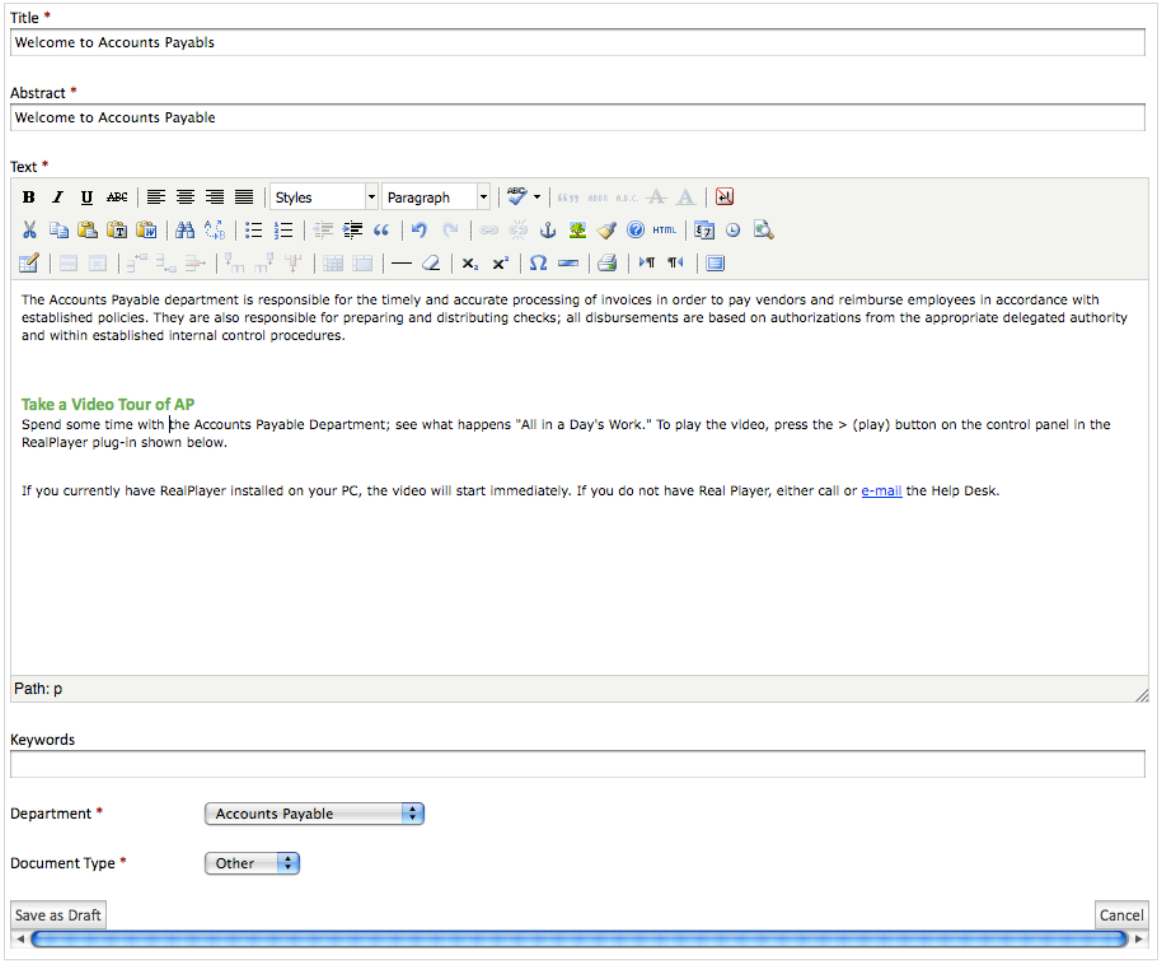
Pictured: Editing step 1: In this example, there's content in a portlet ready to be edited.



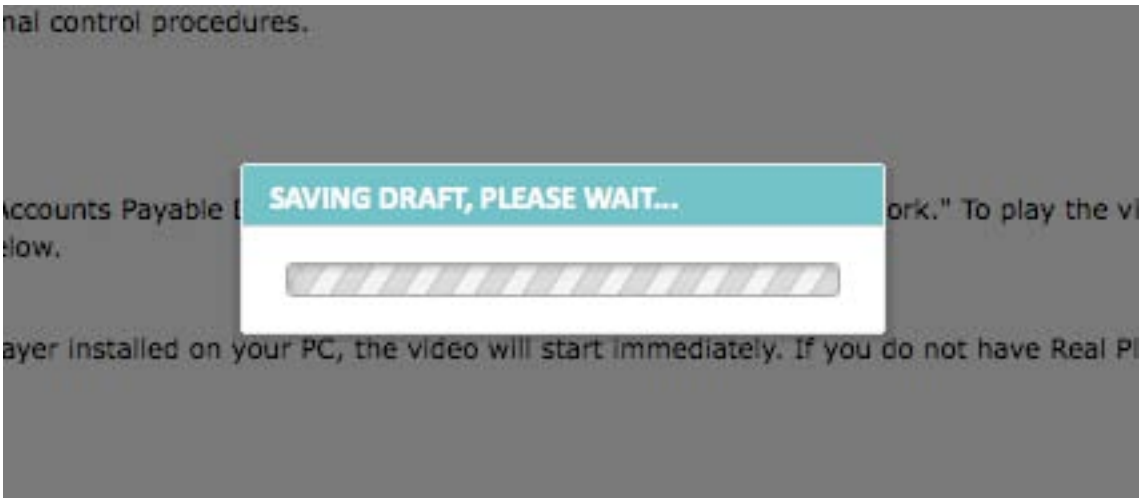
Pictured: Editing step 2: A user with admin rights selects *Edit this content* from the dropdown menu. Note, if the user doesn't have admin rights, the choice isn't visible.



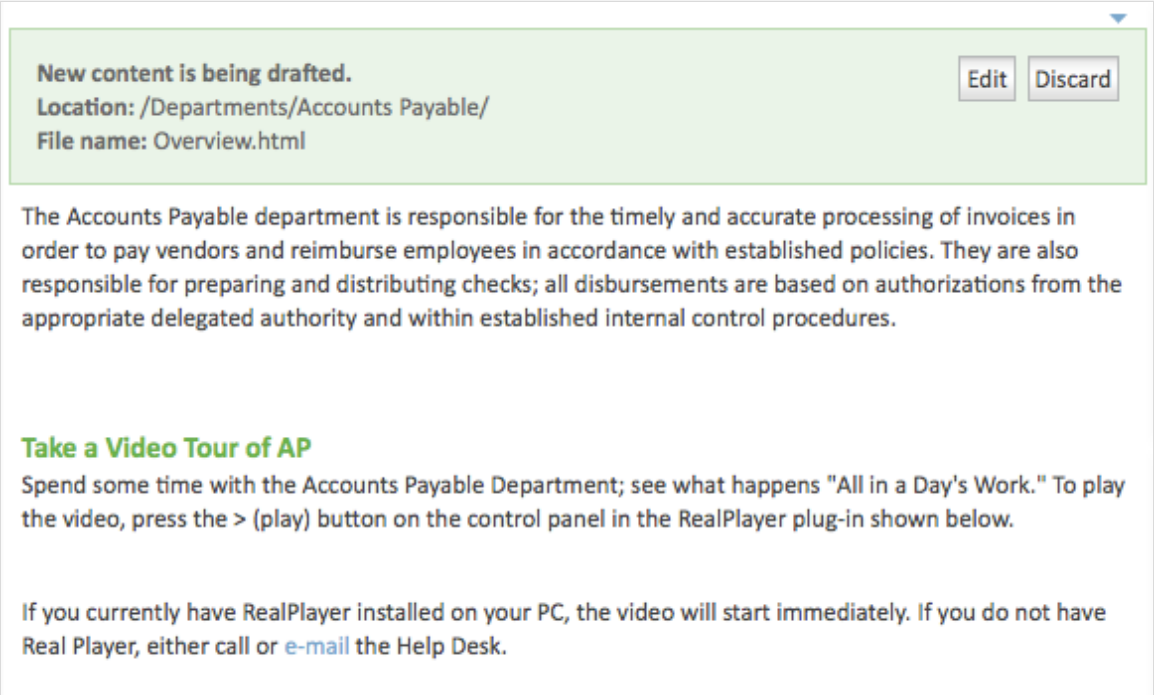
Pictured: Editing step 3: The portal page presents the content item maximized and in edit view, essentially surfacing the Alfresco content editing feature inside the maximized portlet.



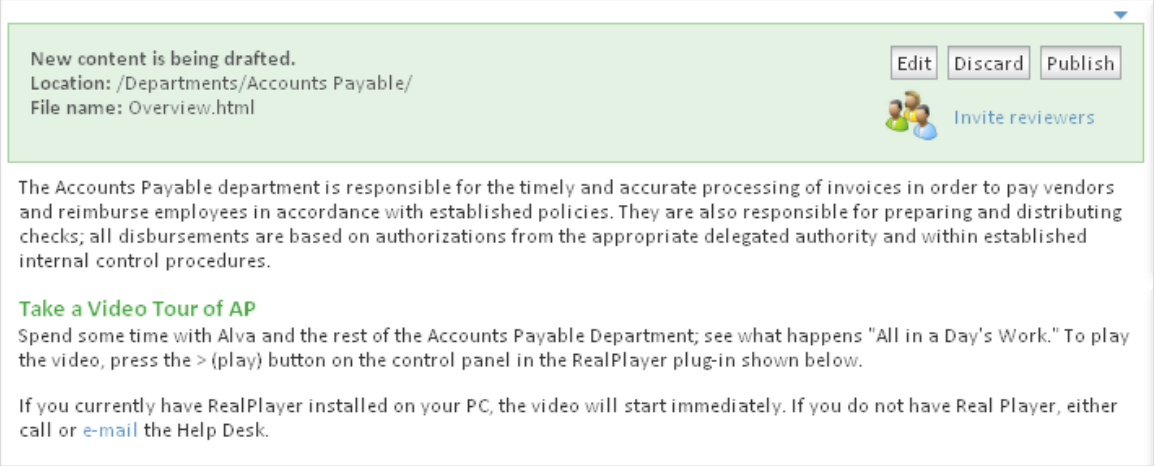
Pictured: Editing step 4: The user edits the content and selects *Save as Draft*.



Pictured: Editing step 5: The user sees a wait indicator while the changes are being saved.



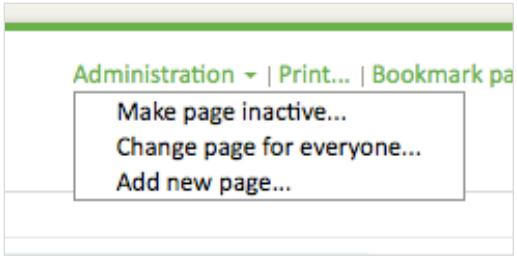
Pictured: Editing step 6: Draft content is shown in the original portlet (no longer maximized).



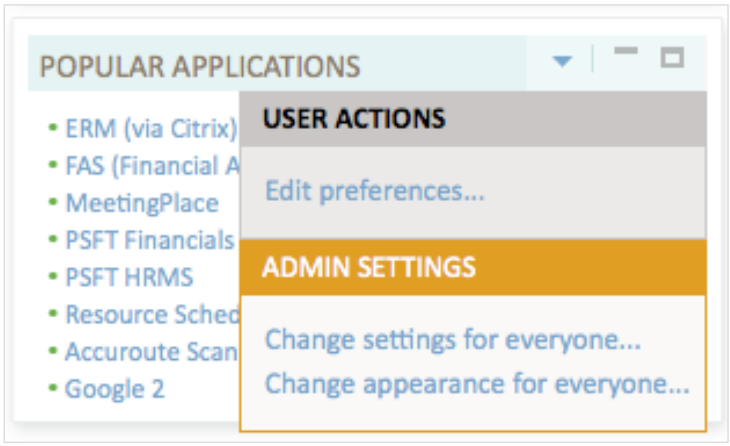
Pictured: Editing step 7: Users have additional options while content is in draft form. They can, for example, view the published content in place; continue to edit the draft; abandon the draft; or submit the draft for review.

Content Management: Administrative Functions

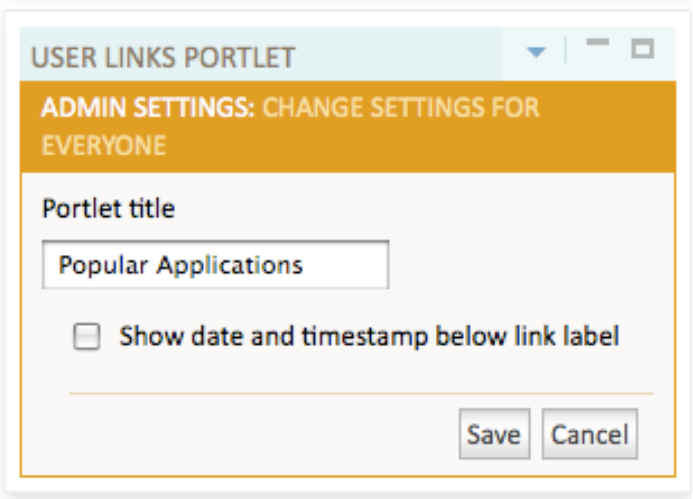
The screens below illustrate how some features of content management work on the site:



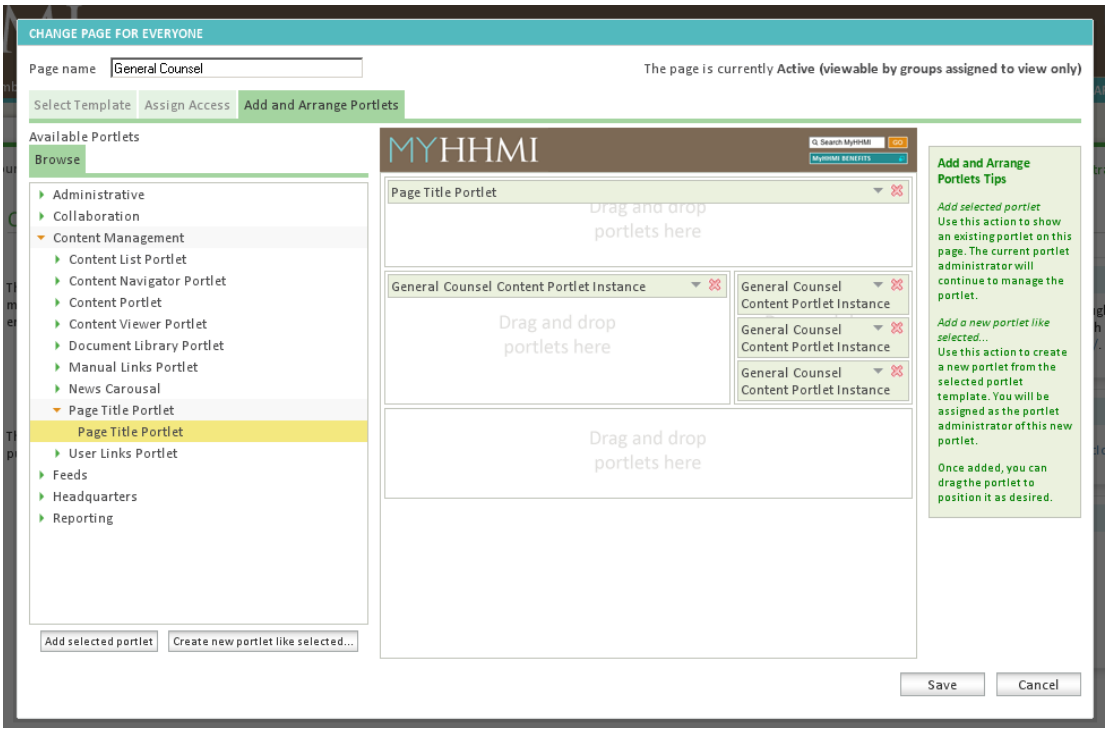
Pictured: For users with administrator access, a page-level menu contains the available *Administration* choices, including to set pages as inactive (invisible to others) until ready.



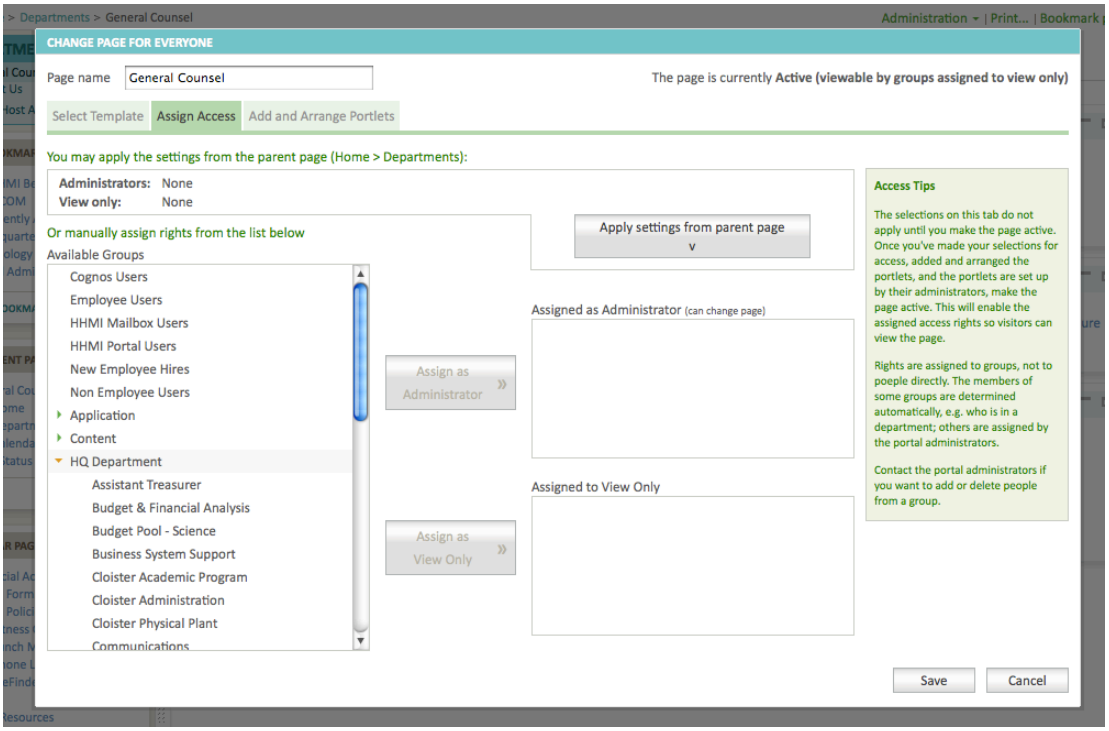
Pictured: The text "...for everyone" is commonly appended to administrative actions to reinforce the idea that the administrator's actions will be applied for all to see, as opposed to a customization of their personal experience. This distinction is also reinforced in the visual presentation of administrative settings (affecting all) versus personal settings, both in the portlet menu (shown here) and ensuing panels (shown below).



Pictured: The user preferences panel in the administrator's interface.



Pictured: Users can add portlets to the page and arrange the portlets through drag-and-drop functionality.



Pictured: Administrators can set the security for the page by identifying groups that can view or administer the page.

Working with Templates

Alfresco Web forms provide both authoring and rendering templates. “We have custom-defined Web forms using XSD schemas for the authoring templates (which Alfresco transforms into a content entry form) and XSL style sheets for rendering raw content (XML) into viewable mark-up (HTML),” says Duncan. “We created one Web form for each content type—for example, policies, newsletters, help items, and so on—in order to capture appropriate content data-specific for each type and to allow us the flexibility to simultaneously re-render all content of a given type as needed.”

Distribution of the templates is automatic. “There really is no way for Web content to be created for *MyHHMI* without using one of the templates,” says Duncan. “Whether an author creates content via Alfresco's Web client or through *MyHHMI*'s custom-built inline editing feature, they will be using one of the authoring templates.” There is a risk that authors might choose an inappropriate template when creating content (for example, they might create a *Help* item using the Policy template), resulting in content that is styled incorrectly. “But,” he says, “this kind of error should be caught by the workflow process.”

FEATURES

MyHHMI provides several interactive workspaces that are both personalized and customizable. These include:

My Home

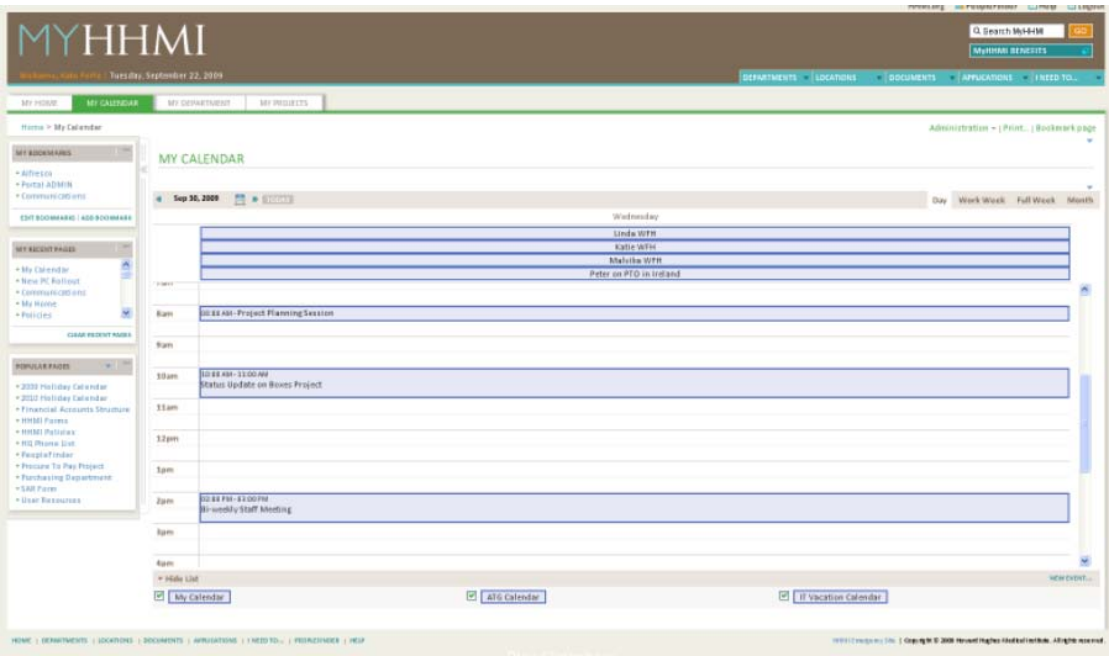
Every user has a homepage with the following characteristics:

- ***My Home* is personalized** based on users’ location and employee status. For example, the initial content configuration is appropriate to their location at or outside of HHMI Headquarters. Also, new hires have links to on-boarding content that shows up on the homepage by default for two weeks after they begin work.
- ***My Home* is customizable** by using drag-and-drop interaction to place content portlets wherever users want on the grid. The content available for adding and removing includes any portlet that the user has access to anywhere in the portal, as well as Google gadgets. (Additional functionality that has been designed and will be implemented soon includes adding or removing content, and choosing an appropriate grid on which to lay the content.)

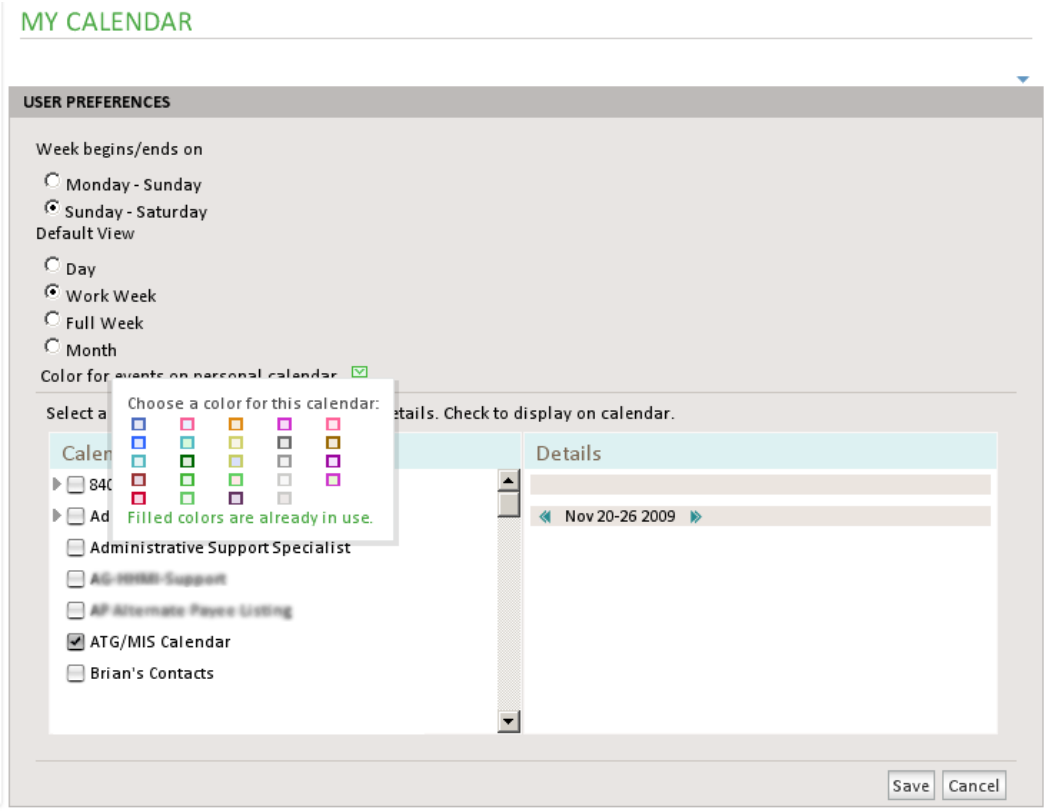
My Calendar

My Calendar is a custom tool that lets users overlay all of their calendars—including Microsoft Outlook, department, and project calendars—on a single grid. All calendars are housed in Microsoft Exchange and can be updated using traditional Exchange-supported clients.

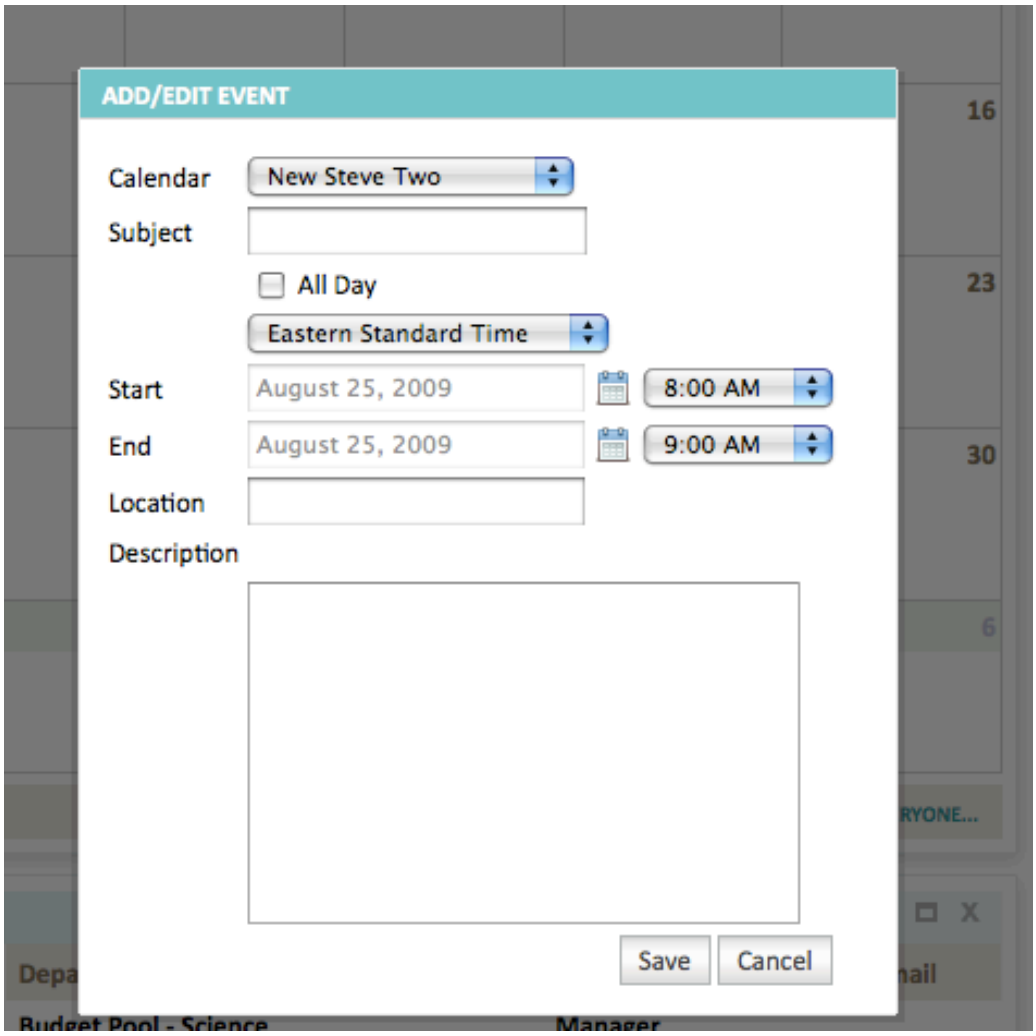
Originally *My Calendar* was intended as a default portlet to be shown on the *My Home* page. However, performance issues in loading the data caused several seconds of delay in loading *My Home*, so a separate workspace was created just for the calendar. Users can still add this calendar to their homepage if they’d like, and now can also get a clean view of their calendar with a single click of the workspace tab.



Pictured: *My Calendar* is a custom tool allowing the overlay of the user's Microsoft Outlook calendar, department, project, and other calendars on a single grid.



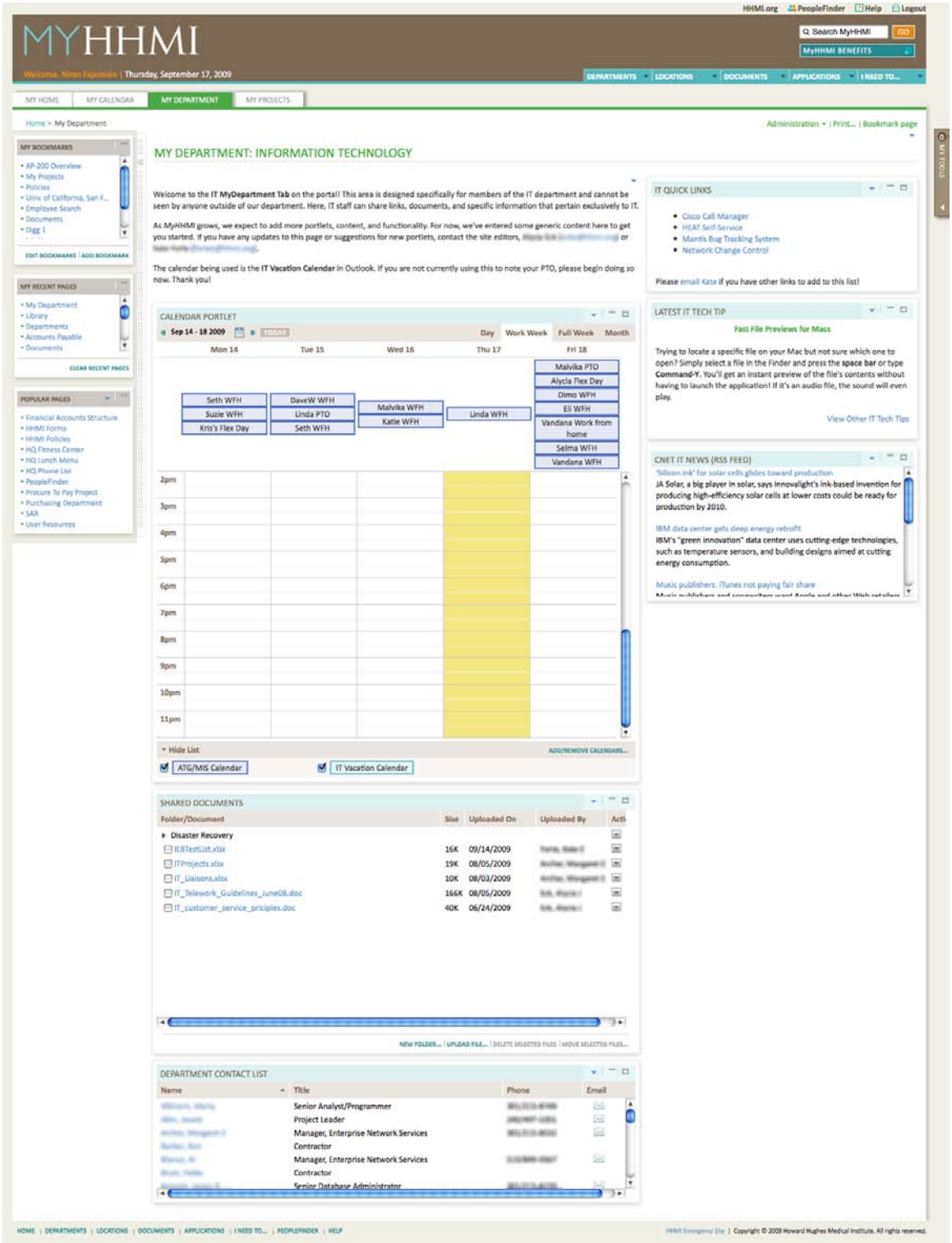
Pictured: The user preferences panel in the *My Calendar* tool lets users select the calendars to overlay and assign a color for each calendar's events.



Pictured: Users can create events using the portal interface in the *My Calendar* tool. Although not as fully functional as the Microsoft Outlook edit features, tool gives users a convenient way to add events and populate the core fields from right inside the portal.

My Department

Each user is assigned a default department workspace, which is a secure space for collaboration and sharing content within departments and administrative offices. This is a logical place to house content that needs to be secured to department personnel. It provides an effective and highly function alternative to a shared LAN drive, which is typically what departments use today to service this need. The department or Office of Administrative Services (OAS) will assign one or more individuals to administer their workspace.



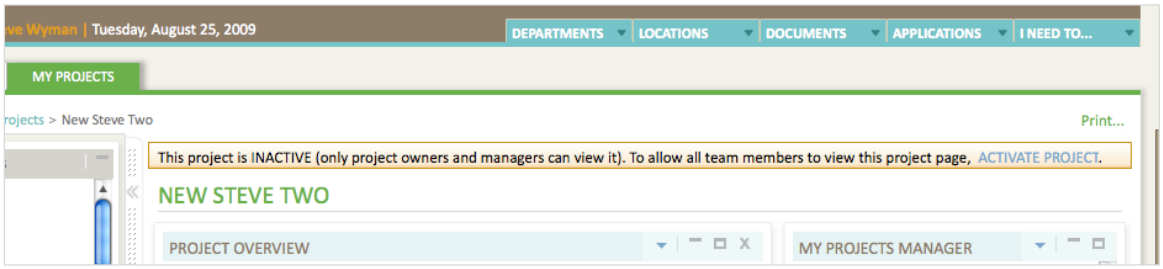
Pictured: Every user is assigned a default department workspace, which is a secure space for collaborating and sharing content within departments and administrative offices.

My Projects

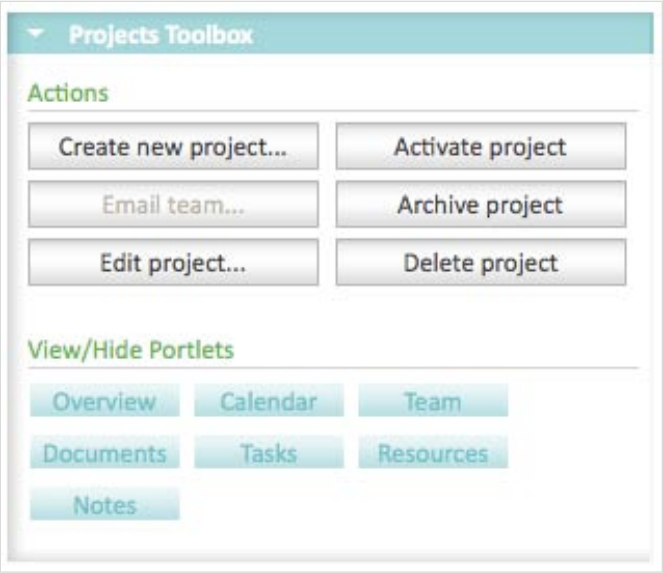
My Projects is a secure, highly configurable team collaboration space that lets users maintain notes, tasks, documents, events, and other resources.

Some of the user permissions in the *My Projects* area include:

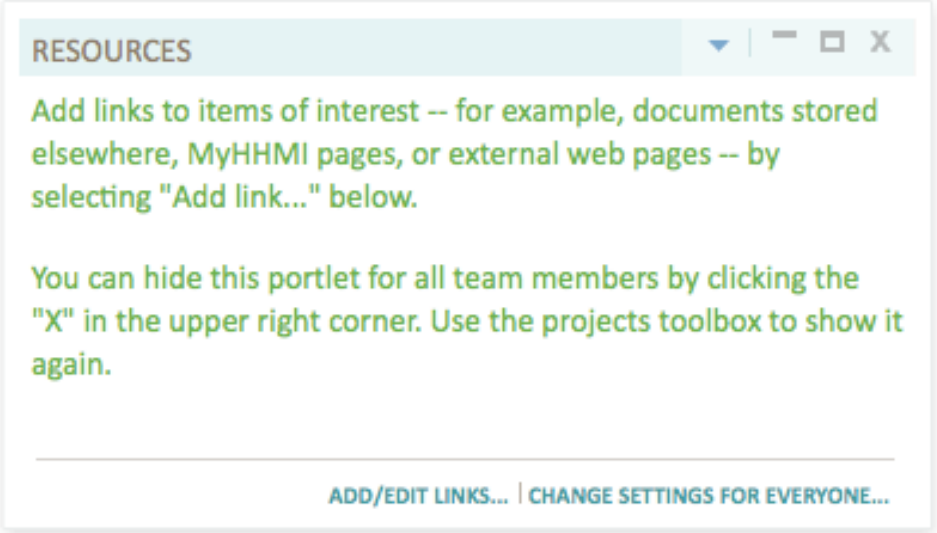
- All users have the power to create a project. When they do so, the full project page is created with all project assets (the available project portlets).
- The creator is automatically assigned as the project manager (PM), which gives them full authority to manage the project and its assets.
- The project page is initially inactive, which lets the PM set things up before exposing the page to other team members. Inactive pages are clearly marked at the top. The PM can easily toggle the project page between active and inactive using a button in the *Projects Toolbox*.
- PMs can archive projects using their *My Projects Manager*, an action that removes them from team members' views. Archived projects can be reloaded from *My Projects Manager*.
- PMs can hide any portlet using the toggle in the *Projects Toolbox*. If they choose to show that portlet later, it retains all of its content prior to being hidden.



Pictured: An inactive project page. The project page is initially set as inactive, which allows the PM to set things up before exposing the page to other team members. Inactive pages are clearly marked at the top.



Pictured: The *Projects Toolbox*. The PM can easily toggle the project page between active and inactive using a button in the *Projects Toolbox*.



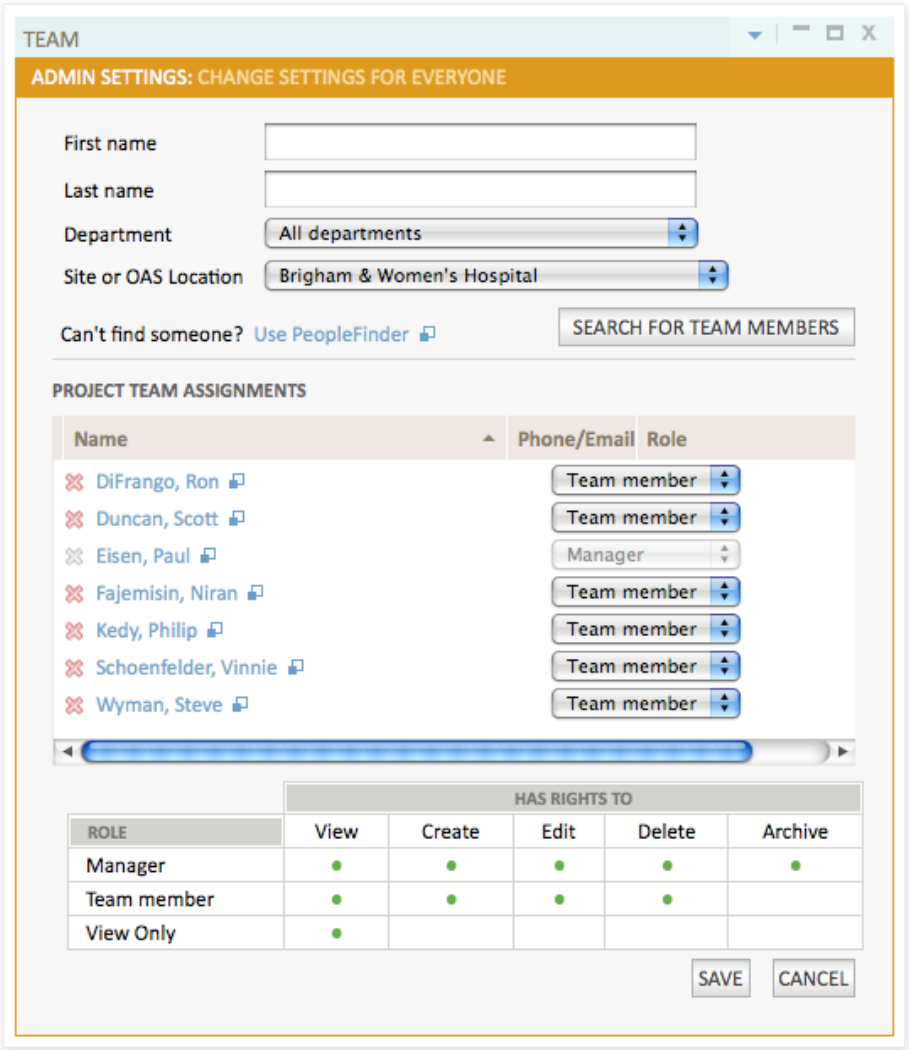
Pictured: The initial state of each project portlet offers brief instruction on how to get started. This makes it very easy for novice users to set up projects without formal training.

Portlets

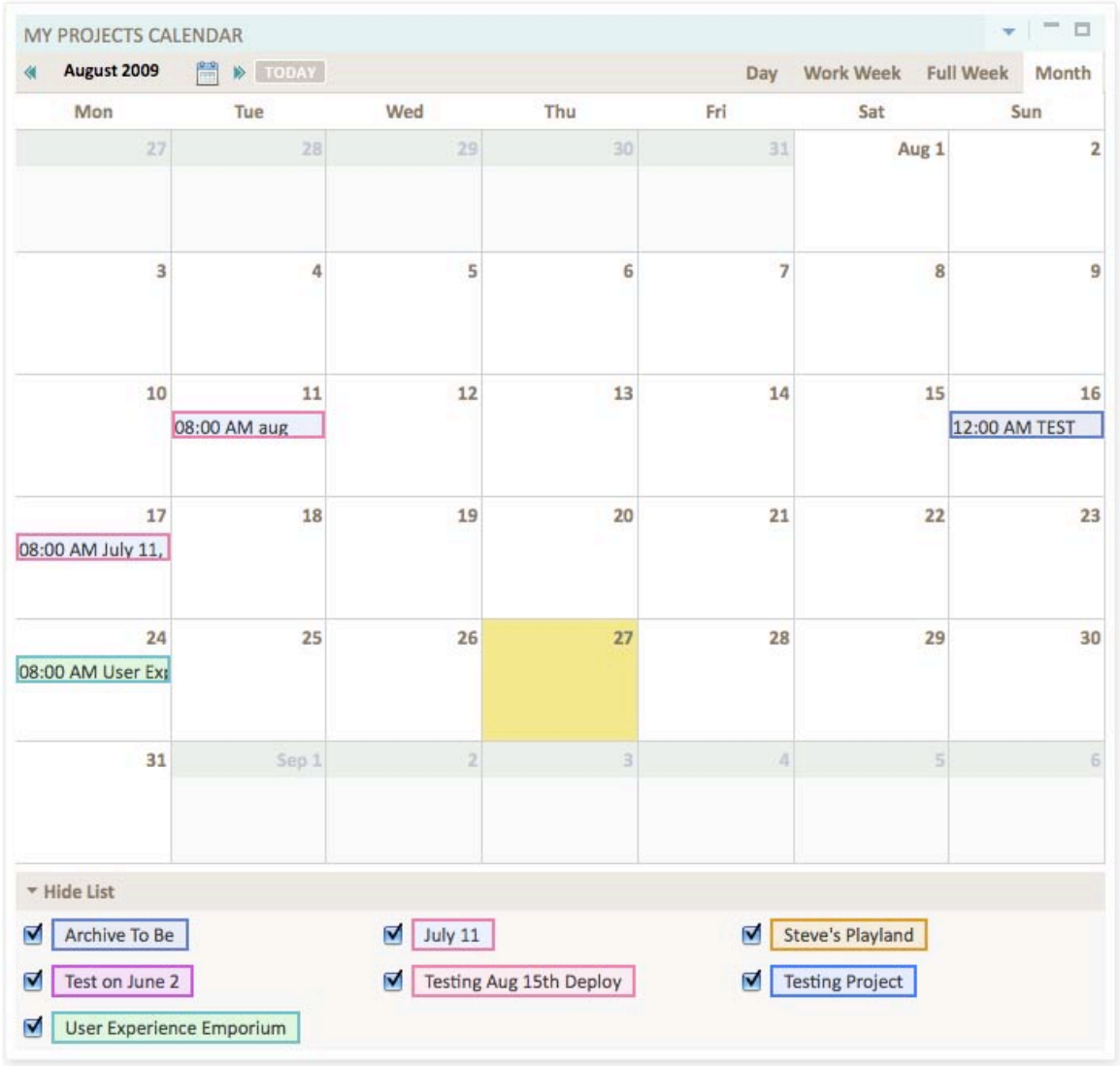
Portlets are powerful collaboration tools available on project pages. Following here are examples of some portlets in use on the HHMI intranet:



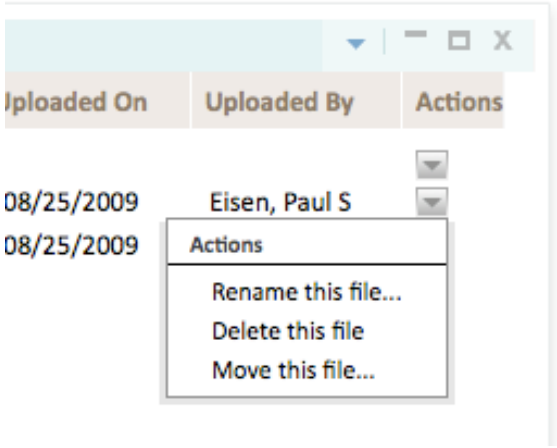
Pictured: The *Team* portlet shows who's on the project team.



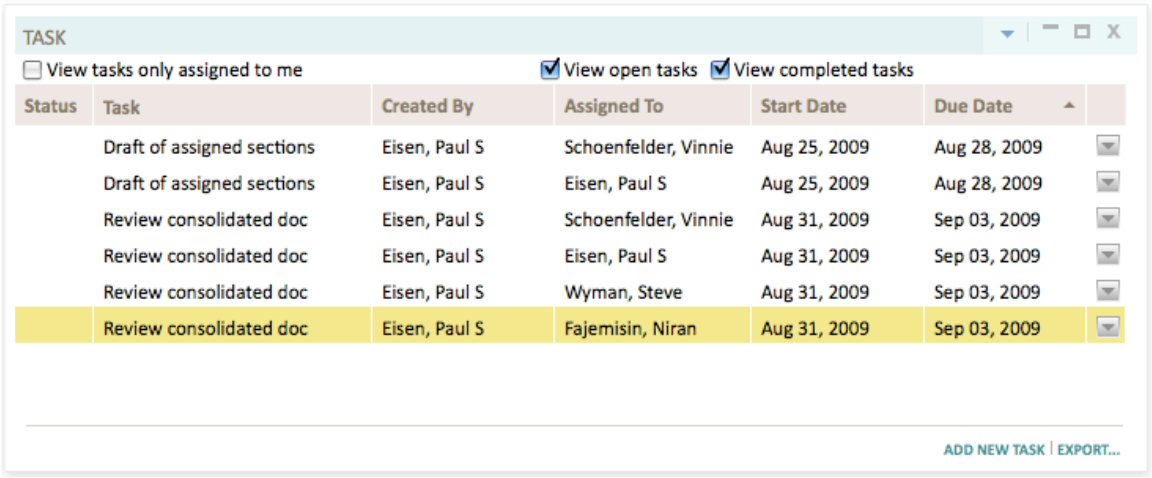
Pictured: Using the *Team* portlet, PMs can assign anyone in the HHMI directory access to the project page, as another PM (full access), a team member (add/edit/delete access), or with view-only access. The meaning of these access levels is made explicit for PMs as they make the assignments. PMs can quickly add groups of employees, such as all of those in a specific location, without having to select each employee individually. Also, a single action (*Email team* in the *Projects Toolbox*), lets PMs generate an email to all team members.



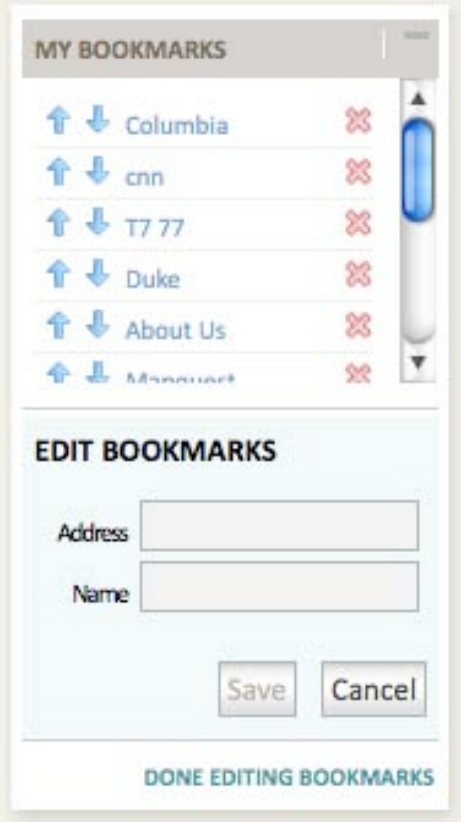
Pictured: The calendar portlet lets PMs and team members create events. These events will appear on each user's aggregated projects calendar. Users can also show desired project calendars on their *My Calendar* workspace.



Pictured: Action menus are available to apply folder-level and file-level actions (shown here).



Pictured: The tasks portlet allows users to assign and track project tasks.

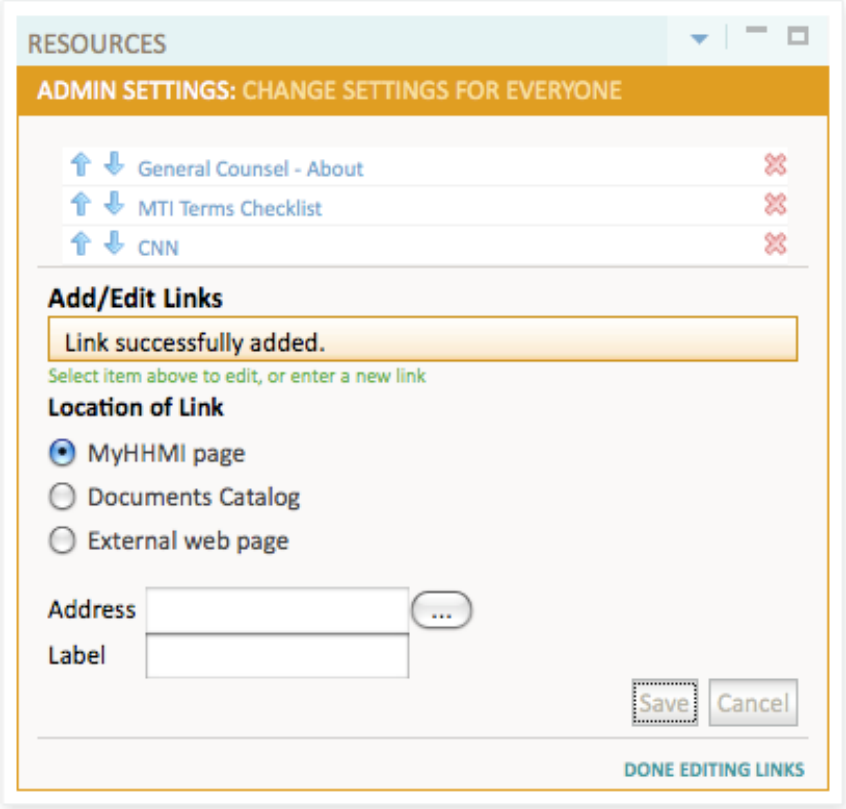


Pictured: The bookmarks portlet, a permanent fixture in the left panel, can be edited directly by the user.

User-customizable links lists

These links lists let users set up links to *MyHHMI* pages, *MyHHMI* documents, or external websites. In the settings panel, intuitive controls are provided to sort or delete links.

In addition to the manually specified links lists described above, a query-based links list allows the user (typically a section administrator) to quickly show a list of links to items based on predefined criteria (such as all documents that are tagged as “Form” and published by “Accounts Payable”). This is a powerful tool for the content administrator, as it continually updates as the underlying content matching the query changes.



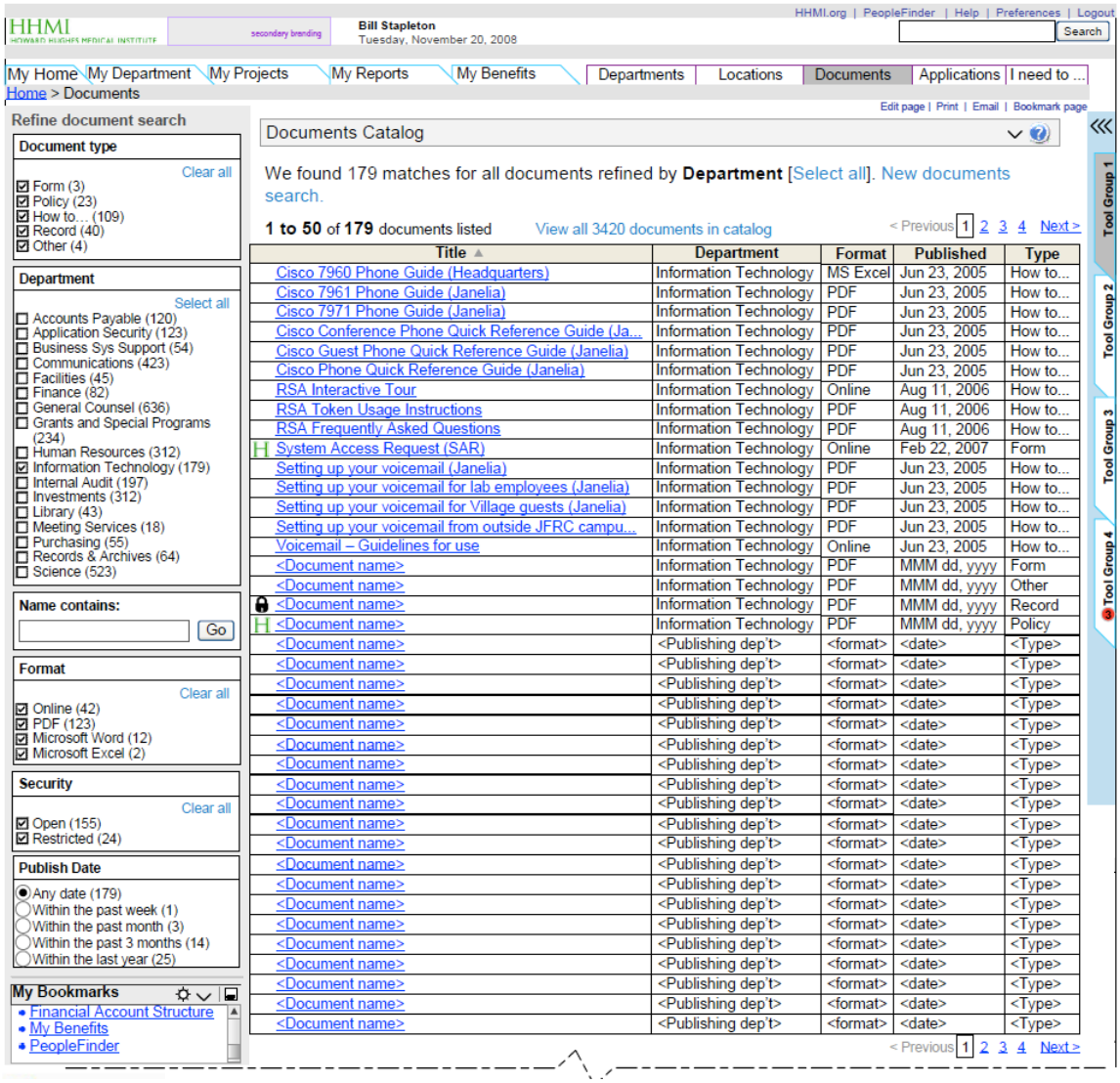
Pictured: The settings panel for the links list portlet that is available in all project pages. The same settings panel appears for similar link-list portlets available to section administrators and to end users who wish to customize a *My Applications* portlet.

Documents Catalog

This catalog is a repository of documents merging text-based and faceted search, as well as sorting. It allows users to search for documents based on keywords and on relevant criteria, such as the document type, issuing department, and publish date. The catalog conveniently aggregates all documents in the organization, while complementing the ability to link directly to specific documents from any page.

The catalog is very powerful in satisfying multiple search scenarios, such as:

- Finding a specific, known document
- Finding a document based on a general idea of what it contains
- Finding all forms published by HR
- Determining how many policies were published or updated in the past three months
- Sorting results by any desired column



Pictured: The *Documents Catalog* initial design. The interaction design for this feature required a bit of finessing to achieve user acceptance. During the initial design phase, team members tested six different approaches to the facets with end users. Test results showed that users preferred the solution that supported the selection of multiple values within each facet category.

Custom Workflow Status

The HHMI team built a custom application to view workflow status of legal contracts (Materials Transfer Agreements) of high importance to laboratories. According to Eisen, this is likely to prove a very compelling feature for users. It's expected that this particular functionality will draw traffic to *MyHHMI* from lab employees. This is important to the organization because historically many HHMI lab employees haven't felt much motivation to visit HHMI's intranet.

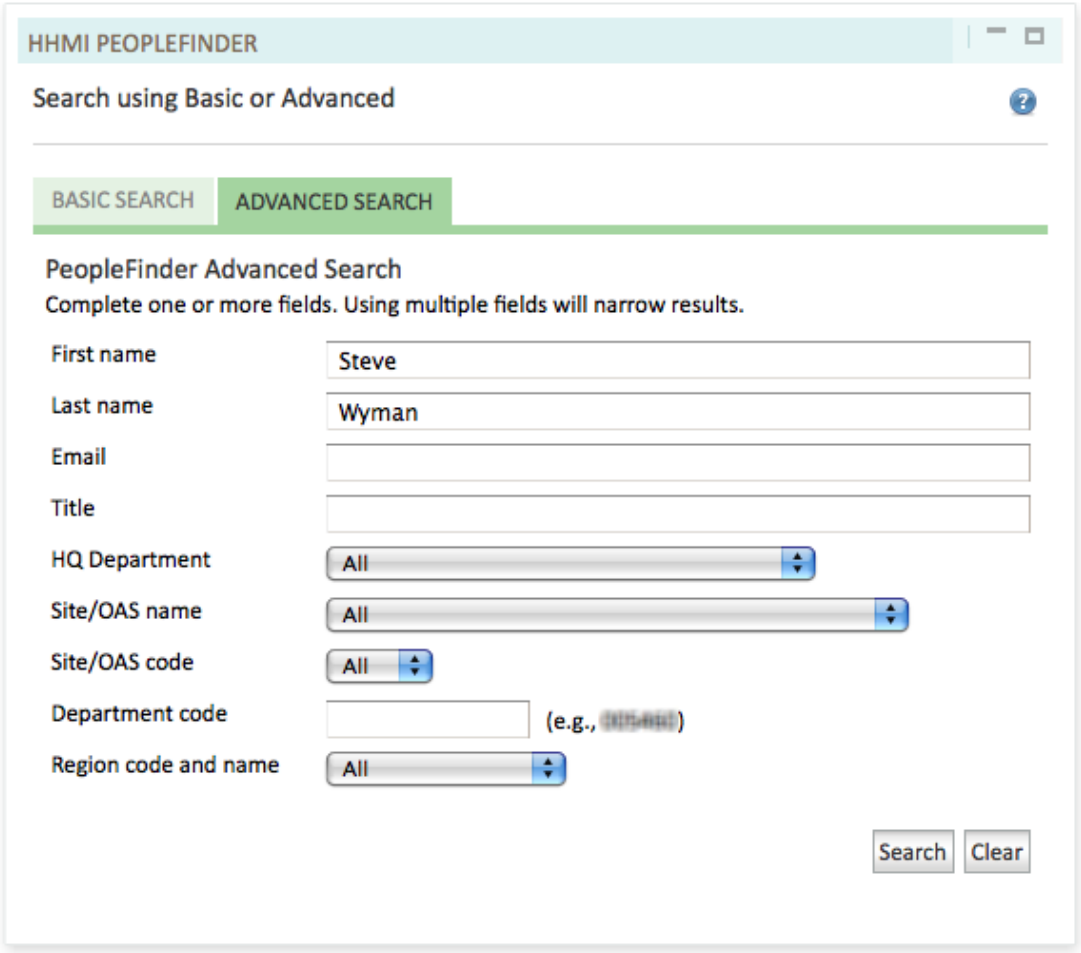
Easing User Transition

To ease the transition for employees accustomed to the former intranet, *MyHHMI* provides a task-based actions menu and other transitional support content, cross-linked to new content locations.

Employee Directory

HHMI's *People Finder* is a fully searchable employee directory, complete with user profiles. Some of its features include:

- Advanced search capability
- Functionality to display lists of employees based on site- and location-specific criteria
- Employee profile
- Recent searches portlet



Pictured: The HHMI employee directory has advanced search capabilities.

Search

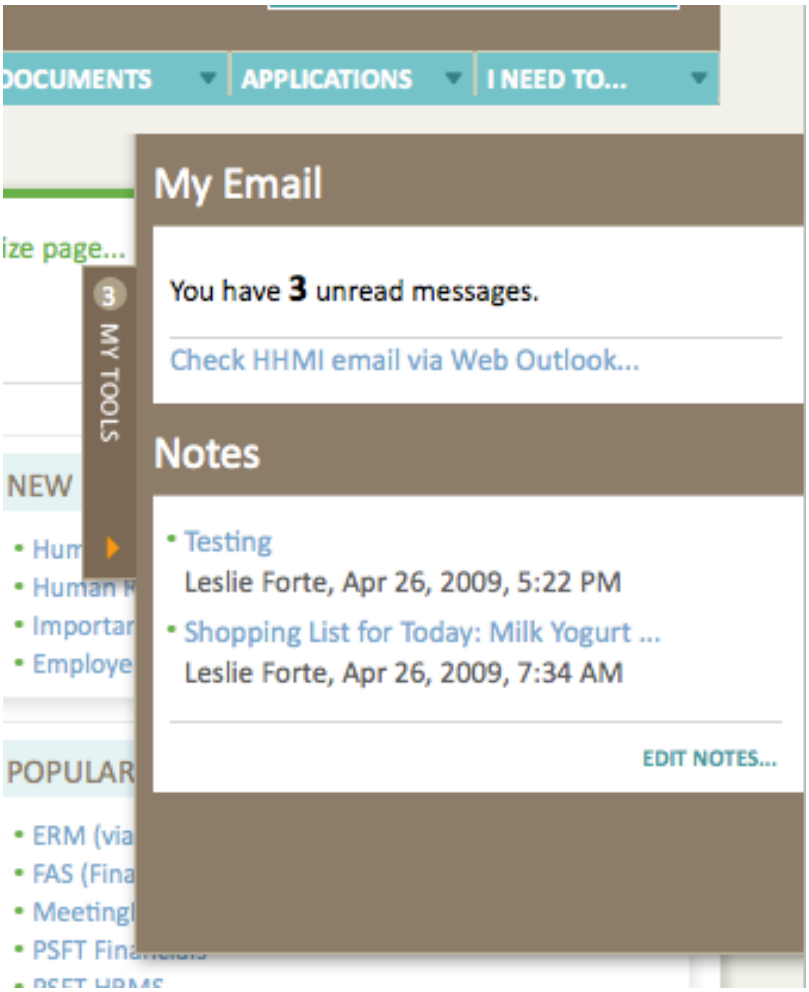
The site features a federated search facility that aggregates results from multiple data repositories, including the employee directory, documents repository, and all other content. It includes a quick-search panel of results as you type (inspired by the search facility at Apple.com).

Productivity Toolbar

This toolbar slides in from the right, and stays there as the user navigates. This leaves the tools always at users' fingertips, but easily moved out of the way. It features links to items such as email, notes, and tasks. Some features of this toolbar include:

- A tab that displays the number of items requiring the user's attention, so he or she can see it at a glance
- A portlet for email (at this point, it shows the number of unread messages and provides a link to Outlook Web Access for viewing them)
- A portlet for managing personal notes

The toolbar design also supports multiple tabs to allow extension to multiple tool groups. For example, the team plans to integrate task managers for personal, content-management, and project tasks in a separate toolbar.

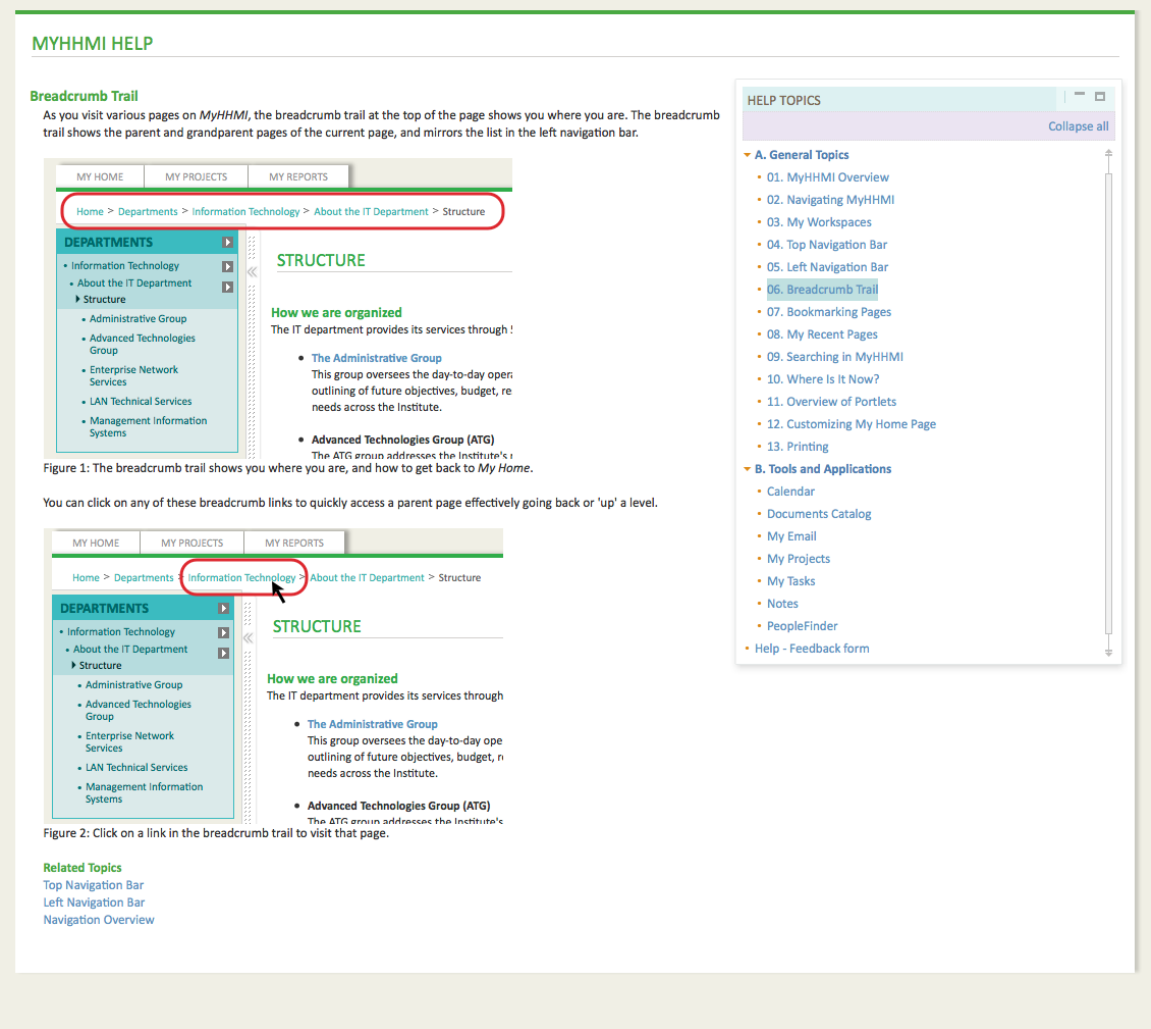


Pictured: The personal productivity toolbar on the HHMI intranet.

Help

An integrated *MyHHMI Help* facility supports novice users. It's accessible using the *Help* link in the utility bar, and also via *Help* icons throughout the portal, which

navigate directly to the related *Help* content. Additional help is provided through the generous use of tooltips.



Pictured: An integrated *MyHHMI Help* facility supports novice users. It's accessible using the *Help* link in the utility bar, and also via *Help* icons throughout the portal, which navigate directly to the related *Help* content.

PERSONALIZATION AND CUSTOMIZATION

Portal Administration

The technical architecture supports the following personalization features:

- **Group-specific content.** Users can access content based on their participation in certain groups.
- **Team-specific content.** Users, through their membership in certain teams, can create, manage, and participate in team collaboration spaces (project or department), and specify who else can access the content.

- **Role-specific access.** The portal administrators can limit who views what, at either the page or the portlet level. For example, once an employee has worked for more than two weeks at HHMI, they no longer belong to a *New Hires* group, and therefore won't see on-boarding content on their homepage. Security can be further controlled at the content level via Alfresco. Security is managed implicitly for *My Department* or *My OAS* workspaces, and by the project manager through the *Team* portlet for projects.
- **Default content controls.** The initial view of a user's homepage is based on his or her location. This approach reinforces the portal's relevance to each employee.
- **Workspaces.** In addition to *My Home*, the content of all other workspaces is also personalized. For example:
    - ***My Department* / *My OAS***: Users at Headquarters sees the *My Department* page for their department; users located elsewhere see the appropriate *My OAS* page for their location.
    - ***My Projects*:** The user's *My Projects* workspace contains a list of only those projects to which they have access. This provides a highly personalized and relevant experience.
- ***Notes*.** The *Notes* tool contains only the user's personal notes.

Customization

Users can customize the site to their own specifications in the following ways:

- Customize their homepage by selecting a layout and adding, moving, or deleting content
- Create lists of employees based on specified criteria, such as all administrators in Janelia Farm Research Campus or all lab managers at HHMI's Yale labs
- View all personal and group event calendars on a single grid, displaying or hiding individual calendars as desired

RESULTS

Although the HHMI team doesn't engage in formal ROI measurement, as Eisen points out in the following examples, the redesign has resulted in improved functionality and user experience.

Users can now:

- Access and view documents (such as forms, procedures, and policies) and other content via a single search engine
- Access secured content that is restricted to particular groups
- Access other HHMI network resources from one single point of entry
- Create, manage, and participate in team collaboration spaces (project or department), which includes the ability to:
    - Specify who can access content
    - Upload and view documents

    - Assign and track project tasks
    - Add and edit project events
    - Specify links to resources
    - Communicate with team members
- Customize their own homepage (add, move, and delete content)
- Create and administer pages that house any available content
- Administer content directly in one place—rather than in a separate, clumsy administrative interface—using a custom design based on user-centered principles and established best practices in design patterns
- Create lists of employees based on specified criteria, such as all administrators in a particular location
- View all of their event calendars on a single grid
- Experience a consistent, coherently branded singular system for accessing all content across the organization

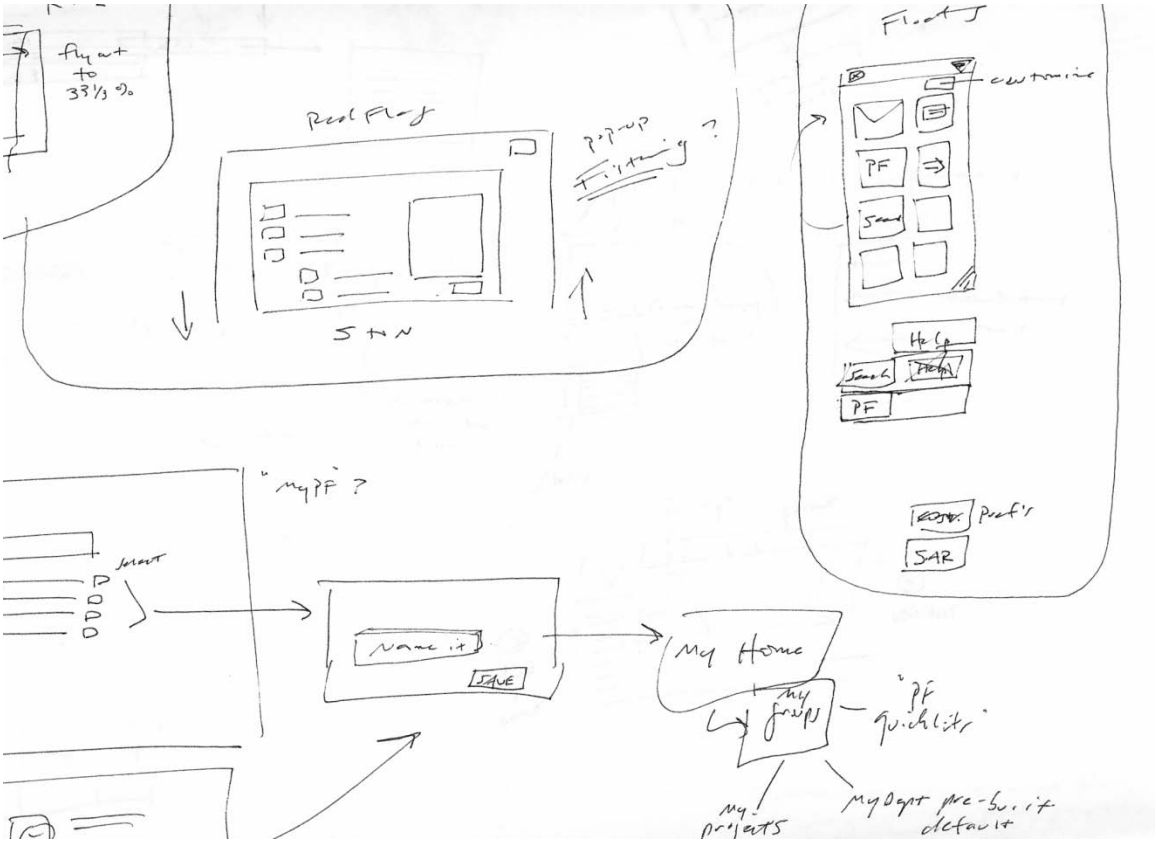
LESSONS LEARNED

HHMI team members share some of their lessons learned:

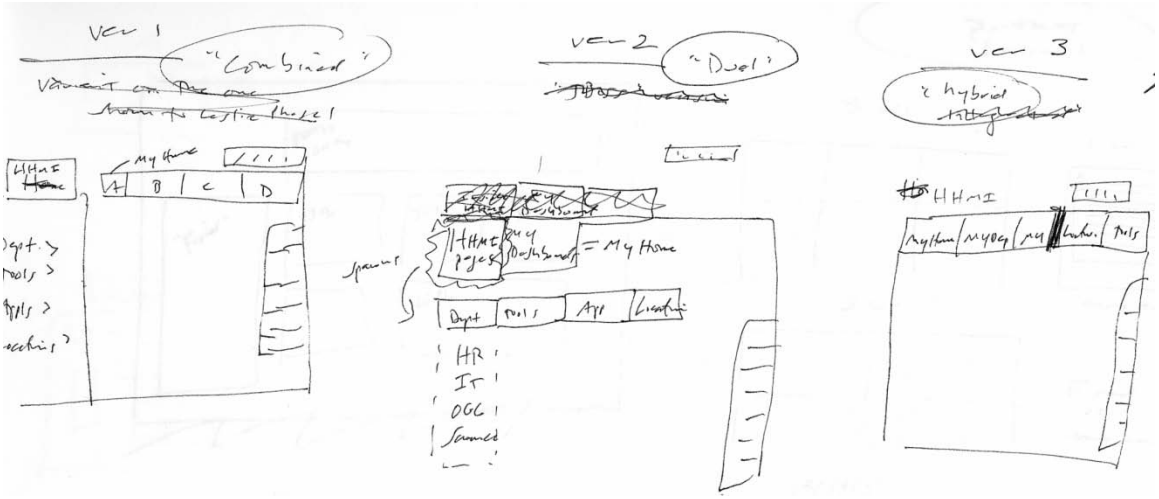
- **Design and technology must be tightly wed.** "Cater the interaction design to the strengths of the technology platform. This will maximize the capability and performance of the solution. For example, the interaction designers initially sketched out a wizard solution to support the creation of projects. However, all of the scaffolding for the wizard would have had to be custom coded, which would have taken significant resources (human and server) from the core functionality being supported. A better solution was suggested by the technical architects to capitalize on the portal framework by auto-generating all portlets for a new project in a default state. This was eventually implemented and now all the user does initially is assign a name to the project, and optionally select start and end dates. To support the user learning how to populate each content area on the project page, tips are provided at the portlet level." (Eisen)
- **Build a multidisciplinary core team.** "This is an old lesson, but one that bears repeating often: The integration of business, technology, and design resources into a single team will increase the creativity of the final design, and increase the likelihood that the design will get implemented as anticipated." (Eisen)
- **Don't underestimate the complexity of content migration.** It would be wise to cite the effort level involved in restructuring and migrating content at the lower level from an existing CMS to a new one, as this isn't a purely technical task and usually requires substantial manual labor and judgments. (Kenneth McDowell, Principal User Experience Architect)
- **Plan for it.** "We knew from the start that the organization of content, defining/tagging the content, assigning authors and approvers, designing a governance model, and content migration would be time consuming. With content management, it is typically the non-technical items that take the most time. We addressed this early and dedicated a resource to this effort." (Schoenfelder)

- **"Go slow to go fast" works.** "The project sponsor encouraged and afforded the team to take the time to sketch early, learn from users, think, collaborate, iterate, and integrate. Various times in the project, the client recognized the critical and long-term value in 'going slow to go fast,' and that design isn't production. Because of this, as the project progressed, there were times when many elements—seemingly disconnected from each other—elegantly coalesced due to the prior effort at design-planning and the time the team took to contemplate, white board, and experiment a bit. This lack of 'rush to market' and 'throw on the wall and see if it sticks,' was critical to an outstanding final design, still sensitive and responsive to timelines, deadlines, and cost. The opportunity to 'go slow to go fast,' seemingly contradictory to contemporary software development (and sometimes design) methods and processes, resulted in deliverables and integrated products that unfolded gradually and effectively, rarely requiring significant rethinking or rework, making our usability, information architecture, and interaction design studies (and related activities) much more perfunctory and confirming... a surprising, fresh, and underutilized approach that resulted in no major usability surprises. (Schechterman)

  The screens that follow show the team's early design sketches:



Pictured: An example of an early sketch.



Pictured: Another example of an early sketch.

- **Allow plenty of time for cross-browser testing.** "Because of the very interactive nature of this project, support and adequate testing of supported browsers were critical to a timely release. From a usability standpoint, Safari and Firefox significantly outperformed IE7 and significant effort was spent getting IE6 working." (Wyman)
- **When content editing is easy, users will be eager to contribute.** "We were surprised by how many people were so eager to have the ability to edit their own content. Our old intranet was so static and even though we encouraged our users to get some training and edit their own content, very few of them took advantage of that option. So, we figured they were not interested in updating their own content. When we launched the portal, we didn't make user content editing a top priority on rollout. But we soon learned that users were chomping at the bit to add their own pieces to the site. For the old intranet, they were a bit daunted by having to 'know HTML' or understand Web publishing. Now they don't, and that fact alone makes contributing content much more approachable and less intimidating. Also, the portal allows others [not just site editors] to contribute content in other ways." (Forte)

Huron Consulting Group

Using the intranet:

Huron Consulting Group helps clients in diverse industries improve performance, comply with complex regulations, resolve disputes, recover from distress, leverage technology, and stimulate growth. The company teams with its clients to deliver sustainable and measurable results. Huron provides services to a wide variety of both financially sound and distressed organizations, including leading academic institutions, healthcare organizations, Fortune 500 companies, medium-sized businesses, and the law firms that represent these various organizations.

Headquarters: Chicago, Illinois

Number of employees the intranet supports: Approximately 2,000

Company locations: US, Jordan, Singapore, and Tokyo.

Locations where people use the intranet: Amman, Atlanta, Boston, Chicago, Dallas, Detroit, Dubai, Houston, London, Los Angeles, New York City, Portland, Riyadh, San Francisco, Singapore, Tokyo, and Washington, DC

Annual sales: $615.5 million (2008)

Design team:

Sponsor: Mary Sawall, VP Human Resources

Subject matter experts: Diane Doherty, Marketing Director; John Sudduth, IT Director

In-house design team: Structured within Marketing Department: Brian Notz, Creative Director; Ciara de los Reyes, Senior Designer; Hugo Dominguez, designer; Liam Strain, Designer; Michael Saint-Aubin, Designer; Daniel Lynch, Web Production

In-house marketing: Sally Hunneke, Director and Lead Intranet Redesign

In-house IT: Rebecca Heckel, Lead IT Developer; Bryan Wells, IT Developer, Matt Cummings, IT Developer

Tahoe Partners: David Sidwell, Project Coordination and Development; Adriano Pezzella, Developer/Designer

SUMMARY

With employees who need information whether they're in an airport, at a client site, in the backseat of a taxi, or sometimes even in the office, Huron's intranet project team had to ensure the site it developed was available to everyone, anywhere. Although some intranets are built for consistent use in a common office, this intranet had to support the company's 2,100 employees scattered in offices worldwide, most of whom are consultants who travel extensively.

Being able to access the site isn't enough for such a demanding audience. Consultants who travel have little time or tolerance to rummage through unclear navigational categories or deal with a weak search engine. They need to find the information they need when they need it—and be confident they've found the right information. An easy experience is essential for any intranet, but is even more crucial when employees might be accessing the site on the way to or from a client site. Traveling employees don't have the option of being able to ask the person in the next cubicle where to find something or call an HR representative to get their questions answered.

To ensure the most important information is also the easiest to find, the iNet governance team centrally manages everything on the site's top two levels. These content areas must apply to 80 percent of the intranet population, helping to ensure that busy professionals have access to the information they need.

The site's homepage, with its clean, focused design, presents news headlines as well as links to new or updated information. Important announcements have a place at the top of the page, drawing users' attention to any items of unique or particular

interest. This area is followed closely by *Huron In the News*, where users can get quick glimpses of mentions of the company in the media. *New and Updated Content* is listed together with the date it was posted or updated, with a direct link to content and a brief description.

Some organizations muddle the news section by mixing headlines about the company and stories about the intranet itself, something that can confuse and frustrate users. This site does a nice job of highlighting both, while clearly separating the headline types, so users can see media coverage or new site content without having any confusion about which is which. Priority is given to mentions of Huron in the news, which is great for selling new engagements, keeping users informed about the company, and learning about successful client projects around the world.

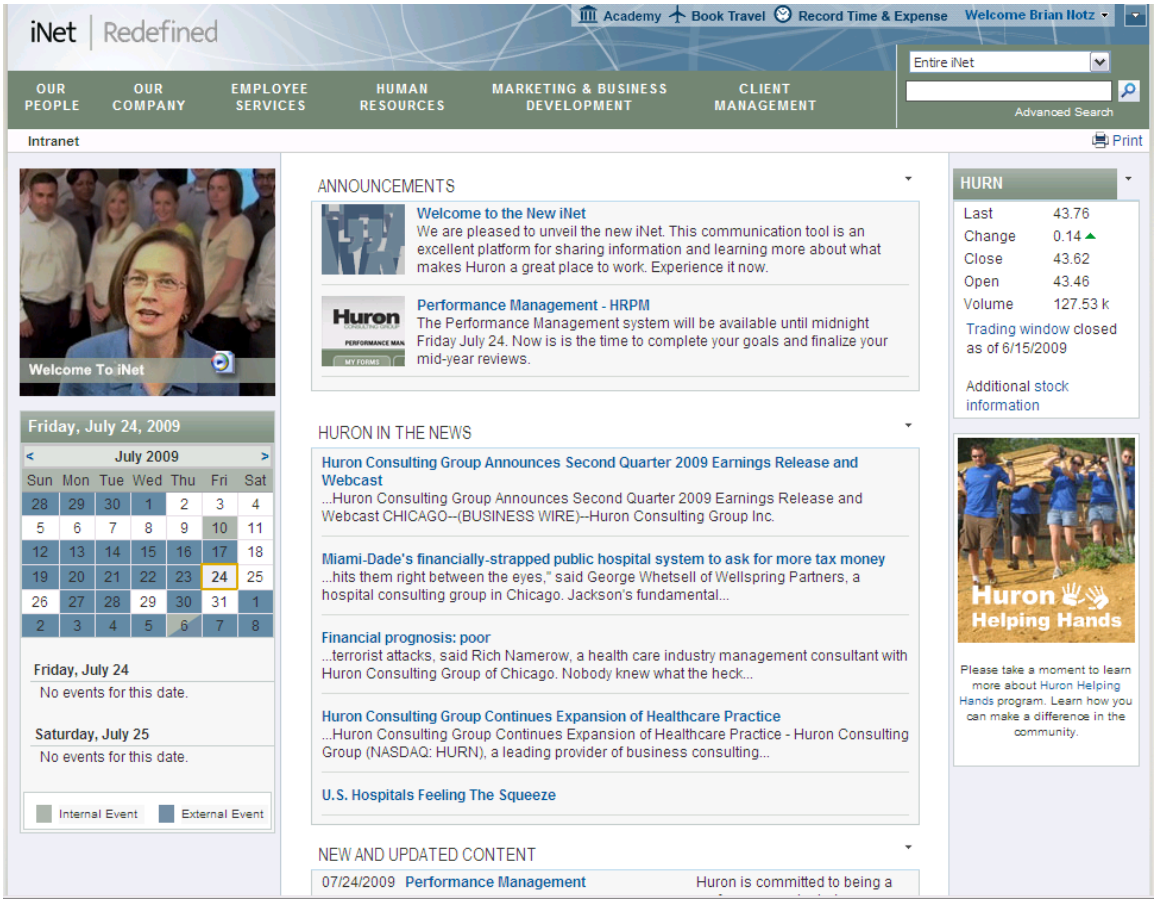
The intranet-focused news is secondary, but still prominent. These updates about the site itself can be key to users, alerting them to content changes and enhancements. Users tend not to browse intranets; they go to the site with a question or curiosity and find the information they need. If users don't explore the site, they tend to return to the same pages, applications, or sections repeatedly, and never see what other new, relevant, or even critical information is on the site. The *New and Updated Content* section gives the team a chance to inform employees—particularly time-strapped employees on the road—and offer a heads-up to important site changes.

A calendar lets users view current and upcoming events and deadlines. The color-coding indicates whether it's an internal (green) or external (blue) event. The calendar lets users see at a glance if there are any events or deadlines that day, and a brief listing of events appears beneath the calendar so users can see what's happening as well as link to more details when needed. Employees can always check the latest stock price on the homepage as well. The page also provides an area for a feature story that sometimes highlights employee-focused projects or initiatives to balance the page's main focus on getting work done.

When the site launched, the screen's upper corner showed a 30-second video of the Vice President of HR welcoming users to the new site. This site area changes regularly, but is focused on communicating messages from or about company leadership. User feedback indicated that employees were interested in hearing more information directly from company leaders. This area of the site allows those communications, whether through videos or text. Team members are experimenting with various messages and information templates for this area. They're monitoring feedback from employees, who've expressed interested in these messages and the team has high hopes for the section's content quality and message frequency.

Team members see this site area as an experiment in engaging leadership with the site and engaging employees with leadership. They're working hard to find the right mix of information, focused on providing high-quality content from the company's leaders. This area of the page appears when there is new content to share.

Links across the very top of all site pages direct users to critical information, such as training information available through the Academy, booking travel, and time and expenses—all key activities for consultants on the road.

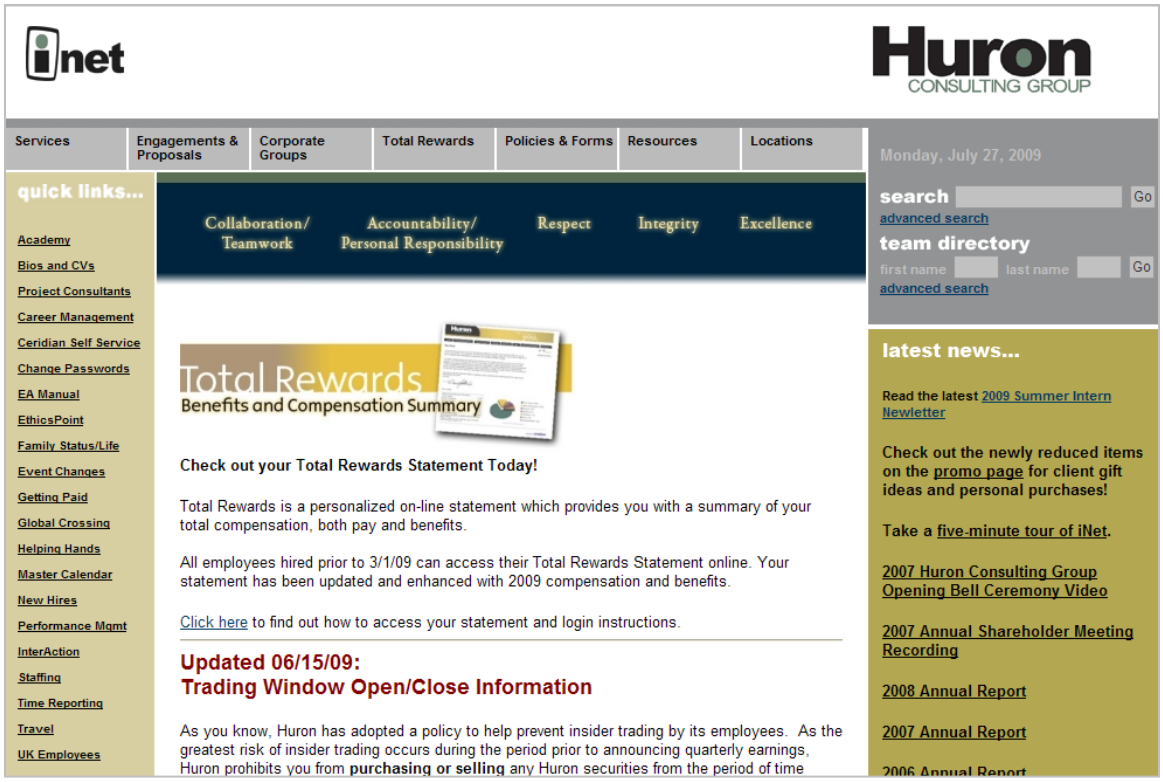


Pictured: The iNet homepage gives users a quick view of updated information as well as providing quick access to key site areas.

This design is a vast improvement over the previous site. The previous homepage provided news, but information was scattered between the middle and side of the page and there was no clear difference between the two news sections. Navigational links appeared all over the page, giving users no clear indication of how the navigation worked or even which links they were supposed to focus on.

The page had a prominent list of quick links on the side. Such links, when carefully edited or editable by users, can be helpful in providing shortcuts to important site areas. However, when dozens of quick links are listed, it's often indicative of a larger structural problem with the site. Such lists frequently emerge when users are unsuccessful using the site navigation. Quick links help users avoid the navigation altogether, which might get them to those particular site areas more quickly, but doesn't teach them how the site is organized or how to find something not listed in those links.

By contrast, the new design highlights just a few key areas and provides quick access to them—the links across the top of the site to training, travel, and time and expenses. These links were provided to offer quick access to prioritized information, rather than as a band-aid to try to fix failed navigation.



Pictured: The previous intranet homepage lost users in a sea of navigational options.

Striving to provide users with the right information, the team expanded the responsibility for content creation from approximately 30 employees to nearly 100. With the previous small number of contributors, there wasn't enough flexibility to create new content or update old content fluidly to meet employee needs. Simply adding more content creators went a long way toward creating the most compelling, relevant, and up-to-date information possible. However, the process of growing from 30 to 100 content creators isn't something that can happen easily or without a lot of planning. The team recognized the need to support their content contributors and build their skills.

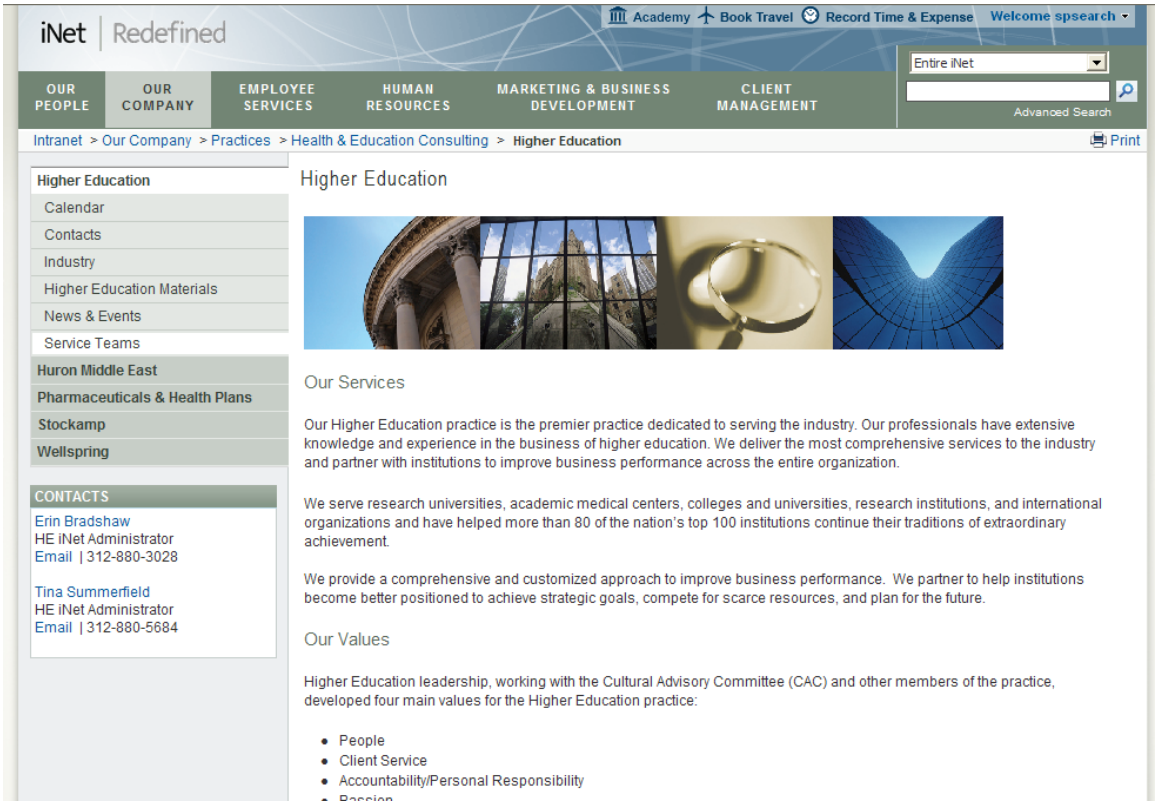
Content contributors aren't given completely free rein over the site; governance and approval processes are in the works to ensure a consistent and coherent experience. This is particularly important with so many voices contributing to the end product. The processes aim to shape the site's experience and retain consistency, rather than to limit content contributions.

Instead of seeing the numerous content contributors as a potential nightmare for site consistency, the team views contributors as a valuable resource to both the team and one another. Content providers were contributing content to employees previously, but may have been working with Word documents on a shared service or sending information via email. The contributors now can communicate the same information via the site. The switch to SharePoint has enabled those content creators to deliver their own content.

The team provides basic guidelines and training, but works hard to develop a sense of community around the content contributors. Contributors have quarterly

meetings, and are also encouraged to share success stories and lessons learned with one another. Building a sense of community around contributors not only helps make content stronger throughout the site, but also makes contributors feel appreciated for the work they do on the site. Now that content creators throughout the organization are "officially" recognized via their roles on the site, contributors from different areas of the organization are coordinating content with one another and communicating with each other more frequently. This helps improve the overall site experience for all users.

Another key aspect of the shared content is letting users know who is responsible for particular information. Contact information is listed on the side of each page, with the employee's name, email link, and phone number.



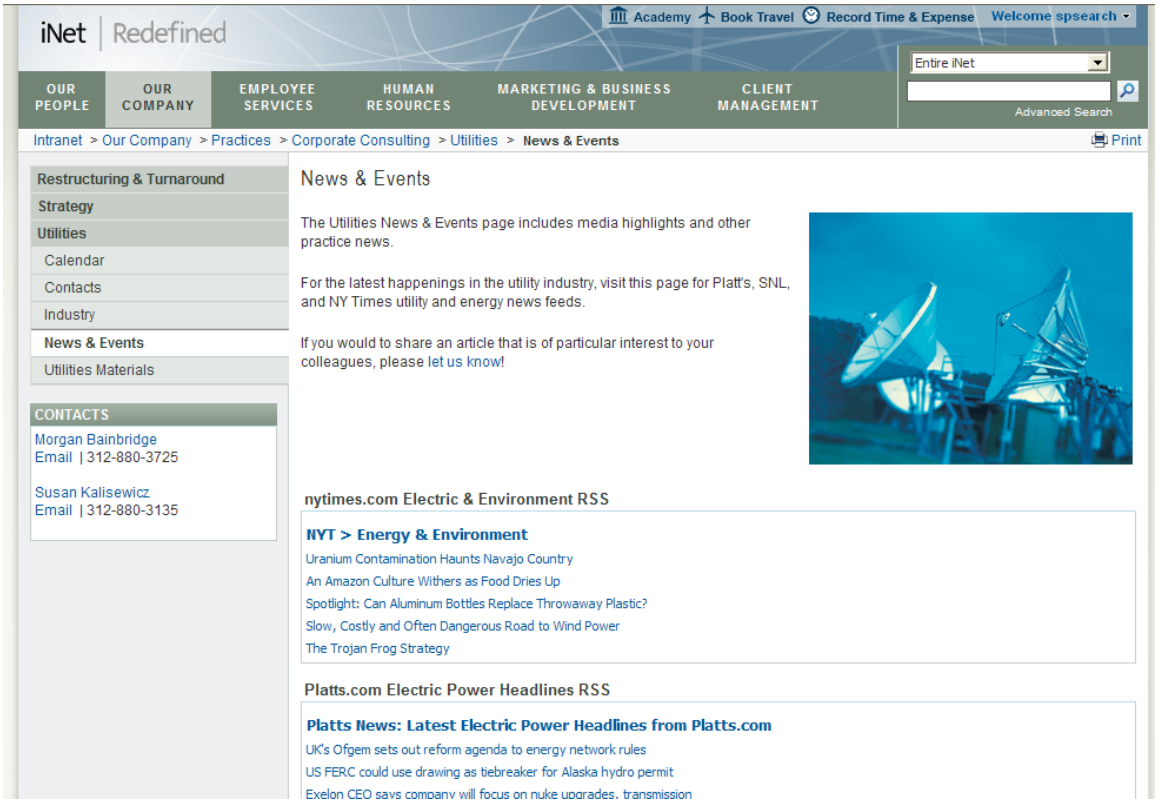
Pictured: The switch to SharePoint allowed the team to recognize all those involved in content creation throughout the organization, upping the number from about 30 employees to nearly 100. This helps contributors deliver their own up-to-date, relevant, and focused content.

A clear design and structure makes it easy for users to know where they are on the site at all times. The user's location in the top-level global navigation is clearly indicated by the change of color. Using clear color contrast in the navigation makes category names easy to read, and the color contrast between the currently selected section and the other sections emphasizes the user's location.

Breadcrumb navigation appears at the top of the page, showing users their exact location in the site. The breadcrumbs are nicely positioned between the top global navigation and the side secondary navigation. The breadcrumbs reflect the user's location in the site, rather than their path to content, which is key for successful breadcrumbs. Each category and subcategory listed is a clickable link, except for the

last in the list, which is the current page. This is an ideal presentation of breadcrumbs.

The site tries to get the most relevant information to users quickly. To this end, certain areas of the site include RSS feeds, consolidating trustworthy sources of information for employees. For example, the *News & Events* section of the site's *Utilities* area includes RSS feeds from *The New York Times* and Platts.com, among others. This gives users a quick way to read up on industry news without having to set up their own feeds or visit multiple websites.



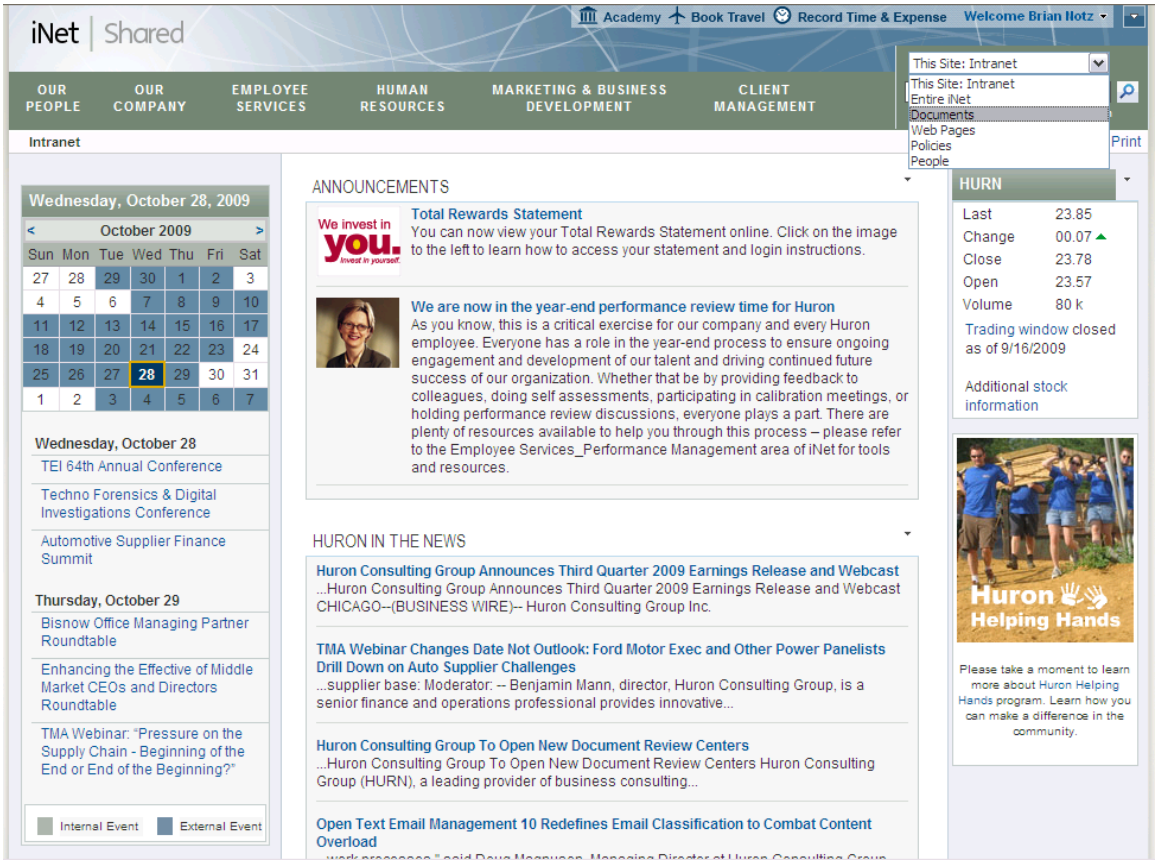
Pictured: Some pages offer RSS feeds, bringing together news headlines from trusted sources.

The site's *People Search* is more than your typical employee directory. Users can search by first or last name, as well as by various criteria—including industry experience, years of experience, and languages spoken—for locating the right consultant for a question or an engagement. Users can also search by more standard criteria such as title, practice, department, and office location. Keyword searches are incorporated so users can find employees who meet their specific criteria.

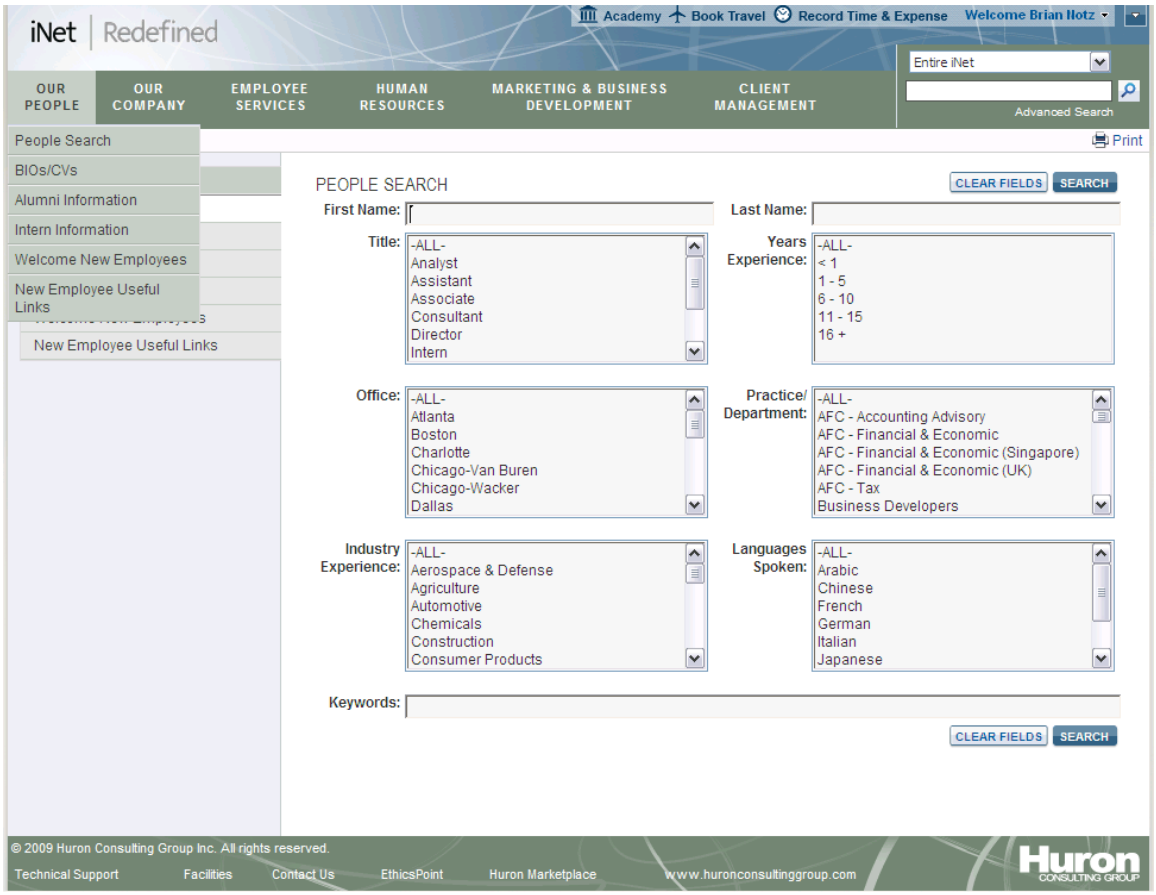
Employees can search for colleagues either by conducting a quick employee search via the main search box or by navigating to the *Our People* section. The main search box gives users options for the type of search they want to conduct, such as a people search, policy search, or a search of the entire intranet.

To see all the available criteria available in the search tool, users can navigate to *Our People*. For each category, all options are listed and users can select one or more criteria. Users can make selections in each category or none, making the directory a robust tool for knowledge sharing. As an example, seeing all employees in Dallas

with more than five years of agricultural industry experience can help locate the right person with the right expertise quickly.



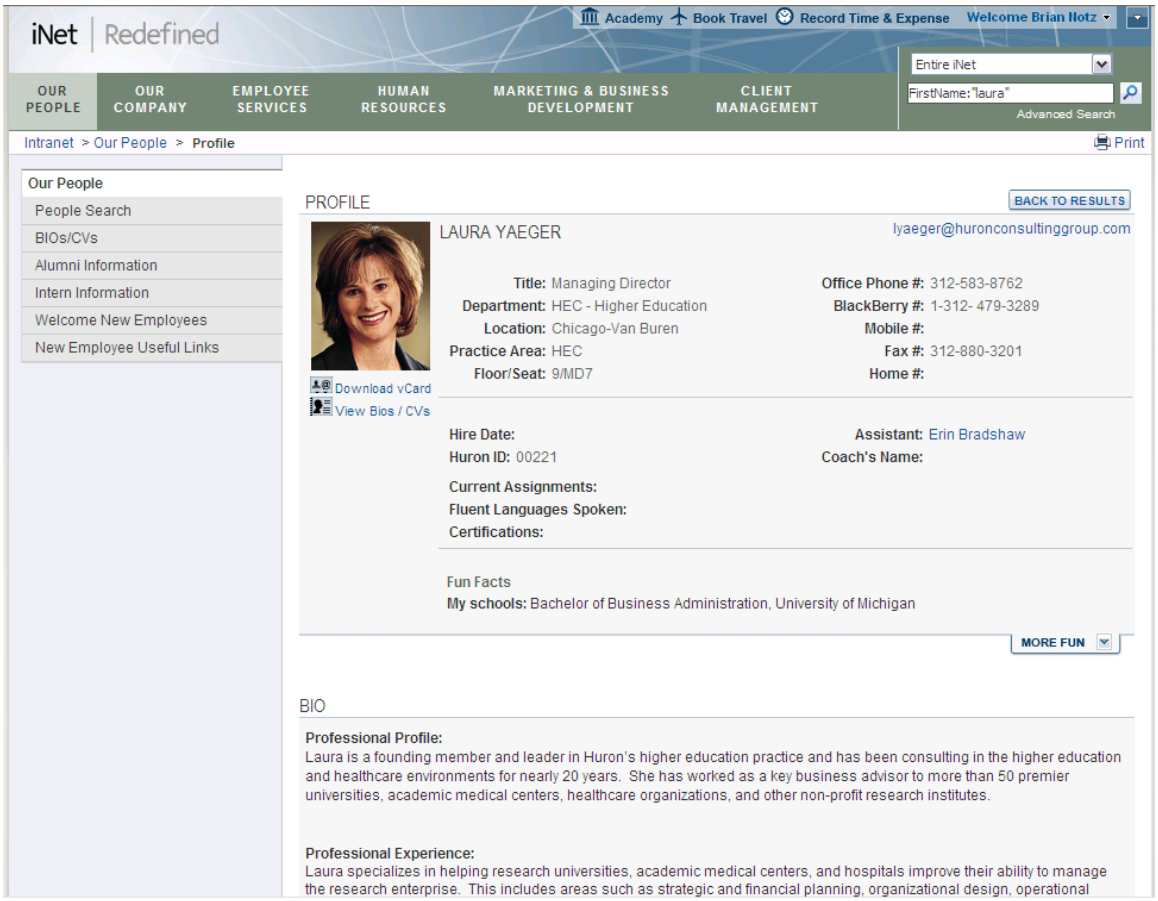
Pictured: The site's search box is a scoped dropdown that lets users limit their search to a specific site, the entire iNet, documents, webpages, policies, or people.



Pictured: If users navigate to the full *People Search* in the site's *Our People* section, they can run a more complex search, even selecting multiple criteria in each category.

Employee profiles provide all the essentials—contact information, picture, and location—but also include additional details such as hire date, current assignments, certifications, assistant name, and coach's name.

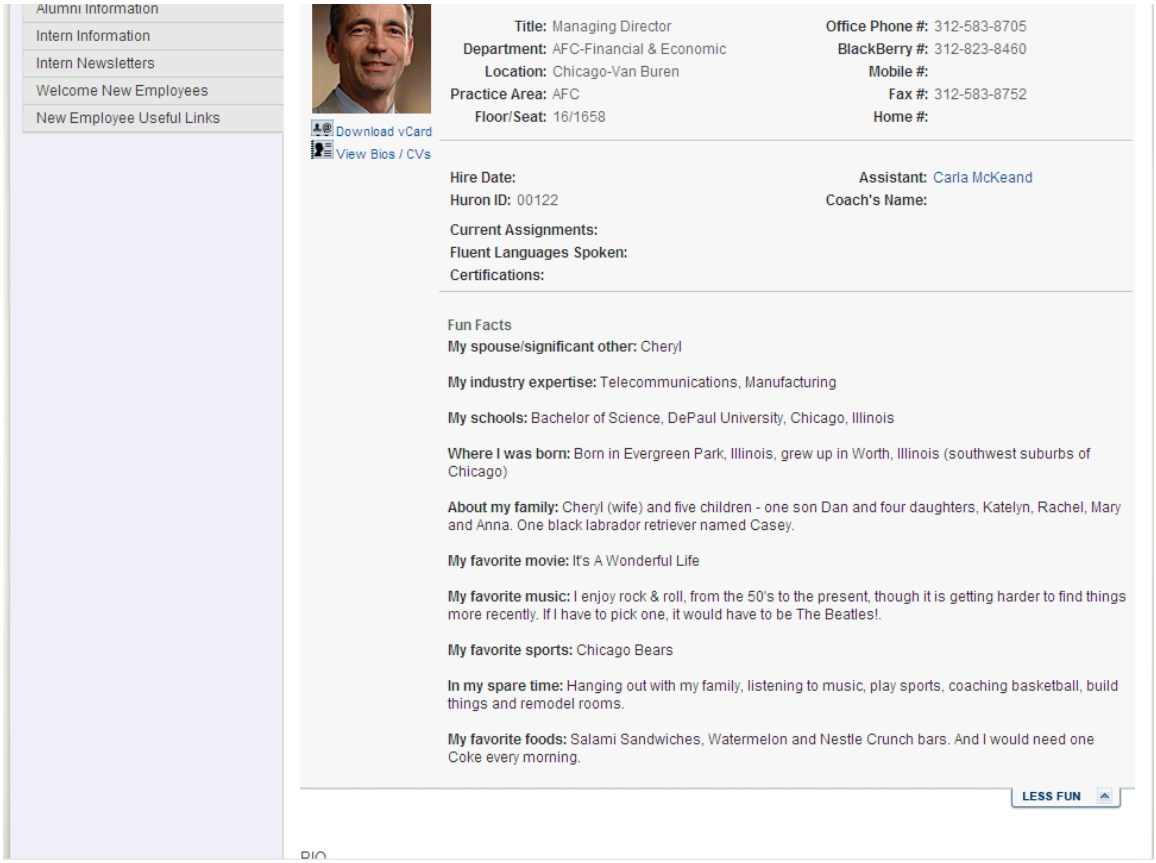
The site provides a professional bio as well, which helps people learn more about colleagues' backgrounds and expertise. Users can easily update their own information, though they must contact the IT department for any changes to non-editable fields such as name, title, and phone numbers.



Pictured: The employee profile provides all the essentials for contacting a colleague, as well as a professional bio. A *Fun Fact* is pulled from a list and displayed by default, and users can click *More Fun* to see additional personal information.

The profile also includes room for *Fun Facts* where users can enter particular categories of information, such as what schools they attended, where they were born, favorite foods, and other tidbits about themselves. When users arrive at a profile page, one *Fun Facts* item is pulled from the user's full profile. To see more, users can click the *More Fun* link at the bottom of the profile. This lets employees share personal information beyond the basic professional bio, which can help build relationships among employees.

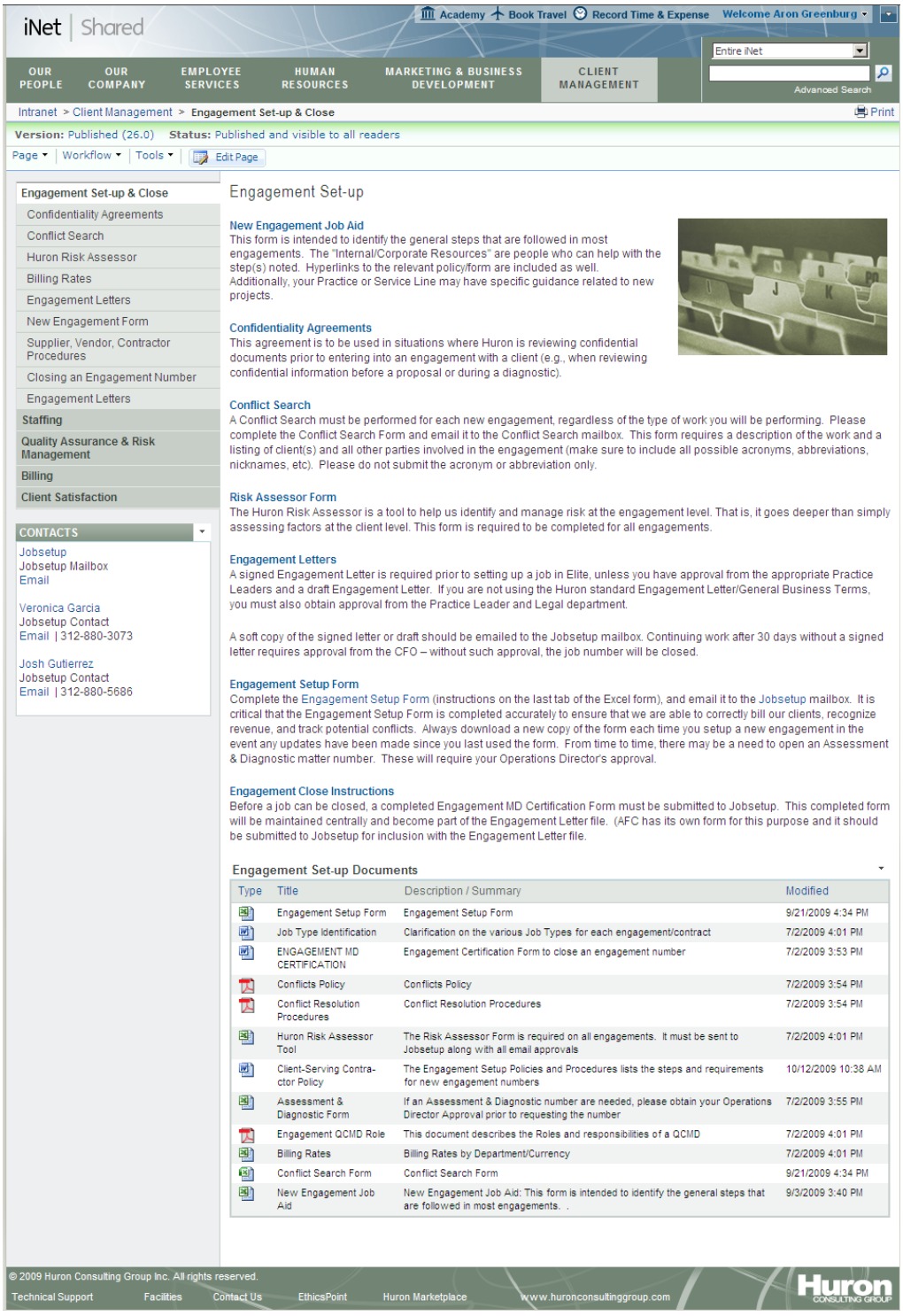
The team decided to use the *More Fun* and *Less Fun* links to maximize page real estate. They wanted the professional bio to be visible, which it wasn't if all *Fun Facts* were displayed. So they decided to show one fact by default, enticing users to click through to see more through the *More Fun* link. The *More Fun* and *Less Fun* link labels were initially used in planning meetings as a joke, but the name stuck and is an effective way to describe the hidden content.



Pictured: When users click *More Fun*, the page displays additional information such as the movies, music, sports teams, and foods a colleague enjoys. If users want to return to the more condensed profile view, they can click the *Less Fun* link.

Serious work can be done on the intranet as well. A key component of work at a consulting firm is client management. Previously at Huron, employees who wanted to set up an engagement contacted one individual at the company with requests. Now, the process is summarized online, so users can access the information themselves. So, what used to be a somewhat hidden process is now accessible through the site.

Although the site's content about the engagement process takes the form of checklists and documents, the fact that it's now available makes the process more open. No formal analysis has been done on the effect of this change, but anecdotal evidence suggests that it not only lightened the workload for the individual supplying the information, but also opened up the process to employees who previously didn't have the time or access to learn more about setting up engagements. All necessary documents, and a checklist, are available in one place. This alone is progress.



Pictured: The intranet provides a central location for all documents and checklists surrounding setting up and managing a client engagement. This information was previously centrally managed by an individual at the company, but was not available on the intranet.

The team relied on user feedback to both guide development and to focus them on the light at the end of the tunnel. When they were bogged down in details or fighting tight deadlines, they relied on user feedback as inspiration to remember why they were working so hard and to refocus on the improvements the new site would provide.

BACKGROUND

When Huron Consulting was founded in 2002, a small intranet environment was created for the company's then 200 employees. The site utilized Ektron as a CMS platform. The new Huron intranet, iNet, was launched in 2009 and was created using SharePoint. "Our old platform has not been supported since 2007," says Brian Notz, Creative Director, "so the way we interact with the CMS and our information [now] is a complete transformation."

Reusing Existing Technology

The team chose SharePoint because it supported many of the project requirements; the company already had a SharePoint license, so it served as a cost-saving measure as well. By continuing to use SharePoint, the company was able to reduce development costs substantially. Huron had obtained SharePoint through acquisition of a company that happened to have a SharePoint license. So, the IT staff that had been supporting the platform at the other company got rolled into the Huron intranet project. And the timing couldn't have been better. The previous technology behind the intranet (a version of Ektron) had ended its lifespan, so they were overdue for a change anyway.

Supporting a Business Need

The technology platform was the backdrop to the company's decision to expand the intranet, but the business need was the guiding force in the project. The company's business had become so fluid and dynamic that the tool no longer fit its needs. "The organization was growing in such a way that there were so many experts dispersed across so many locations that it was becoming a burden to support," says Notz. So, an enhanced intranet made sense to accommodate the increasing need for communication across the organization and to support a broader content provider group.

And as the company looks at the ways the site will grow from here, the path is clear: toward a team collaboration environment. "The old system did not get anywhere close to a collaborative environment that we're looking for," says Notz. "It was there and it was a dumping ground for stuff. People never knew where to find anything. Everyone was just so frustrated."

INTRANET TEAM



Pictured: The intranet team. (Left to right): Bryan Wells, Rebecca Heckel, Daniel Lynch, John Sudduth, Sally Hunneke, Brian Notz, Ciara de los Reyes, Aron Greenburg, David Sidwell, Matt Cummings.

Taking a Team Approach

Historically, the Marketing department has run the intranet at Huron, but the redesign project was truly a shared effort across departments. The project was sponsored by HR and was a joint effort between Marketing and IT.

Now that the site has launched, iNet support is a shared responsibility between IT and Marketing. All support requests are received through IT and all content-related requests are forwarded to Marketing. Previously, the Marketing team relied on an outside vendor for site support.

Budget is never a trivial issue with companies, but this was especially true for the Huron team. Their budget constraints required the project to span two calendar years and thus draw from two budget allocations. The complexity of this situation required that the team remain vigilant as to how and when the deliverables rolled out. “Budget was paramount,” says Notz. “We kept budget down by keeping a very close eye on milestones and deadlines. We never wavered on deadlines and knew we needed to adhere to all timelines. As with most in-house environments we were also very careful to acquire approval by our executive sponsors at every key milestone.”

Relying on Internal and External Expertise

Working with agencies is standard practice for most companies, at least for part of most intranet development efforts. The Huron team, like many others, found that it had enough experience on the team to easily accomplish much of the design on its own. But the complexities of SharePoint led them to find an outside agency to provide the technical expertise.

During the design phase, team members relied on their own areas of expertise, but also looked to user feedback to guide their decisions. “We followed a very classic

template in the design process," says Notz. "[We] did months of due diligence. The requirements document became our bible throughout the design process. Wireframes were scrutinized for weeks before design was applied."

"'Out of the box' was always a great concern for budget, ease, etc.," says Notz. "But we knew based on our culture that much attention to design detail was important, so we developed a large amount of customization for data manipulation as well as interface layout."

Never losing site of what the users said they wanted and how they reacted during usability activities, such as card sorts, kept the team honest. "On the team, we truly feel that Huron's iNet is a result of a team that was very focused on delivering what our audience said they needed for business purposes and what made for a better user experience," says Notz. "We would constantly remind each other of the consistent remarks made from card-sorting exercises that occurred months earlier."

"Considering this project took about eight months, it was really easy to get lost in trouble-shooting and development issues," he says. "And all [we] had to do was to remind each other of the value we got out of those focus groups and exercises. It would bring the focus right back."

TEAM ROLES AND RESPONSIBILITIES	
Executive Sponsors	• Align strategic goals with Huron's overall direction
Content Owners	• Primary owners of specific content areas • Maintain ownership of approval process in their respective areas • Passively approve content as required
Content Approvers	• Subject matter experts who verify content accuracy, timeliness, and validity • Initiate secondary approval as necessary
Content Contributors	• Day-to-day authors of site content • Initiate workflows for approval • Cross-train other content contributors across the site
Overall Content Administrator	• Train contributors and approvers on site policies/process • Perform passive reviews of site to ensure alignment with site goals over time

TIMELINE AND BUDGET

As mentioned earlier, the Huron team had an unusual budget constraint: the project budget came out of the budget from two calendar years. So, milestones had to tightly match the dates set out in the project plan—otherwise, the project could be in jeopardy. "Our budget restrictions included an end-of-year overlap," says Notz. The project milestones were therefore based heavily on meeting the budget requirements of the overlap. "At the end of 2008, we were running out of budget and had to use it," he says. "Then there was budget in 2009, an additional amount to complete the project."

In working with their development vendor, the team members had to hit certain milestones by certain dates in order to use the budget in that manner.

Project phases included:

- Project planning
- Discovery phase
- Functional design phase
- Develop and deploy

The project planning and discovery phases were completed in three months utilizing the first part of the budget in 2008. In January 2009, the design and development phases began, with the approved budget already in place. “By the end of February, the team was working on both design and development stages in parallel,” says Notz. “Lots of overlap was required in all phases of the project, but especially when we hit the prototype.

“Since we had made the platform decision well in advance of the prototype, we began development in SharePoint right away,” he says. “We built custom modules and Web parts knowing that we could reuse them down the road. Our developers were especially looking for any way to not do anything that would become redundant.”

The project began October 8, 2008, with a launch date set for the last week of July 2009. Most of 2009 was used for tech development.

GOALS AND CONSTRAINTS

Goal: Focus on Employees

The goal for the redesign was to design an intranet that focuses on the company’s employees, providing a rewarding and favorable user experience. The resulting site, iNet, hosts and distributes content that is rich, intuitive, relevant, credible, and reliable. It acts as a portal for employees to access Huron’s core applications, systems, tools, documents, policies, and content needed to excel in their jobs. “The site also compliments the overall enterprise and ensures proper securities to support risk management with workflow/content governance and approval,” says Notz. “The new site is scalable and accommodates future growth.”

Constraints

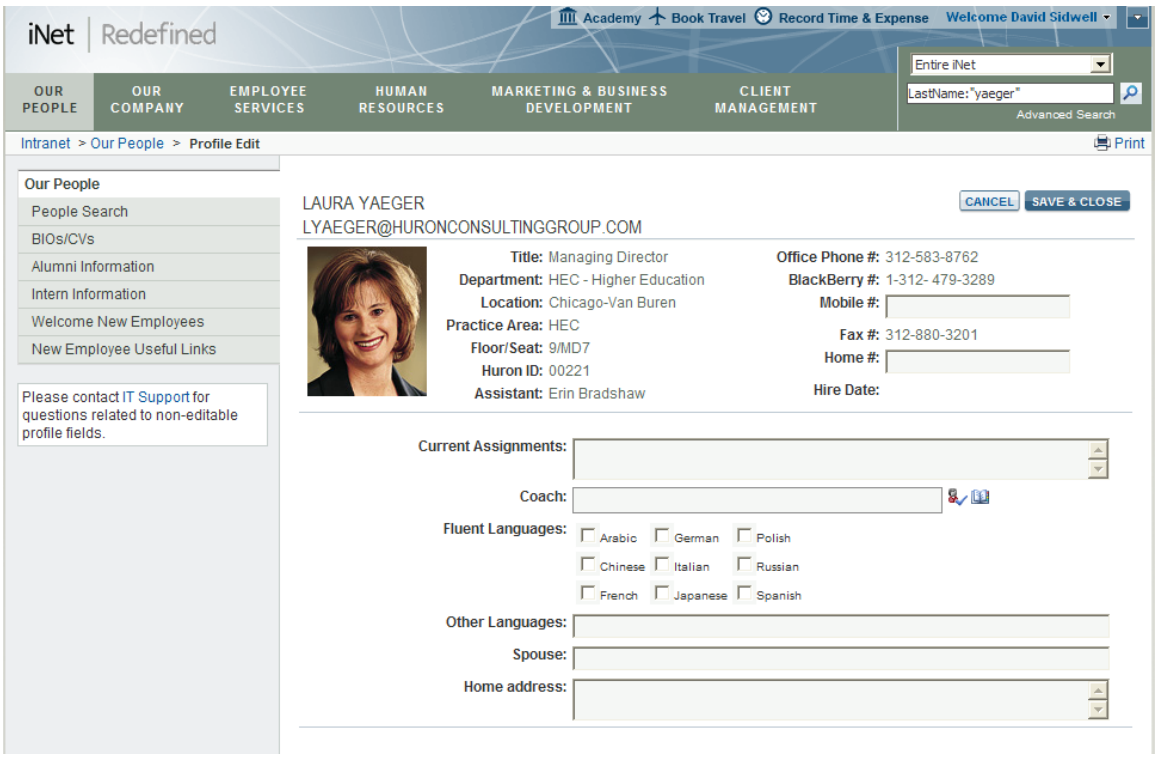
Like nearly every team we’ve interviewed for this annual report, the Huron Consulting team was under a tight time constraint for the redesign. “Our biggest restraint was time,” says Notz. “We had a small team, and we were all running other projects along side this one. So all the meetings became heavily focused and almost all that I remember ran into overtime.”

“We knew that with Tahoe Partners it would be important to keep us on time and to keep us alert to their expertise of the technology,” says Notz. “Without that, we would have not met the constraints of the deadline.”

USERS

Huron is a professional services company more than 2,100 employees in offices worldwide. The majority of users are consultants who work on client engagements and utilize iNet to stay connected with colleagues and keep abreast of company

events and news. Employees travel extensively and spend most of their working time on-site at client locations, so it was imperative that Huron's site be accessible from virtually any location be it client office, hotel, or airport.



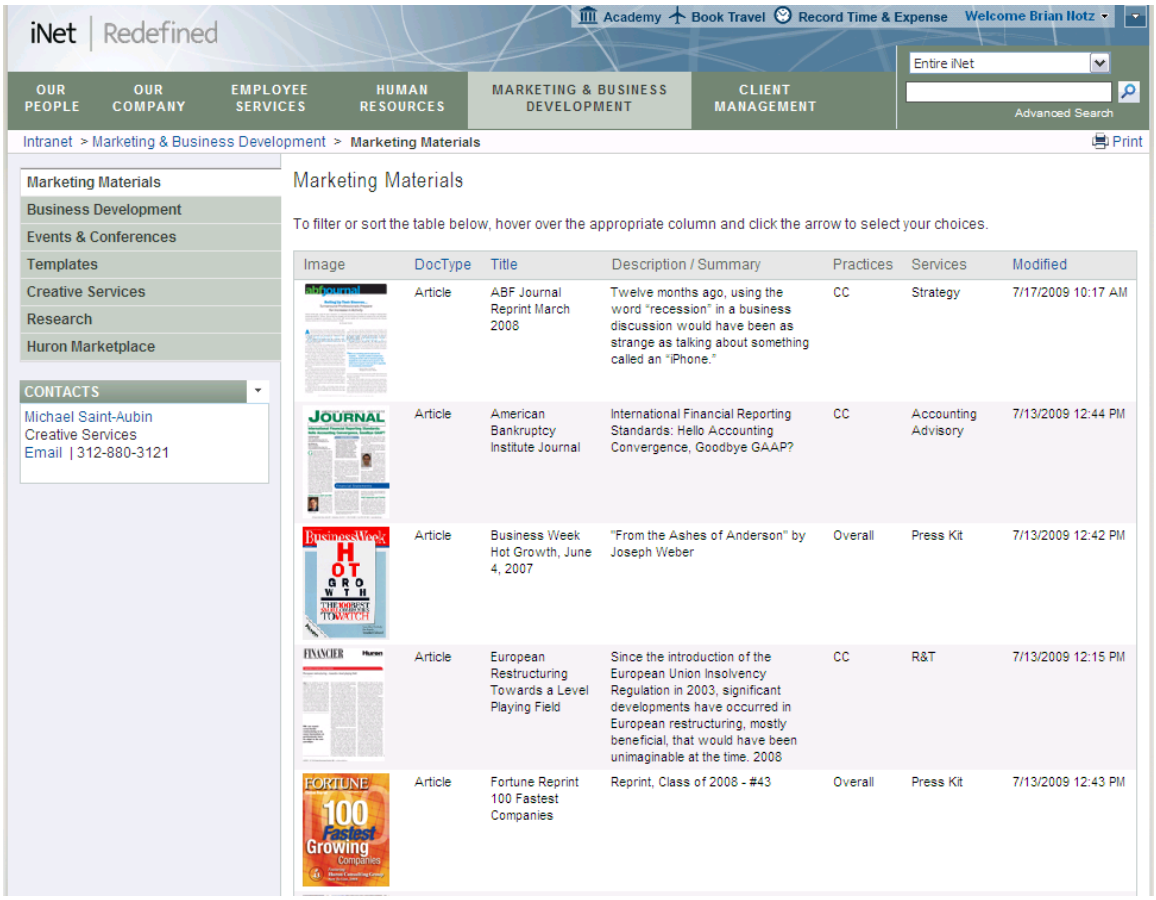
Pictured: When employees view their own profile page, they're given the option to update the information. Items coming from Active Directory are not editable, while SharePoint fields are. The easy interface allows employees to make quick updates, such as coaching changes as the year progresses.

USER TASKS

iNet supports the following user tasks:

- Manage and maintain content in the following areas: search colleagues/find their photo, contact information, industry and client experience, language fluency, and *Fun Facts*
- Manage the entire client management process from set up to close out
- View all corporate and practice marketing materials in one central location
- Enroll in and manage personal benefits
- View interactive leadership messages
- Manage online user bios and CVs
- Access Huron's latest news and events
- Order business cards
- Order corporate materials
- Order Huron promotional materials and apparel

- Enroll in online and classroom training
- Book travel
- Report time and expense
- Complete mid-year and annual performance reviews
- Read the *WSJ* and *The Economist*
- View open job postings
- View company calendar to include internal and external events
- Access various research tools and resources
- View Huron stock ticker
- Submit and review client satisfaction surveys



Pictured: The central repository for the electronic versions of the company's marketing collateral. Here, employees can access the latest brochures, sell sheets, and whitepapers to provide to clients. The material is filterable by type, practice area, and service area to provide a quick way to find documents. The thumbnails and descriptions provide an at-a-glance view of the particular material so employees can reference the documents visually as well.

Building a Robust Directory

As a consulting firm, it's important that Huron consultants have an easy way to become familiar with the organization and their consultant peers. The obvious tool for that purpose is the ubiquitous corporate directory. The company wanted to make sure that its staff directory was as dynamic as possible. "Executive bios are an important way for others to become familiar with their background and expertise," says Notz. So, on iNet, the company directory tool features *Fun Facts* for each employee in addition to the usual compendium of experience and expertise. Users can click on the *More Fun* tab to find out more about an employee's personality and history or choose the *Less Fun* link to review the person's consulting experience.

USABILITY

The team used extensive focus groups, user surveys, card-sorting exercises, and usability testing to ensure that the new iNet met user needs. "Huron's iNet is unique because the design process was completely focused on its users and reflects what employees viewed as priorities in feature and functionality," says Notz.

The team employed a range of user experience activities throughout the design process, including:

- Card sorting
- Field studies
- Email surveys
- User testing of the old intranet
- User testing of new design prototypes
- Studying the server logs

Daniel Lynch, Huron's Web Production Associate, breaks down some of the usability deliverables and discusses how they were administered during the project:

Surveys

The survey was available to any interested user through a link sent via email and posted on the iNet site. Additional efforts were made by Huron to drive users to the survey and increase the number of responses. This provided all iNet users the opportunity to voice their opinions about iNet's content, functionality, and ease of use to ensure that everyone was represented in the overall detailed requirements gathering.

Questions ranged from ones seeking general demographic/employee data to range-based queries on degree of satisfaction with features to questions requesting free-form responses.

The survey findings reported here are from surveys completed September 10 through September 24 in 2008. During this time, 628 surveys were completed, representing nearly 30 percent of the entire user base. This excellent response rate places this survey in the top three all-time Huron surveys in terms of responses received.

Field Studies

The overall goal of the requirements sessions was to gain a better understanding of how Huron representatives use iNet, how they'd like to use iNet, and where they see improvement opportunities. Results from a previously completed user survey were incorporated into the facilitated discussion to dig deeper into topics of interest. The high-level areas of investigation were:

- Content
- Functionality
- Navigation and ease of use
- Accessibility
- Content governance

While these were the main areas, discussion wasn't limited to these areas.

Session participants represented a wide range of corporate and practice personnel, including many geographic locations, varying time with Huron, and varying levels within the company. A total of seven sessions were held.

Card Sorting

At a high level, the card sort was fairly typical. Users were given a series of index cards with various items, tasks, or categories that could be incorporated in the reorganization of the intranet. These elements were often held together in the same pile. The users were then asked to sort cards into separate piles, placing cards that seemed similar into groups. Elements that were placed in the same pile by many users were deemed sufficiently similar and were ultimately placed in the same category for the redesign.

During the card sorting the team utilized several activities, including:

- **Group random content items.** Users first placed the cards in piles in random order. Later, the users named the piles. The users also were asked for reasoning and further clarification on what they interpreted the cards to mean.
- **Locate content items.** This activity sought to test the groups' ability to find items they'd placed in certain groups. This allowed the team to verify with the group that the piles were logical.
- **Attack content groups.** Facilitators asked participants to focus on prearranged groupings and determine any changes/rationalize the grouping.

User testing

The team conducted user test sessions of both the old intranet and the new design prototypes. "To balance and verify some of the findings in the previous requirements and design process activities, we leveraged the old intranet and some basic design prototypes," says Lynch.

"With the old intranet, users were asked to find certain key content—content we heard about most often in the focus groups and through the survey," he says. "A common response was, 'I didn't even know that existed on here.'" After some

struggling, some of the participants were able to find the content areas or indicated where they'd expect to find the content.

The next step was to utilize basic design prototypes with dummy content but using navigation that was driven by the information architecture developed in previous activities. Users were asked to find the same content that they were asked to find on the old intranet. The common response this time was, "that was easy, it's right where I'd expect."

"Once again, we focused on key pieces of information that employees told us were important in their day-to-day jobs," says Lynch.

Studying Server Logs

The team had no choice but to study the server logs as the old intranet had no analytics tool associated with it. Raw log data was all they had to work with. They used the server logs to determine activity and key pages on the old intranet.

Although this was a cumbersome process, the results of the analysis verified some of the responses the team had heard from users in the focus groups and added additional research to some of the team's design decisions. For example, people used the intranet to search for colleagues, benefits information, and some of the client management documents needed to begin engagements.

TECHNOLOGY

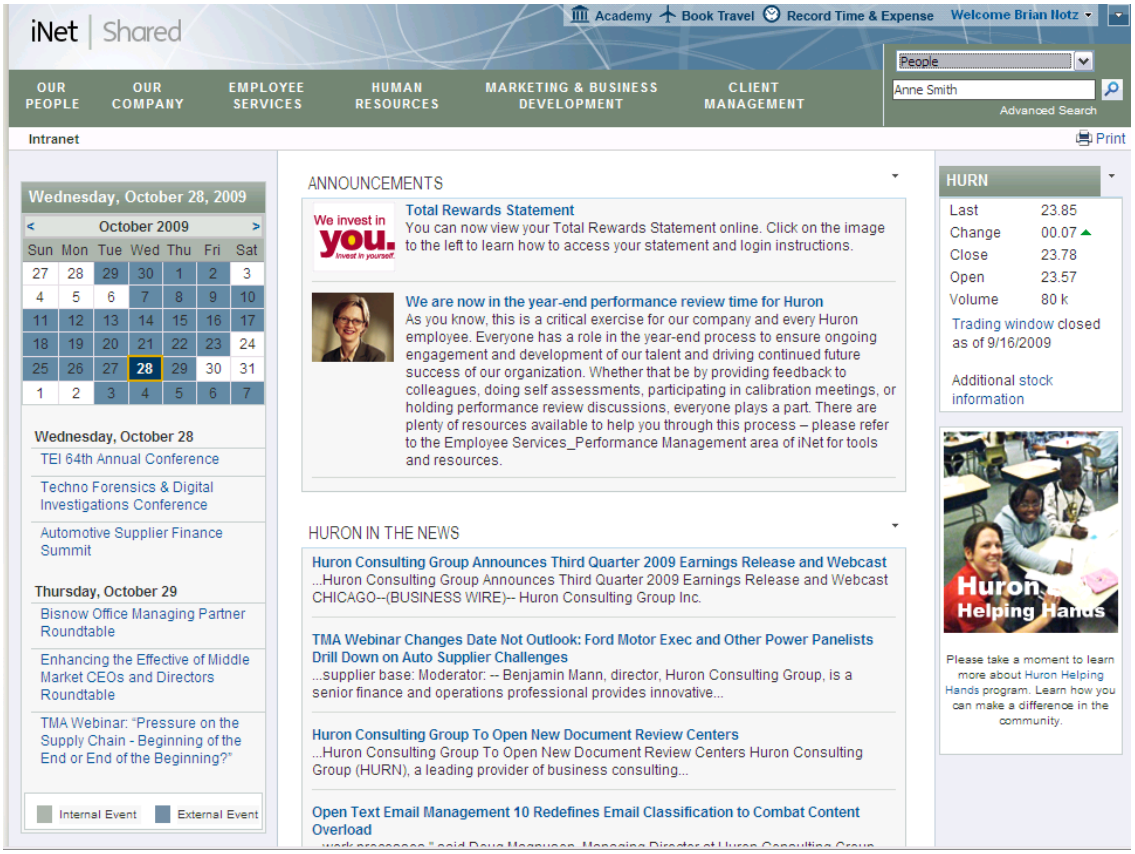
As mentioned above, the Huron intranet is on the SharePoint (MOSS 2007) platform because it met both the technology and business needs of the project.

SEARCH

Search was paramount to the new site's success. Because the previous intranet used "absolute search," users had to know exactly what they were looking for. "Our documents were also not searchable," says Notz. "In our focus groups, we determined what people were really looking for and that shows in our current views. Our users are typically looking for people within the company. They want to know who they will be working with on a project or find their career coach. Sometimes this is the first impression our people get of one another because our consultants typically are working remotely at a client."

So, at the main navigation masthead, users can now search for people in two ways:

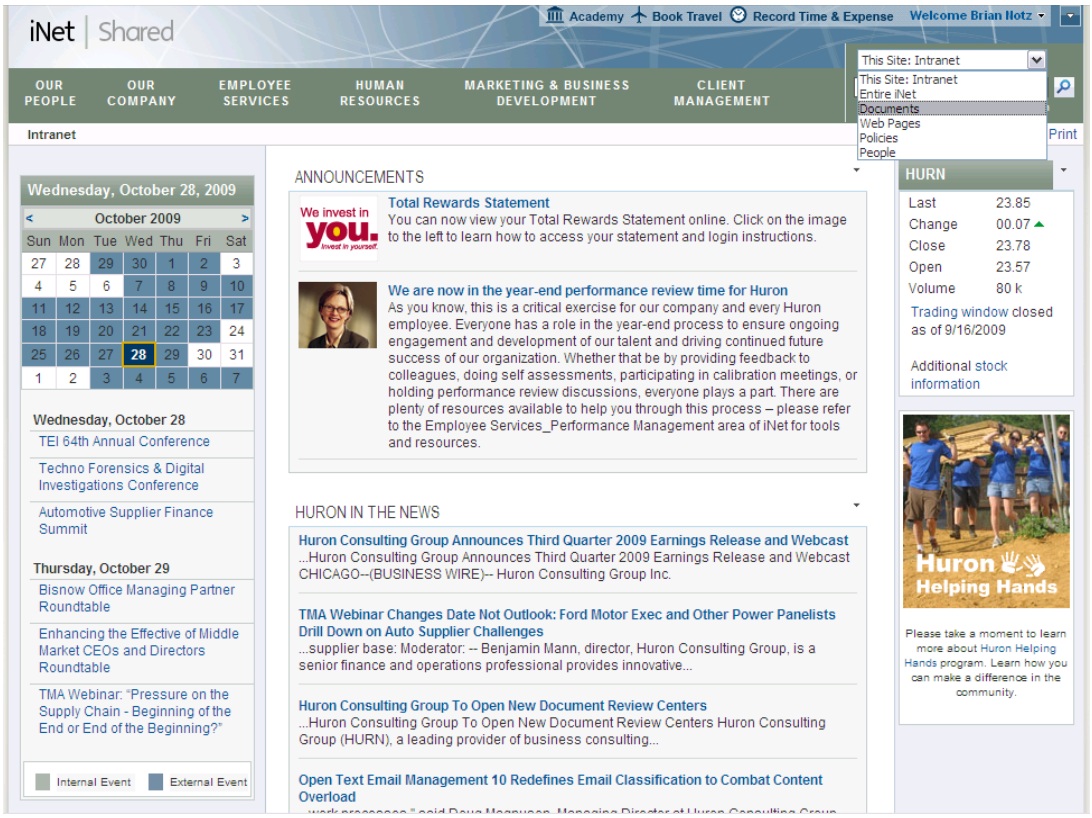
- By choosing *Our People*, users are given the advanced search
- Users can also enter a name in the masthead's *Search* field and then choose "people" from the search scope dropdown menu



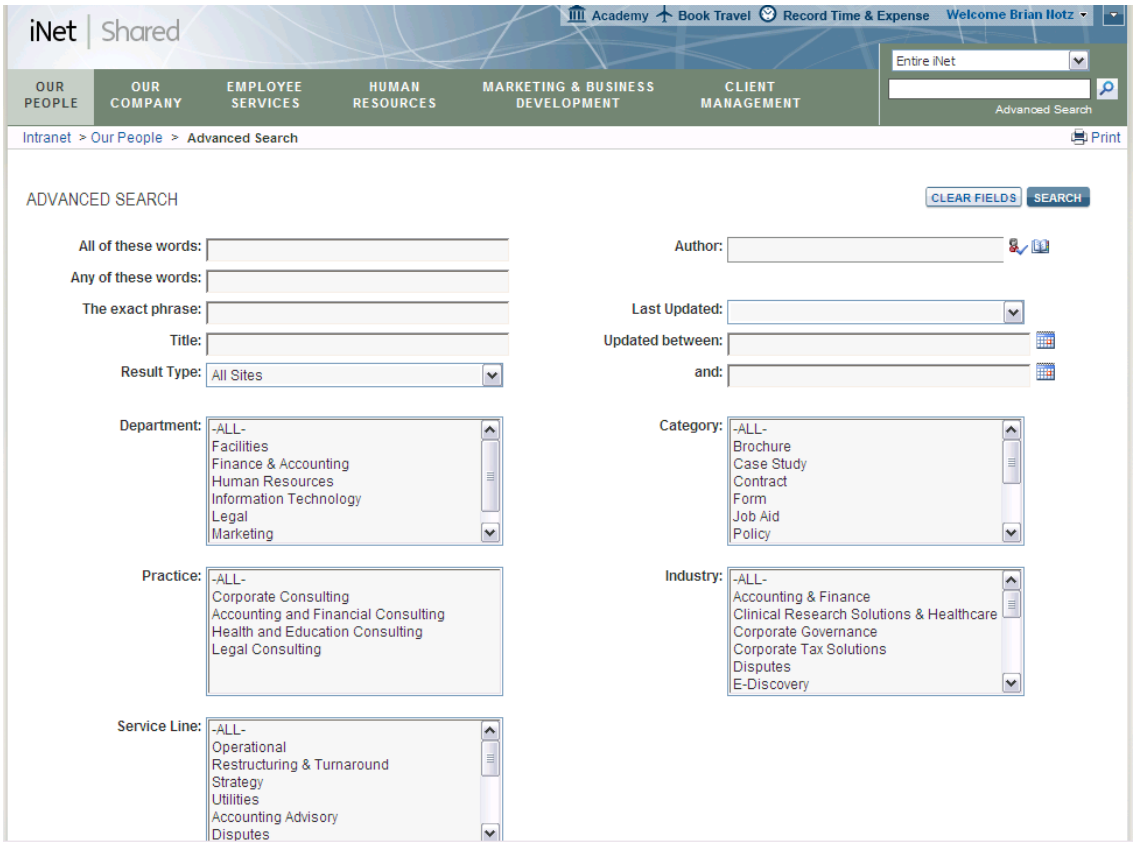
Pictured: To find colleagues, users can enter a name in the masthead's search field and then choose "people" from the search scope dropdown. This option lets users conduct this search from anywhere on the site rather than having to navigate to the *Our People* section.

"Option two is important because this is available no matter where a user may be on the site, without having to navigate to *Our People,*" says Notz.

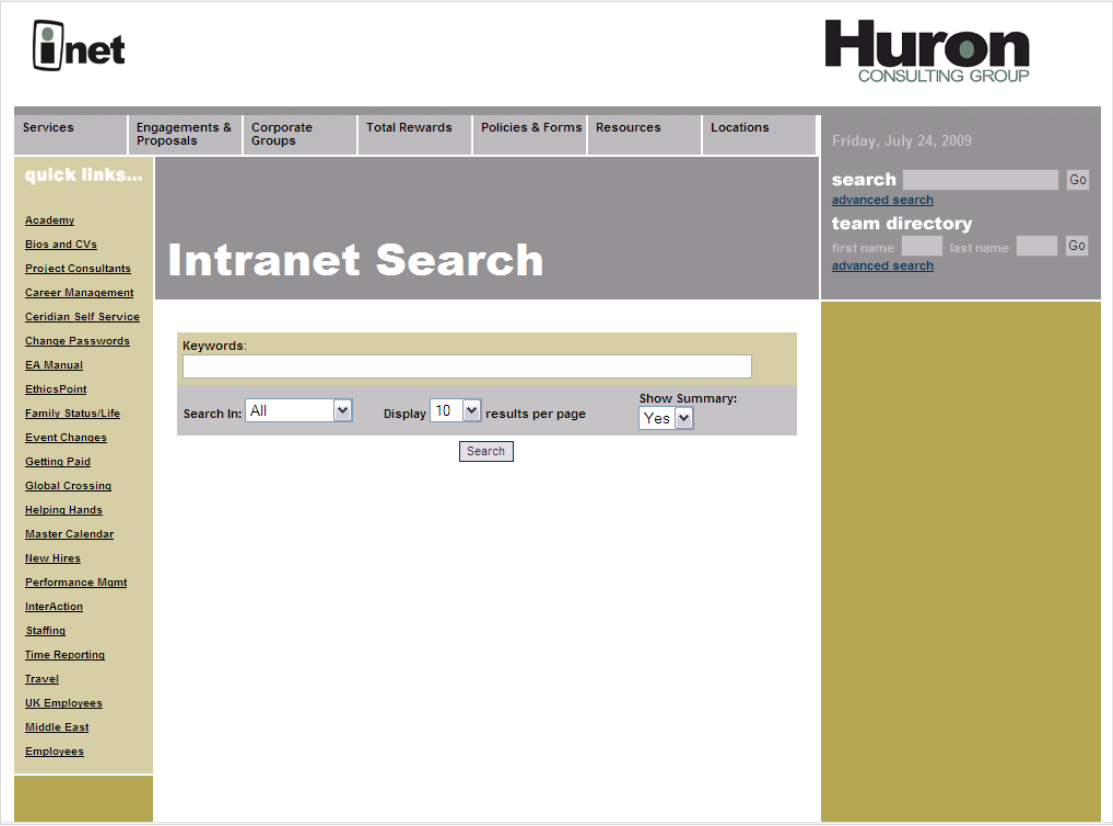
The advanced search options include the other dropdown search scope listed above the search field; users can also navigate to the *Advanced Search* page.



Pictured: The site's search box as a scoped dropdown where users can limit their search to a specific site, the entire iNet, documents, webpages, policies, or people.



Pictured: The *Advanced Search* page offers users a variety of criteria by which to narrow their search.



Pictured: Search on the previous intranet was limited to keyword searching. Although users could set some basic places to search, the overall experience was not robust. Now, the site's advanced search lets employees filter information by metadata associated with each piece of content.

CONTENT AND CONTENT MANAGEMENT

A Distributed Model

The new iNet shifted content management from a centralized content management model to a distributed model enabling nearly 100 content owners to manage their own content (where once only 30 people were content owners). These content owners ensure that content is relevant, updated, and timely.

"Previously the content published on iNet was a centralized process with most of the content being published by approximately 15 users," says Notz. "This model did not fit our fluid business needs, due to the amount of people providing content."

Now, with the distributed content model, the content owners are responsible for the authoring, approving, removal, and updating of all content on the intranet.

"Leveraging this approach has allowed us to also distribute training through the same channels to accelerate change management," says Notz. "So, the new platform requires the publishing of content by owners/creators of the materials. The dynamics of the business require the ease of publishing in small well-organized groups without too many obstacles. Our governance team would then monitor these various groups. We are phasing in the approval and governance processes."

Everything on the site's top two levels is approved/governed by the iNet governance team. All changes at these levels must be investigated to ensure that they fit with site guidelines and apply to at least 80 percent of the population. This ensures that this important top-level content is relevant to most of the organization. Less relevant or content geared toward a more specialized audience fits at the third level and is governed in a more decentralized manner.

"Everyone wants top billing, but the governance team must validate needs versus wants," says Notz. The main content areas are: *Our People*, *Our Company*, *Employee Services*, *Human Resources*, *Marketing & Business Development*, and *Client Management*.

At the third level and below, content owners/approvers act as subject matter experts on how to best delivery their content. With basic guidance (and aid when requested), the site becomes theirs to manage.

Writing for the Web

Each author is given some basic training/guidelines for authoring Web content. As best practices emerge, authors are encouraged to informally share what they learn among their peers. The team has also established quarterly "refresh" meetings with the group as a whole to provide an outlet for best practices, deliver new training, and focus the group to help them stay engaged in their tasks. For many, this isn't their only task on a day-to-day basis. "We are also establishing 90-second quick tutorials for delivery of training on items that may not be as common to everyone (leveraging the content contributors and approvers)," says Notz.

RESULTS AND ROI

Like many intranet teams we've interviewed, the Huron team measures typical site analytics, but has few resources to measure overall site ROI. Instead, the team relies on softer measures of the site's success, such as the fact that users can find people and information more quickly than before. Positive user feedback also provides insights into the site's relative success.

And, perhaps the most important measure of all, is that iNet is up and running and provides the company with a tool that it can grow as the business grows. The new intranet enables the organization to meet internal needs as they arise. Consulting is a very fluid industry and the importance of having a nimble tool in place shouldn't be underestimated.

"People are starting to see the potential for further development for other projects such as staffing, social applications, and custom group sites," says Notz.

LESSONS LEARNED

Huron team members share the key lesson learned on this project:

Don't rely on user enthusiasm. The biggest lesson the Huron team learned in building iNet was that they overestimated end users' enthusiasm for the new platform and their role in contributing vital site content. To support the new site and ensure that it would be of the highest quality, the team needed many content contributors and content owners. "We overestimated the excitement that we thought people would have to use 'this great new tool,'" says Notz. "Instead, many were concerned about how this might affect their daily work load and how complicated it might be." Fortunately, he says, "most of those concerns are now behind us, and

people really do see the value of how they participate in the site. We ended up spending more training time with our fellow content owners/providers then I think we thought we would." (Notz)

Jet Propulsion Laboratory

Using the intranet:

Jet Propulsion Laboratory (JPL) was established by the California Institute of Technology in the 1930s. America's first satellite, Explorer 1, which launched in 1958, was created at JPL. In the decades that followed, they sent the first robotic craft to the moon and out across the solar system, reconnoitering all of the planets. In total, JPL has 20 spacecraft and nine instruments conducting active missions. All of these are part of NASA's program of exploration of Earth and space, with plans to send robots and humans to explore the moon, Mars, and beyond.

Headquarters: Pasadena, California

Number of employees the intranet supports: 5,000

Company locations: The US, with spacecraft tracking stations around the world

Locations where people use the intranet: The US

Annual sales: Not applicable

Design team:

The in-house core team did most of the work on the site. Moore Boeck, Inc., a Los-Angeles-based Web design company specializing in Flash interactive and websites, developed the overall look and feel.

In-house: Brent McWatters, Task Manager; Frank O'Donnell, Communications Office Manager; Boris Oks, Lead Developer; Larry Bost, Brian Pendergrass, Diana Herrera, Luis Tong, Sauwan Leung, Jeremy Arca, Ryan Sohn, Megan Mickelson, Rebecca Nash, Susan Braunheim-Kalogerakos, and Mark Whalen, Developers & Content; Gerardo Orozco, Graphic Designer

Moore Boeck: Justin Moore, Creative Director; Andrea Boeck, Designer

SUMMARY

The goal for JPL's intranet team was to build a site that was more functional, more easily edited, and better-looking. The primary goal was to enhance the user experience on the site by helping users find the information they need. On the way to that goal, the technical side of the intranet team joined forces with the Office of Communications and Education (OCE). By partnering with a team well versed in communicating, the team could better tackle the problem of keeping content current. The team also made a technical move to using SharePoint, which simplified content update methods and let content editors make changes more easily.

A side effect of working with the OCE was an added focus on the site's visual presentation. The site, which had been previously designed by engineers, looked like it had been designed by engineers. The team brought in an outside design team to build a better-looking intranet, based on the knowledge that a clean design can greatly enhance a site's usability.

By joining forces, the Office of the Chief Information Officer, the OCE, and the outside design firm of Moore Boeck were able to tackle the challenges the previous site presented and make great steps forward in creating a better intranet.

At JPL, content creation is distributed; the site's only editorial workflow is focused on the homepage. Additions to the homepage require approval from one of a few reviewers, each of whom can approve or reject content and route approved content to the appropriate site areas.

All news stories require approval. Stories can originate from anyone at JPL or directly from the OCE. The OCE team then edits the stories and routes them to *JPL Downlink*, *JPL in the News*, *Upcoming Events*, or *Announcements Web* areas of the homepage.

The homepage's featured news area has three spots for key stories, which the page automatically cycles through. Users can also move among stories using numbered links or an arrow at the top of the section. News items are accompanied by a large image, a brief and descriptive headline, a publication date, and a descriptive summary. Users can click on the headline to view the full story.

The rest of the homepage combines personalized content, customizable content, and company information. Mentions of JPL in the media are shown on the homepage, giving employees access to information about the organization's work and how the press is reporting on that work. Headlines are listed together with the date of publication and the source, and users can click on the headline to see the full story.

Announcements on the other side of the page provide basic information and updates about upcoming events, ranging from retirement account counseling to expos to hiking club outings. This section includes a link to *How to publish a lab-wide announcement*, which lets users know that they can contribute content to this site area. The *Upcoming Events* section includes more detail about specific events and also allows users to click through for more information.

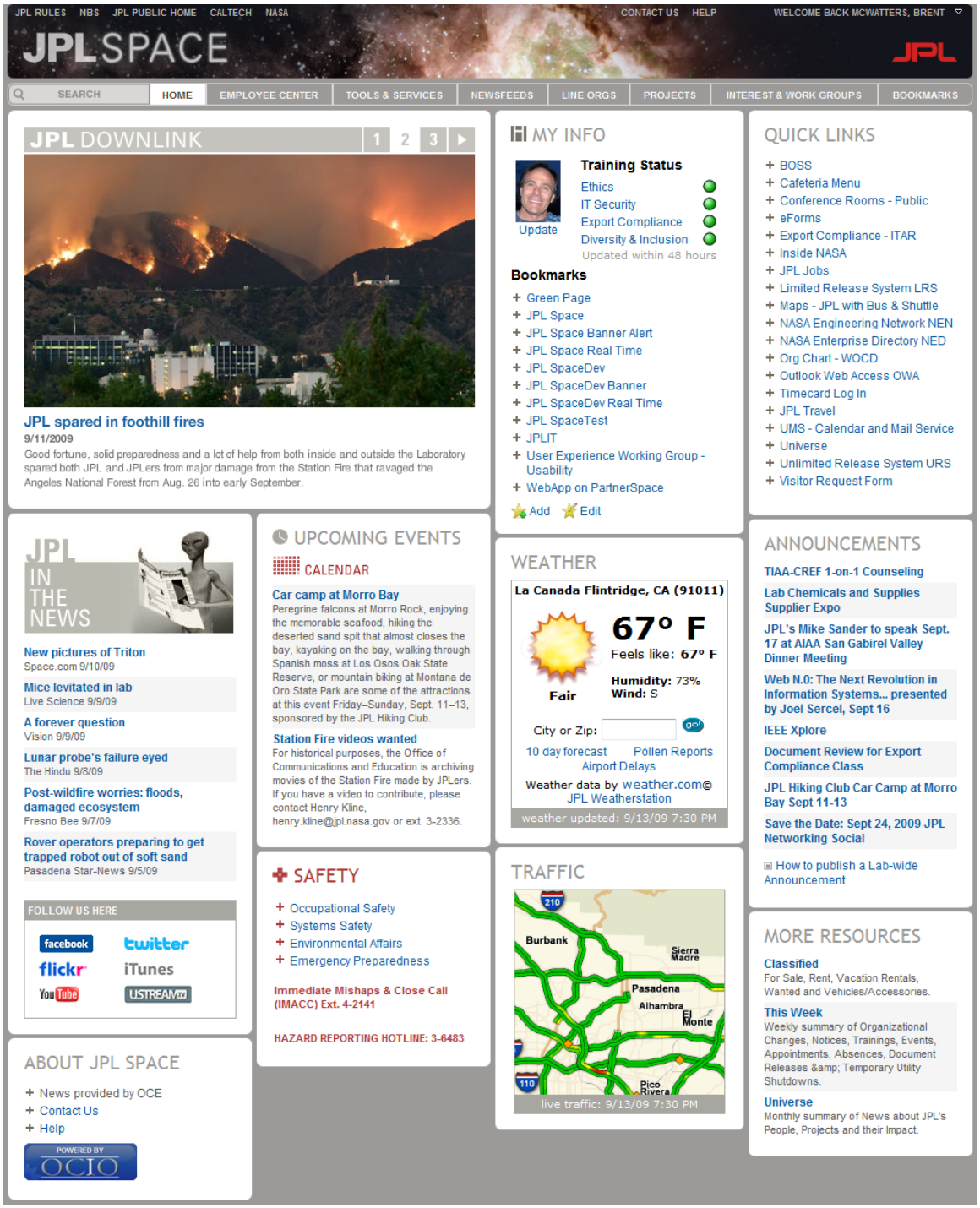
The *More Resources* section includes a practical link to the site's classified advertisement section, and also highlights additional news stories that focus on individuals and projects. *This Week* provides a summary of occurrences or events for the week. This includes a variety of content, ranging from utility shutdowns and document releases to absences and appointments. *Universe* is published monthly and highlights individuals and projects within the organization. These areas allow the site to include information about more personal aspects of the organization, rather than covering the organization as a whole.

Several areas of the page are focused on navigation. A *Quick Links* section highlights direct access to popular or important site areas. A *Safety* section gives users quick access to emergency and occupational safety information.

Several areas offering personalized and customizable content round out the page. The *My Info* section includes a personalized view of the employees' training status, which is updated every 48 hours. Users can also create a customized list of *Bookmarks* in this page area. Users can easily add links to the list or edit the list via links at the bottom of the *My Info* section. Currently, users can edit only the list of bookmarks. The list of mandatory trainings displayed isn't user customizable but does vary based on the employee role; supervisors, for example, are required to attend additional trainings and on-site contractors attend fewer trainings.

Additional content includes local weather information and live traffic updates for highways in the local area. Users tend not to click on this content, as the information they need—current weather and current traffic—is visible without further action.

Global navigation appears across to the top of the page, with the user's current location in the site highlighted. The global navigation area also includes a search box.



Pictured: The JPL homepage combines company news with personalized and customizable content. (image courtesy NASA/JPL-Caltech)

One of the most unique aspects of the site is the *Quick Find* tool built into the site search. The site search suffers from problems common to many intranet site searches: it doesn't always pull the best documents or information to match users' queries. The team is continually adjusting the backend to make the tool work more successfully. As an enhancement to the search, the team uses *Quick Find*, which

allows quick access to selected content. This functionality requires custom coding, but the coding is what makes the tool effective.

For instance, the search engine doesn't handle certain types of requests well, such as queries about people, buildings, or acronyms. As a result, the team has created hardwired results for such searches, and those results appear in the *Quick Find* window.

Users simply use the site search, and if any *Quick Find* results are available, they appear in a box beneath the search field. Alternately, users can press *Enter* on the keyboard to submit the search to the full search engine.

This gives users quick access to commonly requested information. Because the results are hardwired, they are limited: not all queries will return *Quick Find* results. However, the *Quick Find* function responds much more quickly than the standard search, returning any hits in a matter of milliseconds. Users don't even have to type in a full query to see results. For instance, someone looking for Brent McWatters' phone number can simply type "br mcw" and see the relevant profile information.

When *People* (employee directory) results are displayed, users don't have to click into the full profile to get pertinent contact details. Contact information is shown in the results, including a profile picture, name, title, mobile number, and phone number.



Pictured: The *Quick Find* tool returns hardwired results for certain pieces of information, such as employees listed in the *People* directory. Results appear as users type their queries. (image courtesy NASA/JPL-Caltech)

The *Quick Find* functionality works for information about people as well as other types of content. The tool searches information in both its Yellow and Red Pages. JPL's many service organizations are listed in the Yellow Pages; its Protective

Services—including its own fire department and emergency services—are listed in the Red Pages.

Quick Find also returns matching acronyms, location information, project information, and *JPL Rules*, which is a document repository of all the official rules at JPL. It covers the full gamut from tuition reimbursement policies to flight project practices.

Additionally, *Quick Find* returns matches to popular site content.

Lists of popular links appear throughout the site, with the full list of such links numbering in the thousands. The team has coded *Quick Find* results for each of those popular links, making it quick and easy to use the search to find the most popular content on the site. This is an elegant solution to inadequate site search and confusing navigation. The best aspect is that users don't have to have any awareness of how it works or why it works, nor do they have to go to a separate area of the site to use it. They simply conduct a standard search, and any *Quick Find* options are automatically presented to them. Users always have the option to submit the search query to the full site search as well.

An automated algorithm reviews *Quick Find* searches to see which items are most often selected for particular searches, and makes those items appear in larger text. For instance, a search for "parking" (see below) returns four results in *Popular Links*, but the larger font size indicates that *JPL Parking Policy* is the preferred link of most users who search that term. The second most popular link is *Laboratory Parking & Traffic*; *Caltech Parking* and *JPL Parking* are also available, but less popular. This approach presents users with all possible matches, but tries to help them select the right one based each link's popularity.

The team collects feedback about the searches conducted, seeing which return results and which fail. There's also a link to *Help Us Improve* at the bottom of the *Quick Find* window where users can submit feedback.



Pictured: The *Quick Find* tool uses text size to indicate which of a set of matches is the most commonly selected result. (image courtesy NASA/JPL-Caltech)

Another creative feature on the site is the use of maps, created through Google Maps, to convey information about the corporate campus as a whole as well as about specific campus buildings and resources.

When users mouse over a building on the map, for example, information displays about the building, including its number, name, and a picture of it. The map provides details about the location's facilities, such as bus stops, coffee stands, ATMs, and whether the site is an emergency services facility. Beyond that, the map provides links to building floor plans and information about public conference rooms and points of interest.

The team is working on additional maps that will show such information as real-time locations of buses on the campus bus route and information about power consumption at buildings across the campus.

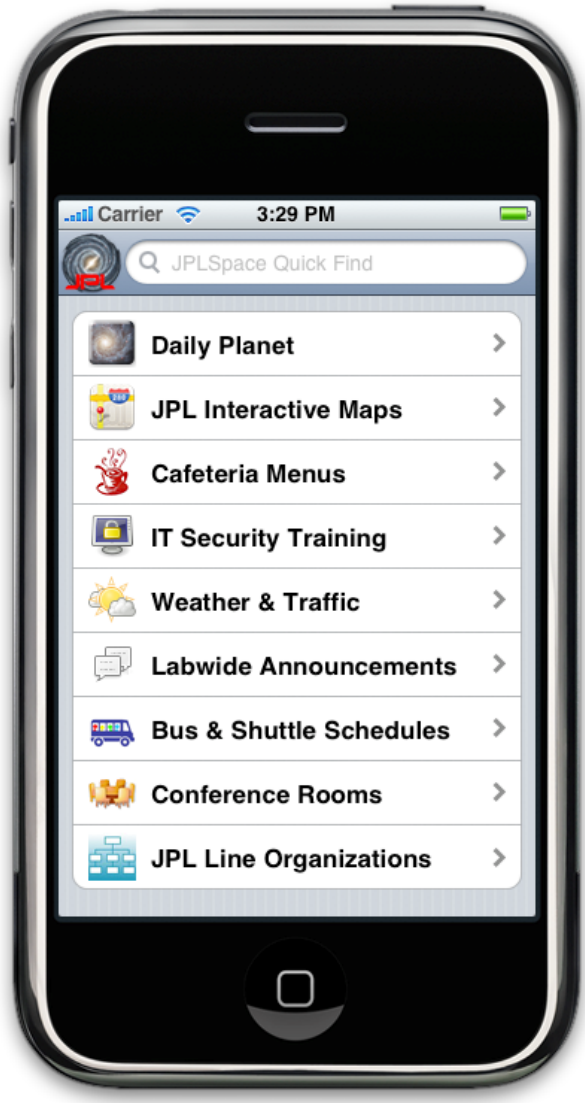


Pictured: Campus maps don't just show building locations, but include information about bus stops, facilities at each location, and even available conference rooms in each building. (image courtesy NASA/JPL-Caltech)

The team decided it was important to provide mobile access to the site, so it started by designing a mobile site accessible on the iPhone, with plans to expand support to BlackBerry devices as well. As team members started building a mobile site, however, they realized that rather than making miniature webpages for a small mobile screen, they could design a better experience by building specifically for the platform. So, information about JPL available to employees on the iPhone is built as an app for the phone, rather than as a mobile website.

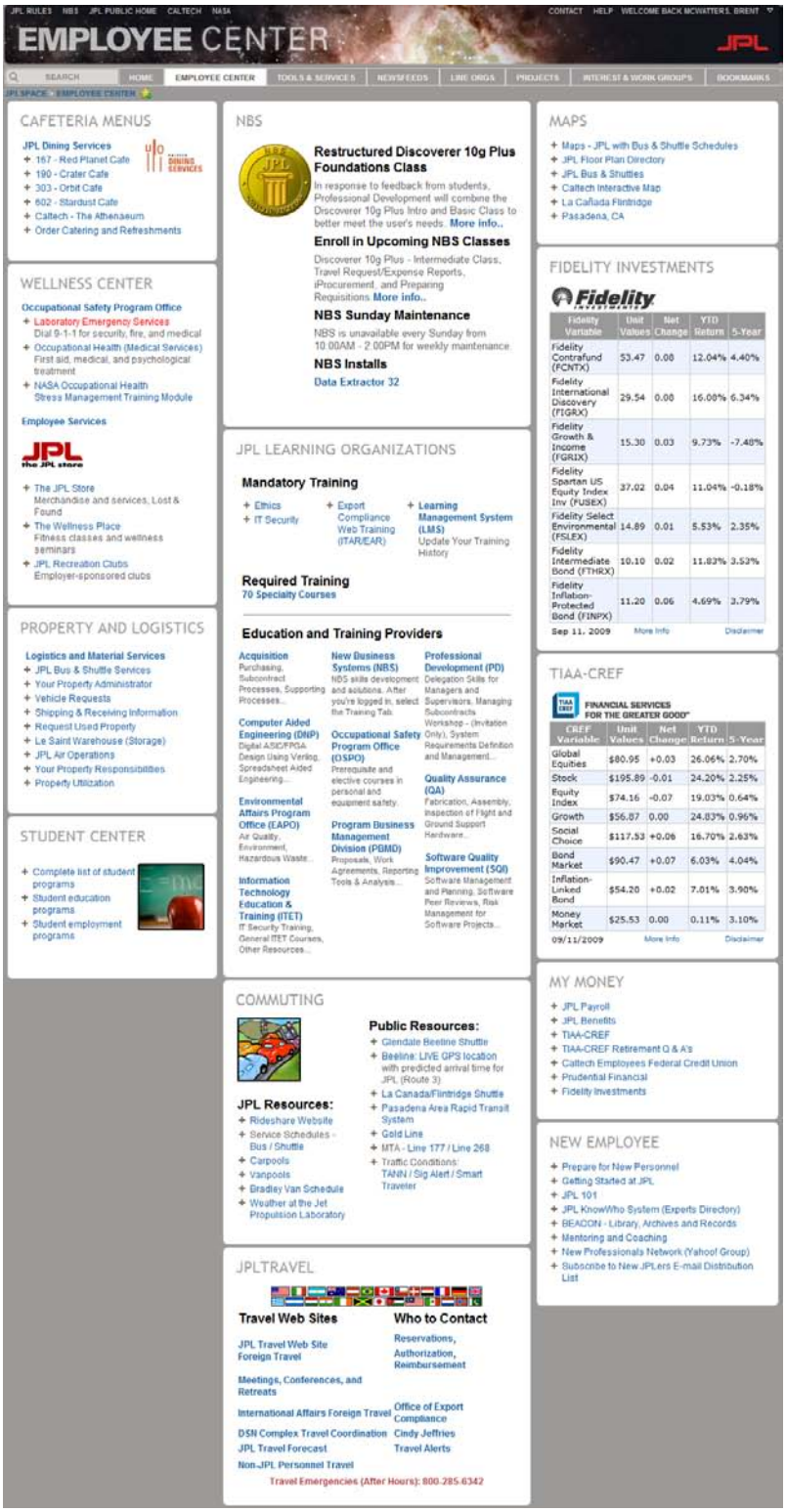
The team tried to focus on providing the most useful information for mobile users, such as person lookup, daily news, maps, menus, bus schedules, and conference room information. It's important to consider what information is of most importance to mobile users versus users who are sitting at a computer to access information.

Many mobile users are probably on the move, looking for a quick answer or piece of information. Providing access to booking a meeting room or seeing when the next campus shuttle will arrive at the building can help people accomplish tasks while away from their desks. Other mobile users might be using their phones to kill time while waiting for something—whether a meeting, a shuttle, or for congested traffic to get moving—so they might be most interested in browsing up-to-date information, such as daily news and announcements.



Pictured: An iPhone application lets users access intranet content on the go, providing access to a subset of site content. (image courtesy NASA/JPL-Caltech)

The team continues to come up with new ways to display information in a meaningful way and to help users get to the information they need quickly and efficiently. Creative solutions to known problems, novel methods of displaying information, a new focus on presenting up-to-date and changing information, and a much-improved visual design all work together to help the JPL site provide an improved user experience to employees.



Pictured: This page from the site's *Employee Center* is focused on the needs of the employee and on quickly getting them to content that meets those needs. (image courtesy NASA/JPL-Caltech)

BACKGROUND

The JPL intranet began many years ago as a single webpage containing links to useful pages on the intranet. In time, it grew to multiple pages of useful links and then was developed into a formal portal application running on Sun's portal software. It languished for several years on this platform before being ported to the SharePoint platform.

Over the years, company leaders realized that users came to the portal because they wanted information or access to tools and services, and not to "enjoy the portal." In an effort to provide them access to everything they might be looking for, the portal became more and more cluttered as time went on. "We found ourselves simultaneously being told we needed to add more links or content and that the site was too cluttered," says Brent McWatters, Task Manager. "When it became clear we couldn't keep adding links on our front page, for example, using search seemed the ideal solution."

While search did assist users in cutting through the clutter, its value was limited—mostly because the search functionality itself was not finely tuned enough to provide a better way for users to locate information. "The out-of-the-box search solutions worked okay, but were frequently not narrowing in on what the user was really looking for," says McWatters. "There were ways to tweak the search results, and that helped a bit, but it was labor intensive and difficult to maintain. There also was a whole class of information queries where normal search was too cumbersome."

The portal lived in a functional, yet kludgy state until the most recent redesign bumped it up a notch aesthetically. "Until recently, our intranet portal was wonderfully functional but alas looked a bit like it was designed by engineers, which it was," says McWatters. "As part of partnering with the OCE, we were encouraged to bring in an outside design firm to consult on the look and feel. Our intranet portal looks better and the users have let us know they appreciate the difference."

Future Plans

Now that the team has developed all the key navigation, *Quick Find*, search, and look and feel elements, it plans to expand the feature set. It's also looking to other areas within JPL where the site can add value. "We are looking at supporting projects, line organizations, work groups, interest groups, and other OCIO [Office of the Chief Information Officer] service areas," says McWatters.

INTRANET TEAM AND SITE OWNERSHIP

The JPL intranet team membership varies from two or three to almost a dozen during a major revision. No one person is ever 100 percent dedicated to the intranet portal, and most are on the task less than one eighth of the time.

Although the Office of the Chief Information Officer owns the intranet, some of the portal's content is maintained by other organizations and the site links to and pulls data from websites and repositories hosted by many other organizations throughout JPL.

Users expect portal content to be current, so the challenge for the intranet team is how to get the many JPL organizations to keep it fresh. "Over the years, we have repeatedly experienced other organizations wanting a 'place' on the portal, but after a short time losing enthusiasm for keeping their content current," says McWatters. He and his team have done two things to improve this. "By moving to SharePoint, it

is now far easier for them to keep their content current and we have partnered with the Office of Communications & Education, a group that is truly committed to keeping their content current," he says.

INTRANET TEAM RESPONSIBILITIES	
Role	**Responsibilities**
Office of the Chief Information Officer (OCIO) Intranet Portal Team	• Develop and maintain the intranet portal • Integrate with other OCIO services, including the directory, business systems, training, calendaring, email, and multiple repositories
Collaboration Hosting Platform	• Maintain the infrastructure below the intranet portal (SharePoint and Databases)
Content Owners	• Ensure that their section is up-to-date and consistent • Delegate some updates or changes to other members of their team/department

TIMELINE

The JPL intranet has been in a state of continuous evolution, with incremental rollouts since it began. One major exception was switching between hosting platforms from the Sun portal platform to SharePoint. This transition took more than a year to complete.

GOALS AND CONSTRAINTS

Although the redesign focused on creating a better experience for the site's end users, one of the other key goals was to enable content providers to more easily add and edit their own content. "Another goal was to standardize the look and feel throughout our intranet so a user transitioning from our intranet portal to more specific service sites, for example, would find a consistent feel and functionality," says McWatters.

"We have met the goal of making it easier for content providers to add and edit their content, but the movement of other service sites to the same platform has been slower than expected," he says.

Another goal was to better integrate the portal functionality with JPL's internal communications team. This partnership has resulted in a far better-looking intranet, with fresh and engaging news content being maintained by a group that is truly dedicated to that task.

Constraints

If time is the universal constraint, budget is a close second at nearly every organization. Although tight budgets make site enhancements difficult, often the real challenge is just getting enough money to keep abreast of the inevitable ongoing changes needed to just keep the site current.

"Budget is always an issue," says McWatters. "There is always a hope by management that an intranet once set up will be able to just keep running with almost no resources."

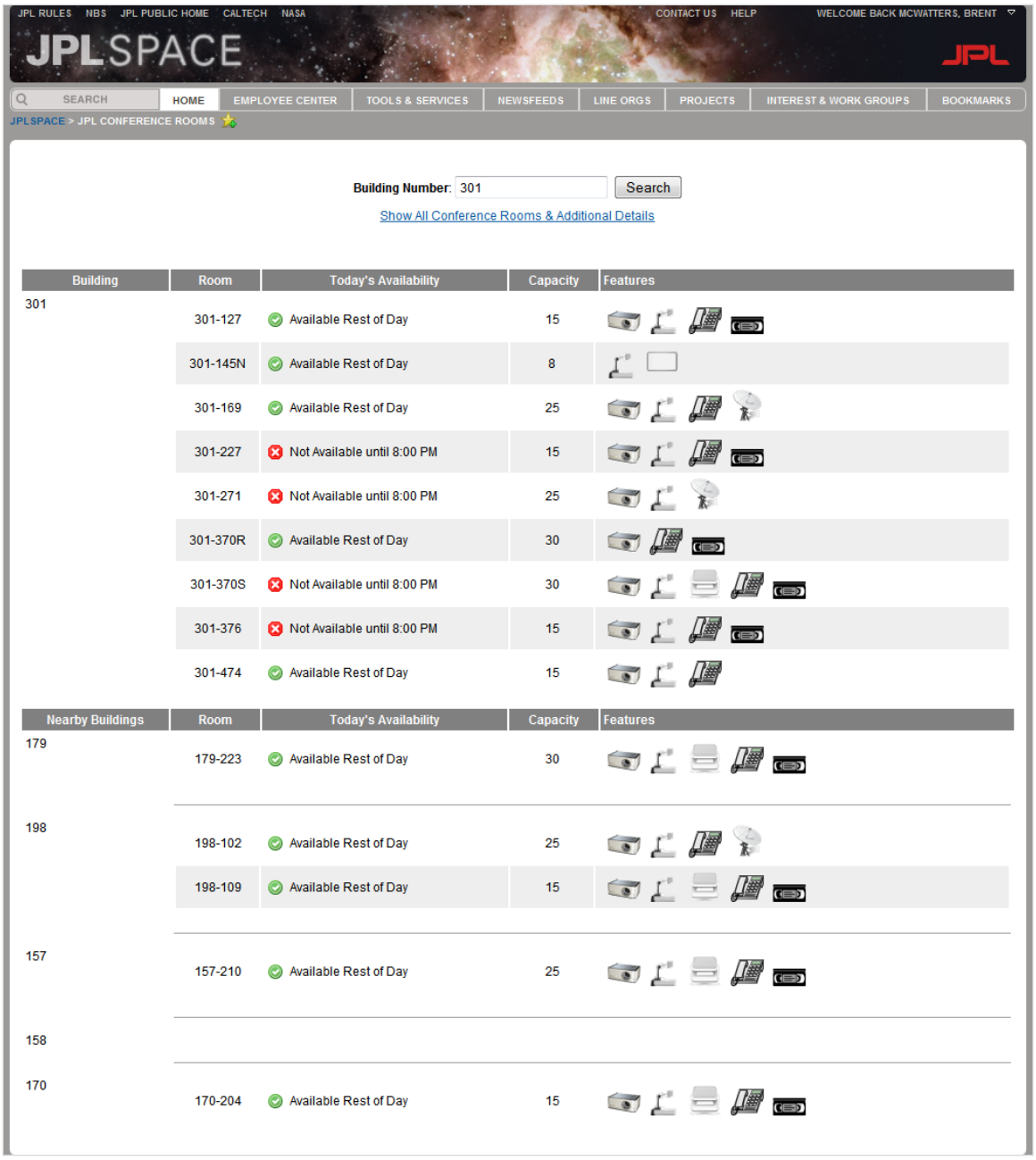
But when something is as heavily used as an intranet portal, there are always demands for improvement. “The intranet portal is not an island, so as things change around it, updates are always required,” he says.

USERS

JPL has an extremely diverse workforce that includes all the usual roles found at any large organization. In addition, the site serves a workforce that includes world-renowned scientists and engineers. The key activities at JPL are highly technical, but the ordinary activities of any company with 5,000 employees must also be fully supported by the organization’s intranet.

USER TASKS

One of the most common uses for the intranet portal is to find: people, buildings, conference rooms, phone numbers, documents, maps, information, services, and tools to support people both as employees in general and in their work-related roles, including scientist, engineer, and so on. The other common site use is to discover what’s happening at JPL.



Pictured: The conference room feature lets users check room availability, view each facility's features, and locate other conference rooms in nearby buildings. (image courtesy NASA/JPL-Caltech)

DESIGN PROCESS

The JPL intranet's design has been evolutionary, and that evolution has been fed along the way by user feedback and testing. The JPL team used the following methods to ensure that user-centered design would drive the design process:

- Solicit feedback from users
- Conduct usability testing

- Evaluate the intranet using an in-house usability working group
- Analyze usage metrics, such as page, link, *Quick Find*, and search statistics
- Have a third-party designer provide feedback
- Have team members attend usability conferences
- Benchmark intranet projects at other companies

"User feedback has been critical," says McWatters. "When we are rolling out a new version, we first roll it out to a reduced number of users (such as a pool of several hundred) to get feedback.

Every page on the portal has a *Contact Us* link and the feedback is extremely helpful in improving the portal. "No matter how much design and internal testing we do, putting the system in front of users—even for a few weeks—provides a bounty of great information," he says.

Once a version of the portal has been out for a while, McWatters says that longtime users typically adapt to it and no longer notice suboptimal features. "By seeking out feedback—especially from new hires, for example—we get great feedback, not only because they provide fresh eyes but because they have come from different environments (other companies or schools) and intuitively compare the portal with what they liked and didn't like elsewhere."

Developing the navigation structure was a long and complicated process. The team discovered that established hierarchies for projects often mirrored the business perspective, which was a completely unintuitive hierarchy for most users.

"Our project hierarchy is constantly in flux, and often the official structure is more related to business realities, such as Mars Office, Earth Office, and Solar System Office versus a lay person's perspective: planets, asteroids and comets, space technology, sun, universe, etc.," says McWatters. "We haven't found a way to automate the maintenance of these project structures, but we have been able to automate the maintenance of the Line Org structures (we use a Matrix Organization structure at JPL)."

ACCESS

The JPL intranet homepage is the default homepage for every computer provided to JPL employees. Users can access the intranet from outside the firewall via a VPN application or a browser-based VPN.

TECHNOLOGY

The JPL intranet portal runs on SharePoint and an additional server supports extra features such as *Quick Find* and the interactive maps. In keeping with SharePoint's farm terminology, the tech team develops on a development farm, tests on a test farm, and deploys to the production farm. They also use source control repositories.

All user-generated trouble tickets are tracked in a Remedy system.

The site's *Quick Find* capability utilizes AJAX technology.

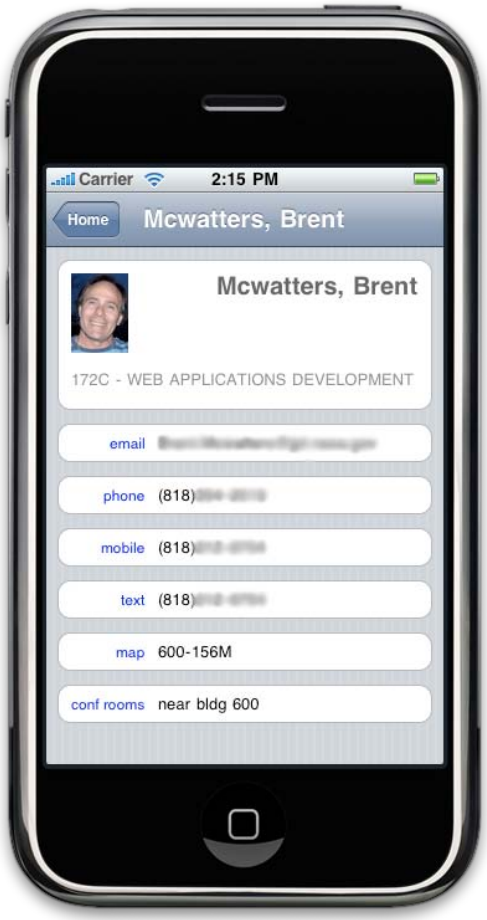
MOBILE

Mobile access is a popular feature of the JPL intranet. It's currently supported on the iPhone with the team hoping to make some progress on supporting BlackBerry in the near future. "We have found the iPhone easier to develop for and we have found it provides a richer user experience," says McWatters. "Currently, the mobile applications are only available to a subset of the Lab, but the user feedback has been extremely positive."

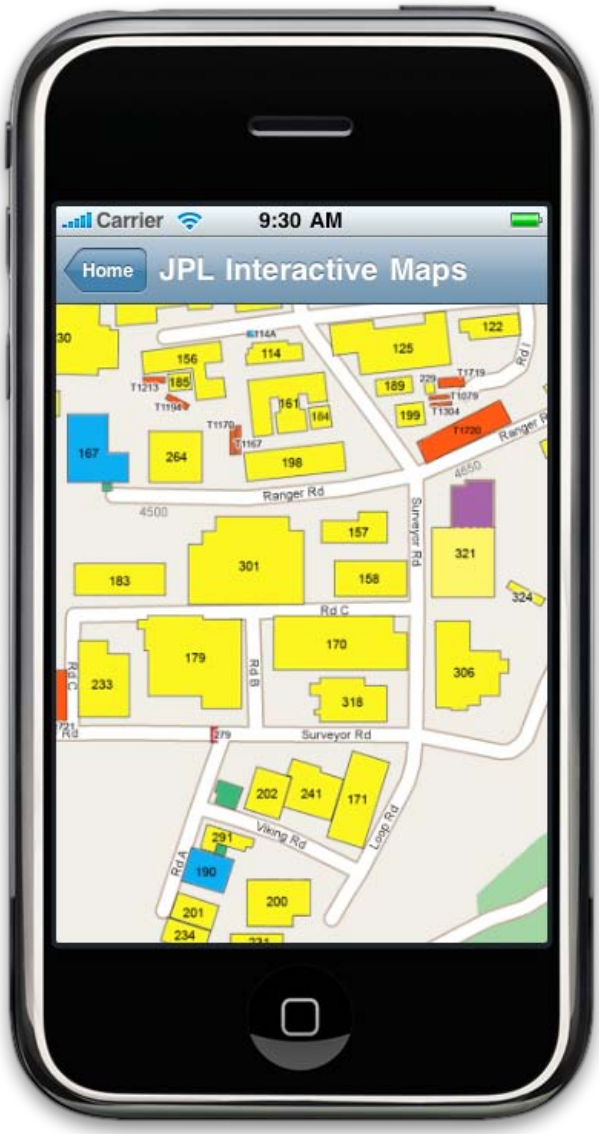
Supporting mobile devices entailed some trail and error for the tech team. "We initially tried a webpage-based approach with pages optimized for the smaller screens," says McWatters. "This would allow writing once and using on different devices. We found the usability was poor and switched to using common middleware to feed the information to applications that are native to the mobile devices."

"Computers within our intranet interact with our intranet portal servers with negligible delays," he says. "However, with mobile devices the connection delays, lower data rates, and VPN issues forced us to develop a hybrid architecture where the most commonly used functions and information are stored on the devices and the less often used and more sensitive information is stored on the servers."

Altering their approach greatly improved the user experience design for mobile access.



Pictured: Mobile *Person Lookup* on the iPhone makes it easy for users to find and contact fellow employees. They can also locate nearby conference rooms. (image courtesy NASA/JPL-Caltech)



Pictured: The intranet's *Interactive Map* feature is also available on the iPhone. (image courtesy NASA/JPL-Caltech)

CONTENT MANAGEMENT

Content management on the JPL intranet is handled through SharePoint. Permissions govern who can update the content and a versioning system is in use.

The only part of the site with a real editorial workflow is the homepage *Announcements* section. Anyone at JPL can submit homepage *Announcements*; the following workflow governs that content:

- The user submits content
- Multiple reviewers are notified via email

- Any of the reviewers can look at the submission, and approve, edit, or reject it
- The editor can route the content to be displayed on different parts of the intranet portal

The Challenge of Metadata

It's always difficult to achieve the balance between wanting to have content with lots of great metadata and not wanting to overburden users. If a company is going to require the use of metadata for content creators, then the intranet team must establish effective rules for gathering that metadata. Having the wrong metadata can be worse than not having metadata at all. Establishing the rules and maintaining this information can be a burden if not handled correctly. And, if it's not handled at all, it can be a different—but just as burdensome—problem for both the team and the users.

The JPL team is just beginning to recognize and deal with the challenges of metadata. "We are in the process of defining rules regarding which metadata must be submitted with document uploads," says McWatters. "Another factor we are looking at is if we have a lot of metadata then just maintaining the metadata becomes a task in itself. For example, as we have reorganizations, projects change names, people move, etc. This can all render metadata obsolete."

SEARCH AND *QUICK FIND*

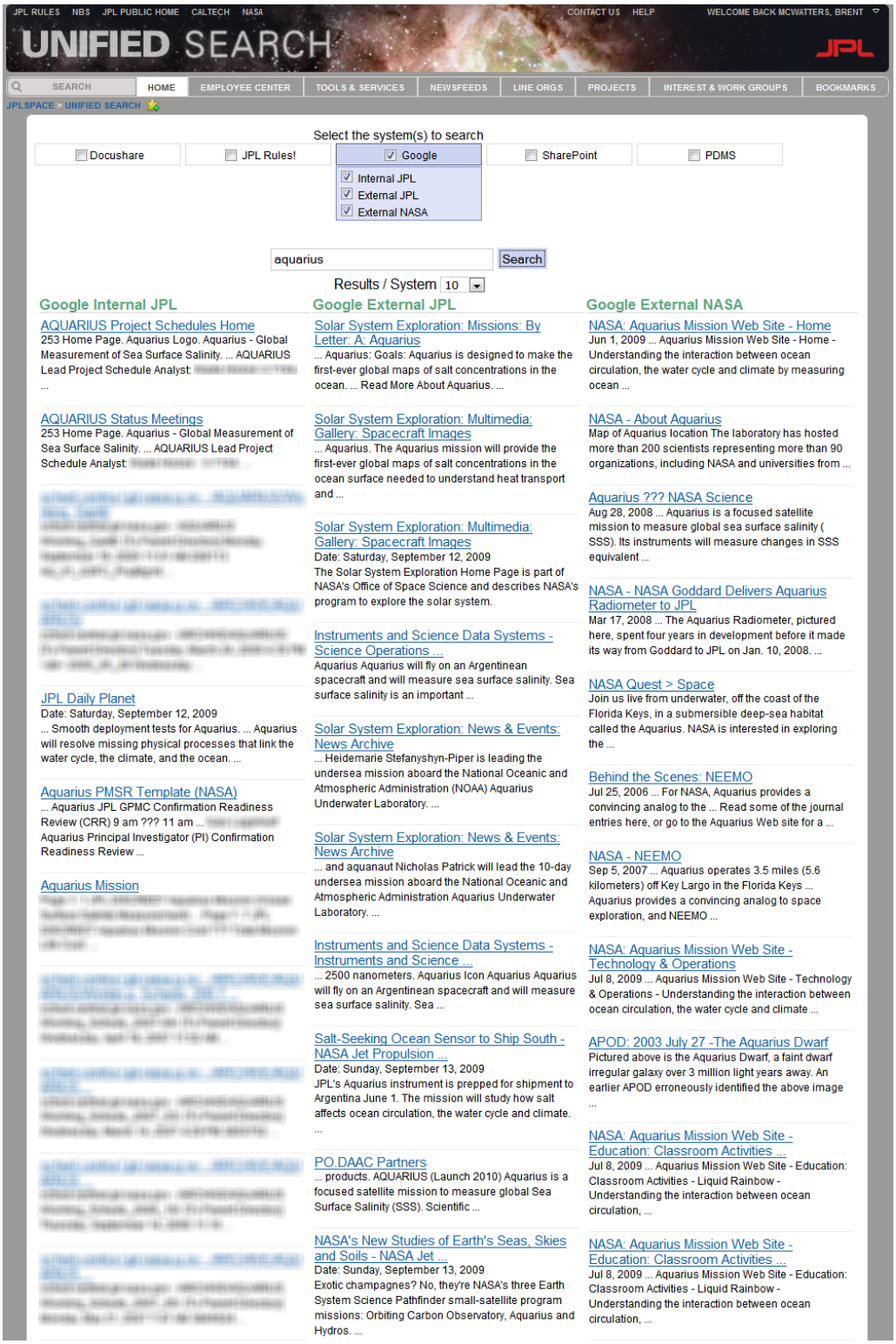
Search

As mentioned earlier, the JPL intranet relies heavily on both search and the *Quick Find* feature to aid users in getting directly to the content they seek. Finding the technology to support search is a process, and as many teams find out, it's an ongoing process.

"For evaluating different search solutions we have a "bake-off" (taste test)," says McWatters. "First, we analyze our search logs to come up with a list of 20 common queries. We enlist about 20 users and have them submit these common queries to the different search products and have them rate the results for each query."

They ask the users to rate the results based on how close to the top they feel the ideal result was for them. "At the end, we have them play with additional queries of their choosing and again rate the results," he says. "There are differences in extra features between the offerings—such as the ability to refine a search—and we ask them to rate how valuable they found those features."

This type of continual improvement is one of the best methods to refine search. What JPL and other teams have learned (sometimes the hard way) is that users want effective search and making search effective is a process that must be supported over time, not a one-off project.



Pictured: A single user query can be sent to multiple search engines and repositories with the results aggregated in one place, as shown here. (image courtesy NASA/JPL-Caltech)

Quick Find

The JPL team considers *Quick Find* one of the site's most useful features. While employing site search helped users cut through the clutter initially, there was still a whole class of information queries where normal search was just too cumbersome.

For example, when looking up people, buildings, or conference rooms, or searching the organization's Yellow Pages directory or acronym repository, a search engine was not a good solution. So, for these very common queries, the intranet team developed the *Quick Find* capability. "Results are returned often within 100 milliseconds," says McWatters. "The instant results are returned when looking up people, popular links, buildings and locations, our official regulations repository, projects, line organizations, interest groups, internal Yellow Pages, and acronyms."

Using full words are not necessary for *Quick Find* to work. For example, to look up "Brent McWatters" a user could type "br mcw" or "br 172" (his organization) or "br 600" (his building) or "4-2513" (his extension). "For lousy spellers, being able to input partial names combined with instant feedback is very useful," says McWatters.

The important thing about the site having both search and *Quick Find* is that it's not a case of one method being better than another, but rather that offering multiple tools can sometimes be the best solution to meet diverse user needs on a single site. And, at JPL, *Quick Find* not only augments the shortcomings of search, it lends a serendipitous component to finding company information that might interest the seeker.

"For a new employee, they appreciate the multitude of links and can discover things that would have otherwise been forever hidden (there's a yoga class at lunch!)," says McWatters. "Search is very powerful and because it's mostly automated, it can be very cost effective, but *Quick Find* is the most heavily used feature by far. But it requires custom coding and keeping our core set of links current."

Over time, the JPL team has developed a list of several thousand "popular" links that direct users to the information or services they're looking for. These are nicely organized across the intranet's many webpages and let the team remove the clutter from the front page.

These popular links are among the site's most complex content to maintain. Not only can users browse them, but the links are also indexed, so every popular intranet link can be found instantly via *Quick Find*. For example, to find JPL's fiscal calendar, users need only type "fisc." Since implementing the *Quick Find* feature, the number of intranet pages browsed has dropped significantly as users increasingly choose *Quick Find* because of its speed.

"We have automated the analysis of which *Quick Find* results are selected most often, and we display these more prominently (bigger)," says McWatters. "This enables later users to hone in on a desired result more quickly. We can also detect which *Quick Find* queries didn't result in matches and improve our offering.

"We have developed unique monitoring of direct link clicks and *Quick Find* accesses that provides detailed metrics on which of these links are being used, which aren't, and, in *Quick Find*, what is being looked for but not found," says McWatters. "This is extremely powerful in keeping the intranet content relevant. We also have behind-the-scenes link validating that is ensuring the content and services we are pointing to are still there."

FEATURES

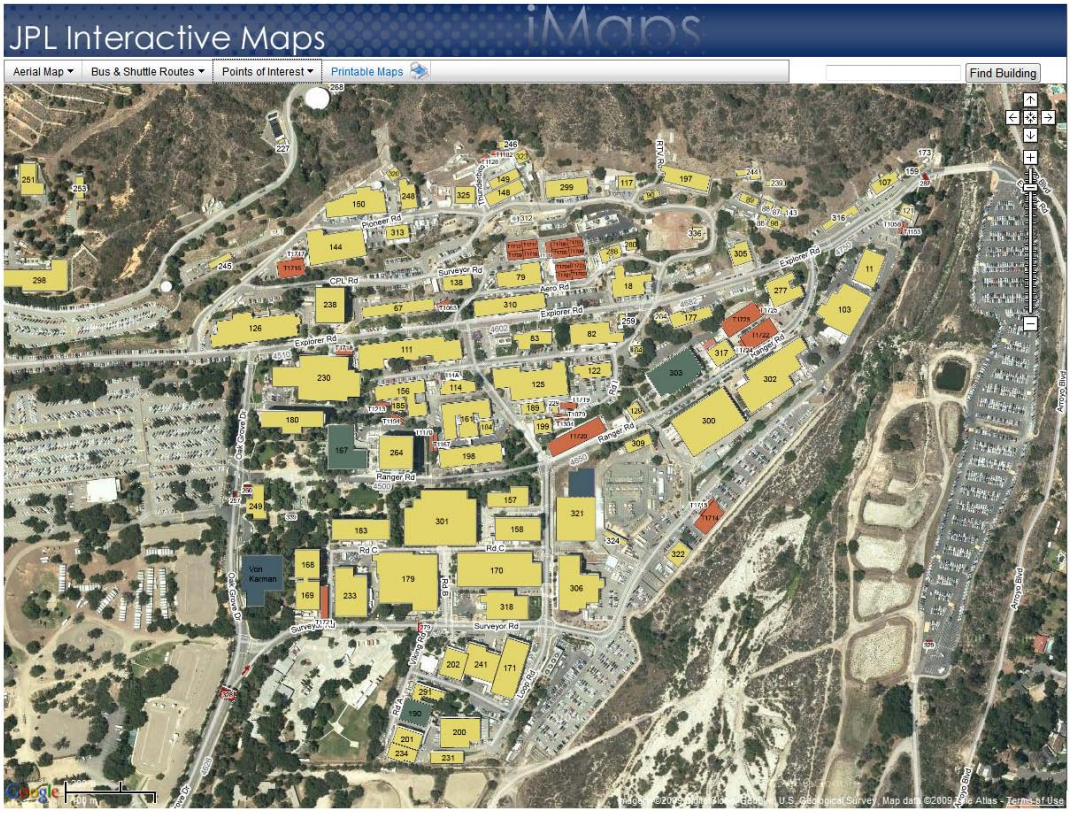
Users typically don't say much about intranet features unless they particularly like or dislike them. "We believe our *Quick Find*, interactive maps, and providing access to the intranet portal functionality on mobile devices are leading edge," says McWatters, adding that, "we continue to receive extremely positive feedback for all three of these features."

The JPL intranet's most popular features include:

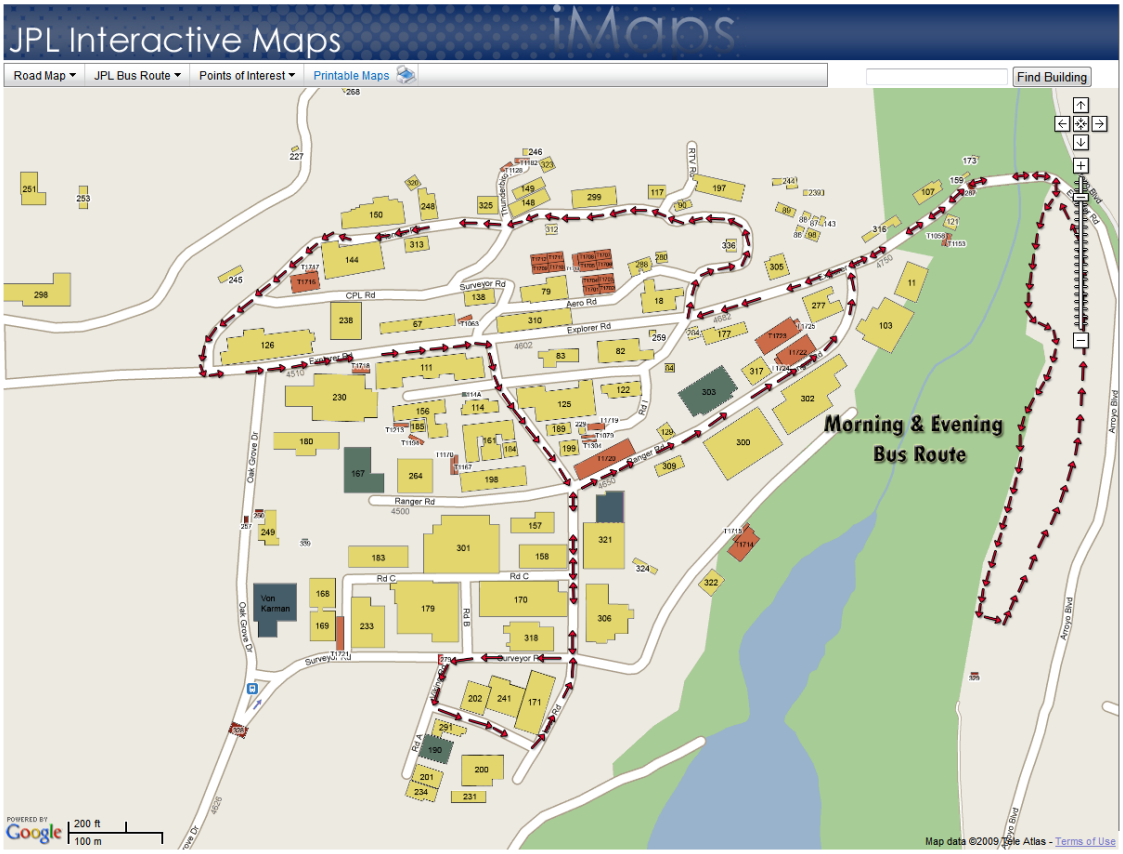
- **Interactive maps.** The site's interactive maps are very popular with users and the team has received lots of extremely positive feedback on this feature. The engine behind the maps is Google Maps, with the JPL buildings overlaid. The maps highlight campus locations including cafeterias, the credit union, the fire department, and ATMs.

  For each JPL building shown, users can see the floor plans and find an available conference room in that building. The team is currently working on a prototype version that has the ability to display power consumption on a per-building basis. "We have a deal with our local utility where we get better rates if we are able to reduce consumption when the utility is having trouble meeting demand," says McWatters.

  The team is just starting to experiment with overlaying real-time information regarding the position of buses that run throughout the Lab campus area.

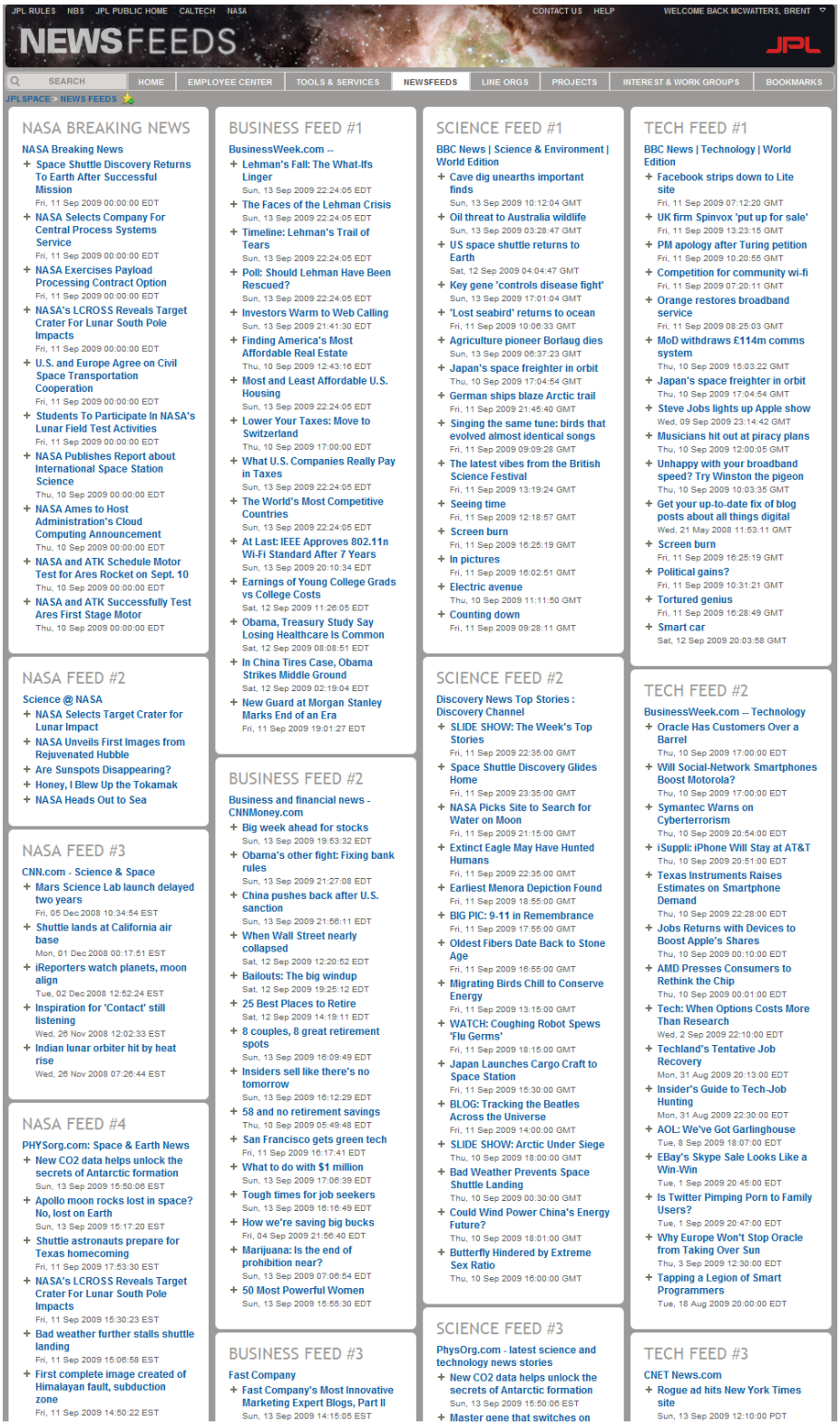


Pictured: An example of the interactive map features. The map is easy to pan and zoom and bus routes and points of interest can be overlaid. (image courtesy NASA/JPL-Caltech)



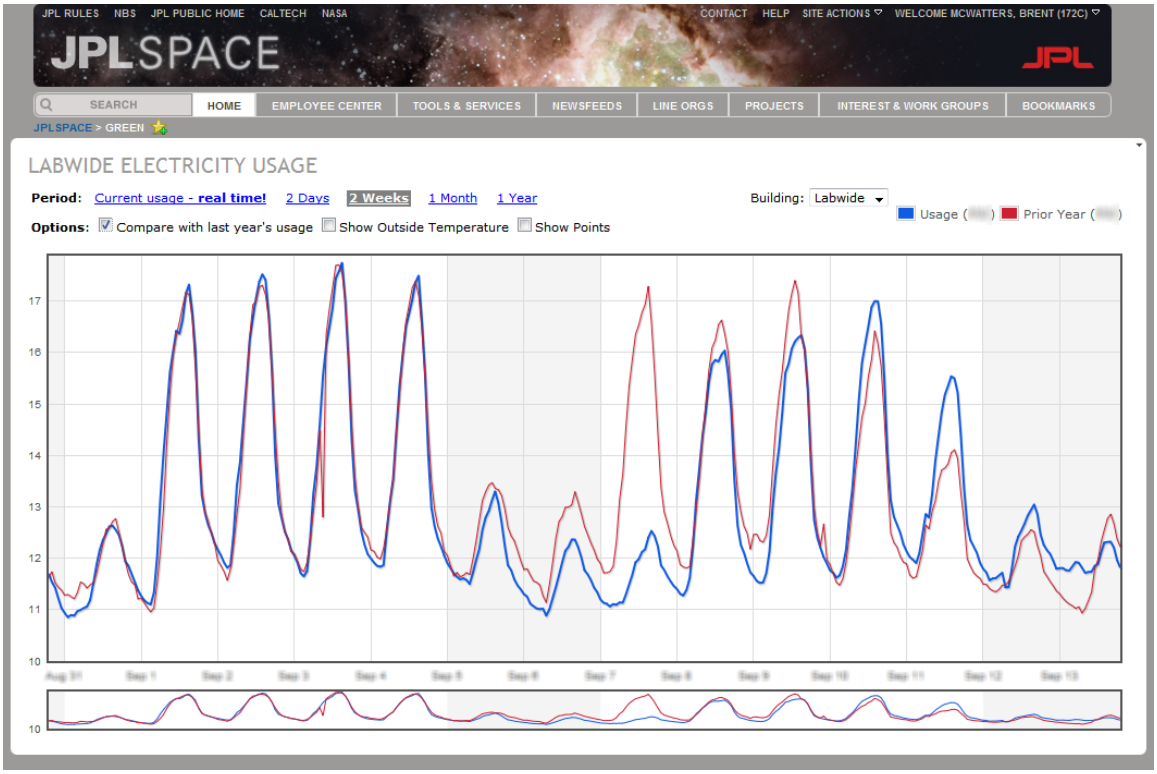
Pictured: Current view of the bus routes. Soon, the interactive maps will also show the actual locations of the buses. (image courtesy NASA/JPL-Caltech)

- **Alerts.** The JPL intranet pages include an alert system that can pop up an alert without requiring users to refresh the page. Physical and computer security personnel can initiate these messages in emergency situations, without requiring the intranet team's intervention.
- **Weather and traffic.** The intranet homepage displays current weather and traffic. There are links to get more detailed weather and traffic information, but because the information displayed on the front page is current, users rarely need to click for more.
- **News feeds.** The site offers dozens of JPL-related external news feeds (RSS) focusing on NASA, business, science, and technology.



Pictured: News from a variety of external news sources is aggregated on the site using RSS. (image courtesy NASA/JPL-Caltech)

- **Retirement tracking.** Two different companies handle the employee retirement programs and users can see the performance of both, updated daily with current year-to-date and five-year results on the intranet.
- **Data visualization.** The site features a graph visualization capability for the JPL's Green Initiative. The graph shows power usage over different time intervals and overlays outside temperature or the previous year's values for comparison purposes. Plans are underway to make it possible to visualize power consumption on a per-building basis.



Pictured: The intranet's graphing capabilities. This example shows power usage compared with the previous year. (image courtesy NASA/JPL-Caltech)

ROI

The familiar refrain of "we don't measure ROI in hard numbers," applies to the JPL team, too. Sometimes a useful site is just a useful site—and that's enough.

"We have not been able to justify the ROI in hard numbers," says McWatters. "We tried the usual if *X* people do these things *Y* times per day and it used to take *Z* amount of time and now it is *ZZ*% faster, we are therefore saving $*XX*, but we haven't found this argument to be particularly convincing to upper management."

LESSONS LEARNED

McWatters shares some of the many lessons the JPL team has learned in developing the redesigned portal:

- **Different search techniques each have their place.** "Browsing, searching, and using *Quick Find* are all ways for users to get what they want. They each have advantages and disadvantages, but each has its place."
- **Users have a job to do. Give them tools to do that job.** "The users came to the intranet portal not to visit it but to find, learn, get information, or access a tool or service. Ensuring the user is efficiently getting value from your site is more important than somehow trying to convince them they should want to go to your site."
- **Write for the Web.** "Users will read exceptionally little of what is on your pages, and if things aren't intuitively obvious they won't be understood or used. Make the first few words of each line contain all the key information."
- **Cross-browser testing is critical.** "Constant testing of your intranet on a variety of browsers is essential."
- **The intranet is an ongoing program, not a one-off project.** "Automate what you can, but manual maintenance will never cease. Change—both within your intranet and with technologies outside your company—will necessitate your intranet portal constantly innovate to stay relevant and valuable."
- **A personal touch can go a long way toward getting users on board.** "Sometimes, personal demos are simply the best way to show users what is available from their intranet. Demonstrating at our annual IT expo or doing very brief demos in the cafeteria or at team meetings has worked well."

The MITRE Corporation

Using the intranet:

The MITRE Corporation is a not-for-profit organization that manages four federally funded research and development centers (for the US Department of Defense, the Federal Aviation Administration, the Internal Revenue Service/Virginia, and the Department of Homeland Security).

Headquarters: Bedford, Massachusetts, and McLean, Virginia

Number of employees the intranet supports: Over 7,000 scientists, engineers, and support specialists, 65 percent of whom have master's or PhD degrees. Staff members work on hundreds of different projects across the company, demanding a high level of technical, operational, and domain knowledge.

Company locations: The MITRE Corporation has two principal locations—one in Bedford, Massachusetts, and the other in McLean, Virginia. MITRE also has additional sites located across the US and around the world.

Locations where people use the intranet: The US, Belgium, Germany, Japan, Tokyo, Netherlands, Republic of Korea, Taiwan, UK

Annual sales: $1.2 billion revenue (2008)

Design team:

In-house team members from three different divisions bring unique skills in user-centered design, development, and knowledge management.

Team members: Tony Carlucci, Developer; Donna Cuomo, Chief Information Architect; Bill Donaldson, Department Manager; Dave Donegan, Portal Team Lead; Stan Drozdetski, Human Factors Engineer; Krista Kennedy Groenwoldt, Information Architect; Mike Phelan, Developer; Fran Yang, Developer

SUMMARY

Who would guess that, at a highly technical company where 65 percent of employees have advanced degrees, many users don't know how to use their company-issued smartphones? This sort of insight, uncovered in user research, gave the MITRE team something to work with as they developed their intranet and its mobile version.

It taught the team that nothing can be taken for granted. Although users might ask for a mobile version of a site, and it might seem like a logical step, the reality is that many users have no idea how to type a URL or enter a password into a phone. At MITRE, conducting user research helped the team identify and tackle issues like this as they develop and work on internal applications.

While the team does address new areas such as mobile access, they don't neglect working on the intranet portal itself. The customizable homepage features some areas that can't be changed, including corporate news, banners, navigational items, search, and access to the *Phonebook*. Other areas are customizable and users can choose from over 75 services to design a page for themselves. However, the team has found that few users go through the steps of customizing the page. Most leave the default view.

Knowing that customization was helpful to some but ignored by many, the team is moving toward developing more personalized content. The key difference between customized content and personalized content is effort: Personalization pushes information to the user and is seamless. Customization requires the user's

engagement with the site. If users don't see, understand, or have any interest in the option to customize content, customization will likely fail to draw users in.

The team has already moved toward more personalization, providing some information for users based on their login information. Users currently see information about their business unit and employee travel, along with a list of *Community Share* sites of which they are members. The team is moving in the direction of providing more personalized content in the future and hope to push content based on role, organization, and geographic location.

The homepage provides a combination of news, timely information, and links to move users directly to the site areas they need. Corporate news appears in the center of the page, with one story accompanied by an image and summary and others listed with headlines only.

Action items are also listed in this area of the page, highlighting any outstanding activities the user needs to complete. These messages are automated and are pulled from many different applications. For example, items might remind users to install software updates or patches, to approve or review material, or change their password.

The *MyMII* menu shows users the main site navigation. There is no overarching global navigation available throughout the intranet. As a result, the main site navigation appears in a box on the homepage rather than in a more standard location. The header at the top of the homepage is repeated throughout the intranet, as a first step toward building a consistent navigational experience. The standard bar includes a link back to the homepage and an open search field that allows users to submit a *FastJump* search (a search structured around Best Bet results), a *Phonebook* search, or a standard site search.

The *FastJump* search—available by entering a search term and selecting the *FJ FastJump* button next to the open search field—is the team's fix for full-text search, which has a diverse set of content and results, and navigation that sometimes confuses users. The standard site search offers a breadth of content, that may or may not include the specific results that users need. Like many intranet teams, MITRE's has discovered that search solutions can't simply be implemented and left alone. They require constant monitoring and adjusting to make them as effective as possible. To that end, team members monitor any queries that return zero results via the standard site search and try to fix the problem.

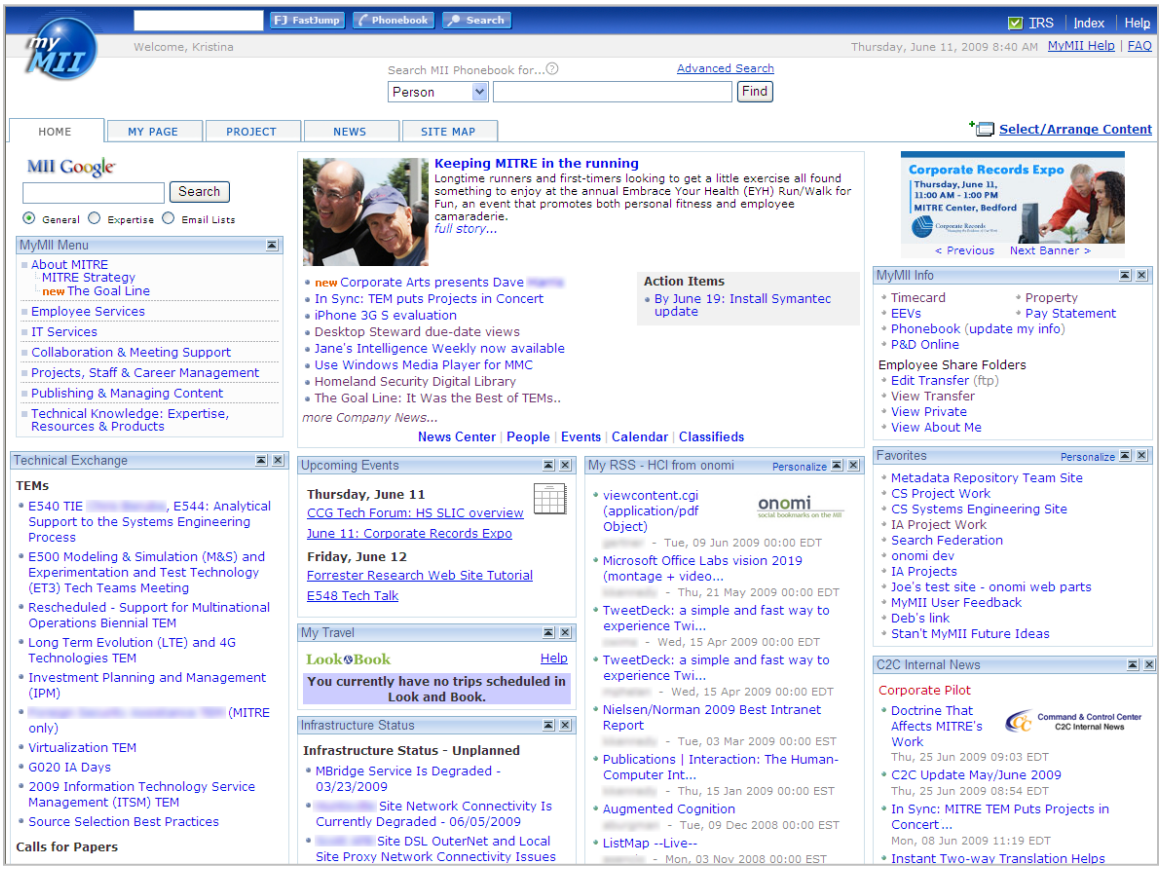
The *FastJump* tool combines keyword navigation and search. Users can enter a keyword that will jump them right to the content needed, such as entering "cafe" for information about the cafeteria.

FastJump is the primary way users navigate, which makes sense as the intranet is comprised of many different Web collections with no overarching navigational structure. *FastJump* keywords and results are updated nightly from a database to give users the "Best Bet" results. To further encourage use of the *FastJump* tool, many company communications and ads reference *FastJump* keywords. This lets users see a keyword in a communication and then go to the site, enter the keyword, and move directly to the information they need.

Elsewhere on the homepage, *MyMII Info* gives users quick access to relevant information, such as pay statements, personal information in the *Phonebook* tool, and timecards. Users can also customize a list of favorites to link to areas of interest on the site.

Users can add other pieces of content to the page, such as a list of personalized RSS feeds, infrastructure status, or department news—basically, whatever the user is interested in.

The page offers intranet Google search in the upper left-hand corner, and users can choose to search all content (*General*), to search for expertise within the company, or to search shared listserver-based messages. In addition, the search for the *Phonebook*, or employee directory, appears at the top of the page. This is in addition to the search tools available in the standard bar, which appears on every page.

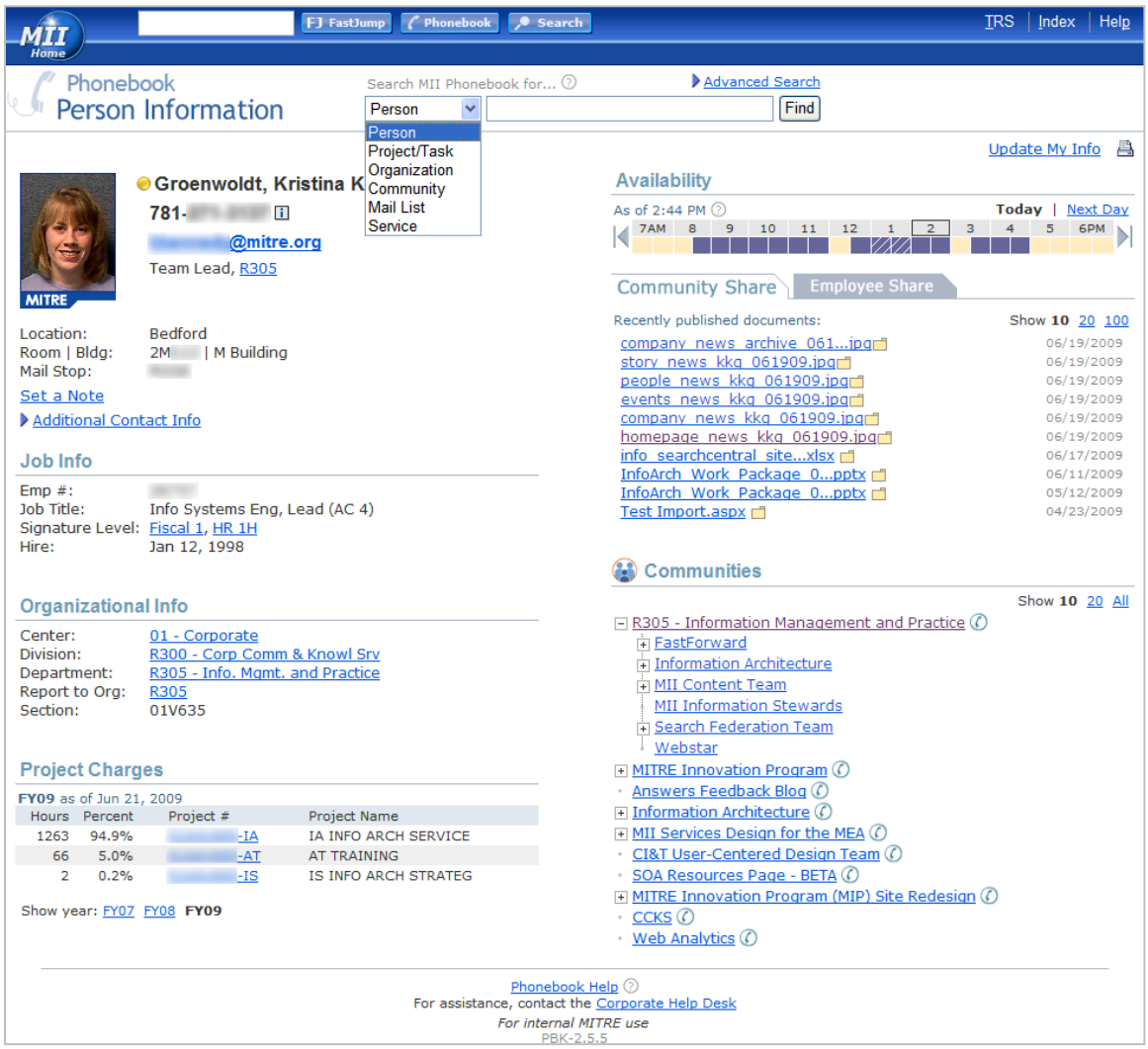


Pictured: The site's homepage presents navigational links, news, personalized content, and customizable content. Most navigation on the site is done via the *FastJump* tool, which returns hardwired results for keyword queries and appears at the top of the homepage and each page of the site.

A popular intranet application is the *Phonebook*, or employee directory. The tool offers standard location and contact information and displays each person's position in the organizational structure. But the profiles go beyond this standard information to become a knowledge-sharing tool. *Phonebook* shows employees' availability for the day, which helps with planning meetings and calls.

Phonebook also offers a *Community Share* section that shows documents the employee recently posted. This information gives people a view of the employee's work, as well as acting as an alternate way to find a document. Users who know the author of a document can use the *Phonebook* to find the author and then find the document. This allows users who don't know a document's name to find it within a small list of options, rather than running a full site search.

Communities content shows which groups the employee is associated with. Finally, *Phonebook* lists project information, showing not only what projects the employee is working on, but also the number of hours logged to the project and the percentage of time spent on each. Employees can use this project information to navigate from one employee to another. For instance, someone might look up a particular employee working on a project, see that she's unavailable, and use the *Project Charges* information to navigate to project information and find another available person on the project.

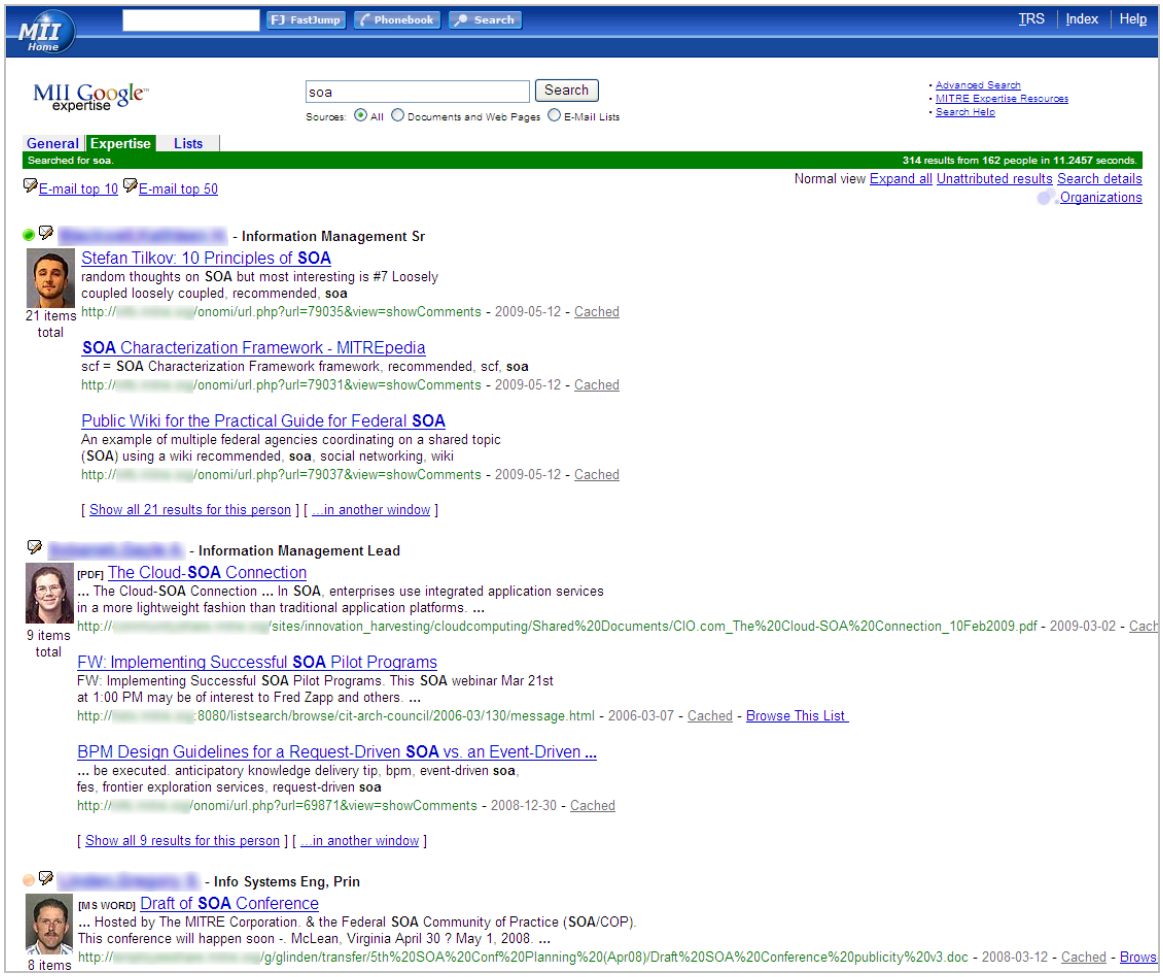


Pictured: The *Phonebook* employee directory. *Phonebook* acts as a knowledge-sharing resource as well, giving users information about the documents employees have published, communities they're associated with, and projects they're working on.

Another intranet application is the *Expertise Finder*. And it does just what it says. This search tool helps employees find colleagues with particular expertise. The tool works by searching content from a number of repositories and using metadata to associate the results with a person. So, a user can enter a topic and see the employees who work in that area. The results are displayed as a list of employees, with each employee's name, photo, and title. This information is followed by a list of

items that the employee has posted to the site that are related to the entered query. So, a search on, say, "zebras," will return the employee with the most zebra-related content first.

The tool shows employee information, followed by the employee's top three matching items or topic-related documents. The total number of relevant items associated with the individual is listed beneath his or her picture. Users can click through to see the full results for that person. This is a unique way of creating a tool that meets a specific organizational need. The tool takes advantage of the resources available and looks at the data in a different way, finding experts by examining documents.

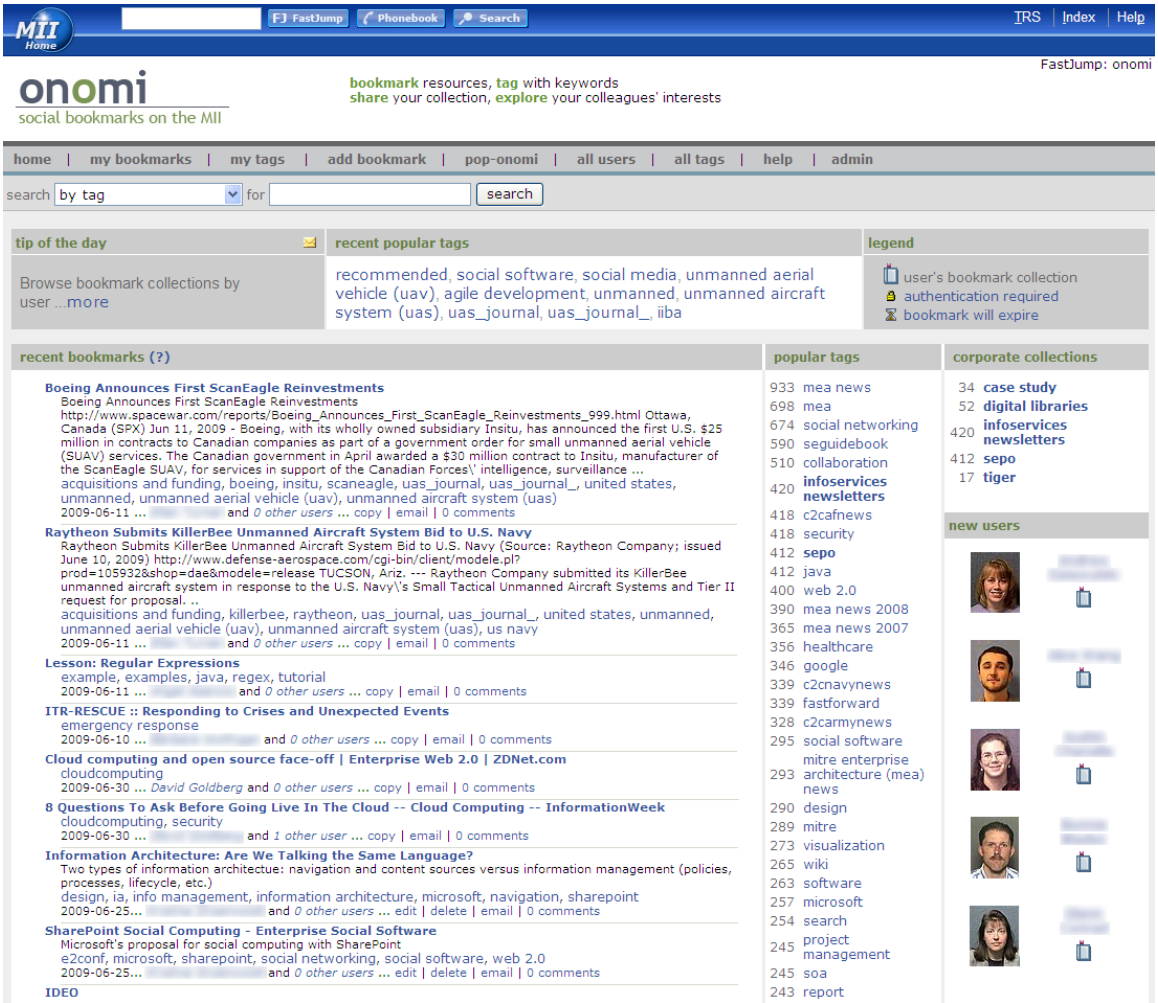


Pictured: The *Expertise Finder* helps users find colleagues with particular skills or knowledge. Users can enter a term or topic and see a list of employees who have produced topic-related content, as well as view that content to see whether the expert is a good match for their needs.

Another creative way to share information via the site is to use *onomi*, a social bookmarking tool. All site users can bookmark and tag any content, from anywhere on the Web, and add it to the site's *onomi* area. Users can go into this section and look for content associated with a particular tag or browse bookmark collections by user to see what colleagues are reading and bookmarking.

The page lists recent bookmarks as well as recent popular tags, providing a springboard for users to dive into the content. Popular tags are tracked on the side of the page so users can see what's currently of interest within the organization. This sort of social tool isn't just a curiosity, it's a way to use the organization' collective resources to provide relevant and timely information to the workforce. Users can also add a content module on their homepage to pull content from *onomi*.

This is just one area where the site is using social networking and collaborative tools to convey and share information. The intranet also includes blogs and wikis, and even has its own *MITREpedia*. The team also has a blog where users can comment on new intranet features or even provide feedback about ideas during the design stage. The team plans to continue moving toward more collaborative and social content. A plan for "social enablement" is in the works that will let users define a network of colleagues. This would, for example, let users see the newest documents posted by colleagues, rather than by the whole company.

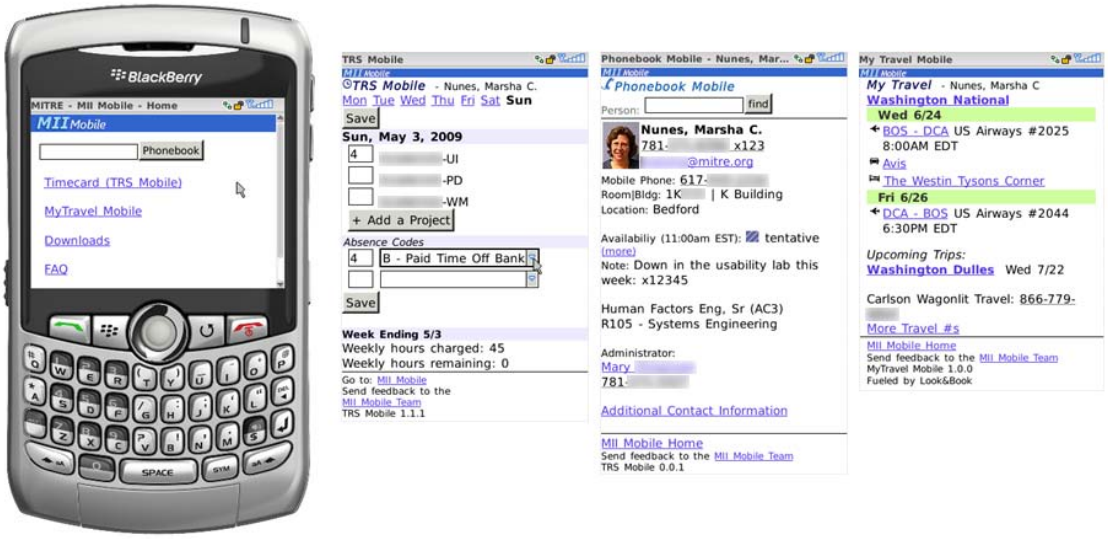


Pictured: The *onomi* social bookmarking tool. The tool lets users add links to external content. Tagging these links makes it easy for users to find information around a particular topic or area of interest.

Although the team found that many employees didn't know how to use their smartphones, they nonetheless designed a mobile website for those who wanted

mobile access. The mobile site is a separate site, designed with content aimed specifically for a mobile audience. The team considered which applications would make sense to access on a mobile phone, and selected a few to make into mobile versions. These include time reporting, the employee directory, and travel information.

The MIIMobile site has clear links directly to applications. The time reporting tool lets users enter hours and projects as well as absence information. The directory supplies basic information from the *Phonebook*, focused more on contact information and less on knowledge sharing. Travel information gives users a quick way to check flights and review reservations. All three applications are a great fit for mobile access. Users might need to report their time while away from the office, find a location or person on the way to a meeting, or check a hotel reservation and car rental information as they land at an unfamiliar airport.



Pictured: The MII mobile site and applications. The team designed a separate mobile website focusing on only the most appropriate applications, including time reporting, the employee directory, and travel information.

The intranet team strives to build practical solutions to fit users' needs. Inefficiencies with search led to *FastJump*. The importance of knowledge sharing led to a robust employee directory and expertise search. A recognition of the power of communication among employees led to social tools such as *onomi* social bookmarking and *MITREpedia*. When faced with challenges, the team strives to come up with creative, user-focused solutions.

BACKGROUND

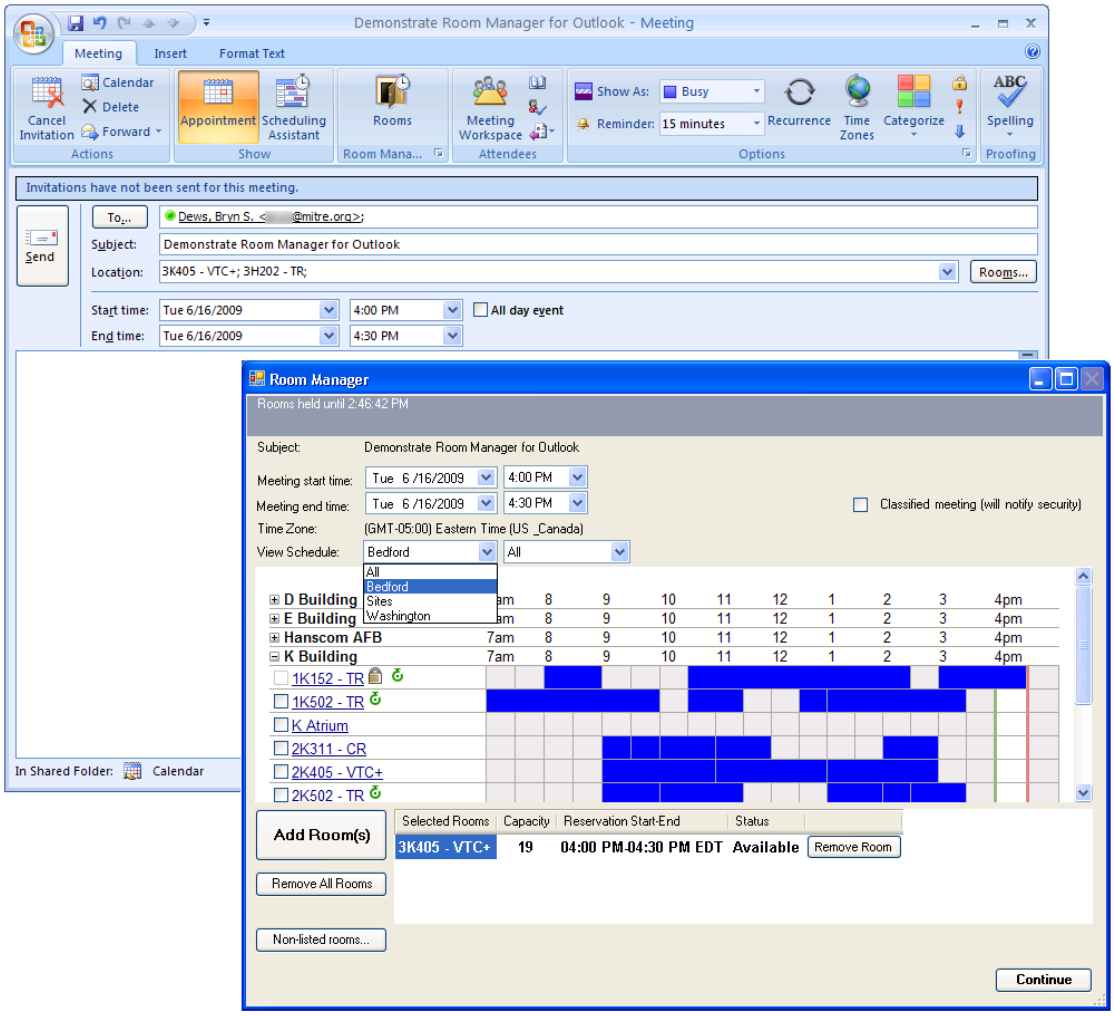
MITRE's intranet (MII), started in 1996 when then company president, Victor A. DeMarines, believed MITRE was not leveraging its expertise as well as it could. There was a feeling among the company's leadership that it needed to develop a culture of sharing.

Before MII, expertise at MITRE was a closely held commodity within each of the company's independent business units. This information was static. Not everyone

knew who MITRE's in-house experts were, never mind how to tap and share their knowledge.

When the MII was born in 1996, it offered three main functions:

- **Corporate directory.** The corporate directory was not just a collection of names and numbers. It included personal profiles and resumes of all MITRE employees as well as any material they may have published in their specific areas of expertise.
- **Knowledge sharing.** Knowledge at the company was amassed through two main repositories: the Systems Engineering Process Library (SEPL) captured best practices of key software systems deployed throughout MITRE, and the Risk Assessment and Management Program (RAMP) contained 10 years' worth of lessons learned from all MITRE projects.
- **Administrative tools.** Laborious HR documents such as timesheets and service requests could be filled out on MII, as well as property inventory and tracking forms (key documents in a government-funded organization). A facility-scheduling application let users locate, schedule, and equip meeting space throughout MITRE.



Pictured: Outlook's Room Manager tool. Because the MITRE team is always looking for integration points and opportunities to streamline processes, they created an application to reserve a conference room right from the user's Outlook client (as opposed to making them to go to a separate Web-based tool). The company has developed high-powered collaborative VTC rooms with multiple projectors and Web and audio conferencing. To maximize use of these facilities, a Web-based scheduling tool (Room Reservation System) lets users set up multipoint VTCs, private rooms, and proxies that are beyond Outlook's room scheduling capabilities. Room Manager for Outlook adds the ability to book rooms within an Outlook meeting proposal, leveraging MITRE's Room Reservation System on the back-end. Rooms are selected by clicking the *Rooms* button in the menu bar; the results of the room selection are auto-filled into the meeting's *Location* field.

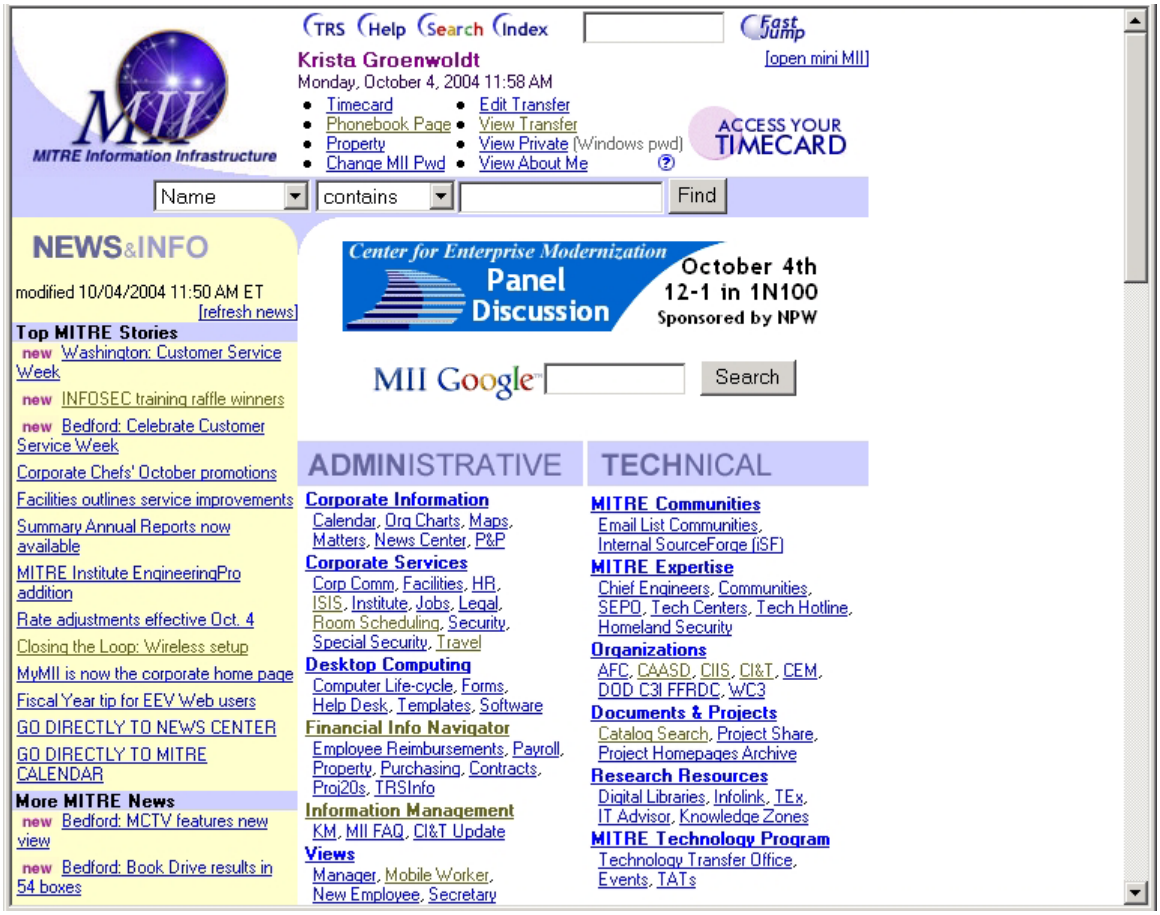
Evolution

As the MII has evolved over the years, the early tools have evolved, new tools have been added, and the content space has been expanded. The corporate directory now integrates with Microsoft Exchange to show a person's availability, and with

SharePoint, displays an employee's most recently published documents and community memberships. The portal homepage (*MyMII*) brings together content from countless disparate resources including corporate news, announcements of Technical Exchange events across MITRE, personal services targeted to an individual employee, such as *My Travel*, *My Traffic*, and *My RSS*, and project-related services, such as alerts when project colleagues are traveling and services produced by each business unit.

Today, MITRE employees do pretty much everything online, from participating in open enrollment, to monitoring their projects' financial reports, to creating development goals and writing performance reviews, to bookmarking internal and external resources in the internal social bookmarking system. The company is also experimenting with wikis, blogs, and other social networking tools, and continues to build mobile versions of popular site applications, such as time cards and the employee directory.

MII is available anytime from anywhere. Employees need only their SecureID token to log in to check email or fill out their timecard from an airport kiosk or a computer at their sponsor's location. It's this combination of comprehensive coverage, integrated tools, and easy access that makes the MII such a powerful resource.



Pictured: MITRE's intranet homepage design circa 2000. Keyword search at the top, personalized links in the middle, *Phonebook* search below links, a banner below *Phonebook* search, Google Search below the banner, and two columns of navigation: *Technical* and *Administrative,* as well as corporate news on the left. The intranet homepage was largely static. Aside from a few personalized links, the page was the same for everyone. It offered shortcut links to popular resources and news, along with the ability to use *FastJump* (keyword navigation), *Search*, or look up a person, project, or department in the *Phonebook*.



Pictured: The online time reporting system. To meet the government's contractual requirements, all MITRE employees must complete a daily timecard. MITRE's time reporting system has evolved from a paper form to the current Web-based system (shown here). This system is designed to be easy for new employees to "walk up and use" while still satisfying the government requirements. It was developed through many design iterations, user interviews, observations, paper prototypes, and online usability tests, all aimed at simplifying the process, making the navigation flow more efficient, and improving the administrative interface.

Future Plans

The major push for MII in the short-term is to increase automatic personalization on the site. For example, currently, portlets in *MyMII* use a Web service that provides information—such as an employee's department, division, business unit, or location—to automatically tailor the data they show. Simple examples of this functionality

include weather and traffic portlets, which are automatically configured with the employee's location.

The next logical step is what the MITRE team calls “social enablement”—giving users the ability to designate certain people as colleagues, which adds a social aspect to their MII navigation and creates a filtering mechanism for the enormous amount of information available on the intranet. A user’s colleagues list could, for example, allow a portlet to display documents that have been recently edited by his or her colleagues, rather than everyone on the MII.

As enhanced social functionality is added, the team is expanding knowledge sharing beyond the confines of internal use. The company’s first social pilot (known as *Handshake*), already encompasses MITRE's sponsors and partners. “The goal is to support cross-organizational collaboration in a secure manner,” says Donna Cuomo, Chief Information Architect.

INTRANET TEAM

The MITRE intranet team involves small teams of project managers and developers, with some staff overlap between the teams. They support the major intranet applications (*MyMII*, *Phonebook*, *FastJump*, *Time Reporting System*, and so on). These applications undergo quarterly updates and a centralized User-Centered Design team lends user experience design and usability expertise to every major update. Information architects also support the development process with an eye toward integration opportunities between systems and services.

The intranet team has expanded and contracted as needed based on the phase of its lifecycle. During a redesign effort, there are additional UCD staff and developers. Corporate IT comprises a majority of the team, with augmentation from the business units. “Our ability to tap into the deep technical expertise of the corporation provides flexibility,” says Bill Donaldson, Department Head.



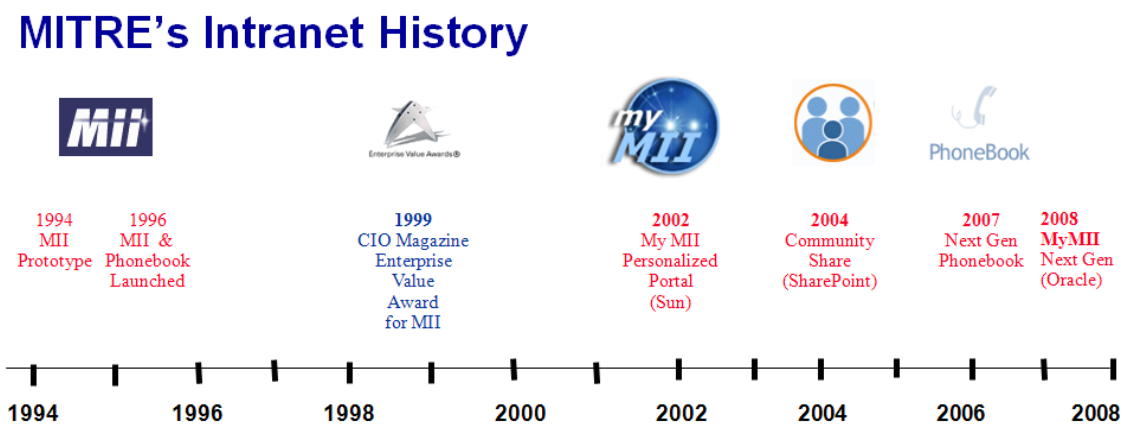
Pictured: MITRE’s *MyMII* team (left to right): Donna Cuomo, Fran Yang, Tony Carlucci, Bill Donaldson, Bryn Dews, Mike Phelan, Stan Drozdetski, Krista Kennedy Groenwoldt, and Dave Donegan.

INTRANET OWNERSHIP

While corporate IT is responsible for building and maintaining many of the popular services on the site, including *MyMII*, *Community Share* (SharePoint), *Phonebook*, and *FastJump*, MITRE's intranet is a collaborative effort with a distributed development model and contributors from every business unit. The following chart outlines the roles and responsibilities of those involved in the site:

INTRANET TEAM RESPONSIBILITIES	
Role	**Responsibilities**
Development Team	• Provide governance, program management of the content on the portal and the underlying infrastructure with the business units • Manage content and features
CIO Customer Council	• Provide business unit requirements • Prioritizes requirements
Remote Sites Council	• Provide and prioritize requirements for workers outside the main campuses in Bedford and Washington, DC

TIMELINE

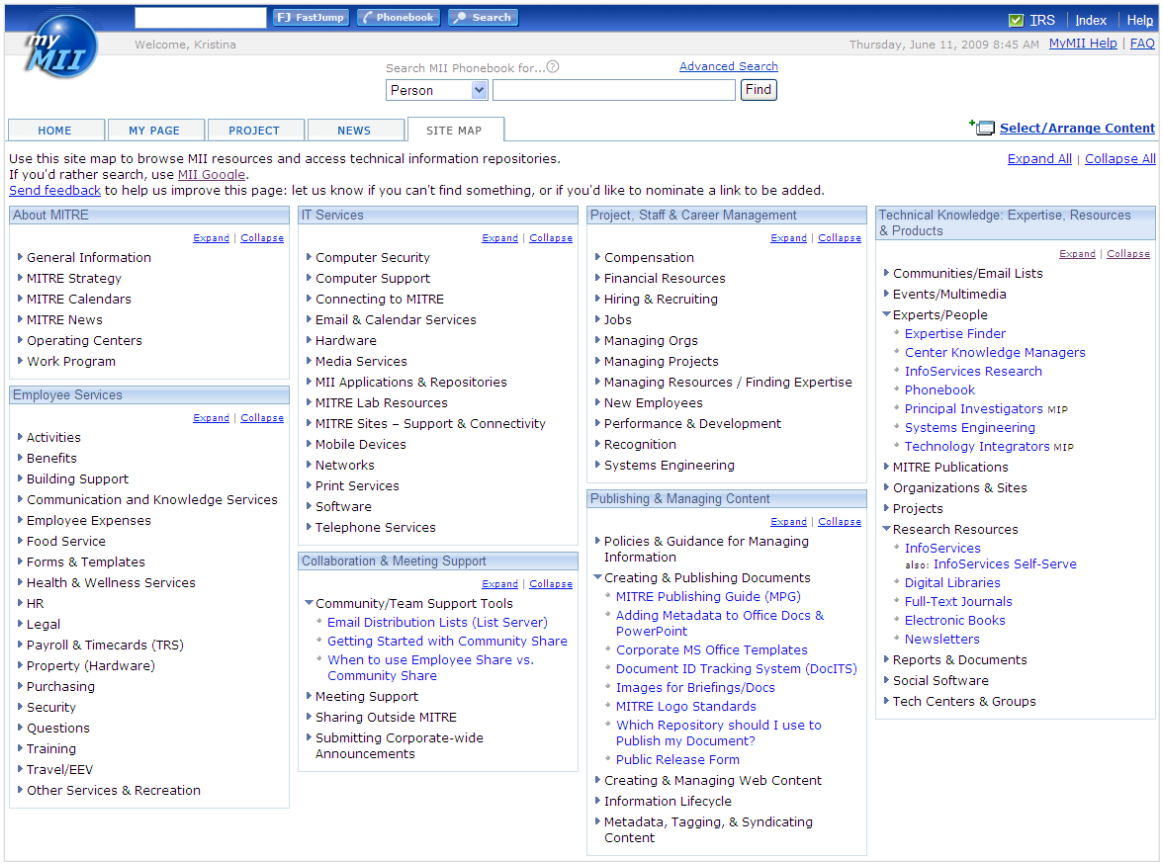


Pictured: A timeline illustrating pivotal points in MITRE's intranet history.

GOALS AND CONSTRAINTS

The goal of *MyMII* is to provide users with personalized information as the default and allow them the freedom to customize additional portlets and layouts to their own liking. The personalized information provided by the company includes links to key information, such as an employee's business unit news, travel, and *Community Share* (SharePoint) sites. Users can then customize their page, choosing from more than 75 services including items such as weather, traffic, RSS feeds, and a project dashboard. By default, all users see corporate news, banners, and navigational items such as *FastJump* (keyword navigation), search, *Phonebook* and a browsable menu based on the site map categories.

In the site's next release, users will be offered more personalized services based on their individual attributes such as role, organization, and geographic location.



Pictured: The extensive *Site Map*. As more and more resources were added to the intranet (over the course of 10-plus years), it became impossible to adequately highlight everything on the homepage. Because so many resources were completely hidden to users, the team tried to remedy the situation with this *Site Map*. It uses expand-and-collapse functionality to centralize all the links on one page. Each main category on the *Site Map* is built as an individual service so that users can add one or more of them to another *MyMII* tab if, for example, they want a shortcut link to *Employee Services* on their homepage.



Pictured: The *MITRE Innovation Program* (MIP) SharePoint community page. The MIP website is a customized SharePoint site that lets the company easily steward information such as *News* and *Events* in a SharePoint list and push that information automatically to the MIP homepage.

Constraints

Given that most intranet teams have limited budget and perhaps a limited timeline as well, it's not uncommon to have a surplus of great ideas and not enough time or money to bring them all to fruition. "We always have more exciting ideas than time and resources available to implement them," says Donaldson. "We have also faced numerous challenges with the portal technologies over the years. While portals have many rich features and capabilities, we are using only a subset of them."

"Going forward, our challenge is to select the platform that will allow for social computing and greater collaboration with government sponsors (our customers) while balancing the complexity of today's portals."

USERS

MITRE employees cover a wide range of disciplines, from traditional engineering disciplines such as electrical and computer engineering, to avant-garde fields such as biosecurity and nanotechnology. One common thread is the high level of education and technical skill among staff.

USER TASKS

Since MITRE is a not-for-profit corporation, it creates self-service applications where ever possible for administration, HR, and IT support tasks. For instance, MITRE employees can use an online reservation system to reserve video teleconference rooms for multipoint meetings with audio and Web collaboration.

The MITRE intranet also supports the deep collaboration MITRE employees need to do their jobs and work in teams, including:

- Identify experts in a particular field
- Contact people and set up meetings, either in person or via a multitude of remote collaboration options
- Create and share documents internally and with sponsors
- Submit deliverables for publication
- Retain valuable information for future use as part of MITRE's Knowledge Management practice

Most other tasks (accessing self-service applications, viewing HR information, and so on) are primarily accomplished using the *FastJump* application to locate the appropriate resource on the intranet. *FastJump* combines keyword navigation and search. Site administrators set up keyword pointers to their sites, such as "cafe" for the cafeteria information page, and *FastJump* keywords are used in company communications and advertisements. Users are so accustomed to the *FastJump* system that they typically identify it as their primary navigation mechanism, even though the site offers other navigation aides that support browsing.

The site's *Phonebook* is also a very popular tool, used for finding people with a particular expertise and learning about their organizational affiliation, work or professional interests, availability, and published documents. MITRE employees also rely on the site's "expertise finder" to locate experts in specific subject areas.

DESIGN PROCESS AND USABILITY ACTIVITIES

The last major redesign of *MyMII* (the intranet's portal centerpiece) was planned through a series of design meetings with stakeholders from each business unit. The findings were augmented through a usability test that benchmarked user performance on the portal's then-current version. To procure data that would inform its planning and design choices, the MITRE team drew from a variety of outlets, including:

- A comprehensive biannual user study
- Help desk data

- User representatives from business units and site locations
- Business unit IT equipment managers
- Internal IT training group
- Direct feedback from users

Stability and support issues meant that, during the redesign, the existing portal needed to be replaced before new designs were implemented. This complicated the rollout, as users were first faced with a portal page that looked the same but had a new customization workflow, and then—a few months later—with a new design altogether. But the team took great pains to ease users through the transition.

"A carefully crafted communications campaign helped make the transition less painful for the users," says Dave Donegan, Portal Team Lead. User feedback indicated that employees wanted a faster and more customizable portal, so the first wave of communications highlighted theses benefits of the new platform.

An animated tutorial educated users on the benefits (and the mechanics of) portal customization. And before the design's final version was released, a group of users participated in a usability test that identified specific barriers to acceptance of customization features. For example, "the out-of-the-box Oracle Portal user interface that used to add or move portlets was confusing to the point of being nearly impossible for most users," says Donegan. "Some [problems] were inherent to the platform and had to be handled with additional communications, while others had a technical solution."

Finding Inspiration

The MITRE team turned to a variety of sources of design inspiration, both inside and outside the company, and tapped into the wisdom of their own user population. "We get interesting insights from user studies," says Bryn Dews, Lead Human Factors Engineer. "But very often users come to us directly with questions, ideas, and yes, complaints." The intranet team is even experimenting with more efficient ways to engage the user community, such as through a blog moderated by team members, where users comment on new features or provide input on ideas during the design stage.

Members of the User-Centered Design Group often take advantage of the opportunity to collaborate or at least "compare notes" with employees from other organizations. "Boston is fortunate to have a very active UCD community, with several organizations hosting regular meetings and conferences," says Stan Drozdetski, Human Factors Engineer. "MITRE's not-for-profit status also helps, as other organizations do not have to fear competition from our company when exchanging ideas."

Usability Methods

Because of MITRE's strong commitment to the benefits of UCD, it strives to obtain a deep understanding of user needs, desires, and satisfaction levels, regardless of the project. The UCD Group (part of Corporate IT) runs a biannual user study that utilizes contextual inquiry, online surveys, and video diary reports. While the study isn't limited to the intranet, Dews says it does help highlight trends that the intranet team needs to focus on.

"The technique we use depends on the application, the product development team, time allotted for UCD contributions, size of the change, and targeted user population size," says Dews. "Normally, we start with a broader approach to target the scope better, and then involve users as we iterate the design. Very often, we test with paper prototypes or low-fidelity HTML prototypes to reduce development costs."

When embarking on the portal redesign, the UCD team followed the same "funnel-shaped" process by casting a wide net first, and working out the features through an iterative process. At the onset, the team engaged stakeholders in various parts of the organization to collect their input for the project roadmap in a series of focus groups. This data was then processed (with involvement from the development team) to identify features that could be created within the constraints of available time and technology.

For instance, the team identified the need for a better navigational mechanism to support browsing (as opposed to searching). Before a single line of "production" code was written, the UCD team prototyped three potential solutions and presented them to representative users to identify the preferred presentation. Because the prototypes evolved from static screen captures into dynamic webpages, the team could invite remote users to perform unmoderated testing in the final round.

Testing a Feature

Before the new *Phonebook* was released, the MITRE team performed a baseline usability test to time how long it would take users to accomplish a series of 13 tasks (using the old *Phonebook* and whatever other navigation mechanisms they normally used to find communities, documents, a person's availability information, cell phone number, and so on). The average time it took to complete a task in the baseline test was 40.7 seconds, and participants were unsuccessful at accomplishing (or quit before completing) an average of 4.2 tasks each.

In a follow-up study once the new *Phonebook* was available, the team reused the same tasks, but this time, participants took an average of 31.3 seconds to complete a task, and the success rate drastically improved to an average of only 2.0 unsuccessful tasks per person. Between the first and second test, there was also an average time savings of 9.4 seconds per task.

Surprising Results

Mobile is certainly the next big thing in enterprise communication, but research from a recent MITRE user study indicated that not all employees who are issued a corporate smartphone know how to use all of its features. "For instance," says Drozdetski, "we observed that several users did not know how to enter a URL into the mobile browser, which would mean that simply advertising mobile-accessible URLs would not be effective. This also reminded us that even the most technical users become novices when faced with a brand new technology and that any kind of a learning curve in a corporately provided solution carries the risk of excluding users."

This type of research is valuable for moving beyond widely held perceptions, such as: "Users want intranet access on their mobile devices." And the MITRE team was wise to conduct it. But the results didn't deter them from developing a mobile version of some of the site functionality. They simply used their time wisely.

"There are some inherent obstacles that mobile applications pose," says Drozdetski. "By monitoring the feedback streams, we found that users had trouble entering passwords on their smartphones—small screens and cramped key layouts do not make this an easy task." Research such as this helps teams make informed decisions about where and how to spend their limited time and development budgets to best serve the users.

URL AND ACCESS

MyMII (MITRE's intranet homepage) is the default homepage for all employees. The MII is used by all business units; the *MyMII* portal homepage is configured as the default homepage on every MITRE-issued computer. Although employees are free to change the homepage setting, most leave it set to *MyMII*.

Users outside of a MITRE office location can access the site using a SecureID card to VPN in. However, because some locations where MITRE employees work don't allow VPN access, the company provides near zero-footprint access via Citrix technology.

Also, there are Web-based versions of commonly used applications (time card, email, instant messaging) for employees who use Web browsers where Citrix isn't an option.

TECHNOLOGY

The MII started as a basic Web server with CGI applications and LDAP for the corporate directory. This has evolved to a robust infrastructure with single sign-on (SSO), Oracle Portal for personalization, Java Application Servers for custom developed application, a CMS, and SharePoint for documents and communities. Several open source technologies are used for wikis, blogs, social bookmarking, and social networking.

MITRE has standardized on Java-based Web applications for custom developed applications. It uses Jira for bug tracking and enhancement requests, HP Loadrunner for load testing, HP QuickTest Pro for automated functional testing, and JUnit for developer unit level testing. The development team has also started to use Scrum methodology for agile application development.

SEARCH

MITRE is a company that recognizes the power and importance of effective search, but also understands that making search effective is an ongoing effort that requires vigilance and commitment to change. It's never really a done deal.

Search results are tracked with monthly reports, showing top keywords and queries. For instance, "zero hits" queries are randomly evaluated so that the team can figure out why no results were returned and add or modify content as needed to meet user demand.

The MITRE intranet features several types of search to help users quickly get to what they want.

In addition to site search, the intranet content team manually maintains *FastJump* resources. *FastJump*s are loaded on a nightly basis from an Oracle database to the intranet search system to provide a "Best Bets" type of search result. "Also," says Robert Joachim, Information Systems Engineer, "key repositories and content releases are reviewed on a regular basis to identify specific content for promotion."

Expertise Finder is a custom Java-based application that uses search as a Web service to identify MITRE staff with expertise that matches a user's topical query. "Using search results from various content repositories, MITRE staff members are identified through the use of metadata attributes associated with retrieved content objects," says Joachim. "Our plans are to extend this feature to a community finder application, which would use both descriptive summary metadata and full-text content to identify online communities (SharePoint sites and Listserver groups)."

The site's main intranet search engine is the Google Search Appliance (GSA), in conjunction with customized applications using the GSA as a search service. Content and data repositories are integrated into the search engine via various methods, including conventional content crawls, direct SQL database crawls, and XML feeds.

"We leverage Google *KeyMatch* to promote *FastJump* (Best Bet) resources and OneBox for content promotion of information in key repositories," says Joachim.

Though many of the company's data repositories also have their own dedicated customized search interfaces, MII Google currently indexes the following:

- Shared content folders (*EmployeeShare*)
- Microsoft SharePoint (*CommunityShare*)
- Distributed Web servers, including blogs and wikis
- List messages from the company's corporate listserver
- Corporate shared social bookmarks (*onomi*)
- Metadata catalogs, such as technical report records, from the MITRE corporate library system
- The *Technical Exchange Meeting* (TEM) site, which houses event presentations, meeting minutes, and attendee lists

Beyond Full-Text Search

In addition to enterprise full text search, the team is also exploring the use of faceted navigation and information discovery techniques to provide additional retrieval capabilities for the site's users. "Using the Endeca information discovery platform, we are building common, persistent data models of more abstract information objects such as 'projects,' 'people,' and 'communities,'" says Cuomo. The technology lets the team combine structured data with mined concepts extracted from unstructured sources, which allows projects, people, and communities to be retrieved and analyzed, and relationships between them to be viewed in ways not possible with full text search alone.

Search as Evolution Rather Than Destination

Having a good search tool doesn't mean the work is done, and the MITRE team recognizes that fact. "We regard search as an evolution of technology platforms," says Joachim. "In our earlier intranet era, before 2002, we were not satisfied with search vendor products and the seeming lack of integration with Web-based models and went looking for a solution oriented to intranets, especially for Web-based relevancy ranking."

After early adoption of the GSA (version 3), the company has continued to enhance features via Google releases (currently, version 6). "That said, we continue to watch

and evaluate the search marketplace and do/will make adjustments as new platforms and technologies emerge and evolve," says Joachim.

MOBILE

MII Mobile is a separate homepage with links to the few select apps that have mobile versions. The applications chosen for mobile adoption were those that are important to the widest number of users and include time reporting, *Phonebook*, and *My Travel*. The mobile page also has a link to a short FAQ section and a downloads page that lists native BlackBerry applications that are supported but aren't available over the air.

The mobile applications that MITRE has developed are all tailored versions of the standard Web applications (as opposed to native BlackBerry apps). This approach will allow the applications to run on any smartphone (iPhones and Android, for example) without the team having to rewrite them as a native application. "While a native smartphone application could have a richer experience, we have not seen the need for this additional functionality for our users," says Dews.

The mobile versions of applications use the same core that the Web applications use, but have a separate user interface styled to reduce the need to scroll and provide only the necessary functions on a smaller screen. "We confirmed design decisions by showing mockups to potential users, and later inviting them to try out the application," says Dews. "In addition to the user interviews, we got ideas on presentation and what to include from other travel applications (TripIt, WorldMate, etc.) Mobile applications have been a huge hit with the users."

Pleasing the Users

The mobile applications have generated generous praise from the users. "The mobile applications have moved the users in ways not typically seen in corporation," says Dews.

"Imagine my surprise reading a user feedback message to the mobile *Phonebook* developer, 'OMG. This is fantastic. Will you marry me? <g>' after releasing a mobile version of the *Phonebook*," says Donaldson. "Corporate IT doesn't yield this type positive reaction."

User Testing for the Mobile Environment

The mobile pages were designed with BlackBerry devices in mind, since those are the only corporate devices with access to MII Mobile. Employees use a range of models and firmware versions, so the development team tested on emulators for the most common ones (8330 and 8830) plus a few other models to cover the older and newer operating systems, as well as the varied screen sizes. "Our biggest challenge was the varied support for CSS properties across the versions," says Donegan.

Early user testing on the mobile applications provided the team with great feedback regarding both use and user interest. "We did some early interviews showing paper mockups to current BlackBerry users when designing mobile versions of the *Phonebook* and *My Travel*," says Donaldson. "This was done to gauge interest and determine what content was most important to mobile users. In the *Phonebook*, for instance, we found that room numbers were vital, so we moved those above the fold."

When the mobile applications were piloted (that is, available in production, but not widely announced), the team performed some basic usability testing. Dews explains how this worked: "We met employees in their office and had them try a few tasks using their own BlackBerry. We did not have a good way to record the screen, so we just looked over their shoulder, occasionally asking them to show us the screen if we noticed a presentation issue. We wanted participants to use their own devices to see how the pages looked on the various models with their font settings."

During these sessions, the developers did find a few issues with functionality; for example, users wanted to be able to update project charges for the day if they worked extra hours or made a mistake. But there were also some issues with limits that had been set to keep the page size small. For example, showing the five most recent project numbers was not sufficient for employees who needed to charge many different projects.

"There were also some problems with how we tried to make the content fit on the small screen," says Dews. "Take 'availability' on the *Phonebook*, for instance. In the full *Phonebook*, one's availability is shown as a horizontal table with different colored squares for each half hour. In the mobile version, we tried showing a single square for the current half hour, but users did not always recognize it."

Frequently, as mentioned before, the team observed the difficulties people had with basic use and device functionality. "Many were not regular users of the mobile browser, so they weren't sure how to enter a URL or how to exit the browser without repeatedly hitting the back button," says Dews. "In most BlackBerry apps, the *Back* button does return you to the home screen; in the browser, it works like a *Back* button." The design for the mobile applications took these factors into account so users would have a better experience when accessing them on a BlackBerry.

CONTENT AND CONTENT MANAGEMENT

The MII follows a distributed (down to the individual employee) publishing model, and the number of content publishers dwarfs the number of dedicated designers, developers, and usability professionals. "Enforcing strict publishing standards would be next to impossible," says information architect, Krista Kennedy Groenwoldt. Instead, the intranet team focused on core requirements, such as standardizing on one navigational header.

"We also worked hard to feature the more usable/corporately supported design as the path of least resistance, with ready-to-go site templates reducing the need for custom development," she says. Along with the templates, the intranet team records and publishes design and usability guidelines that help content publishers produce more consistent, accessible, and usable work.

The site utilized a traditional CMS system (currently transitioning from Rhythmyx to Oracle) for corporate information that must be distributed in several different formats, such as corporate news that is published in HTML variants and RSS. Individual content publishers either use SharePoint or publish HTML documents.

FEATURES

The following features comprise some of the intranet's more robust and useful functionality.

My Actions

My Actions is an extensible portlet that resides on the *MyMII* portal. Using input from various applications, the portlet notifies users of time-sensitive actions that they need to take. Users get a visual alert when events are coming due or are overdue. Examples of actions that are pushed to users include:

- Security patches required for the user's computer
- Purchase orders that need approval
- Public release documents that need review
- Resource management assignments that need approval
- Passwords that are about to expire

Phonebook

MITRE's enterprise employee directory, known as the *Phonebook*, is the most popular tool on the intranet. "In usability testing, people told us they use the *Phonebook* anywhere from a few times per day to hundreds of times per week," says Groenwoldt.

From its inception more than 10 years ago, the *Phonebook* was always more than a typical corporate directory. On the *Person* pages, for example, in addition to the typical employee photo and contact information, the *Phonebook* provides detailed organizational information from the company's PeopleSoft system, fiscal and HR signature authority, the date the employee was hired, a detailed section on the employee's project charge information (obtained from the fiscal system), as well as links to that employee's resume and publishing repository.

"If a user wanted to find a document that someone else had published, he would look that person up in the *Phonebook* to easily access that person's publishing space," says Groenwoldt. "Similarly, if a user looked up an employee to ask a question about a project and that employee was unavailable, he could click through to the project page to see who the project Leader is, and who else supports that project as alternate sources of contact for that project.'

Some of the *Phonebook* functions include:

- **Encouraging collaboration**. Through integration of Microsoft Exchange, the *Phonebook* shows employees' availability. Also, the *Phonebook* shows an employee's current projects (from the time reporting system), published documents, and community memberships, including SharePoint *Team Sites*.
- **Simple look up.** Users can start their search with any piece of information and easily browse the greater information for all related object types. If users know, for example, that Jane Doe is a member of a community team site that they want to access, but they don't know the team's formal name, they can simply look up "Jane Doe," view her community memberships, and click the right name to access a page with its descriptive information, including the names of the community owners to contact for access information.

Remote Access

Because many of the company's employees travel for sponsors and work at sponsor locations behind firewalls, MITRE provides a webpage with the most commonly used tools for remote access (timecards, email, instant messaging, remote meeting desktop sharing, and secure FTP). For example, MITRE employees can check their email and calendar via Outlook Web Access by accessing the specific external URL and using a combination of authentication methods.

"Through repeated surveys and interviews of remote users, we have continued to refine the service offerings and the way we display them," says Dews. "The most current instantiation of the remote access portal (RAP) is the result of several rounds of testing and feedback." To access all of these remote services, MITRE employees need only an Internet connection, the RAP URL, and their SecureID.



Pictured: The *Remote Access Portal*. One of the nice things about MITRE's intranet is that employees can access it from anywhere, at any time. MITRE has employees working around the world and many have limited network connectivity from their government work locations. The *Remote Access Portal* offers quick access to top applications for working outside the firewall from any computer using remote desktop access via Citrix. While at sponsor locations, for example, employees can use the portal (http://remote.mitre.org) to access their email and calendar, timecard, instant messaging, *Meeting Place* (telephone and Web desktop sharing), secure ftp, or almost any other MITRE network resource. This is a powerful option for employees who work outside the main MITRE campuses, making it possible for them to be productive and "reach back" to MITRE for information.

Community Share

Because the company's collective knowledge is its most important asset, this knowledge must be easily accessible and easily shared across the company. One of the mechanisms to accomplish this is MITRE's *Community Share*, which is built on Microsoft's SharePoint platform. Communities across MITRE come in many forms, including organizations (such as departments or divisions), project teams, and groups of experts working in the same field but in different organizations across the company. *Community Share* offers these communities a place to store documents; it includes access and check-in/check-out controls, group calendars, linked lists, announcement/bulletin boards, and many other Web features. "To supplement the less than perfect browsing and searching in the native SharePoint environment, MITRE has created Web services which pull metadata from SharePoint's databases and serve that metadata in our corporate *Phonebook* directory," says Groenwoldt. "From the *Phonebook*, employees can access communities, files in those communities, or the directories where those files live, all with one click."

The metadata is linked to:

- Employees who publish the data
- Employees who belong to the communities
- Organizations who own the communities

Combined, they provide a rich and straightforward faceted search.

Role-Based Tools

MITRE's intranet offers a wide range of tools to support a variety of roles, including

- a new employee view that has everything new employees need to get started,
- a mobile view with the most popular resources for people on the road or working remotely, and
- project services to help project managers track their budgets and deliverables.

Recently, the *MyMII* team has also been making progress in presenting people with "smart defaults" based on attributes such as their business units or geographic location. If, for example, a user's primary location is McLean, Virginia, *MyMII* will now suggest neighboring Washington, DC weather and traffic as portlets he or she might want to add to the page.

KNOWLEDGE MANAGEMENT

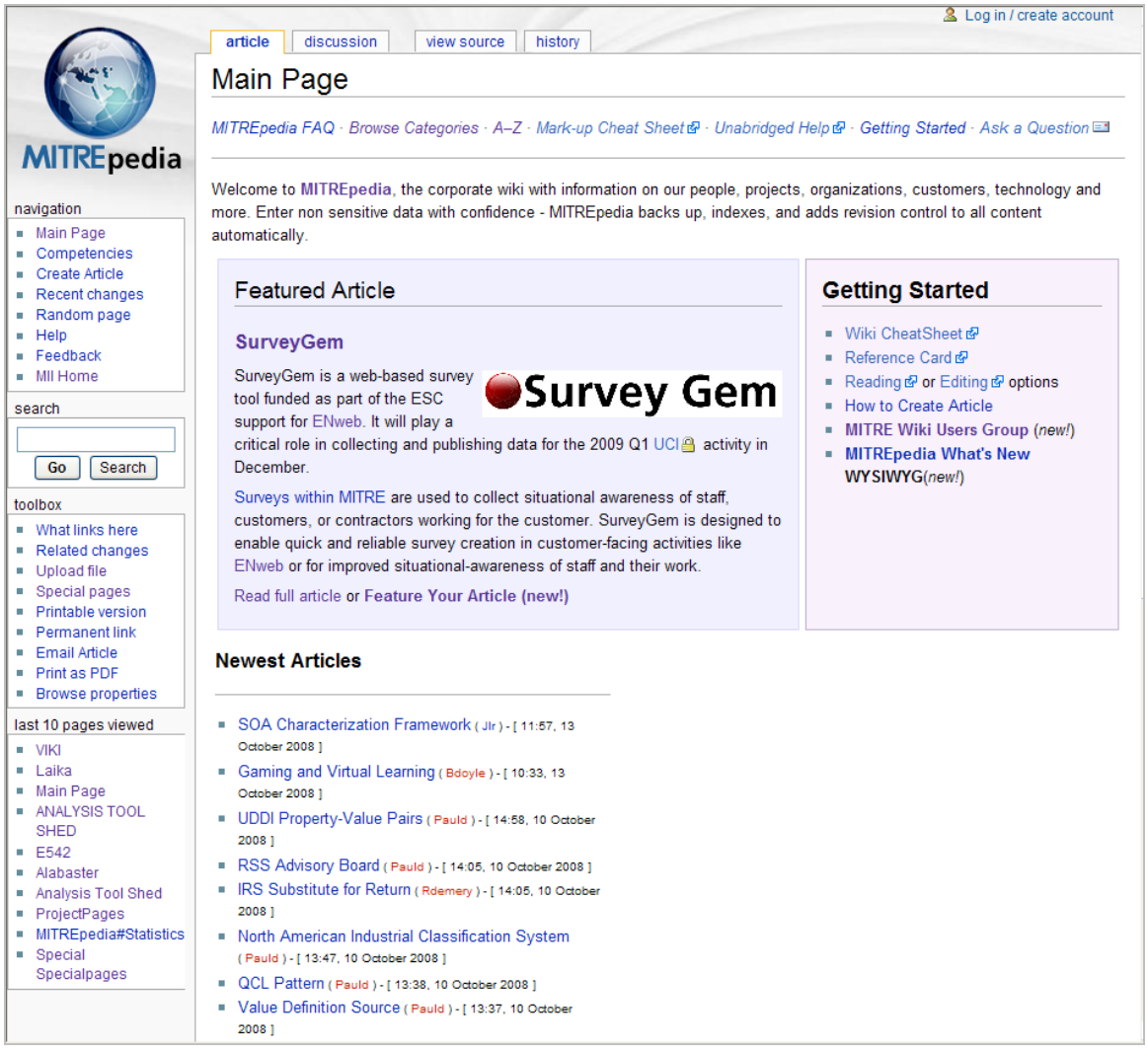
MITRE's Knowledge Management program started about 10 years ago. "Its mission," says Jean Tatalias, Director of Knowledge Services, "is to foster knowledge-sharing culture, to support collaboration, and to champion the methods and practices to connect people and manage knowledge assets for sharing and reuse."

"It is *not*," she says, "one system, one initiative." Instead, she describes it as an accumulation of assets with many parts of the organization contributing in a process of continuous improvement. MITRE's intranet offers many tools and techniques for supporting knowledge sharing, including Google search capabilities, *Expertise Finder*, *Community Share* (SharePoint) team document sites, wikis, blogs, and the *onomi* social bookmarking tool, to name a few.

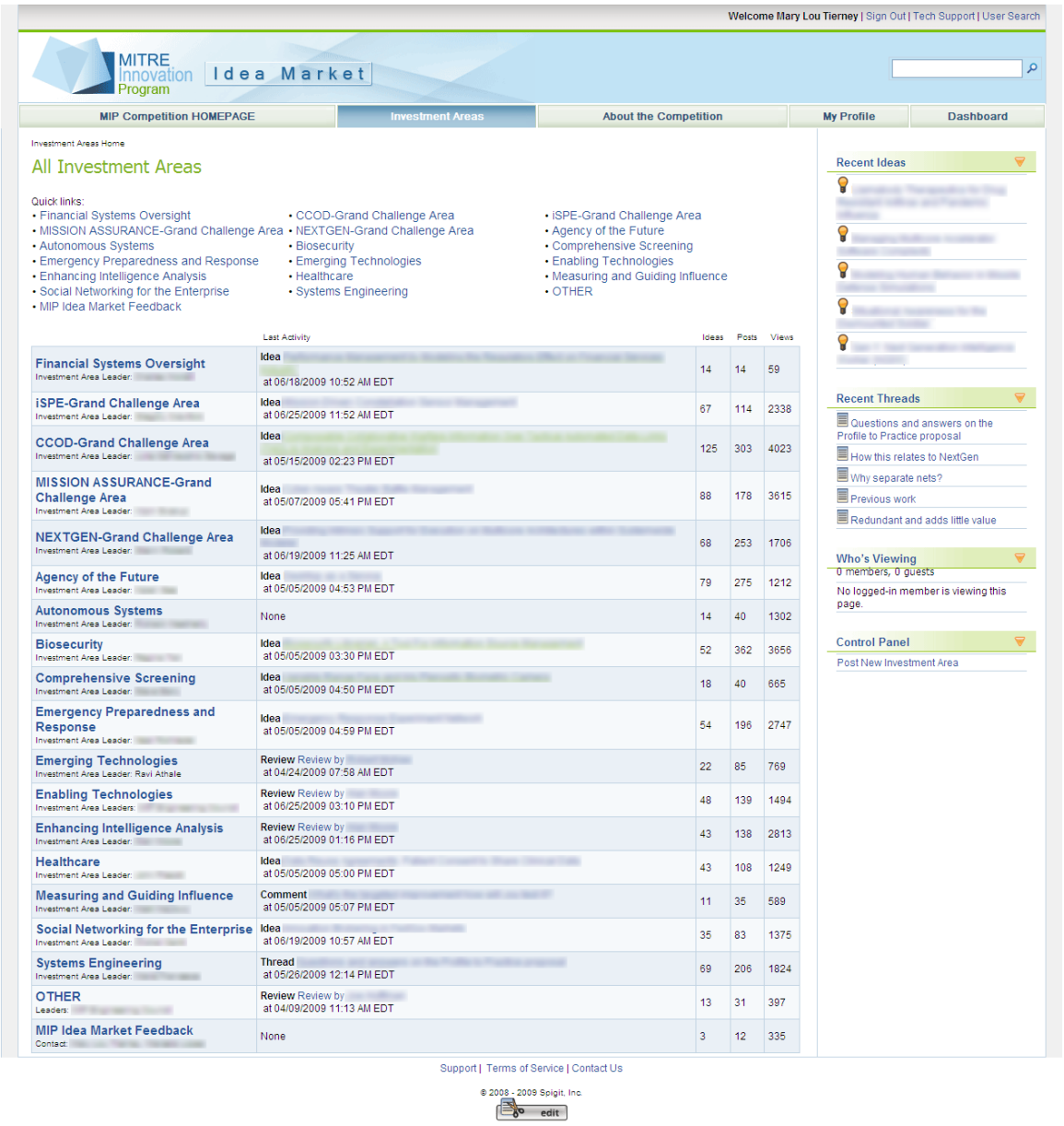
The intranet structure links employees, projects, communities, and documents, which provide both the context and the major method of knowledge sharing. Employees are also given guidance in the form of "Seven Essential Steps to MITRE Information Management" which reinforce both basic information sharing and protection policies as well as how to apply the knowledge management toolset for effective knowledge capture. The seven steps include tips such as "Keep project files in *Community Share* (SharePoint)" and "Share as broadly as possible *and* protect information according to policy, contractual requirements, and licensing agreements."

ENTERPRISE 2.0

In addition to more traditional team collaboration tools, MITRE intranet's has a wide range of social media tools. There are several wikis, including *MITREpedia* (running on *MediaWiki*) and a custom blogging tool that supports both personal and project blogging. Efforts are also underway to explore the potential use of WordPress as a sponsor-relationship management tool. In addition, the intranet features the *onomi* social bookmarking application, which is very similar in functionality to del.icio.us. The team is also developing a social networking prototype that will allow social networking opportunities between employees as well as between employees and the company's partners and sponsors.



Pictured: *MITREpedia*, one of the company's wiki sites.



Pictured: The *MITRE Innovation Program* project proposal process was facilitated this year by a cloud-based tool called Spigit (shown here). The Spigit social networking tool connects company employees and aids in intranet-based idea generation and innovation. Using the *Idea Market* social networking tool, MITRE employees submitted and commented on ideas for the company's research competition, and for the concepts to be refined through collaboration. This tool helped make the research program more transparent, streamlined the process, and expanded opportunities for input into the research competition. More ideas (840) were submitted this year than ever before, with 750 comments received and more than 5,500 votes cast.

LESSONS LEARNED

The MITRE team offers a few lessons learned:

- **Personalized content is more effective than giving users customizable controls.** After eight years with a customizable corporate portal, the company still sees very little customization by the end user, with only about half of the employees making changes to their *MyMII* settings. This is why smart/well-researched defaults (such as personalized applications or portlets) are so important. End users cannot be counted on to customize their homepages, rather the organization needs to do the best it can to personalize the tools for them.
- **Templates provide both a good starting point and direction to users.** If your usability team is small, you can maximize your impact in the corporation by documenting your guidelines in a public place and try to teach publishers/developers to start from a common template. Teaching people about usability is important, but it's also very cost effective to provide them with a starting point, such as having some of the guidelines already coded in a template.
- **Guidance can come from outside the organization.** Look outside your company. It's important to baseline your intranet against other companies as part of your intranet health check. Use these external health checks to celebrate your successes and adjust future activities. The MITRE team found solace in communicating with other companies to find that it was not alone in trying to solve the issues that they faced.

BEST PRACTICES

Some words of wisdom from the MITRE team's experiences:

- **Listen to users.** Do not pass up any chance to hear from your users. Even the most informal interactions have the potential to improve your design.
- **Pilot new releases.** Releasing new features to a small group of users first helps the eventual rollout proceed more smoothly, if you are careful about collecting and acting upon feedback.
- **Learn from negative feedback.** Positive feedback is always nice to hear, but negative feedback gives you a chance to improve your product and maybe even win over a user along the way.

RESULTS

As example measures of the site's success, the MITRE team notes that:

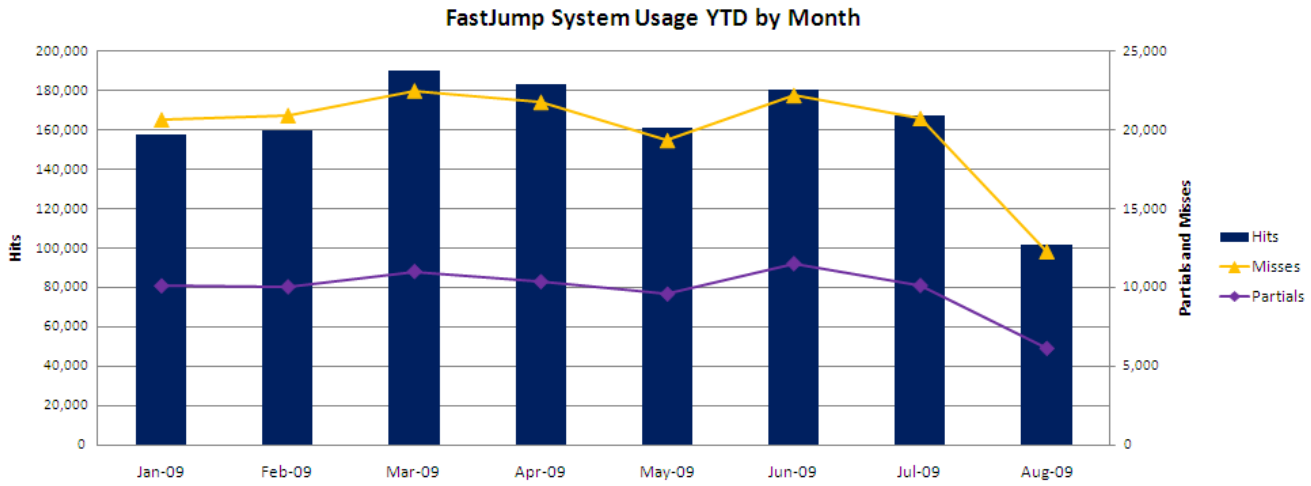
- The MII has been maintained as a showcase of intranet technology from its inception
- Lessons learned during its implementation are often used in assisting MITRE's government sponsors

Also, the team conducts many measurements on the site. The main measurement tool is WebTrends, which provides high-level usage statistics of hits and views.

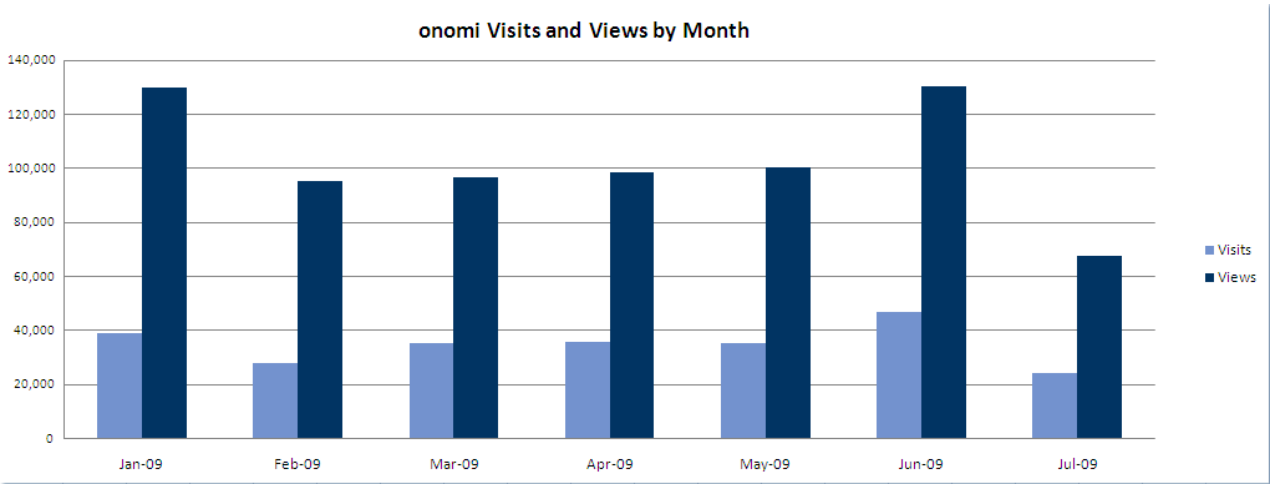
The team typically focuses on measurements when new features or applications are deployed so they can better manage the adoption. “We also use these measures for general trending of mature applications,” says Donaldson. “One example was the *Mobile Travel* application. We noticed that after a period of adoption, usage started to drop.”

Because team members were alerted to this trend, they could poll the users to find out the cause of the drop and address it with a campaign to drive usage back up.

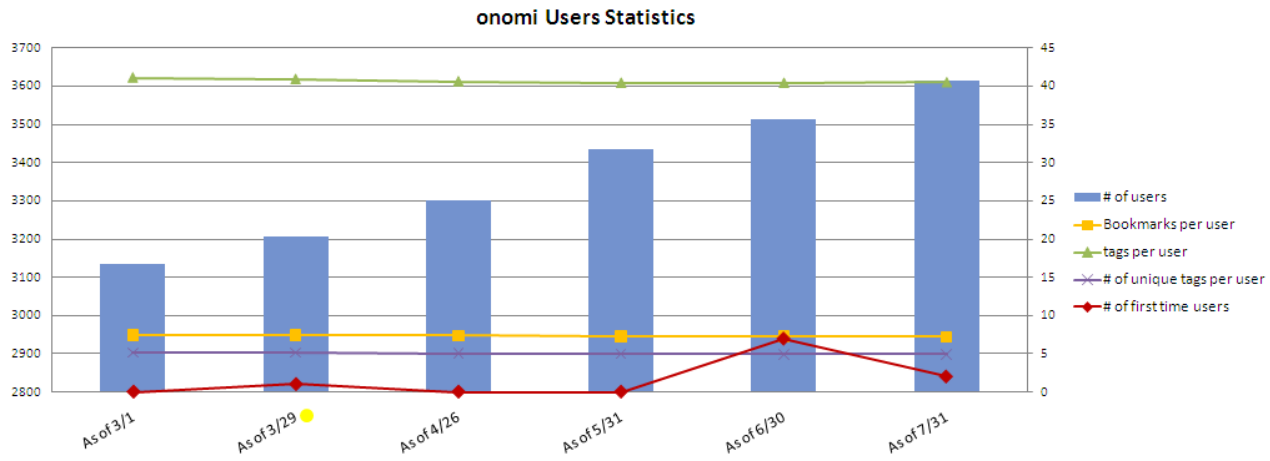
The following chart shows some measurement results for the 2009 calendar year:



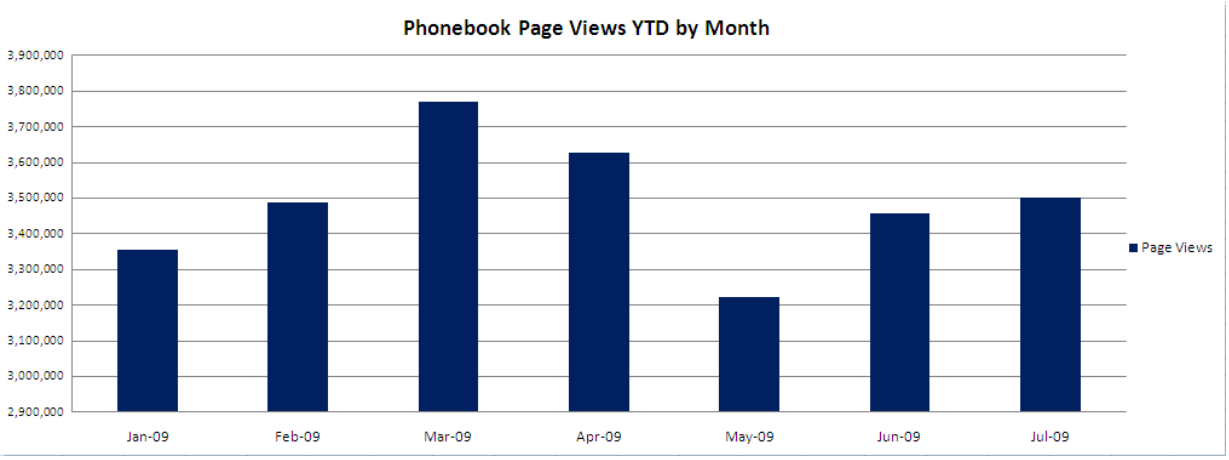
Pictured: Calendar year 2009 usage metrics of *FastJump* keyword navigation.



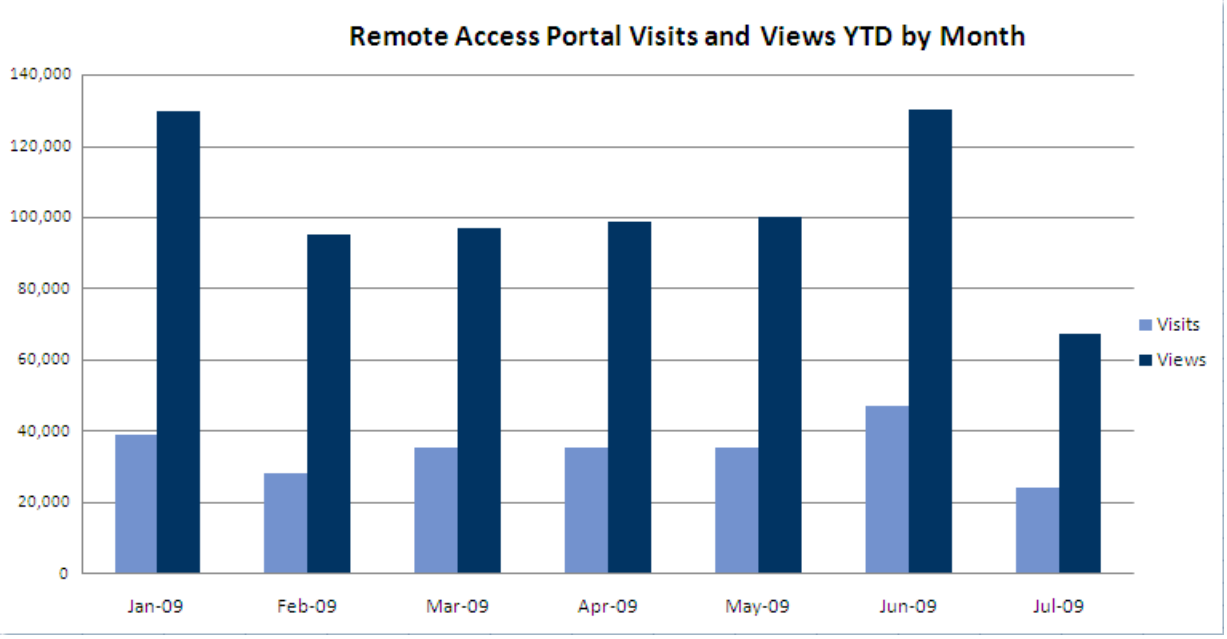
Pictured: Calendar year 2009 usage metrics of the *onomi* social bookmarking tool.



Pictured: Calendar year 2009 usage metrics of *onomi* user data.



Pictured: Calendar year 2009 usage metrics of the *Phonebook* (corporate directory) application.



Pictured: Calendar year 2009 usage metrics of the *Remote Access Portal*.

SCANA Corp.

Using the intranet:

SCANA Corp. is a Fortune 500 energy-based holding company with electric and natural gas businesses in North Carolina, South Carolina, and Georgia.

Headquarters: Cayce, South Carolina

Number of employees the intranet supports: SCANA has 6,700 full-time employees and contractors who have intranet access (and about 3,300 contractors who don't have intranet access)

Company locations: SCANA operates in North Carolina, South Carolina, and Georgia.

Locations where people use the intranet: All locations

Annual sales: $5.3 billion (2008)

Design team

Corporate Communications: Christy Season, Intranet Strategist; Therese Griffin, Mgr. Corporate Communications & Philanthropy; Nicole Mclean, Supervisor Corporate Communications; Keela Middleton, Communications Strategist; Troy Stockman, E-Communications (Front-end Developers) Supervisor; Eddie Flowers, Front-end Developer Consulting; Matt Reinhart, Front-end Developer

IT Department: Andrea Peterman, IT Project Manager; Dean Keith, Supervisor IT Application Developers; Don Rozier, Applications Developer; Carl Russell, Applications Developer; Adam Youngblood, Applications Developer; Greg DuBose, Applications Developer

SUMMARY

How does an intranet team update a website and tackle technical and organizational challenges without additional budget? Ask SCANA. The solution for them was creativity. Their resourcefulness in solving problems and finding solutions that entailed no additional costs resulted in a website that offers users countless self-service tools, creative content, and a clear design.

Team members used their creativity to conquer several challenges. The first was how to create a site that could encourage collaboration when they didn't have the resources to buy a new site platform. The solution? Use SharePoint, a product they already were using for collaborative team sites. Because SharePoint was already in place, they decided to move the site itself to SharePoint and take advantage of it. While the tool didn't provide them with the exact functionality they needed or wanted out of the box, they used it as best they could and picked their battles with it—sometimes making custom changes for things that were intolerable, and sometimes letting smaller issues slide.

The second challenge was how to facilitate collaboration in an environment where certain communications could result in heavy regulatory fines. That is, they wanted to encourage users to contribute content and share information, but federal law prevented various departments from sharing certain information with each other.

The answer again involved SharePoint. The team decided to put sharable, company-wide information on the intranet itself, called *The Edge*, and to put sensitive information into a SharePoint team site environment and restrict access appropriately. Team members check every request for a new intranet site to see whether it can be placed on the company-wide site or must be placed on a restricted site. This system of accurate information placement ensures that the company follows all applicable laws.

Using SharePoint helped the team conquer a third challenge as well—changing from centralized content control to distributed content management throughout the organization. SharePoint made the change technically simple, for the most part, and

many contributors throughout the organization were already familiar with the tool's processes and interface from using the collaborative team sites, which was a plus.

This transition was essential, as it freed time for intranet team members to focus on site issues rather than content updates. It also gave contributors direct ownership of content updates without having to ask someone to do it or wait for it to be finished. For content contributors, being able to update immediately was a welcome change.

The team was prepared to ease the transition, recognizing the need to support content contributors during the adjustment. Team members provided any needed guidance with the SharePoint content system, as well as providing guidelines for contributors to follow. The team used SharePoint to ensure visual consistency across pages: templates allow for some flexibility, while also retaining a consistent look. The team trains contributors and counts on them to follow guidelines, and also conducts twice-yearly audits to ensure compliance.

The result of all these efforts is a well-designed site with interesting content. The intranet's homepage has a clean design that makes it easy for users to know where they are in the site. The homepage is clutter-free and focused on providing news. A rotating featured story area offers up to six different stories, which users can page through via numbered links or an arrow. For each story, an image and headline appear with a link to *Learn More*.

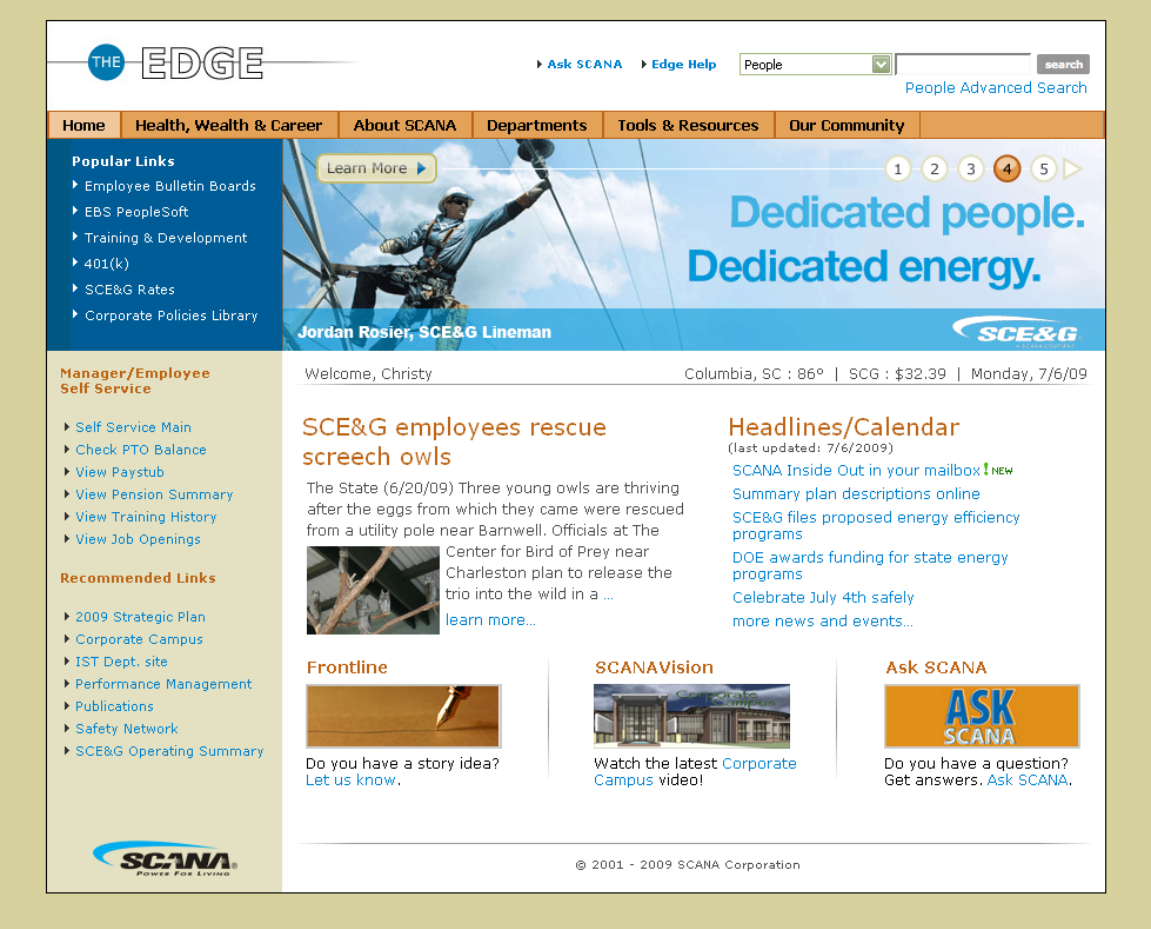
An additional news story is featured in the body of the page, complete with the posting date, a clear headline, a brief summary, and a link to read more. Additional headlines and events information appear next to the featured story.

The rest of the page offers links to key site areas. The three sections at the bottom of the homepage are additional promotional areas to push intranet content to employees. Each area holds up to three different promotions that cycle based on browser session. The far left area is dedicated to the corporate-wide publications, the middle area is dedicated to SCANAVision video promotions, and the far right area is dedicated to communicating other internal sites and tools.

The homepage also includes weather and stock information in a small bar beneath the featured story area. Mousing over the weather or the stock price will display a small pop up with additional details or information.

The remainder of the page is devoted to site navigation. Popular links appear on the side of the page, followed by links to self-service areas of the site and a list of recommended links.

It's rare to see such a clean intranet homepage, with a clear focus and lack of clutter.

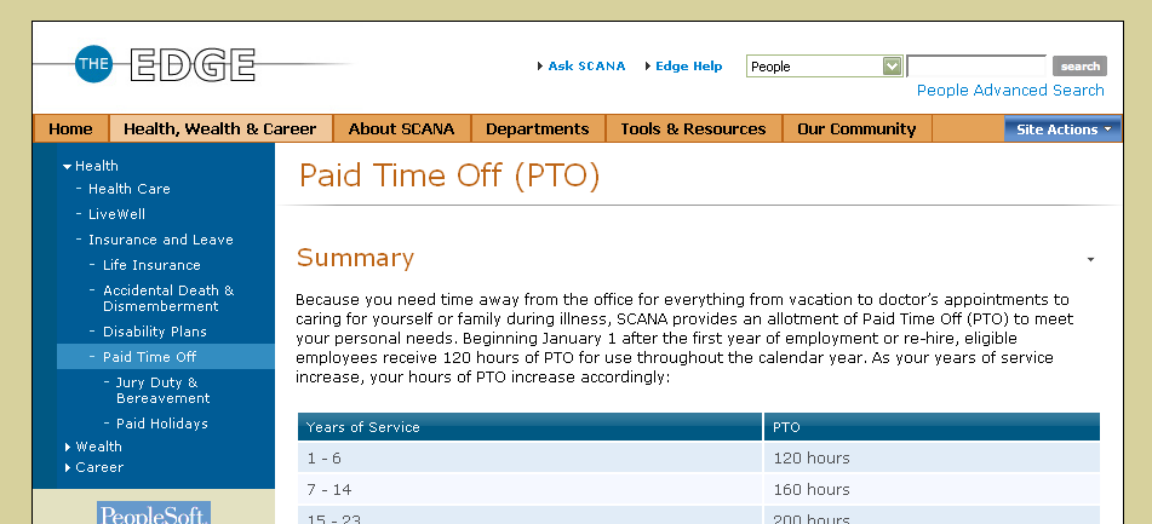


Pictured: The homepage of the SCANA intranet, called *The Edge*, is clean and focused on providing news and navigational links to key site areas.

The site is nicely designed throughout. A color change in the top, global navigation easily tells users where they are on the site. The side navigation also clearly indicates which section is currently being viewed. Categories expand and collapse as needed to reflect where users are and where they can go.

Each page has a large, clear heading describing the page's content. The simple use of rule lines, color, a consistent color palette, and white space combine to create a simple yet effective page design that lets users focus on the content rather than be distracted by confusing page elements or busy design.

In another example of their resourcefulness, team members took usability test results from the public facing site and squeezed as much relevant information out of them as they could to help refine the intranet's design and organization. This, apparently, has paid off.



Pictured: The site has a clear design, which lets users focus on the content rather than be distracted by site structure and cluttered pages.

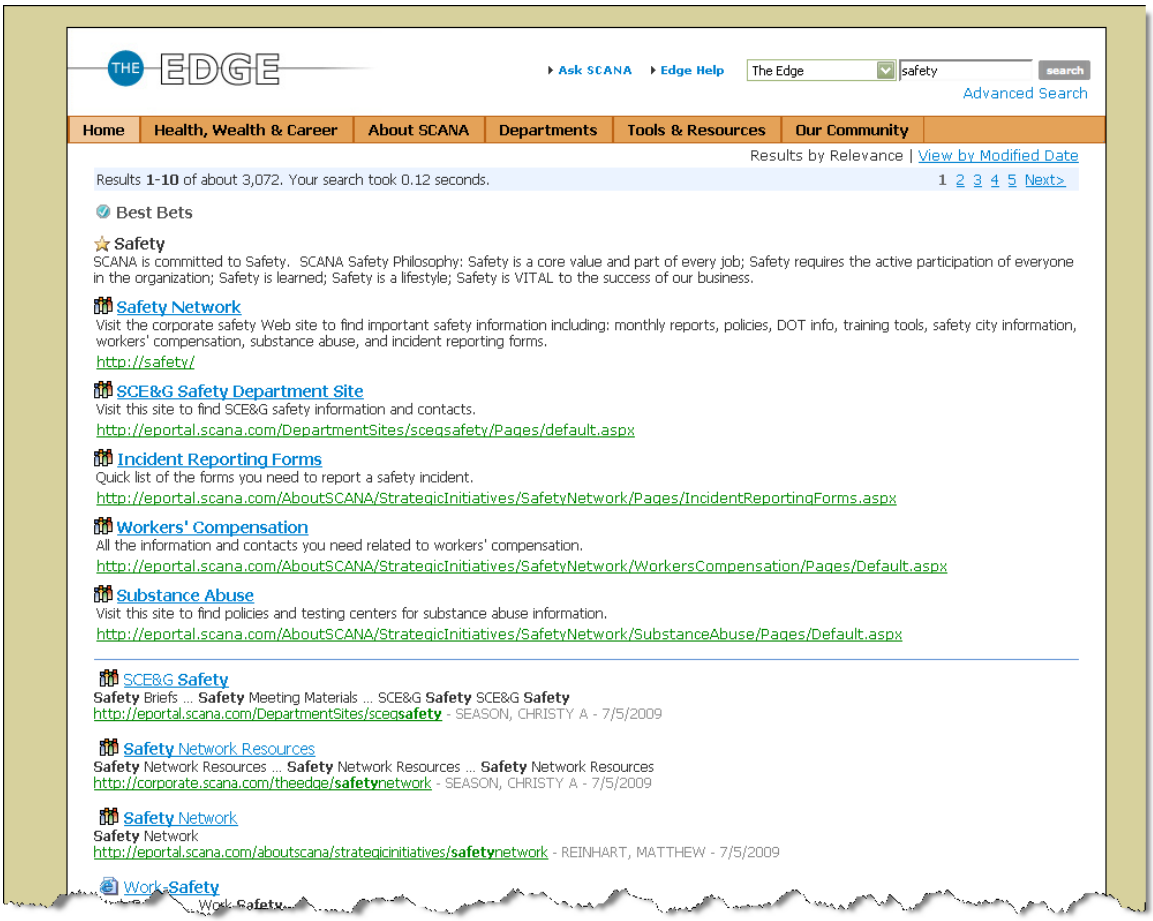
Given that they had no budget, team members had no option but to use SharePoint for their search solution. They therefore worked within the structure of SharePoint's search to try to present the best possible information for users. To do this, they took advantage of Best Bets to move users to the content that best fit their needs. Best Bets lets the search return certain hardwired results tied to specific keyword queries. For instance, the search for "safety" (see below) offers five prioritized Best Bet results that are most likely to provide the information users are looking for. Each result is presented with a link, a clear page name, a one-sentence description of the page's content, and the URL of the page.

Note the simple URL of the first result shown below: http://safety/. The site allows the use of shortcut URLs that let onsite users type in a keyword and move directly to content. The team sets up these keyword redirects for certain key applications, content, or shared sites.

If users don't find what they need in the Best Bets, standard search results appear below the rule line on the page. These results also show page titles, but instead of summaries, they display text snippets the show where the search query appears on the page. The URL is followed by the page author's name and the date the page was last updated.

The top of the page shows the number of results returned; results are initially sorted by relevance, but users can reorganize results based on the date they were last modified.

Team members keep track of what is and isn't working in the site search. If they find that a query is popular but doesn't have a Best Bet associated with it, they set one up.



Pictured: Best Bets allow the SCANA team to hardwire search results for certain keywords and present the most relevant links first.

The site makes good use of video content. SCANAVision is the site area that lets users view featured videos, browse all videos, or find specific video content using a keyword search. This section is linked from the site's homepage. The top of the page features the video player window, as well as a list of recently added videos, which are accompanied by a small image, video name, and brief description, as well as the date the video was added.

Beneath this, users can browse videos, which are listed in reverse chronological order by default, showing the most recent videos first. Users can sort by title or date to help them find specific content. Each video is accompanied by a brief description.

A search box specific to the video content appears at the top of the list of videos. Users can easily page through results or the full list using links at the bottom of the page. They can also change the view to see more videos per page.

Another nice feature: a link on the side of the page tells users to send an email to request a DVD of a program from the site.

As for the video content itself, the site offers many types of videos, from promotional to informational to skill building.

Remember that lack of budget discussed earlier? And team creativity? The team came up with creative solutions once again when challenged with advertising and

introducing the new site. One aspect of their "campaign" for showing off the new site involved video: The team created a *Lunch N' Learn* webcast to introduce features of the new site. These webcasts are offered throughout the year and can be viewed as they "air." They're also recorded and available for on-demand viewing.

Team members also created "advertisements" for the new site and posted them in the SCANAVision area. By borrowing someone from the organization's video team to shoot the videos and recruiting volunteer actors from the workforce, the team once again came up with a creative way to problem solve.



Pictured: The SCANAVision video library lets user see recent additions, browse offerings, and search for specific content.

The team's efforts to build excitement and interest around the new site didn't end with the video offerings. Team members worked with groups throughout the organization to help build buzz for the new site. The team's group of pilot testers included 150 employees from throughout the organization who gave them feedback on the new site, finding typos, errors, bugs, and usability problems that the team could then fix before launch to the full organization. As a result, these users became invested in the site, and they—along with site owners and content contributors—became its ambassadors. They spread the word throughout the organization, helped colleagues and answered questions after the site launched, and even hung posters throughout the offices. Once again, the small team's resourcefulness won out over a lack of budget and tight schedule.

BACKGROUND

The SCANA intranet was started a little over 10 years ago. This original intranet was a grassroots effort by a few Corporate Communications employees who worked without a budget and with little managerial direction. The site they built consisted of a handful of company information websites formatted into a grid: graphics on the left, text on the right. The early site had no site-wide search (only a people search), no Web analytics, and little content decentralization.

The first *official* company intranet started a few years later when the IT department created a website that let employees look up other employees. This led to the creation of a formal intranet that consisted of a homepage with links to department sites (basic HTML created by the departments themselves), industry links, and company news.

In 2000, the company recognized there was a serious business need for customers to access their accounts online through the SCANA external website, so a major initiative was begun to build out the external sites. The intranet project was coupled with that larger project, and an updated version of the intranet was born. This intranet, a precursor to the company's current site, was a portal intended to aggregate information and was custom built in-house. The project also included building the company's first CMS system, created by the internal team.

The redesigned intranet launched in May 2009, utilizing SharePoint functionality as a platform. It featured a highly customized look and feel, along with custom Web parts for additional functionality.

In the beginning, the SCANA intranet was mainly a communication tool, but over time it has grown to include more functionality and transactional elements. The site has also evolved, morphing more task-oriented functions into online applications that serve employee needs across a variety of areas. With the most recent intranet conversion project—moving the site to the SharePoint platform—the intranet has grown to include more employee-contributed content and the ability to decentralize content contribution to content owners across the company.

Future Plans

In early 2010, the SCANA team will embark on Phase II of the site redesign. This phase will expand the site to include many features that couldn't be included in the first project due to time or budget constraints. Phase II will also address employee requests for new functionality.

Some of the features that will be added in Phase II include the ability for employees to:

- comment on and rate videos and news items;
- create a customized *My Links* section that includes internal links, Web applications, and SharePoint team sites; and
- add topic-specific and business-unit-specific news streams to the homepage.

During Phase II, the company will form a Governance Committee consisting of intranet stakeholders, including high-level managers from Corporate Communications, IT, HR, and other company areas. The intranet team will work with this group to develop a three-year strategy for the intranet, prioritize all large intranet requests, and drive the intranet's strategic direction.

INTRANET TEAM

As in many companies, the SCANA full-time intranet resources are minimal, consisting of just one intranet strategist; other staff members support her as needed.

On the tech side, a Web development team supports the intranet and external customer-facing sites, and an internal IT team manages all internal servers, internal Web applications, and the SharePoint team site environment.



Pictured: The SCANA intranet team (from left to right, back row) Adam Youngblood, Eddie Flowers, Andrea Peterman, and Dean Keith; (front row) Don Rozier, Nicole Mclean, Christy Season, and Matt Reinhart; (not pictured) Therese Griffin, Troy Stockman, Carl Russell, Greg Dubose, and Keela Middleton.

Ownership

The intranet strategist resides in Corporate Communications. The site is owned by Corporate Communications and managed in a close partnership with IT; it also receives continuous input from HR.

“The intranet has found a home in Corporate Communications,” says Therese Griffin, Manager, Corporate Communications & Philanthropy. “As one of the most used employee channels, the goals of the intranet are now aligned with the goals of our employee communications function.”

Corporate Communications strategists provide content for the intranet and drive communications strategy for all employee communications initiatives.



Pictured: An example of a corporate-wide strategic initiative: the *Corporate Campus Site*. Corporate Communications owns and maintains this site, which lives on the *About SCANA* tab. The strategic initiative sites are more graphical and interactive. This site focuses on the company's new campus construction and includes interactive graphics, a discussion board, construction photos, a live webcam feed of the construction site, and monthly updates via *Campus Spotlight* videos.

Internal Teams Know Best

While many companies engage outside agencies to augment their internal team's capabilities, SCANA found that their own internal team had a better grasp of the company, employees, and employee needs than any outside vendor could.

Because only one full-time staff member supports the intranet, many other people contribute to the site on a part-time basis as follows.

In-house project team:

- 1 intranet strategist (80 percent dedicated)
- 2 Web designers (50 percent dedicated)
- 4 IT developers (30 to 75 percent dedicated)
- 1 IT project manager (50 percent dedicated)
- 2 Communications strategists (25 percent dedicated)

Manager/supervisor support:

- Manager, Corporate Communications & Philanthropy
- Supervisor, IT Developers
- Supervisor, Web Developers

GOVERNANCE

Adopting the SharePoint platform let the SCANA team decentralize all of the individual department sites that were previously managed through Corporate Communications. On the prior intranet, approximately 40 department sites and all of the sites' content was managed and maintained through Corporate Communications.

Prior to SharePoint, the workflow for making changes to these sites went something like this:

- An internal customer contacted Corporate Communications to request an update or edit to a department site on The Edge.
- Corporate Communications tasked the request up to the Web development team.
- The task was prioritized with all the other internal and external Web updates in the queue.
- After the task was completed, Corporate Communications was notified.
- Corporate Communications ensured the task was completed correctly and notified the customer.

Given the multiple steps required to make changes, even a small change such as a link-update request could take upwards of a week or two to complete. “As more departments wanted their own sites on The Edge, the management of the sites became a resource bear for Corporate Communications and departments weren’t given the timeliness needed,” says Griffin. “With the new intranet and the SharePoint platform, we were able to completely decentralize content ownership for all of the Department Sites.”

Governance in a Regulatory Environment

Because SCANA is a regulated utility, it must follow certain legal restrictions or risk heavy fines. This poses a challenge for allowing collaboration on the company’s intranet.

“One major restriction we have to be very aware of is that the marketing groups of our company cannot communicate certain information to our transmission employees,” says Griffin. “These communications are regulated by the Federal Energy Regulatory Commission.”

Understanding this separation requires a little background; as Griffin explains, “When SharePoint was initially installed, because of its collaborative nature, it was built on separate servers, housing different groups’ sites on different servers, so the high-risk groups’ SharePoint sites were heavily protected, thus preventing the wrong type of collaboration.”

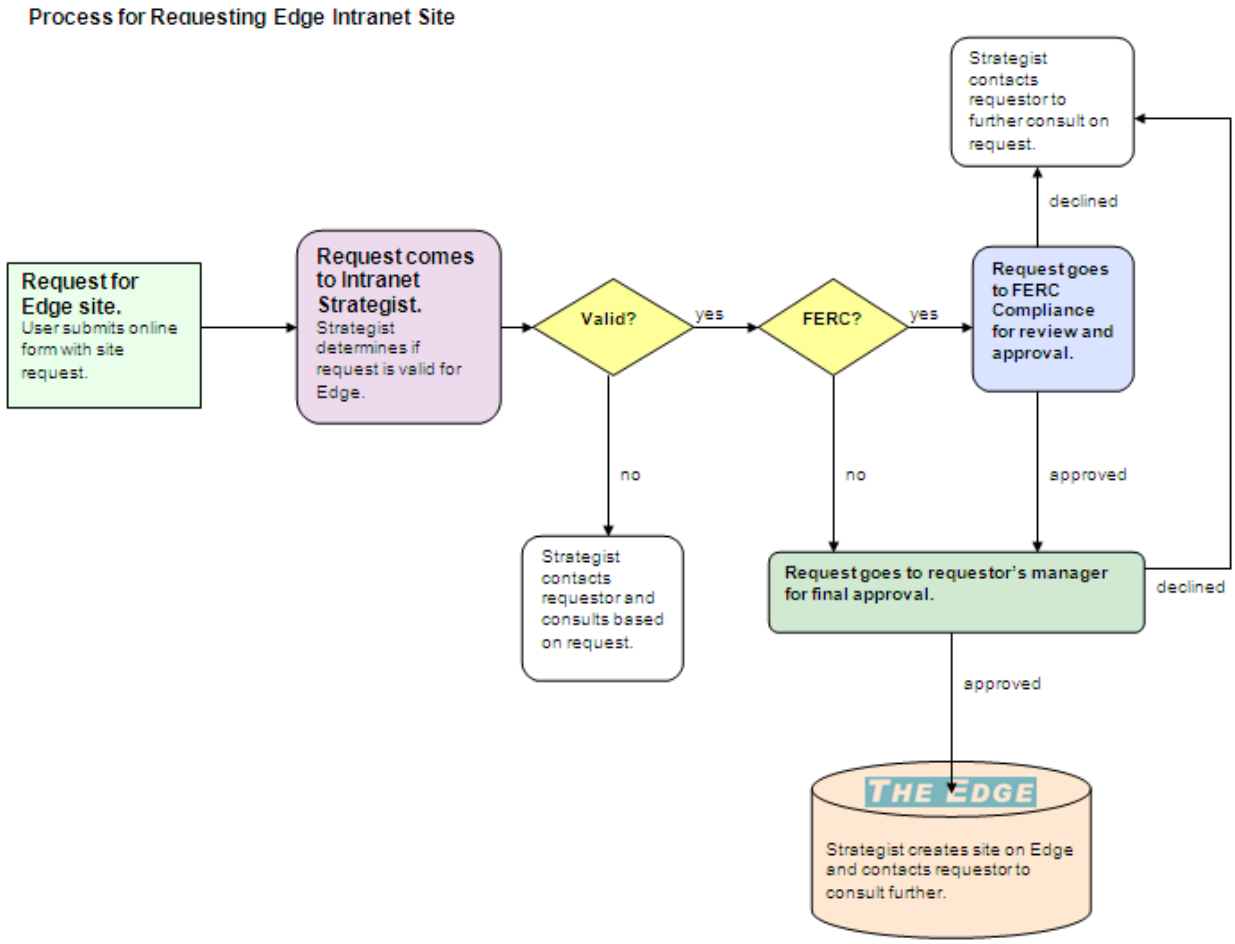
During the planning stages for the new intranet, it was decided that The Edge would be a place for corporate-wide information and functionality that all employees could access and use. And any team-specific site or information would belong in the existing SharePoint team site/collaboration environment where risks of violations are mitigated.

Separating Content Between Sites

Because the company wanted to separate company-wide content from team/collaboration content, it first had to examine the existing content and decide whether to put in on a SharePoint team site or on The Edge.

First, the team delineated between the intranet, The Edge, and the existing SharePoint team/collaboration environment. SharePoint was initially implemented several years prior as a project-management and team-collaboration tool. But since its inception, use of the tool had grown, so several groups had department-specific sites where they could collaborate on documents, project management tasks, and so on.

So, after establishing guidelines governing which sites belonged on the new intranet and which should be team collaboration sites (accessible only to a specific department), the project team evaluated each department site and determined whether it should convert over to the new Edge or be moved into the SharePoint team environment. The chart below offers a glimpse into the process they used for making those decisions.



Pictured: This flowchart shows the SCANA Team's process for determining whether a site belonged on The Edge or in SharePoint team sites. FERC stands for the Federal Energy Regulatory Commission.

For each existing site that belonged on the new intranet, the team identified a "site owner" who became a liaison between Corporate Communications and the site owner's department.

"We pulled all of the site owners together into a group we call the 'Site Owners Community,'" says Christy Season, Intranet Strategist. "We met with this group throughout the conversion project, introduced them to the project, explained the role of a site owner [see table below], and trained them on how to rebuild their old site on The Edge into the new, converted Edge."

The team set up a SharePoint team site for this group of site owners and provided them with training materials, best practices resources, a style guide, a content guide, a site owner's user guide, and a question and answer discussion board.

"We started each department off with a template for their site on the new Edge," says Season. "After attending a training session, the department site owner converted their old site into the new Edge. We continued to meet with the group as needed throughout the project to touch base or to individually help with any issues, but each site was created for the most part without the assistance of Corporate Communications Web developers."

Today, the site owners entirely own and maintain all department sites. The team plans to audit the sites with the group of site owners twice per year to ensure that all the style and content guidelines are being met. “This effort was probably one of the biggest wins of the project,” says Season. “It freed up our resources to focus more on strategy and corporate-wide initiatives and created ambassadors for our intranet.” It also empowered the site owners and was a real win for the departments who can now post and update content in a matter of seconds as opposed to a week.

The following table shows the roles and responsibilities of the various constituents involved in the SCANA intranet and the ownership role they play in keeping the site fresh.

INTRANET TEAM GOVERNANCE RESPONSIBILITIES	
Role	**Responsibilities**
Intranet Strategist	• Manages all intranet security, ensuring permissions are granted correctly and consistently • Manages Site Owners Community and keeps the group's website updated with style guides and best practices • Trains members of the Site Owners Community • Facilitates new site requests for the intranet and determines which sites belong on The Edge (and which belong in the SharePoint collaboration environment) • Facilitates semi-annual site audits • Conducts quality testing and site reviews on new sites and provides content updates on Corporate Communications' managed sites • Measures and tracks intranet Web analytics
E-Communications	• Ensures consistency with style and templates when building out sites • Ensures navigation is consistent throughout site • Participates in intranet audits
Communications Strategists	• Develops content for pages owned at the corporate level and provides oversight • Often proofreads corporate-wide information before it's posted to the intranet • Participates in intranet audits • Reports Web analytics to internal customers
Department Site Owners	• Manages and updates their department site • Serves as point of contact for the site • Participates in site training • Participates in Site Owners Community meetings • Participates in yearly audits • Acts as an intranet ambassador

TIMELINE

The site conversion took approximately two years to complete, from planning/testing to launch. The table below outlines the deliverables and project milestones as the project progressed.

INTRANET CONVERSION TIMELINE	
Milestone Date	**Milestone Description**
Late 2006	Presentation to senior-level management to get project approval
2007	**January–March** Usability testing with employees (card sorting exercises, one-on-one interviews, field studies) **Summer** Developed site architecture/taxonomy Built wireframes Created site design/color scheme **Fall** Developed business case and business requirements documentation **Late 2007** Intranet strategist performed business requirements walk-through with IT
2008	**January–April** IT feasibility and estimates documentation, tweaked business requirements as needed **May** Intranet build project kick-off **August** First meeting of Site Owners Community **September/October** Site owners training
2009	**April** Began employee communications about upcoming new intranet Corporate Communications review Pilot group testing of new intranet **May** Launch **Fall** Post-launch survey sent to employees

GOALS AND CONSTRAINTS

Starting with Many Challenges

Before the SharePoint conversion, the team was faced with an intranet with many challenges. It was a 10-year-old homegrown system with no site-wide search beyond a people search and no Web analytics. It had little to no content decentralization and was very reliant on technical resources. It was also somewhat inflexible and didn't support functionality that users were beginning to expect, such as blogs and employee-generated content.

"We as a team felt these pain points, but also received feedback from employees on our communications survey that intranet usage was increasing, but [that the site

was] cumbersome to use," says Season. "We wanted to address these issues and provide employees with the necessary business tools and resources to improve productivity and efficiency with his or her day-to-day work functions."

Dealing with Many Constraints

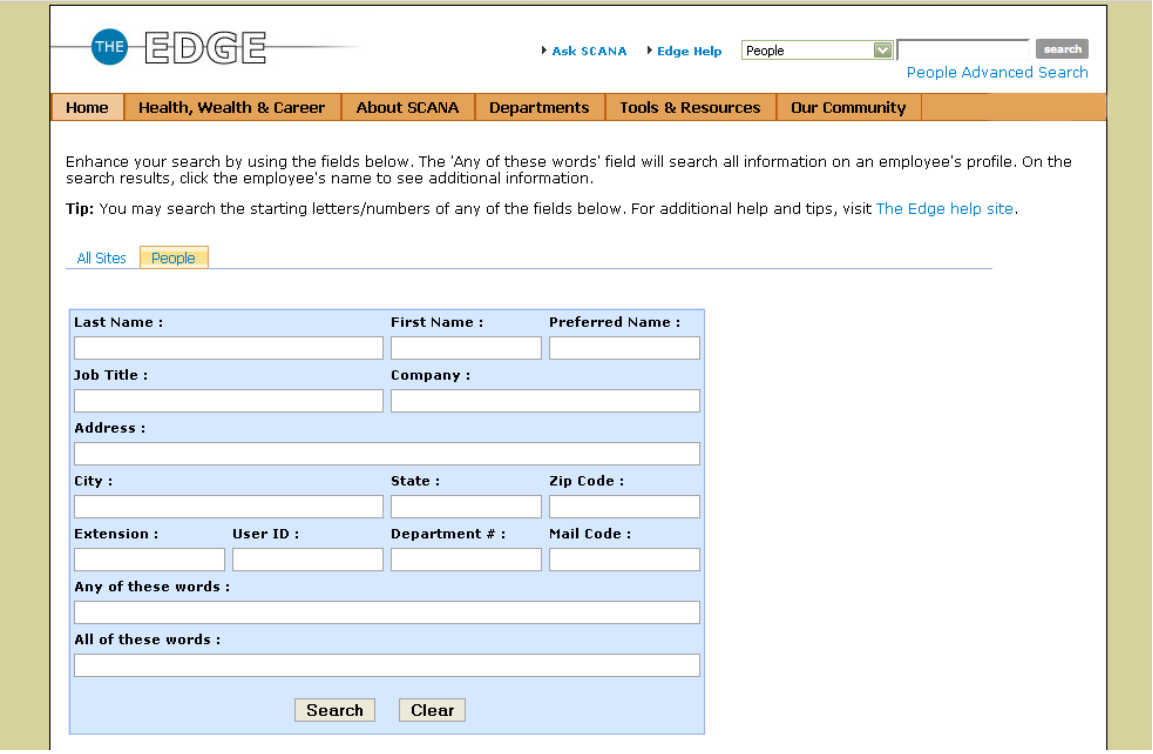
Budget was a significant hurdle for the team, but it was not the only one they had to contend with along the way. "We had no budget to fund our project," says Season. "This forced us to be more creative with our solutions and was one of the main factors in a lot of our decision-making." One of those decisions was to choose SharePoint as the intranet platform, mostly because it was already in use as a team site collaboration tool and the company already owned a license.

The team was also severely resource constrained. Season says that none of the project's team members were 100 percent dedicated to the project. "With our IT resources also responsible for a lot of day-to-day server maintenance and the SharePoint team collaboration site environment, if a server went down or an issue arose with a higher priority, we would lose our IT resources off of the project for days at a time," she says.

SharePoint itself also presented roadblocks and constraints throughout the project. "We often had to alter business requirements or find alternative solutions to some of the functionality we wanted because it just wasn't possible in SharePoint," says Season. "Sometimes we had to spend extra time on developing new, custom solutions because of the way SharePoint behaves out of the box."

"For example, on our headlines listing, the addition of images to an article using SharePoint 'out of the box' created multiple pop-ups and wasn't intuitive for a non-technical user," says Season. "Our IT developers built out a custom solution that added about two weeks to our timeline."

"Another example was with our *People* search functionality. SharePoint 'out of the box' does not list the *People* search results in alphabetical order," she says. "Our IT developers spent about two additional weeks customizing the *People* search to sort the results alphabetically as employees would expect to see them."



Pictured: The advanced *People* search page. The page provides multiple fields by which employees can search the employee directory.

USERS

SCANA intranet users include a variety of job functions:

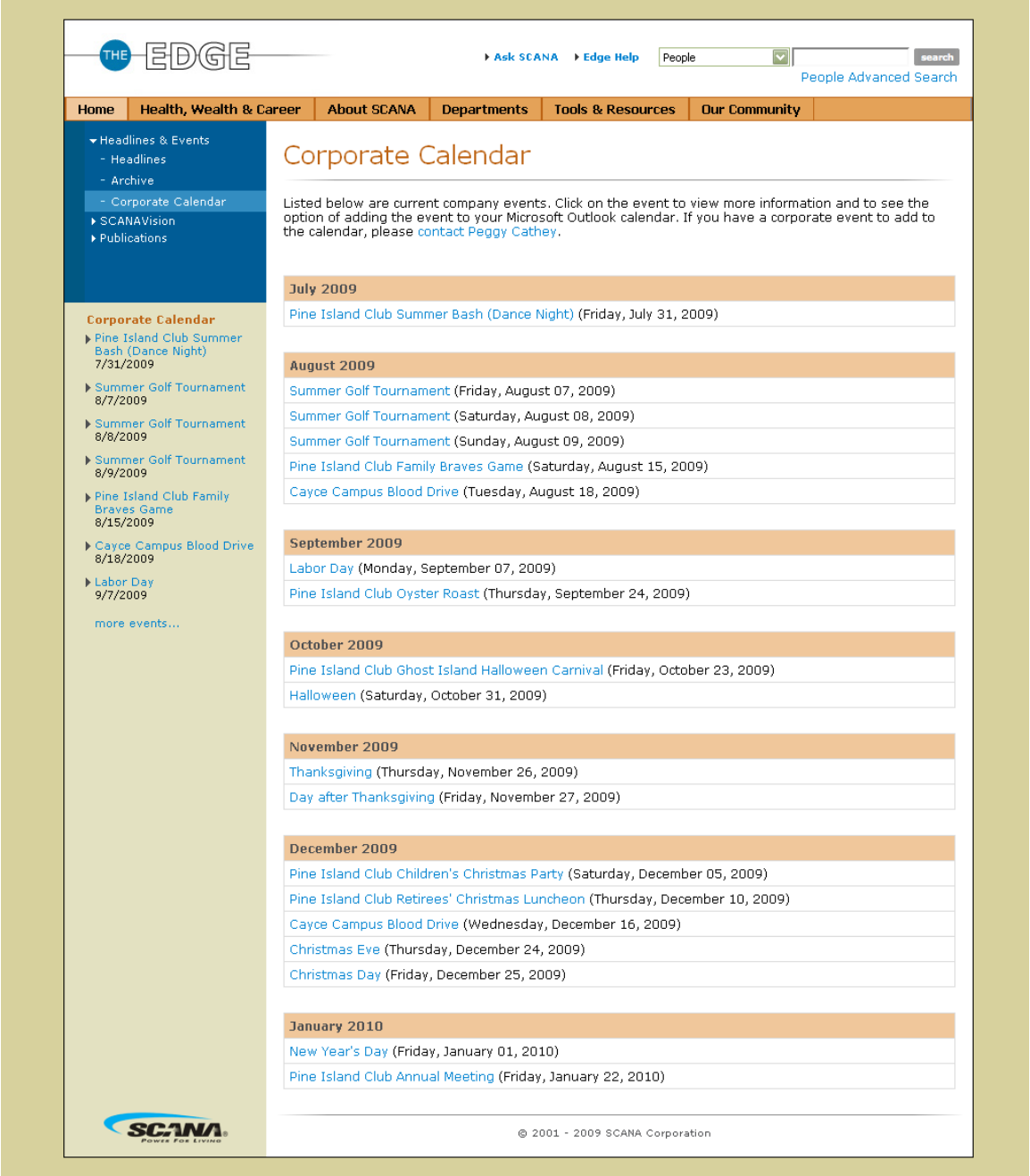
- **Office employees.** These employees have desktop computers, work in an office environment, and access the intranet both via their computers at work and remotely from home.
- **Contact center employees.** Contact center employees support customer inquiries via phone, online, or in business centers. They also access the intranet via desktop computers at work and remotely from home.
- **Field employees.** These employees include line workers, journey workers, and service personnel who access the intranet via shared computers at base locations and remotely from home.
- **Plant employees.** These employees work in electric generating plant environments and access the intranet via shared computers in break rooms and remotely from home.

USER TASKS

User tasks on the SCANA intranet include:

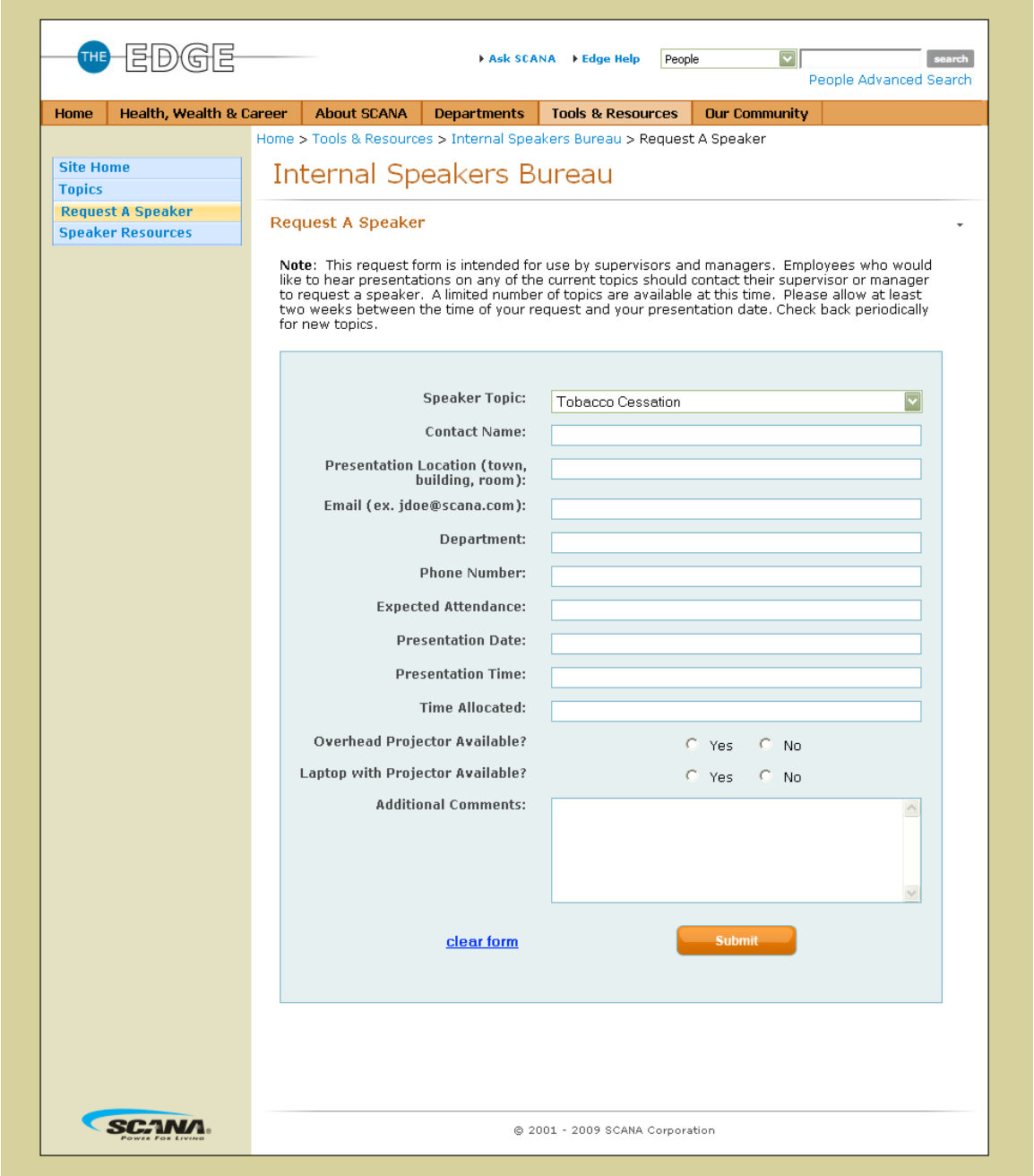
- Search for employees and view reporting hierarchy
- Search the intranet
- Search external customer sites

- Search externally via Google
- Obtain direct access to personal benefits information including the benefits enrollment process via a direct link to PeopleSoft
- Post a question to a Q&A feedback website
- Comment on blogs
- Post to discussion boards
- Take a survey or poll and view results
- Watch videos, including live Web feeds
- Populate, design, and modify a designated site or content section (content editors)
- Access Web-based administrative business tools including travel requests, time reporting, expense reports, vendor purchasing, and open positions
- Access Web-based personal employee information and transactions including 401(k) balance, performance management application, vacation time balance, pension summary, training history, paycheck direct deposit info, personal contact info, and compensation history
- Add a company calendar event to a personal Outlook calendar



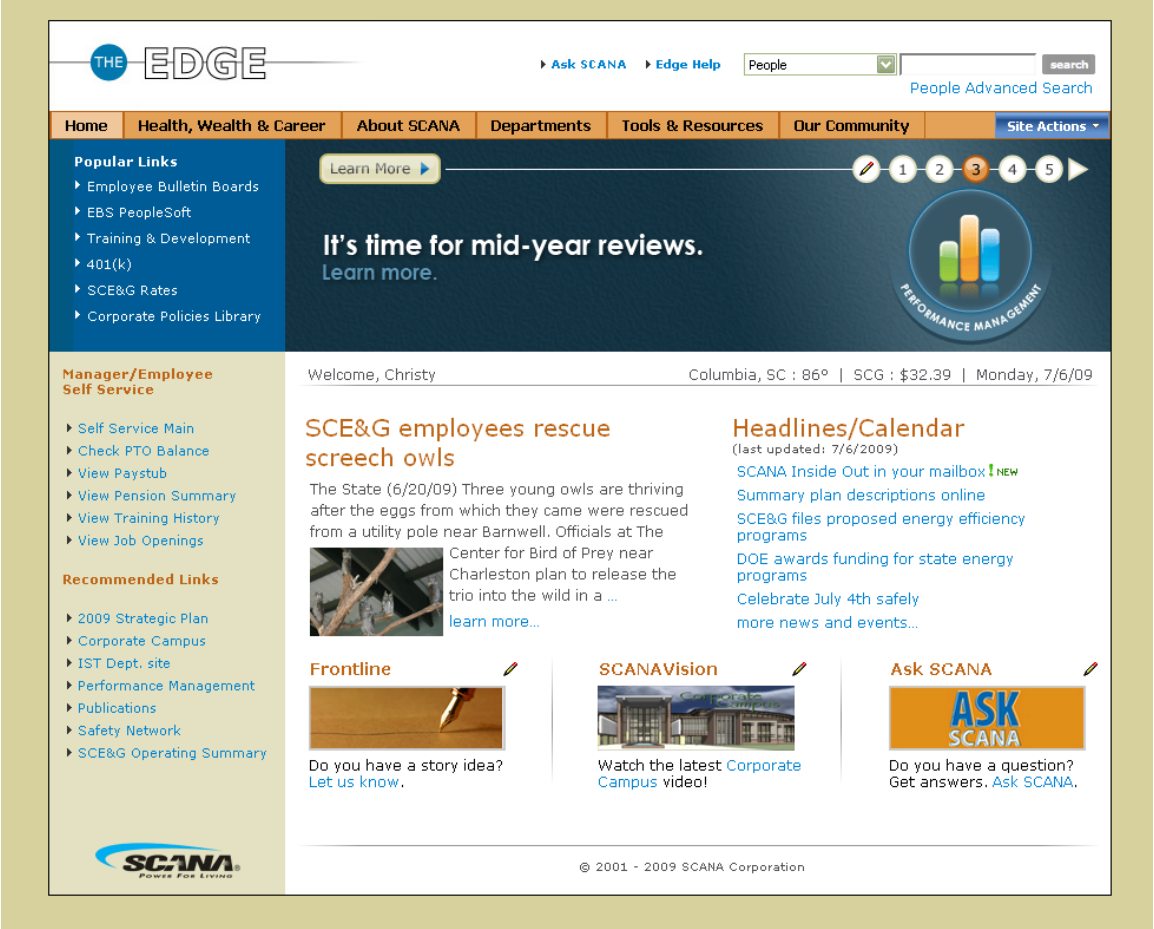
Pictured: This screen shows the *Corporate Calendar* listing of upcoming company events. If an event has passed, it falls off of the view. Clicking on the event title opens the event details display. The list of events on the left side displays on all pages within this section. Events can include multiple attachments and use reoccurrence functionality. Employees can add events to their own Microsoft Outlook calendar.

- Find and register for training courses and computer-based training
- Access various forms, including those to request a facility, request a speaker for a meeting or organization, and submit a print job



Pictured: An *Internal Speakers Bureau* request form. All forms on the intranet have the same look and feel. Employees fill out the form, click *Submit*, and then view a confirmation message. The information is also sent via email to the employee who facilitates the requests.

- Look up driving directions to a facility
- View photos in a photo slide show
- Sign up or post a company carpool for work trips



Pictured: An *Editor View* of the intranet homepage. Clicking a pencil icon takes users to the edit screen for the associated content.

DESIGN PROCESS AND USABILITY ACTIVITIES

Season attributes the success of the SharePoint conversion project to the employee feedback activities that the team conducted throughout the project. "We performed several usability tests prior to our intranet conversion project and ran a pilot testing group directly before launching." Other user activities included:

- **Card sorting:** Fall 2006, just prior to intranet conversion project
- **One-on-one interviews:** Fall 2006, prior to intranet conversion project
- **Communications survey:** Summer 2007
- **Pilot testing:** April 2009, just prior to launch
- **Intranet feedback survey:** October 2009 (as of this writing, team members are facilitating a feedback survey that asks questions about the new Edge; they're planning to use the feedback to help plan for the site's Phase II project and future enhancements)

As the following sections describe, the team used various methods to engage users in the design process.

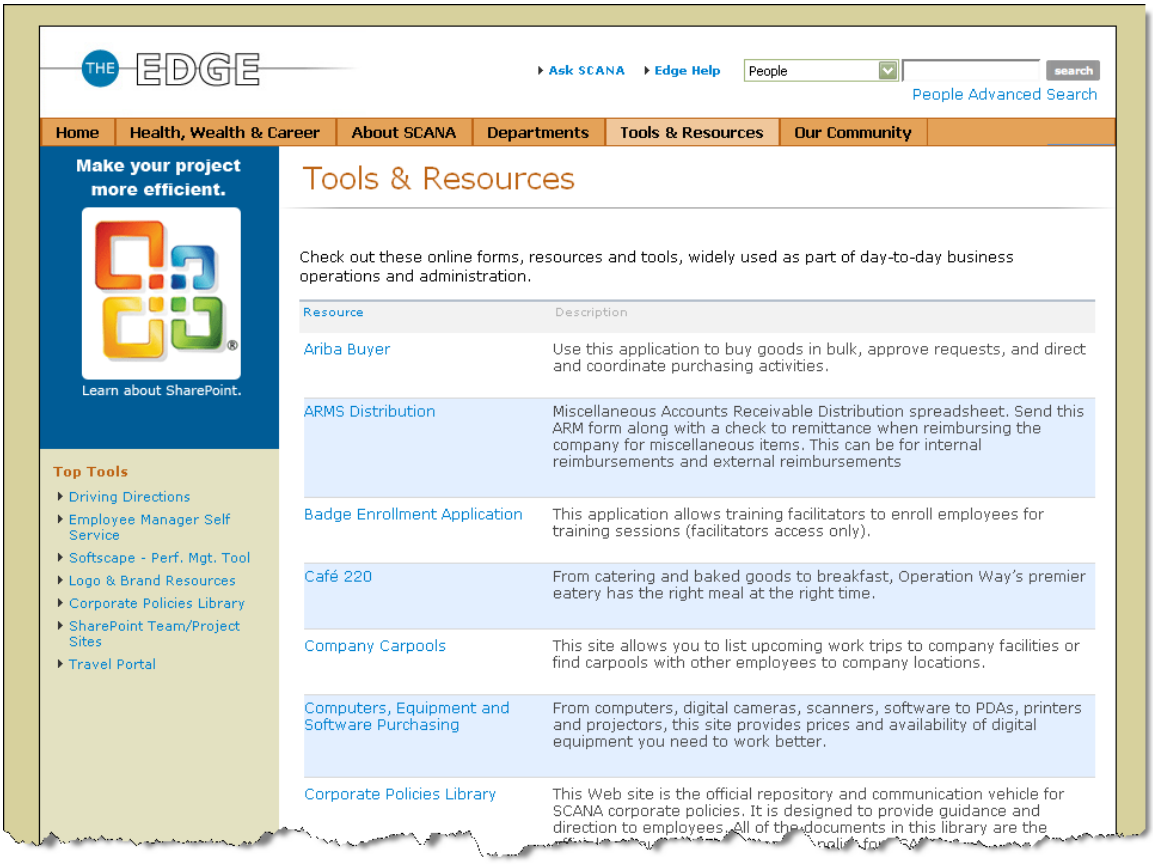
Card Sorting

For the card sorting exercise, the team recruited approximately 50 employees who were chosen to represent the demographic of the employee base as a whole.

Team members wrote the name of each intranet site on an index card, shuffled the cards, and placed them in a stack on a table. Employees then came in, one at a time, and were asked to group the cards logically in a way that made sense to them.

"The information we got from this exercise was the main input into how we organized our content," Season says. "This was the main driver for the top-level content sections of our new intranet. We were surprised to find that, for a lot of the sites, employees didn't even know what was on them or what information they had. A lot of the employees who participated set aside many of the cards in an 'I don't know what this is' pile. This gave us the idea to include short descriptions on the department sites listing and in the *Tools & Resources* sites listing of what employees could find on each site."

"It's much easier now to browse the list of tools and read descriptions on what each tool is for without having to navigate to the site and try to figure it out," she says.



Pictured: The main page for the *Tools & Resources* top tab. This tab features links to websites and applications that employees use often for job-related tasks and transactional type functions. Each link is listed alphabetically, with a short description of the tool to the right. The image on the top left is a tool promotion; the space rotates and can fit multiple images to promote different tools.

Face-to-Face Interviews

To gather in-person feedback from company employees, the intranet team traveled for two weeks to different locations in the company's service territory and conducted one-on-one interviews. They asked the employees questions about the old intranet and observed how those participants used the site. The team probed participants about certain aspects of the site, asking questions such as, "Do you know where to find information about your medical benefits?" and "What do you wish was on the intranet?" Through this exercise, the team obtained job-specific information on how employees were using (or would use) the intranet.

"This exercise identified a lot about the lack of ability to find information in a timely manner on our previous intranet," says Season. "We also heard from some of the newer employees that, when they joined the company, they wanted to learn more about SCANA and its SBUs, customers, etc."

On the previous intranet, such company information was limited. On the new intranet, the team included more comprehensive company information so employees could learn about the company and its history. Also, each SCANA business unit has its own information page highlighting its leaders, types of customers, service territory, plants, and so on.



Pictured: The main page in the *About SCANA* top tab. This tab features information about the company and its business units organized in three categories: *SCANA Corporation*, *SCANA Subsidiaries*, and *Strategic Initiatives*.

"We were also able to identify through this exercise that a lot of employees did not recognize *MySCANA* as the site to visit for health, benefits, and career information," says Season.

As on the old intranet, the company's health, wealth, and career HR information is a major navigation tab on the new intranet. "During the field studies when we watched employees use the intranet, we found that a high percentage of employees didn't automatically connect the term 'My SCANA' with health, wealth, and benefits information," says Season. "This was especially true with newer employees. It often left employees clicking around the intranet, looking for this information instead of knowing that the link 'My SCANA' would take them there."

"So, on our new intranet, we named the top-level tab 'Health, Wealth & Career' to make it more intuitive for employees that the HR-related information lies on that tab. Once you navigate to the page, the information is still branded as 'My SCANA,'" she says.



Pictured: The *Health, Wealth & Career* tab, which contains all of the HR benefits, perks, and development opportunities for employees. This layout organizes all information by topic. The headings of each grouping of links are links as well, and will underline when moused over (as do all links on the intranet). Below the revolving image is a *Top Tasks* list. These are transactional PeopleSoft links that open PeopleSoft in a new window; once the user logs in, he or she is taken directly to the link's information or transaction.



Pictured: An example of the site's left-hand navigation.

Pilot Testing

About a month prior to the site launch, the intranet team conducted pilot group testing on the intranet. Team members recruited volunteer participants from the company's Marketing & Communications department, IT department, and employees across the organization into a 150-member pilot group. A SharePoint team site was created and discussion board was prepopulated high-level topics. "We gave the pilot group access to the new intranet and the link to the SharePoint team site," says Season. "For a week, the pilot group navigated the new intranet and posted feedback to the discussion board."

The exercise proved effective for the team. "We were able to catch a lot of typos, broken links, etc., that we had overlooked," says Season. "We also got some great feedback on different sites and were able to improve some things we didn't think about."

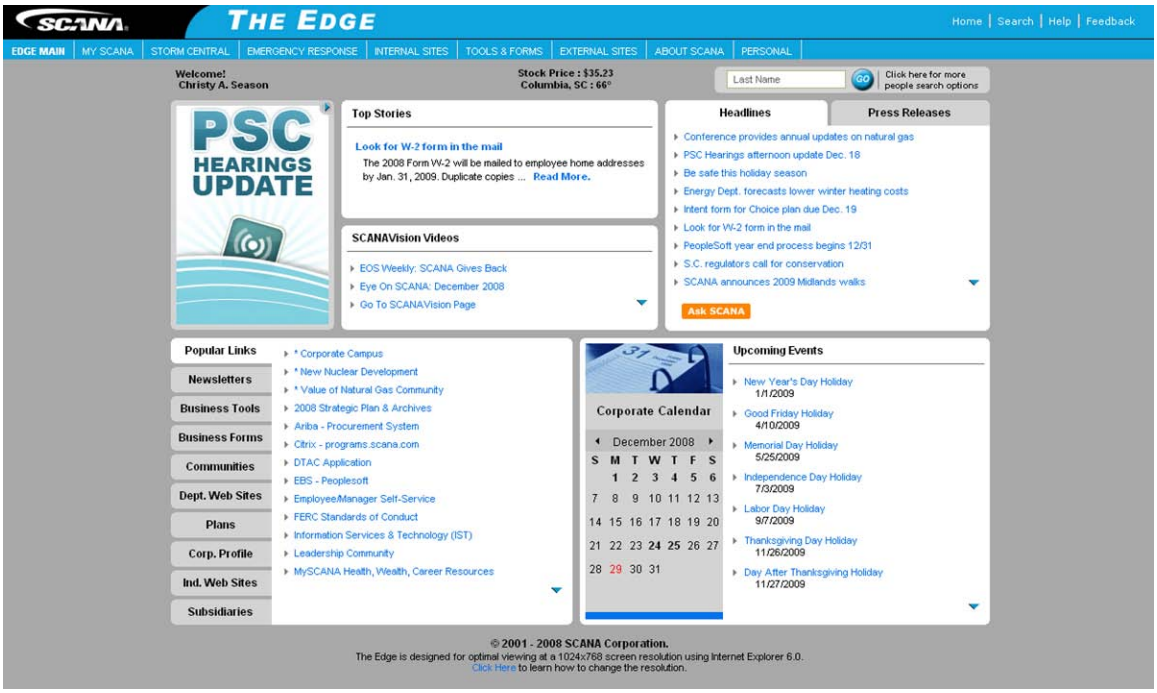
The team enlisted this same group to help them communicate the launch of the new site. The pilot group acted as ambassadors to encourage other employees to use the site. "We sent out stickers to everyone in the pilot group prior to launch that said: 'Ask me about The Edge'," says Season. "The group wore these stickers on launch

day and helped answer any questions for their co-workers related to the new Edge since they had prior experience using the site."

Recycling

Intranet teams with no budget often use creative measures to access research to help inform their design decisions. Just prior to the intranet conversion project, all of SCANA's external sites had been redesigned by a third-party agency, which conducted extensive usability studies with customers and employees on the external customer-facing sites. Because the intranet project had little budget of its own, team members recycled what they could of the lessons learned from that project for use on the intranet. "For example," says Season, "the expandable navigation is taken from usability studies/results from our external site."

Also, on the company's previous intranet, all of the promotional images used were unique sizes. For the new intranet, the team decided instead to use images that were similar in sizing to the external sites' images. This lets the team recycle a lot of the imagery used on the external sites on the intranet. "Our company gets more bang for the buck with photography and graphics purchases," says Season, "And our Web designers have more options to choose from when creating images for the intranet."



Pictured: The SCANA intranet prior to redesign. There was no robust way to find information on the site. Employees could search people, but there wasn't a comprehensive intranet content search. To find information, employees had to click around or ask other employees for help. Corporate Communications managed all 35-plus sites on the *Department Sites* tab, along with all of the other intranet content. IT controlled the homepage format, so layout updates required IT resources and an extended lead time. The old intranet had no Web analytics, so the *Popular Links* were not truly popular, but rather were links that Corporate Communications pushed out. The design was also too limited for the growing needs of Corporate Communications. An overhaul was long overdue.

URL AND ACCESS

Users access the SCANA intranet at: http://eportal.scana.com. The site is every user's start page.

Remote users access the site through the Web interface by logging in with their corporate credentials. After logging in, users are presented with a menu screen with links to the most commonly used work tools and links to access private and shared directories. The intranet, The Edge, is the first link they see.

In company's locations where employees spend more time in the field than in the office, the intranet is accessible through shared computers that are set up in break rooms. These rooms typically contain three or four computers that the field employees share.

TECHNOLOGY

The technology behind the SCANA intranet has evolved from Microsoft Digital Dashboard, which was a forerunner of SharePoint; to a .NET version of the site, which was developed in-house and is an internal application; to the current platform, SharePoint 2007. The next iteration of the site will be SharePoint 2010.

Dean Keith, the company's Supervisor IT Application Developers, says that one of the advantages of using SharePoint is that it has given Corporate Communications more autonomy from using IT resources for site architecture updates. With the previous version of The Edge, the team had to use IT resources to alter the top navigation or the homepage structure. Now, with SharePoint, the Web designers and intranet strategist can edit the site structure and architecture without involving IT staff.

"SharePoint also provides an intuitive CMS that allowed us to decentralize a great deal of content ownership on the new intranet," he says. "Departments now manage and update their own content, which freed up a lot of our resources and allowed departments to get information onto their sites in a more timely manner."

In addition to the benefits of decentralized content updates, on the tech side, "SharePoint has allowed SCANA to empower the designers while maintaining IS controls and safe guards," he says.

SEARCH

The SCANA intranet uses SharePoint's out-of-the-box search capabilities. Search was in fact one of the driving factors behind choosing SharePoint. "One of the main decision factors in using SharePoint as our intranet platform was that it had a pretty powerful search function (and search analytics) as an out-of-the-box functionality." says Season, "The ability to gain a powerful search without any additional costs or third-party licenses was a big win for us."

And, for a company that didn't have search on its previous intranet, just having search was a huge improvement. "Right now we are just very ecstatic to have search at all since our previous intranet didn't have a search," says Season.

SCANA has taken a very proactive approach to improving the search results that users receive. Through monitoring and incremental changes, the team is discovering where improvements are needed and where incremental changes can make a difference. The company tracks search queries and analytics on a weekly basis.

"We are continuously fine-tuning [search] by using the search analytics provided with SharePoint to see where there may be a need," says Season. "We really like the Best Bets feature with our search engine that allows us to preset links for keywords. We also like that SharePoint search will search inside of Word documents, PDFs, and PowerPoint presentations."

SharePoint's Best Bets keyword search function lets the administrator set up links that will display at the top of search results for a particular keyword. "We will track search queries and if a query trends high and does not have a Best Bet," says Season, "then we will set one up for that keyword." Every site on the intranet has a *Best Bets* link associated with it.

"We also track click-through rates of keyword searches," she says. "If a keyword is searched frequently but has a zero percent click-through rate, then we will reevaluate Best Bets for that keyword and the meta tags on particular pages."

Surprising Searches

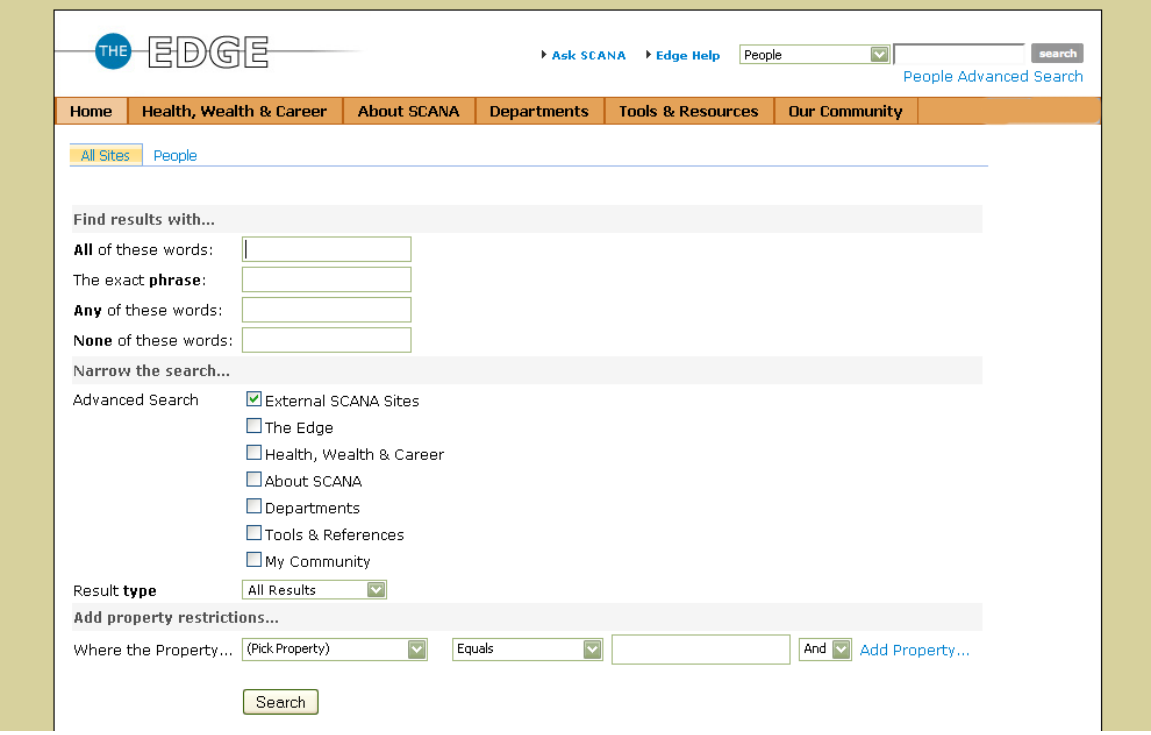
By analyzing search metrics and studying user behavior, teams often find surprising results, causing them to take a second look at their assumptions about user needs and existing content.

The SCANA team tracks the most popular keywords searched on the intranet to get an idea of what employees are interested in or are looking for. When doing so, they sometimes encounter something unexpected. "We were surprised to see 'email' begin to trend high as our most frequently searched keyword," says Season. "On our old intranet, we had an additional navigation tab called 'Personal.' On this tab, in a very small i-frame, was a Web view of the employee's email. When we originally conducted usability interviews, we found that most of the employees didn't even know the tab existed or used it. So we made the decision to not convert over this particular tab and feature."

It seemed like a sensible decision; the link wasn't very "user friendly" and all employees have Microsoft Outlook on their workstations to access work email. The team was therefore surprised to find that "email" was the most frequently searched keyword on the new intranet and that the associated Best Bet was the most frequently clicked one in the search engine.

"We were surprised because we deducted that employees didn't use the webmail feature while at work to access work emails, only remotely from home," says Season. "In response to this revelation, we are adding a question to our post launch survey going out to all employees in a two weeks to gauge just how many employees use the webmail environment while at work, and why."

"Based off of these results, we might possibly add back the *Personal* tab or some equivalent," she says.



Pictured: The advanced search gives users greater flexibility in narrowing down search results. They can also select just one major tab or multiple tabs/scopes to search.

CONTENT MANAGEMENT

The SCANA intranet uses an out-of-the-box implementation of SharePoint 2007 for most of its content management.

SharePoint's CMS also enabled decentralized content ownership. "Departments now manage and update their own content, which freed up a lot of our resources and allowed departments to get information onto their sites in a more timely manner," says Season.

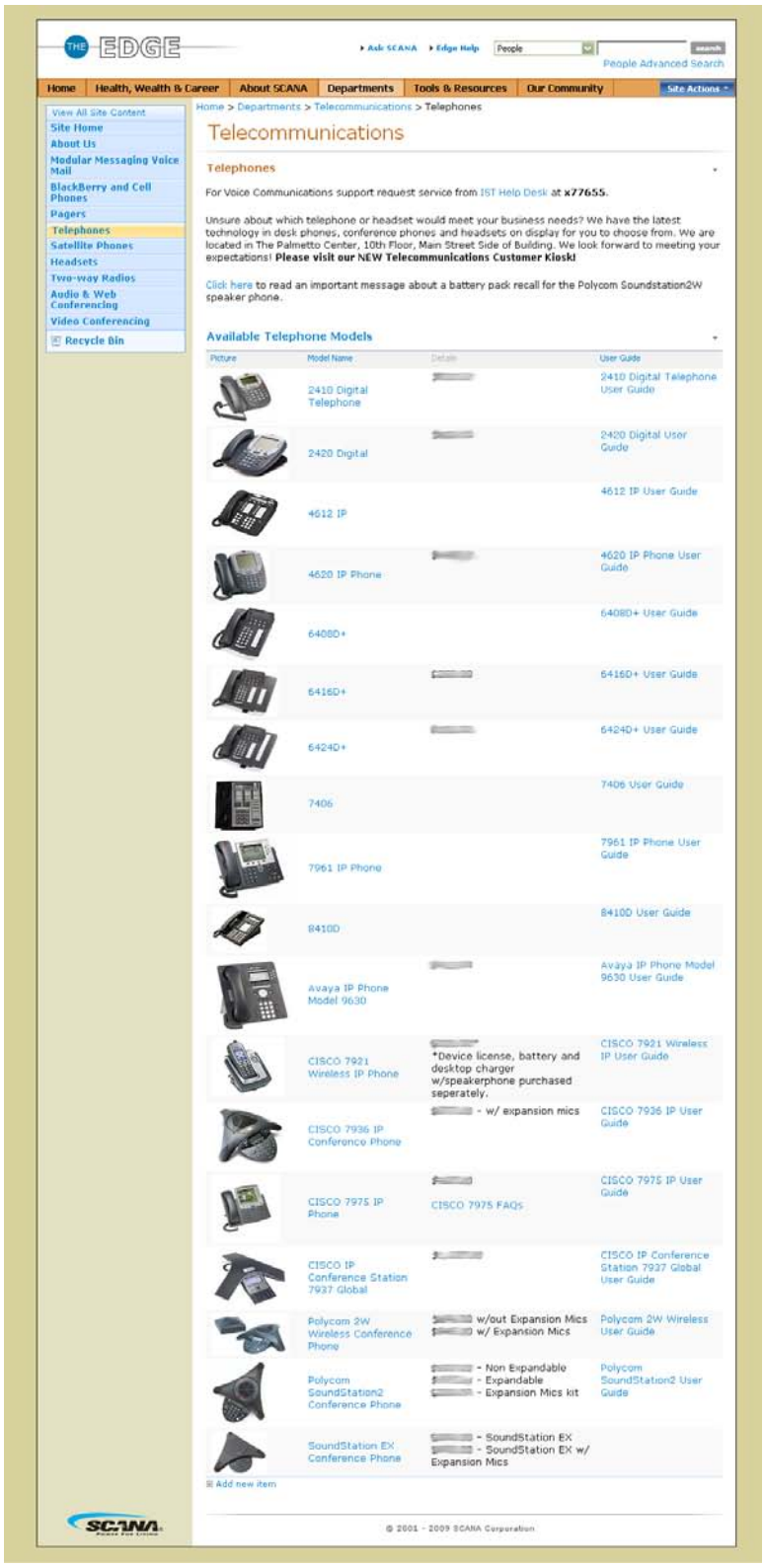
Updating the site starts with a basic template. All sites are consistent in structure, style, and design. "We have style guideline documentation for site owners that gives them guidance on the correct fonts, font sizes, and guidelines on picture dimensions and types," says Season. "We also provide the site owners with a prepopulated directory of approved images and photos to use on their sites."

A style guide defines a consistent writing style across the site, including for presenting dates, company locations, and so on.

"SharePoint as a CMS provides pretty good boundaries in site design, so site owners do not have the ability to change the look and feel of the site," says Season. "Most of our site owners are pretty empowered about their roles and have so far followed all the guidelines."

The team conducts audits at least twice per year. During those audits, they hope to identify any inconsistencies or guideline violations and correct them.

Training content owners has proven to be fairly simple because the company's department site templates tend to mimic the functionality of an out-of-the-box SharePoint team space. Most site owners are familiar with SharePoint team/collaboration sites, so they come to the intranet training with an idea of how to work in the tool. Season says developing the training and training materials was also easy because there's a wealth of information provided through Microsoft's website, on blogs, and so on that can help train people to use SharePoint as a CMS.


THE EDGE
Ask SCANA
Edge Help
People
search
People Advanced Search
Home
Health, Wealth & Career
About SCANA
Departments
Tools & Resources
Our Community
Site Actions
View All Site Content
Site Home
About Us
Modular Messaging Voice Mail
BlackBerry and Cell Phones
Pagers
Telephones
Satellite Phones
Headsets
Two-way Radios
Audio & Web Conferencing
Video Conferencing
Recycle Bin
Home > Departments > Telecommunications > Telephones
Telecommunications
Telephones
For Voice Communications support request service from IST Help Desk at x77655.
Unsure about which telephone or headset would meet your business needs? We have the latest technology in desk phones, conference phones and headsets on display for you to choose from. We are located in The Palmetto Center, 10th Floor, Main Street Side of Building. We look forward to meeting your expectations! Please visit our NEW Telecommunications Customer Kiosk!
Click here to read an important message about a battery pack recall for the Polycom Soundstation2W speaker phone.
Available Telephone Models
Picture
Model Name
Details
User Guide
2410 Digital Telephone
2410 Digital Telephone User Guide
2420 Digital
2420 Digital User Guide
4612 IP
4612 IP User Guide
4620 IP Phone
4620 IP Phone User Guide
6408D+
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6416D+
6416D+ User Guide
6424D+
6424D+ User Guide
7406
7406 User Guide
7961 IP Phone
7961 IP Phone User Guide
8410D
8410D User Guide
Avaya IP Phone Model 9630
Avaya IP Phone Model 9630 User Guide
CISCO 7921 Wireless IP Phone
*Device license, battery and desktop charger w/speakerphone purchased seperately.
CISCO 7921 Wireless IP User Guide
CISCO 7936 IP Conference Phone
- w/ expansion mics
CISCO 7936 IP User Guide
CISCO 7975 IP Phone
CISCO 7975 FAQs
CISCO 7975 IP User Guide
CISCO IP Conference Station 7937 Global
CISCO IP Conference Station 7937 Global User Guide
Polycom 2W Wireless Conference Phone
w/out Expansion Mics
w/ Expansion Mics
Polycom 2W Wireless User Guide
Polycom SoundStation2 Conference Phone
- Non Expandable
- Expandable
- Expansion Mics kit
Polycom SoundStation2 User Guide
SoundStation EX Conference Phone
- SoundStation EX
- SoundStation EX w/ Expansion Mics
Add new item
SCANA
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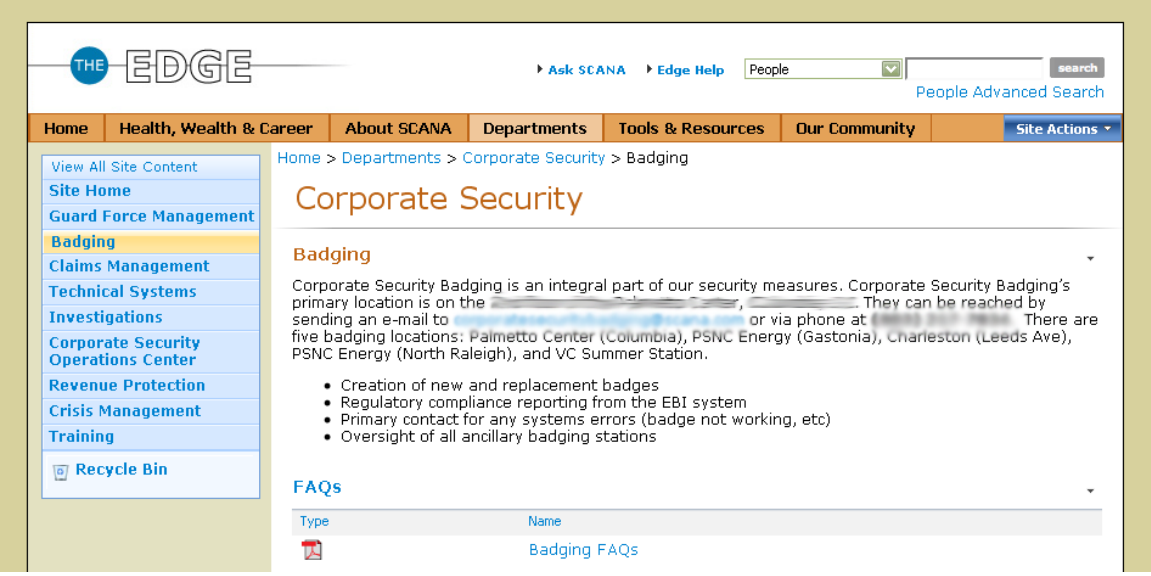
Pictured: The department site for the Telecommunications department. A site owner representative from the Telecommunications department built and maintains this site. The site uses a basic SharePoint template, so training was easy. Content management is also simple and intuitive for the site owner. This screen shot shows the editor's view of a Telecommunications site sub-page. The *Site Actions* blue tab on the top right, the *View All Site Content* in the left-hand navigation, and the *Recycle Bin* in the left-hand navigation are visible only to site owners.

Defining Site Structure and Ownership

The top tabs (the four major content sections) define the site's taxonomy and appear on every site. "For the department sites that are managed by the Site Owners Community, the template helps site owners stay within the bounds of the taxonomy, so they cannot alter or turn off the major navigation tabs at the top," says Season.

On the department sites, the local navigation always appears in the left column and each site has a homepage called *Site Home* that can't be changed. Site owners can create sub-pages, lists, or document libraries on their sites. Each site owner chooses how the information will be displayed on the left-side navigation, which they can edit.

"When we train the site owners on how to edit the navigation bar, we do speak specifically on best practices and train on what site owners should and should not do when it comes to the left-hand side navigation," says Season. "All of our training is also documented and available to site owners on the Site Owners Community team site."

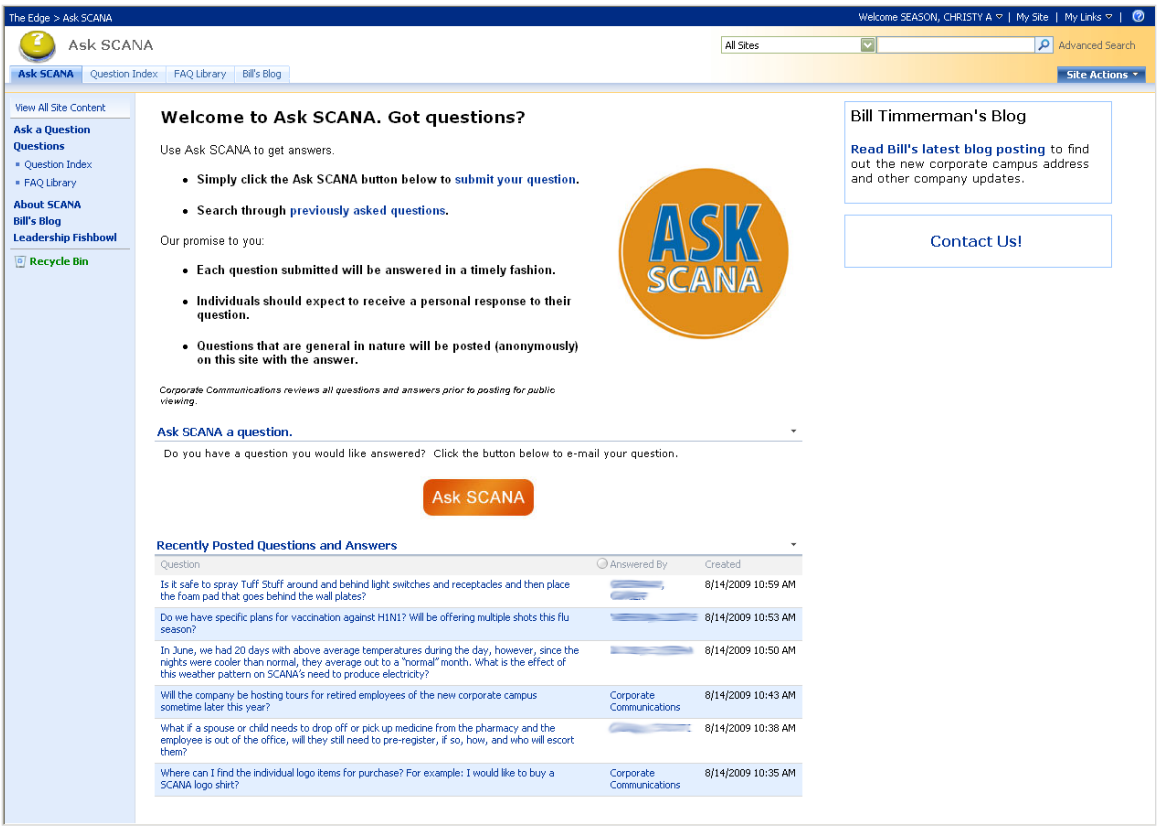


Pictured: An example of left-hand navigation and breadcrumbs on a department site. Such interior navigation for sites is managed by members of the Site Owners Community. The sites live on the *Department Sites* tab and the *Tools & Resources* tab.

FEATURES

Some of the intranet's main features include:

- ***Advanced Search*.** This page lets employees narrow their search through a combination of selection choices, including: search only one intranet tab, search multiple tabs at one time, or include external customer-facing sites along with particular section tabs.
- **Inline administrator functionality.** Users who are designated as editor of a particular site can perform inline editing; to this end, they see a *Site Actions* menu and/or editing pencil icons or editing links on content items.
- ***SCANAVision*.** One of the intranet sites, "SCANAVision," is dedicated to the company's video communications. The site is set up so employees can see the most recently added videos up front, or filter or search by keyword for a particular video. The videos are archived for future viewing and live Webcasts of events or meetings are also broadcast on this site. The company holds *Lunch N' Learn* Webcasts throughout the year that employees can watch from their desk via the site. The team also used this site for the intranet launch, giving a live Webcast tour of the new intranet for employees, highlighting the new features, and showing them how to make best use of the new tools.
- **Shortcut URLs.** Short URLs are a feature the intranet team uses to provide a keyword redirect to certain internal Web addresses. For example, for the *New Nuclear* initiative intranet site, they created a shortcut URL, "newnuclear," to point to the site. Users can thus type the shortcut right into their browsers (internally) and be redirected to the *New Nuclear* site. These shortcuts are set up frequently for SharePoint team sites and Web applications
- ***Ask SCANA*.** The *Ask SCANA* intranet site is dedicated to answering employee questions about anything company related. Employees can visit the site and click the *Ask SCANA* button to email questions. Corporate Communications then contacts a company expert to respond. The question is then posted to the *Ask SCANA* site (without the employee's name) and posted with the company expert's answer. The site also contains a link to the CEO's blog and a *Frequently Asked Questions* index, which includes links to all the topic-specific FAQs scattered across the intranet. A link to the *Ask SCANA* site is available on top of every site on The Edge.

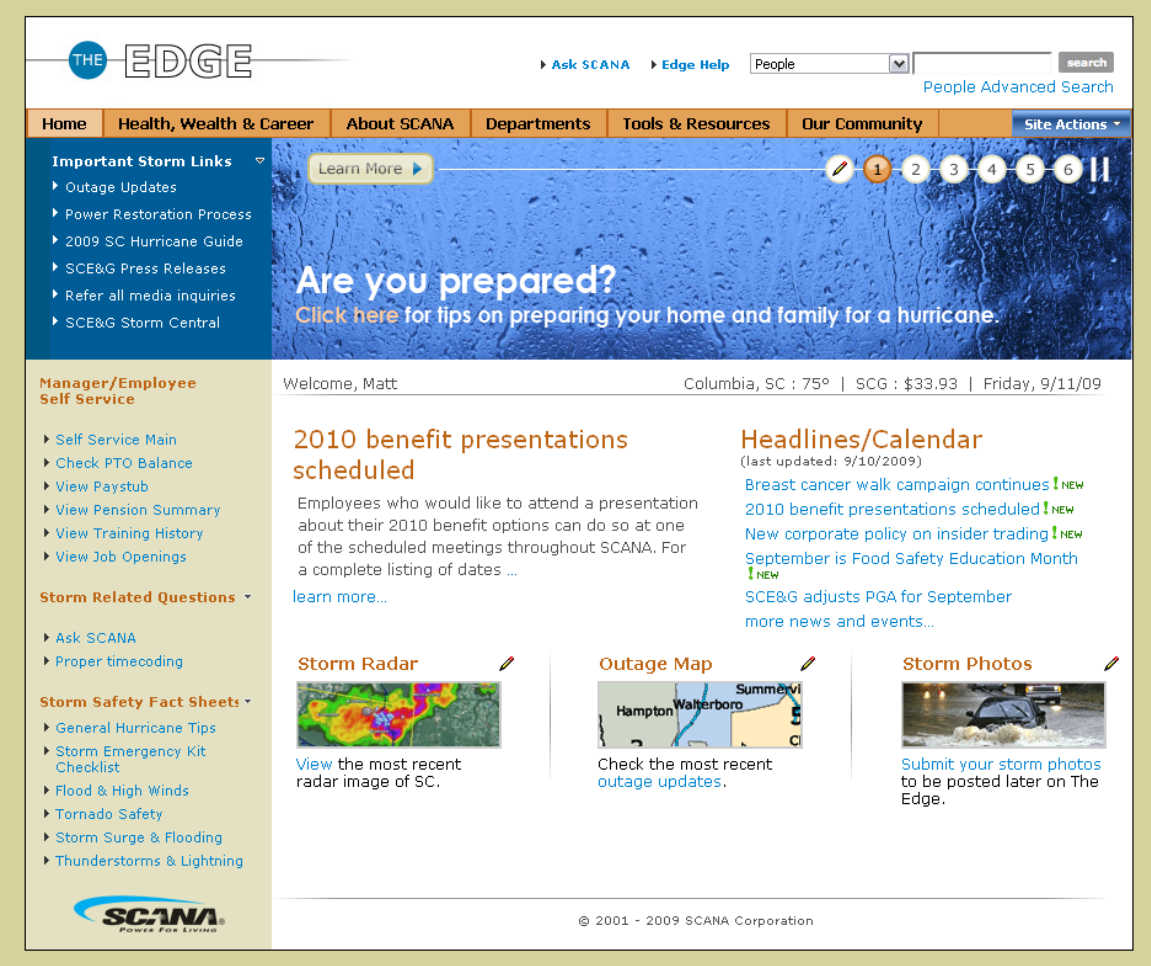


Pictured: *Ask SCANA* is the question and answer site for all employees. Employees can click the *Ask SCANA* button and ask a question about anything. Questions are sent to Corporate Communications via email; that department then forwards the question to a company expert for a response. Questions relevant to other employees are posted on the site and archived in the *Question Index* that categorizes questions by topic. The most recently asked questions are posted on the homepage.

- **Extensive help functionality.** The Edge *Help Site* contains detailed information and screenshots on topics such as how to navigate the intranet, how to use search, and so on. The site contains a discussion board where employees can post intranet-related questions or issues (such as broken links). Corporate Communications is notified when a new discussion is posted and can respond to help the employee. There is also a link that lets employees email the intranet team for further assistance. "This site was a big help during the first two weeks after we launched our new intranet," says Season. "We were able to identify a lot of glitches and problems right out of the gate and fix them before they became larger issues."

- **Storm homepage.** The company maintains a separate storm-specific homepage built so that they can easily activate it on short notice to take the place of the normal homepage. As a utility, storms are one of the company's biggest events and are the most critical time for employee communications. The storm site mimics the regular homepage's layout, but is prepopulated with important storm links, outage updates, and radar maps. The only content it inherits from the default homepage is the *Headlines* news items, which are frequently updated during a storm event.

  Along with up-to-date news and storm status, the storm site also features helpful information employees need, such as time codes to use during the storm, how to refer media to the company's Public Affairs department, and safety information for different storm situations. The site also has information where employees can offer up their homes to other employees who are forced to evacuate the coastlines during severe storm situations and hurricanes.



Pictured: A screenshot of the company's storm site, which can replace the intranet's default homepage on a moment's notice. The page is prepopulated and ready to go. It contains links to important information and tools that employees need during a storm.

THE EDGE

Ask SCANA | Edge Help | People | search

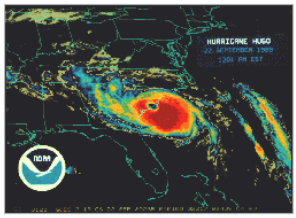
People Advanced Search

Home | Health, Wealth & Career | About SCANA | Departments | Tools & Resources | Our Community

- SCANA Corporation
  - Mission, Vision, & Values
  - Board of Directors
  - Senior Officer Bio's
  - Company History
  - Coverage Maps
  - SCANA Stock Quote
  - Shareholder Services
  - Publications
  - Financial Reports
  - Strategic Plan and Archive
  - Logos, Brands & Advertising
  - Remembering Hugo
    - Hugo Stats
    - Restoration Process
    - Share Your Hugo Memories
- SCANA Subsidiaries
- Strategic Initiatives

Remembering Hurricane Hugo – 20 years ago

Twenty years ago on Sept. 21, 1989 Hurricane Hugo came ashore near Charleston and left destruction behind. Many of you were part of the SCANA family then and helped to restore power to more than 300,000 electric customers in S.C. In fact, no one in the state of S.C. east of 1-95 had power. In 18 days, more than 2,000 employees and 7,000 contractors and workers from other utilities had power restored, safely. It was a defining moment in our company's history, and we'd like to hear your stories and have you share your photos and memories.



Hurricane Hugo
September 22, 1989

Restoration

In 18 days, the system that had taken 80 years to build and six hours to destroy was fully operational – thanks to all the individuals who made the comeback possible.

View a slideshow of images from Hurricane Hugo.

Share your memories

Do you have any pictures from Hugo's aftermath? Click here to e-mail us your photo(s). Photos will be compiled into an online album and published on Sept. 17. (Please include a brief description, locations and times with your photos.)

What do you remember about Hurricane Hugo? Were you working for the company during the storm? Share your story on this site, or read other employees' stories.

Watch the SCE&G story of Hugo



Watch an SCE&G video about Hugo created in 1989.

How bad was Hugo?

According to FEMA – Hugo was one of the most devastating natural disasters in decades, perhaps in this century. Read more about the destruction left in Hugo's wake.

SCE&G's Role

Being prepared before Hugo hit allowed SCE&G to begin restoration immediately after it was safe to go into the disaster areas.

Before the storm:

- Before Hugo hit, SCE&G had 2,000 poles, more than 2 million feet of wire and cable, more than 4,100 cross arms, more than 1,000 transformers, almost 14,000 insulators, and more than 10,000 fuses were ordered and stored in two warehouses in Charleston

After the storm:

- 75 percent of SCE&G's system down – 300,000 customers
  - 130,000 customers with no electricity in Charleston
  - 115,000 customers with no electricity in Columbia
- Wateree and Williams stations knocked out
- 400 downed transmission structures, 5,000 poles down, 570 miles of down power lines, over 15,000 service drops in Charleston and 1,300 transformers destroyed

Restoration Begins

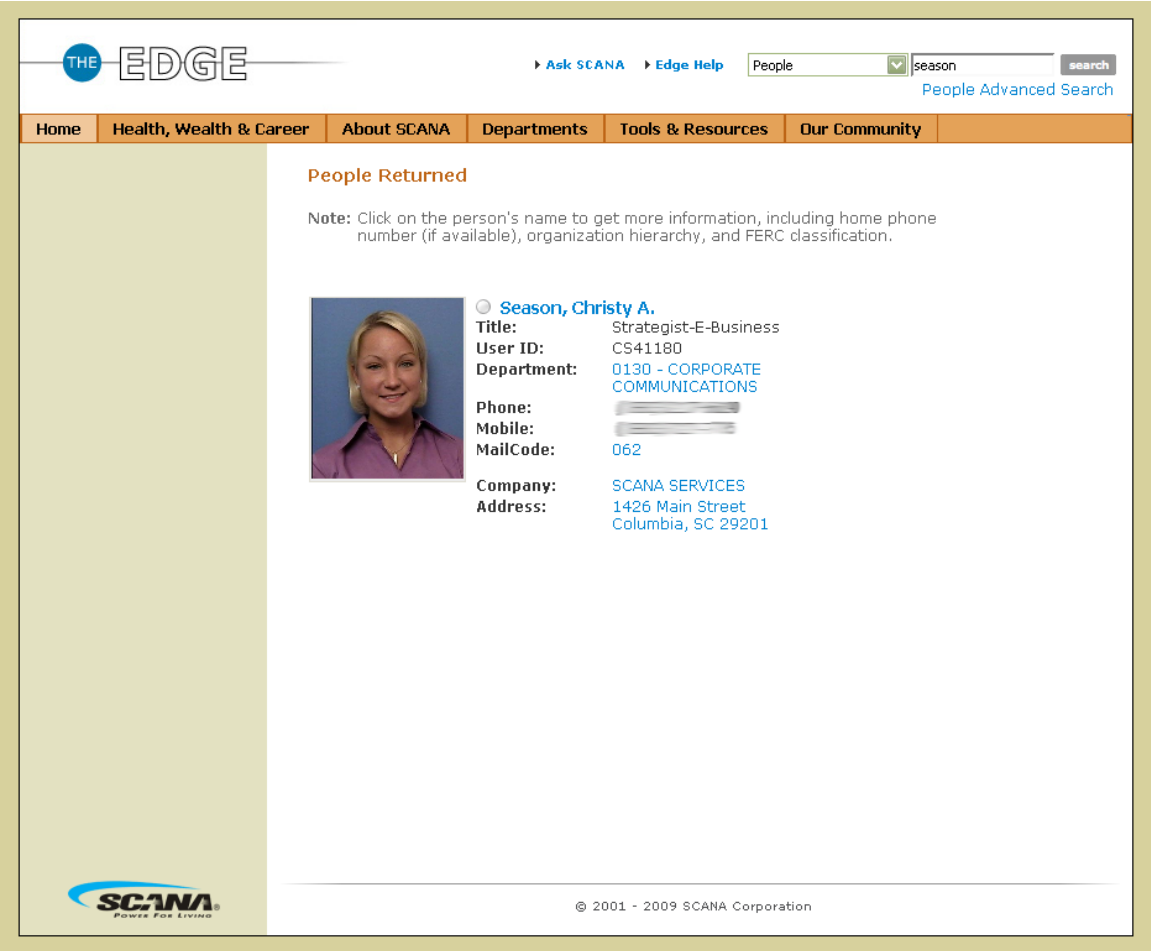
More than 2,000 employees and 7,000 contractors and workers from other utilities contributed to the restoration effort. In 18 days our system was restored, safely, without a single lost time incident. Learn more...

SCANA Power For Living

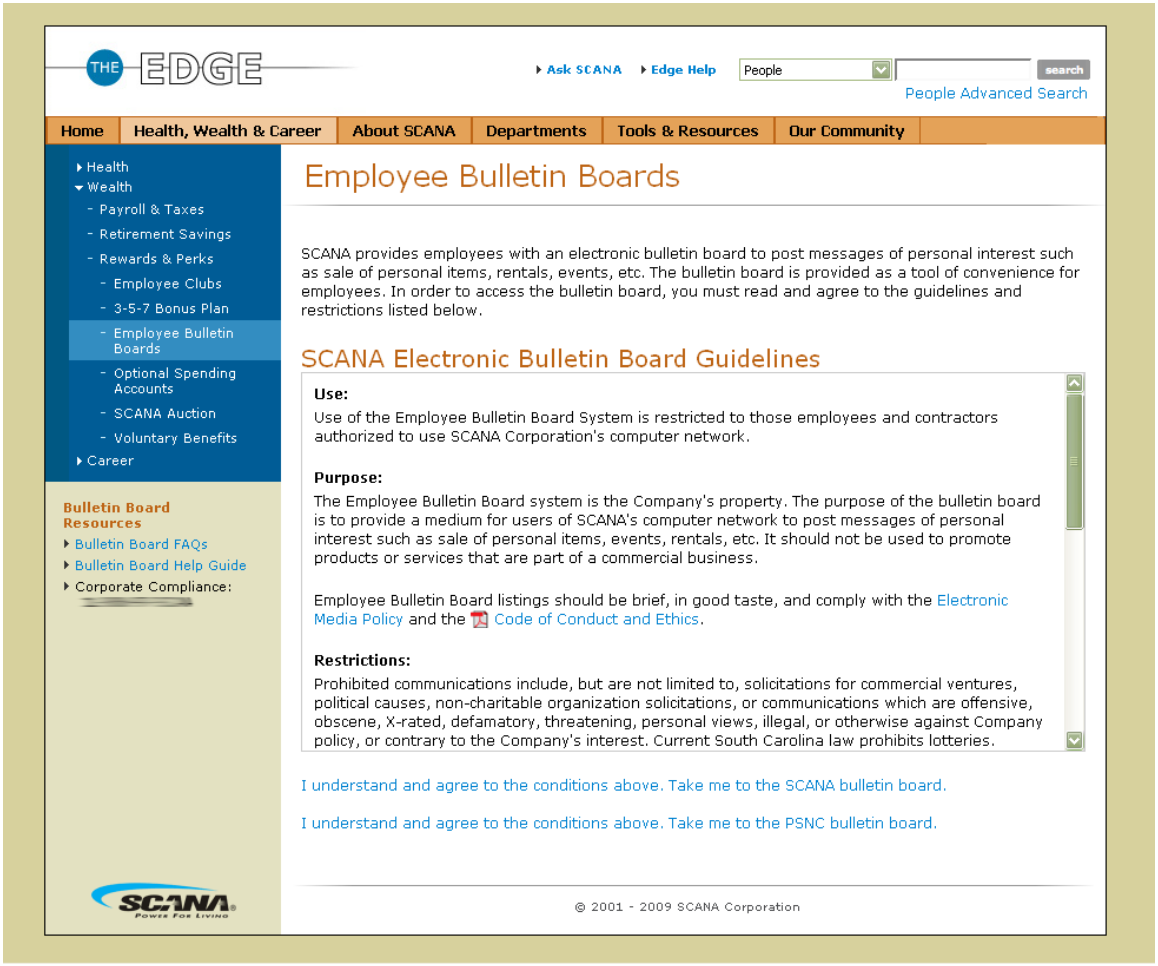
© 2001 - 2009 SCANA Corporation

Pictured: The *Remember Hugo* site is a new site launched in September 2009 to commemorate the 20th anniversary of Hurricane Hugo, which was a defining moment in SCANA's history. The site includes a video created right after the storm, a slideshow of photos from the aftermath and restoration, and a place for employees to share memories of when they worked the storm.

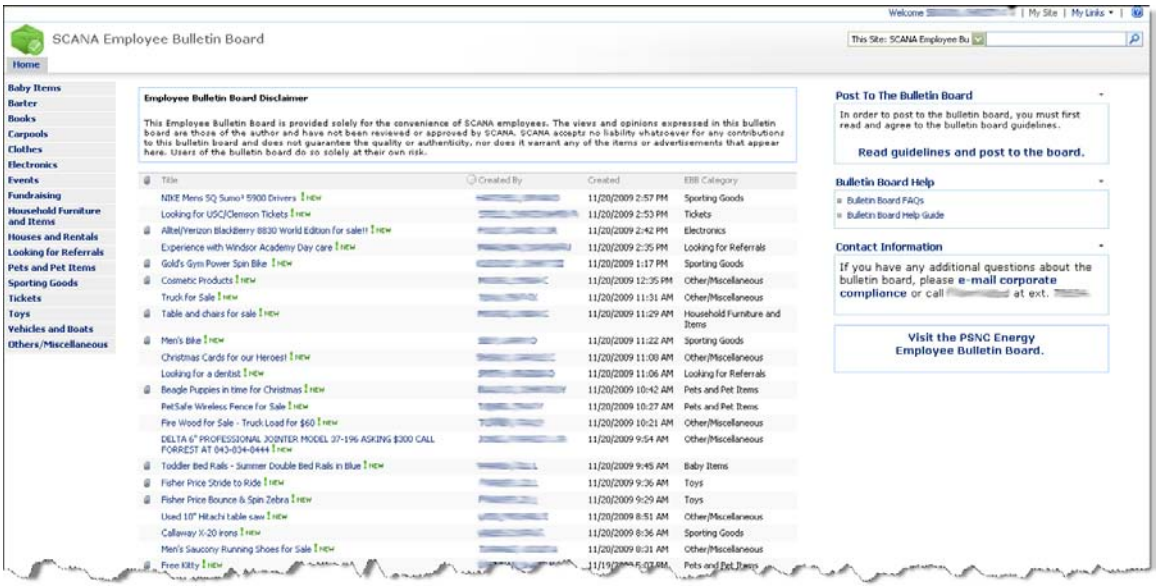
- ***People* search.** The *People* search functionality is particularly valuable because SCANA employees are geographically distributed across three states in plants, business offices, and so on.
- ***Safety Network*.** The *Safety Network* is a corporate-wide site that communicates vital safety information and metrics. Employees use the site to get important safety training materials for their job functions. This is also where all incident-reporting forms reside.
- **Visual performance results.** The intranet features a site called *SCE&G Operating Summary* that offers a visual display of the performance of the company's various plants.
- **Employee self-service.** Employees can sign up through the intranet for direct deposit and can make changes to their personal information.



Pictured: The *People* search results for "Season." The search box at the top of the site automatically searches last name when users enter a single keyword. If they enter two keywords, the search engine searches by first and last name. The results page displays a snapshot of information about the employee. When multiple results are present, the employees are listed in alphabetical order. Clicking on the employee's name opens the employee's SharePoint people profile in a new window, giving the user more contact details, as well as the reporting hierarchy. This hierarchy lets users easily jump from profile to profile by clicking on employee names.



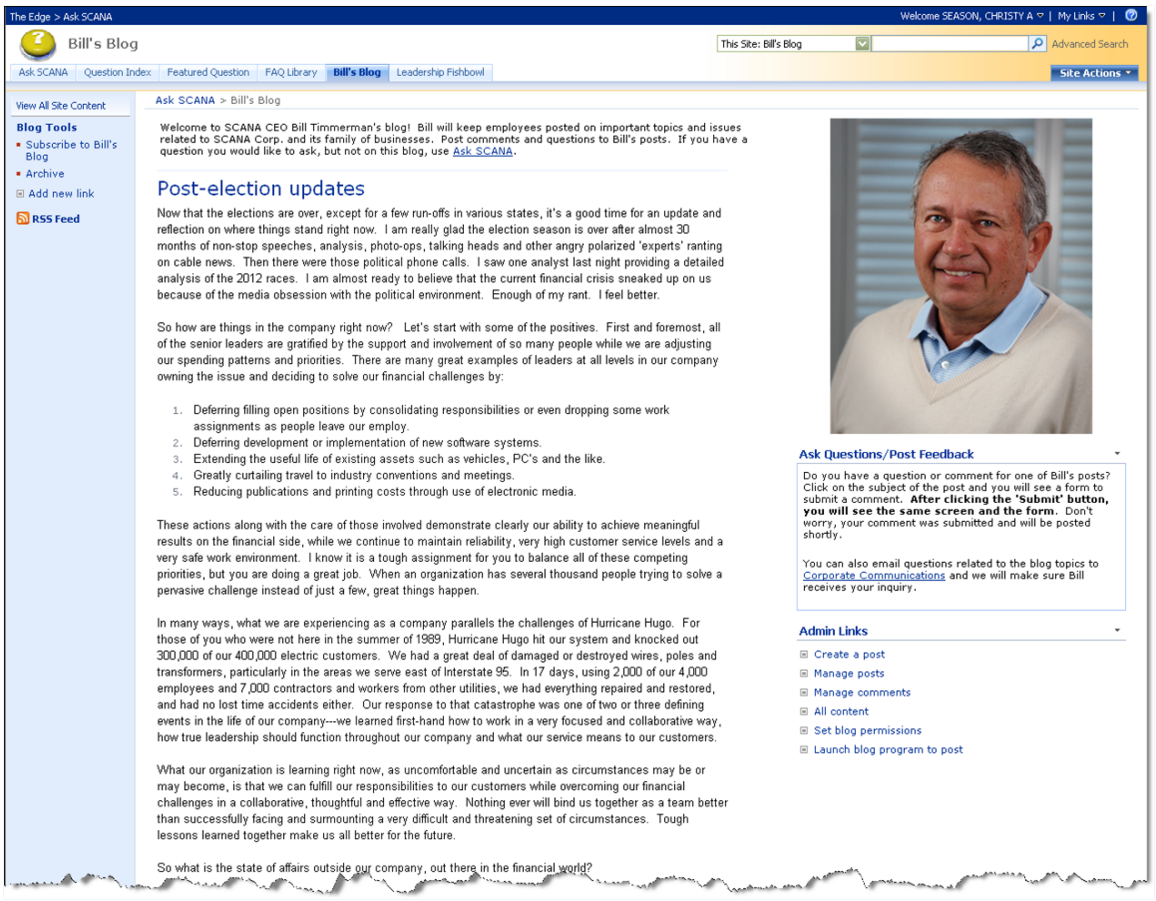
Pictured: The entry page to access the *Employee Bulletin Board* site where employees buy and sell items. This entry page was set up to reinforce the guidelines of using the board and to provide resources for users with questions about how things work.



Pictured: After agreeing to the guidelines on the previous screenshot, a new window opens to the main page of the *Employee Bulletin Board*. Postings are listed with the most recent on top. Clicking on any of the category links on the left opens posts in just that category. Users can post to the board by clicking on the link on the top right part of the screen. This opens up a form that contains the site guidelines and the form fields to add a post.

ENTERPRISE 2.0 FEATURES

The SCANA team takes advantage of SharePoint's native Web 2.0 features, including offering RSS feeds and a popular CEO blog. Plans are already underway to add more collaboration/social media type tools, including commenting/rating functionality for the site's video and headline news.



Pictured: An example from the CEO's blog. Employees can comment (though not anonymously) on the blog posts and subscribe to receive email alerts when a new post is posted.

RESULTS / ROI

The SCANA team did what very few teams are able to do: they upgraded their intranet at zero additional cost beyond internal resource time. That right there is a big ROI. Anything else, it seems would be just icing on the cake. But the company is reaping great benefits from its tiny investment. First, there are many things that users can now do that they couldn't do before the conversion, including:

- Search the intranet
- Find employees more quickly and accurately using advanced search features on *People* search
- Update their own department content without delay or involvement of IT resources
- Find old news (articles are now archived)
- Find out about volunteer and community service opportunities that the company sponsors
- Filter and sort driving directions by facility name or city
- Watch and search for videos on the intranet

- Find help resources more easily and through various means that don't include placing a call to the Help Desk

With the first phase of the project complete, the company is already benefitting from the new intranet.

Measuring Success

The SCANA team is now able to look at site metrics and analyze how the site is doing in real terms. "We measure ROI with both hard numbers and softer measures," says Season. "We look at the analytics and track visits on sites, but we also measure based off of participation, whether it's employee contributed content or participation in a program."

Even this basic tracking is somewhat new for the SCANA team because prior to the site conversion, they didn't have the ability to measure even unique page visits. "With our new intranet, we can measure hits, how many employees are visiting, top pages, etc.," says Season. "This gives us an entire new set of measurement and helps empower us to make more accurate decisions around sites on our intranet."

The team includes search analytics in these new measures. "The search analytics also add value since it gives us an insight into what employees are searching and what information employees can't find," says Season. "This allows us to continually improve the search tool to make finding information easier for employees."

Success by the Numbers

Here are a few measures of the site's success thus far:

- The team held a live *Lunch 'N Learn* Webcast the day of launch and did a live tutorial for the intranet, highlighting the new features, tips for using search, etc. The webcast garnered almost 600 hits.
- To date, the site receives an average of 6,114 unique employee hits to the intranet each month. 6,700 employees have a network login and can access the intranet, so about 91% of employees with network access are visiting the intranet.
- The new site receives an average of 11,149 searches each month.

LESSONS LEARNED

SCANA intranet team members discuss some of the lessons they learned during the SharePoint conversion project.

- **An iterative approach works best.** "We used an iterative development process instead of the traditional waterfall for our intranet build. The iterative process is great when you have requirements that constantly change. We used a process where the project team met every morning for 30 minutes and everyone had to answer three questions: 'What did you do yesterday?' 'What will you do today?' 'Are there any barriers in your way?' This process also helps you break down all of the project tasks into more manageable 'packages.' At the start of the project, you record all of the tasks necessary to complete the project. At the beginning of every two weeks you select a group of tasks from the task queue and focus on just those tasks for the two-week time period. At the end of the time period you present the results of the two weeks to the project stakeholders and get sign off. The process proved very helpful in keeping our cross-functional team constantly in communication. It also allowed us to all stay focused on the project because every team member had other projects going on at the same time."
- **Conduct usability testing early and often.** "We should have added employee usability testing throughout the stages of the build. We only pulled in employees right before launch to test the site and provide feedback. We probably would have caught some good insight from employees earlier on in the project when we had more flexibility to make changes. However, we are so glad we did the pilot testing. There were a lot of 'I can't believe we didn't catch that' moments during the pilot. And our pilot test group became communicators for our launch and helpers for other employees on launch day."
- **Be conservative with the timeline.** "We also learned that we should have added padding into the initial timeline we put together at the beginning of the project. We had to move out our launch date three times during this project. Resource availability was a major factor in pushing out our deadline. We didn't account for short term, higher priorities coming in that pulled major resources off of the project for weeks at a time. If we had padded our timeline to account for this, we may have predicted a more accurate timeline. Luckily there wasn't a hard deadline in place, so moving the launch date didn't have any major impacts."
- **If you have no money, you have to be creative.** "With little budget, our communication plan around the new intranet was very grassroots. We used our Site Owners Community and our pilot test group to help spread the word about the new intranet and its benefits. We sent an email with a PDF poster the week before launch to these groups and asked them to hang them in their facilities in break rooms, etc. and on the outside of their cubes. We also sent them stickers our print shop made that said, 'Ask me about The Edge' and everyone wore them on launch day. We created two videos that we released two weeks prior and a week prior to launch. The videos were parodies of commercials—our video communications team shot the commercials, and we got volunteer employees from our department to be the actors. The videos took about 30 minutes a piece to create."

- **SharePoint isn't a one-size fits all solution.** "We were very lucky that our company had already purchased and implemented it for team sites before we started our project. But with little budget and the fact that SharePoint provided out-of-the-box analytics, search, and an easy to train CMS made the product a big win for us. Despite all that, SharePoint would often throw some curve balls our way when implementing some of our custom Web parts. We built a custom news list for our *Headlines* news listing. When adding a new article, you can set a publish date, an author, and add a photo. After building out the list, we found that when adding a photo, SharePoint would use its out-of-the-box process that involved five pop-up windows for selecting your image. We felt that this out-of-the-box process would be confusing for our non-technical content contributors. We had to go in and custom program the image-selection piece and it added another two weeks onto our project that we weren't planning for. SharePoint may require additional customization to ensure the product meets your needs; however, overall SharePoint is a good product."
- **Don't assume out-of-the-box functionality will be intuitive.** "We also had to custom program the *People* search results. SharePoint doesn't list *People* search results in alphabetical order. Intuitively, our employees are used to a people search that lists individuals alphabetically and wouldn't understand the process SharePoint uses to list the results. So, we had to spend a significant amount of time finding a solution for alphabetizing our results, which ended up being custom code by one of our developers."

Trend Micro, Inc.

Using the intranet:

Trend Micro Inc. is a global leader in innovative Internet content security. The company envisions a world where everyone can exchange digital information across any device or network with true freedom and peace of mind.

Trend Micro has received worldwide recognition and accolades for its technology. In the spring of 2009, Trend Micro was honored by The Customer Experience Awards program for its customer service and customer experience management programs.

Trend Micro is traded on the Tokyo Stock Exchange Market (4704).

Headquarters: Tokyo, Japan

Number of employees the intranet supports: 4,304

Company locations:

Trend Micro is a transnational corporation headquartered in Tokyo, Japan. It has more than 30 offices across 26 countries. Major offices are in the US, Mexico, the UK, Ireland, Germany, France, China, Taiwan, Singapore, the Philippines, Australia, and New Zealand.

Annual sales: ¥101,707 million Yen (2008)

Design team:

In-house four-person development team, working closely with the Human Interface Engineering (HIE) department on usability design and the IT department on site operation. The widget framework was developed by the Trend Micro R&D department.

Members: Elita Chen, Global Project Manager; Soros Liu, Project Manager; Alzandy Tan, Business Process Analyst; Joseph Lin, Sr. Engineer

SUMMARY

Combining up-to-date executive communications, social networking tools, company news, and a points system for encouraging intranet participation, the Trend Micro intranet focuses on informing, engaging, and even rewarding employees. The site provides many opportunities for communication, interaction, and participation, creating a dynamic site that continues to engage users.

The homepage features information from executives as well as company and product news. The focus on executive communication shows how engaged executives at the organization are as well as the intranet's importance as a central method of communication. Messages from the CEO and other executives are regularly posted to the homepage. Clear headlines, associated images, and brief messages convey information quickly and clearly. Such messages are written as notes from the executive to company employees, not as news articles or press releases. This reflects the corporate culture, where executives are engaged with staff members.

Company news follows the executive section and again offers clear headlines, images, and links to read more. These stories include the author's name. Users can comment on news stories, and the number of comments is noted. News items are dated so users know how current the information is as well as when it was last updated.

The news section is rounded out by product news, which appears at the bottom of the homepage and can include anything from a new release to a product review.

The *My Tools & Services* area on the left side of the page is a customizable window where users can create a list of frequently used tools. An edit button lets them easily make changes to the list.

Personalized information is available as well through the homepage's *My Profile* section. This section shows the user's profile picture and provides a link directly to *My TrendSpace*, which is a personal site area that users create for themselves. This area includes a summary of mileage and feedback; users earn mileage points by doing various activities, such as providing constructive criticism and feedback to others or submitting operational suggestions to executives. They can then redeem points for gifts.

Each quarter, employees are allotted a quota of 50 positive feedbacks (a smiley face icon) and 50 negative feedbacks (a sad face icon). The *New Feedback* number indicates how much new feedback the employee has received. The *Remaining for* numbers indicate the amount remaining from the user's quarterly quota—that is, the remaining amount of feedback the user can give to others. So, if a user has offered five positive feedbacks to other employees, his or her profile would display "Remaining for [smiley icon]: 45."

Employees can customize homepage content by rearranging content widgets. This feature is intended to help users enhance their daily productivity by allowing them to determine which tools are most helpful and relevant to them.

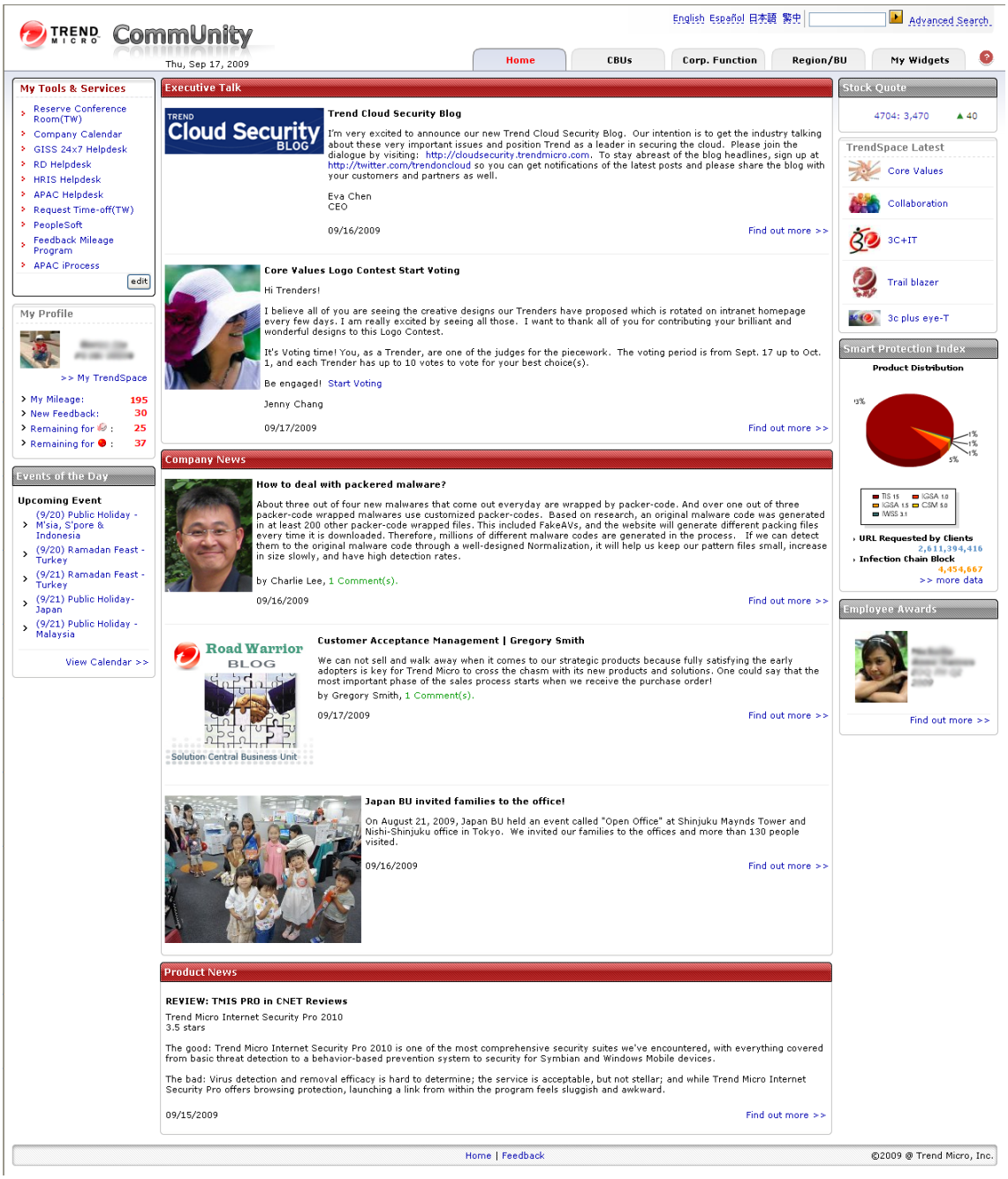
In the example below, widgets include constantly updated information, such as daily events and a stock quote. The *TrendSpace Latest* box shows a live feed of areas of *TrendSpace* (the site's social networking area, which includes personal and group pages) that have the most recent uploads. Such uploads might include blogs, videos, photos, documents, and employee comments. Clicking the icon/item directs users to that item or comment.

The page also includes Internet threat information in a *Smart Protection Index* box. This box includes two groups of real-time tickers and data retrieved from Trend Micro's Smart Protection Network. The real-time data feeds populate rotating pie charts. One cart shows the distribution of Internet URLs/domains/IPs blocked by Trend Micro's products and another shows the URLs/domains/IPs blocked by countries.

There are two real-time tickers. The *URL Requested by Clients* ticker shows the numbers of Internet URLs/domains/IPs that Trend Micro's customers have visited, and the *Infection Chain Block* ticker shows the numbers of malicious Internet URLs that Trend Micro has detected and blocked access to. Users interested in more data can click a link in the box.

The page also includes a space for *Employee Awards*, which highlights individual achievements at the organization. This is a nice way to not only recognize employees for their accomplishments, but also to inform people about their colleagues and the work that the company does.

The company gives various awards, organized by different departments and country locations within the organization. For example, R&D has a quarterly engineering award to recognize outstanding performance engineers, and Japan has an award for employees who have achieved special accomplishments. Trend Micro's intranet displays the honored employees' photos and their department/country on the homepage. This is an opportunity for their contributions to be recognized by all employees worldwide.



Pictured: The homepage features executive communications and *Company News*. Users can drag and drop the widgets to customize the homepage layout.

Working with a Widget Framework

Many sites allow users to add content to the homepage, but most require users to use a template view of content to rearrange it on the page. The content and widgets on the Trend Micro intranet homepage are mandatory, but some user customization is permitted. Users can't delete widgets from the homepage; this restriction forces employees to see corporate executive messages and makes the homepage the must-read page for all employees.

Enhancements to the current functionality are already in the works to allow users to add two widgets to the homepage. Based on usage statistics, the team knows which widgets are the most popular. And, by evaluating which widgets have the top usage, the team wants to help increase productivity by providing quick access to these most-used widgets. By early 2010, users will be able to add two widgets to their personalized homepages.

Users can drag and drop widgets on the homepage to reorganize it. To do so, they simply grab a toolbar and move the item elsewhere on the page. The exception is the central column—which contains *Executive Talk*, *Company News*, and *Product News*—which can't be changed, deleted, or moved. However, users can move the mandatory widgets in the left- and right-hand columns to other columns, as well as to the top and bottom of the page.

Moving the mouse cursor onto a widget's caption bar displays a list of toolbar icons that include settings to refresh and minimize the widget; on the *My Widgets* page, users also have the option to delete widgets.



Pictured: Employees can drag and drop homepage widgets to reorganize the content.

The *My Widgets* tab displays widgets users have added, as well as an *Add New Widget* button. Clicking the *Add New Widget* button redirects users to a *Widgets List* page.

Currently, users can add widgets to the *My Widgets* page and drag and drop them to change that page's layout. This page lets users create a fully customizable page of widgets (see the screenshot below).

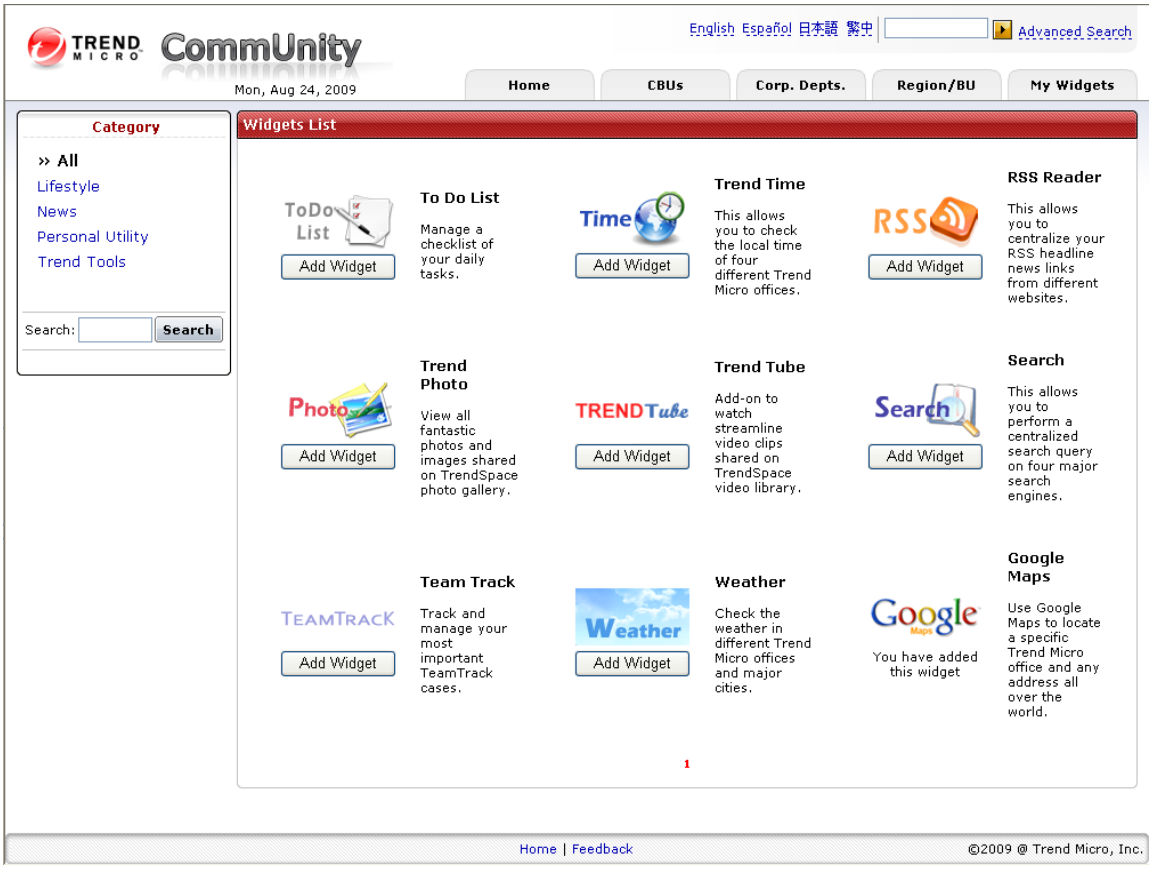
Users choose available widgets by browsing a list. One widget, *Trend Tube*, lets users stream video clips from the *TrendSpace* video library. An RSS reader lets users see the latest information through their customized RSS feeds. A *To Do List* lets users track daily tasks and shows outstanding items. The user can move items up or down in the list, edit the tasks, check them off when completed, or delete them. The *Trend Time* widget lists the local time in four different Trend Micro offices. A city name is listed in yellow during normal working hours in that location, and blue otherwise. The yellow background with the sun icon indicates daytime, and the grey background with moon icon indicates nighttime.

The *Trend Tube* and *Trend Photo* widgets pull recently added video and photo content from the site's *TrendSpace* area and let users flip through to identify photo or videos of interest. Both widgets give content a life beyond the confines of *TrendSpace*.

Users can add a search widget that lets them search through various providers, such as Google or Wikipedia. *Trend Maps* lets users see an office location anywhere in the world, as well as search for a particular location.

Users can view all available content in the widgets list, or view widgets by category, including *Lifestyle*, *News*, *Personal Utility*, and *Trend Tools*. Each widget is shown with a brief description of its content, along with a clear *Add Widget* button that makes adding the item easy. If an item is already on the user's page, the *Add Widget* button is replaced by text that reads, "you have added this widget."

The team receives many suggestions for additional widgets, and eventually they plan to allow employees to create their own. The hope is that by opening up the widget creation process, employees will create widgets that both meet their own needs and free up the intranet team's development time. After all, time not spend developing widgets can be spent working on other aspects of the site. Although we see many intranets with distributed content, few allow distributed development.



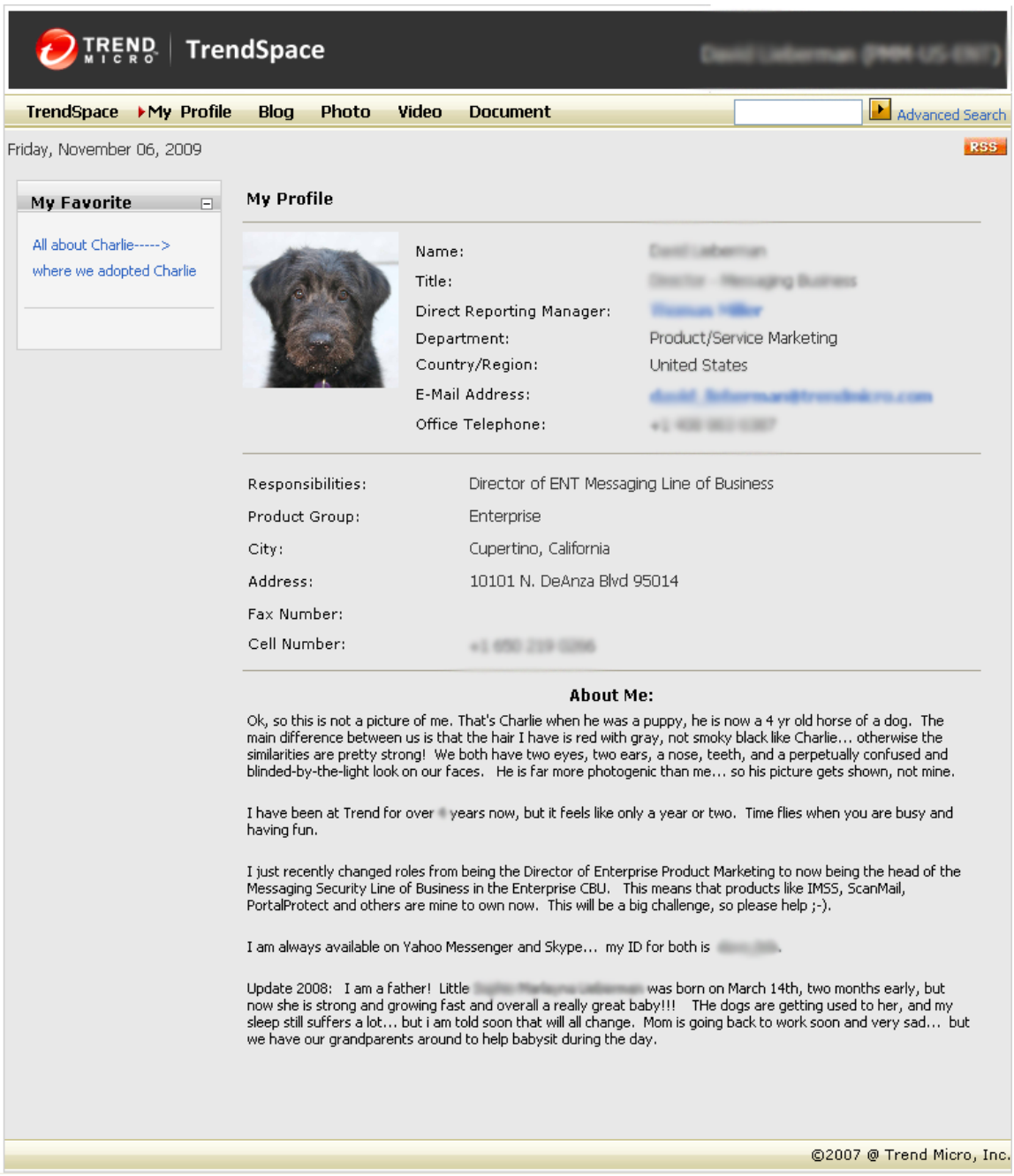
Pictured: Currently, widgets offered in the *Widgets List* can be added only to the user's *My Widgets* page. The team receives requests for additional widgets and hopes to let users create their own widgets soon.



Pictured: Users can customize their *My Widget* pages by adding, removing, personalizing, or reorganizing content on the page.

Social Tools

The site's social networking platform, *TrendSpace,* lets employees set up their own personal pages as well as group spaces. In each area, users can post blogs, photographs, videos, and documents. Employees use the personal spaces to share information about themselves, and create group spaces to share experiences across the organization and discuss solutions to common problems or questions. These pages can be strong collaboration tools, combining corporate knowledge in one area. The area is also flexible enough to support company-wide events, such as photo contests and polls.



Pictured: A *TrendSpace* employee profile, which is viewable by all Trend Micro employees. The information in the top column—including name, title and so on—are fields that are automatically retrieved from PeopleSoft. Employees can edit the middle column (responsibilities, cell number, and so on), bottom column (*About Me*), and the top-left box (*My Favorites*) in their profile page. Portal owners can manage their own content, post to a blog, and upload videos, photos, and documents. Employees can also comment on each other's *TrendSpace* pages.

TREND MICRO | TrendSpace

Global Summit



Live Reporter

Tagaya Kazuhisa
Komatsu Yusuke

Labels

Global Summit Day 0
Global Summit Day 1
- Board Room @Trend
- CTO Session
- **Value CBU**
- Volume CBU
- Tech Booth 1
- Solution CBU
- Alliance 1 (xSP)
- Strategic Alliance
- Data Center CBU
- Tech Booth 2
- Corporate Marketing
- Sales Panel

Global Summit Day 2
Global Summit Day 3
see all



What's on your mind?

Attach: Share



[redacted] about 1 day(s) ago Edit Delete



Global Summit Day 1 - Value CBU

Comment



[redacted] about 1 day(s) ago Edit Delete



[redacted]

We need to be the Threat Intelligence to know what is actually happening on the customer's environment.

Comment



[redacted] about 1 day(s) ago Edit Delete

76% of security budgets in 2009 are flat or shrinking.

Comment

Eva Chen about 1 day(s) ago Delete

Although the security budget look like shrinking, but actually, it was embededinthe infrastrcutrue spending. People move cost saving from virtualization to security.
Eva

Genshaku Arai about 1 day(s) ago Delete

plz more comments

Comment...



[redacted] about 1 day(s) ago Edit Delete

88% of North American company don't have a security strategy on virtualization.
Deep security can fit on that part.

Comment



[redacted] about 1 day(s) ago Edit Delete

About TMS, enterprise market shows positive reaction in many regions.

Comment

1 2 Next »

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We have been establishing ...
It should be $5Million, I ...
2 response(s)
1 hour(s) ago by [redacted]

She emphasized "Most ...
Yes, she is Carol.
2 response(s)
1 day(s) ago by [redacted]

76% of security budgets in ...
Although the security budget ...
2 response(s)
1 day(s) ago by [redacted]

TrendSpace | iTrendCommUnity | Feedback

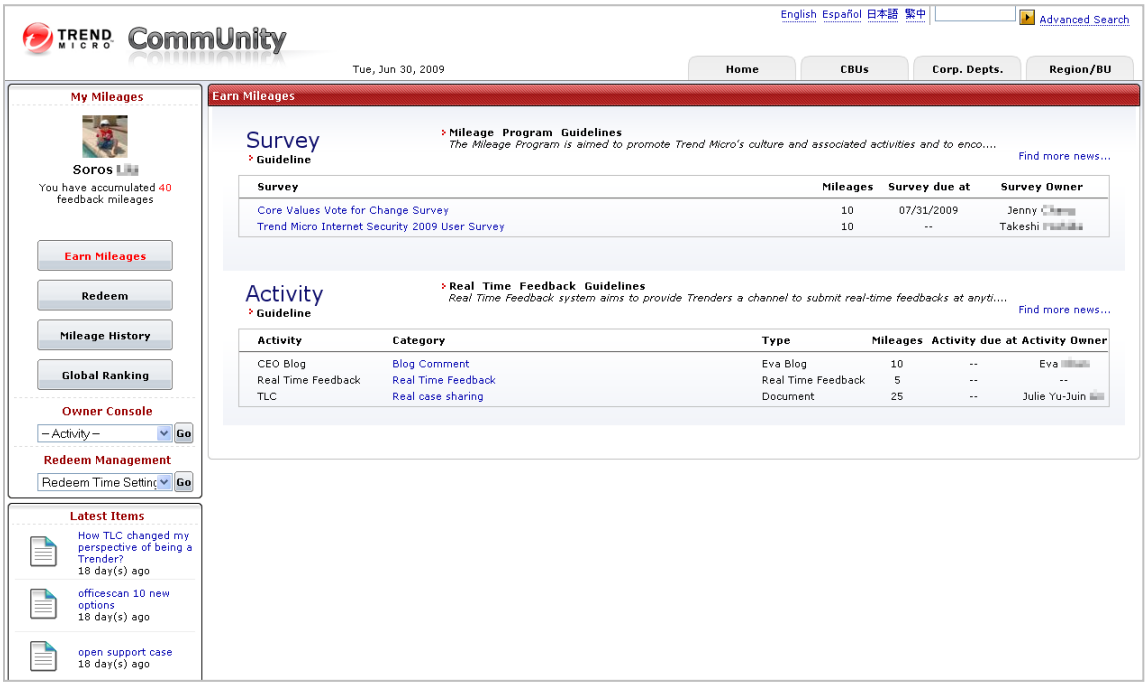
©2007 @ Trend Micro, Inc.

Pictured: A *TrendSpace* group/collaborative portal, which was used in Trend Micro's annual corporate strategy meeting in November 2009. The meeting's attendees were company executives and senior directors. The meeting content was summarized during the meeting and posted on *TrendSpace;* the content included text notes, meeting photos, and video clips and was broadcast live to all Trend Micro employees worldwide. Employees then posted comments and questions, which were read and answered by executives and the event staff. This is a typical example of how the company uses *TrendSpace* as a social networking system not just for individual employees, but to facilitate global initiatives and engage employees around the world.

Rewarding Employees

The company encourages participation in interactive areas of the site with a reward system, called the Mileage Program. Users can "earn" points or mileage by participating on the site in a number of ways, such as taking surveys, providing real-time feedback (constructive criticism or praise to others in the organization), commenting on blogs, submitting suggestions to executives, and completing a variety of other activities. Users can then redeem these points for prizes or rewards.

The site's *Mileage* section shows users how many points they've accumulated and posts opportunities for earning more points. For example, open surveys are posted in this area, with the value of each survey posted alongside it, as well as the due date and survey owner. Activity is tracked for each employee, and employees can see when and why they received points.



Pictured: Employees receive points, or mileage, for participating in interactive site areas. They earn points for contributions such as commenting on blog postings, completing surveys, and providing feedback to colleagues.

One of the areas where users can earn mileage is *IdeaSpace*, where they can submit ideas to executives via a button at the top of the page. They can view submitted

ideas posted on the section's front page or view the top-ranked ideas. Employees can also vote on ideas, which results in a score for each item. The main page shows the top-ranking ideas' scores as well as the number of voters who provided feedback.

Each idea is attributed to the employee who submitted it and ideas are categorized by topic. The employee who submits the idea tags it with relevant categories; this makes it easy to find associated ideas and to route the idea to the proper executive's office. The main *IdeaSpace* page shows users the most popular categories for ideas on the side of the page, with the most popular terms shown in a larger text size.



Pictured: Employees can submit ideas (and earn points) on *IdeaSpace 2.0*.

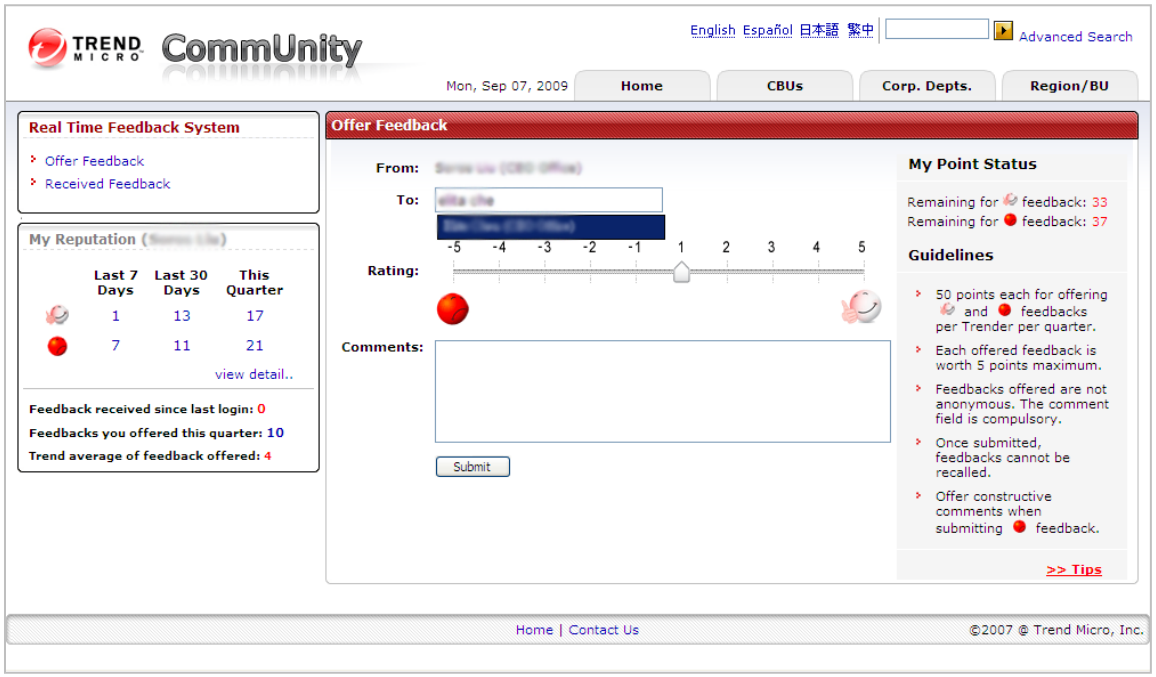
Another interactive and unique site area is the *Real Time Feedback System*. This system lets users provide feedback to anyone in the company, including executives. Users can submit positive feedback for something a colleague has done well or constructive criticism to help the employee improve. Users earn mileages, or points, for posting both positive and negative feedback. All comments include the employee's name; anonymous posting are not permitted. Employees are encouraged to include constructive comments if they are submitting negative feedback. Basic guidelines are displayed on the side of the page, with a link leading to more feedback tips.

Each employee can submit up to 50 negative and 50 positive feedbacks per quarter. The user's remaining points are shown on the side of the page, with a total shown for both positive feedback (a white smiley face icon) or constructive criticism (a red frowny face).

Users can also view feedback they've received. The site tracks a user's "reputation," tallying feedback—positive and negative—that he or she has received in the past 7 days, 30 days, and quarter. The site also tells users how much feedback was received since their last login, alerting them to new posts. Users can see at a glance how much feedback they've offered others, as well as the average amount of feedback other employees have posted. This gives them a sense of usage across the

community and can encourage participation: if users see that other employees are posting much more feedback, they might try to increase their own postings to keep up with the crowd.

The form for providing feedback is open-ended. Users select a positive or negative number on a scale ranging from negative five to positive five, with no option for zero. That is, the feedback has to either be positive or negative; it can't be neutral. The user picks a rating and then provides (good or bad) feedback in the open *Comments* field.



Pictured: Employees receive "mileage" for submitting real-time feedback—that is, praise for or constructive criticism of their colleagues.

Increasing Executive Visibility

Executives are very visible on the site—some keep blogs, and executive announcements have a central spot on the site's homepage. The intranet also hosts the semiannual Web Hi-Comm meeting from the chairman's office.

During these meetings, executives announce company and revenue updates. The site offers video clips and a blog to help communicate the company's message. Communication here is two-way: employees are encouraged to ask questions through the site.

These Hi-Comm meetings used to be conducted through face-to-face meetings in the company's main offices around the world. Moving the meetings online has been a significant cost savings. It's also made it possible for employees to watch and read the information as time allows, rather than sitting in a day-long meeting. This helps make the information more manageable and accessible to employees.

Executives post messages and videos to the site. If employees have questions, they can leave a comment on the blog post, and executives will post responses.



Pictured: Semiannual performance meetings are conducted online, through blog posts and videos. Employees can ask questions via comments features, and answers are posted as well.

The intranet team has worked hard to create an intranet that reflects the corporate culture. Executives are accessible. Employees are encouraged to participate and share. Interaction is rewarded. The intranet goes beyond being a static information source to being a destination for interaction.

BACKGROUND

Trend Micro's intranet was originally built in early 2000 as a central website for company departments to publish information. With the rapid growth of the organization, the uploaded documents and intranet content had increased to the point where it was becoming difficult to retrieve useful and correct information. The company's central website had reached a breaking point.

In 2002, Trend Micro underwent an important organizational change. "We needed a global central online platform to consistently communicate organizational information and process to over 2,000 global employees located in more than 24 countries at that time," says Jenny Chang, Co-Founder and Chief Culture Officer. "The existing intranet could not fulfill the need."

"As 'change' and 'communication' were the core values of Trend Micro's corporate culture, I made the decision to redesign the company's intranet to make it a global central information platform," Chang says. The goal: to ensure that all Trend Micro employees around the world could access and share correct and important information through one single channel.

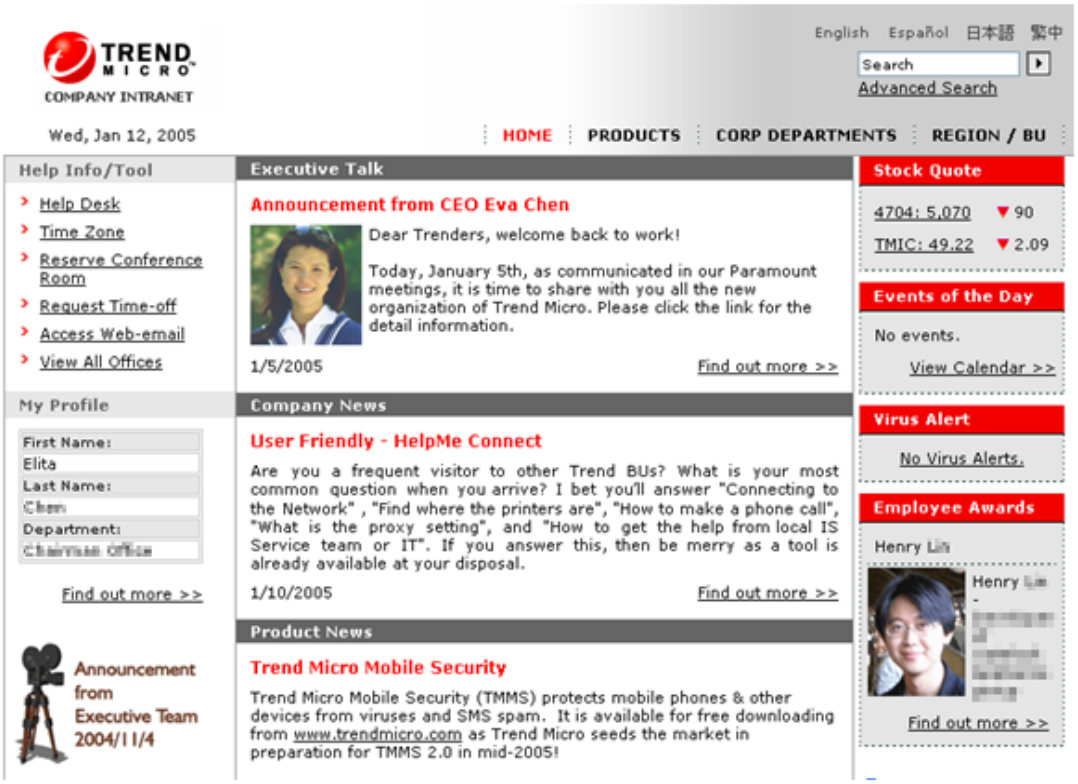
Thus, in 2003, a major intranet revision was released. It featured a new information architecture design and a revised content-delivery process that ensured that site content was precise and up-to-date. All Trend Micro employees can now securely access the intranet from anywhere in the world. Today, Trend Micro's intranet, Trend CommUnity, has become a part of every employee's life and acts as an invisible bridge that connects people working all over the world.

In early 2007, in order to align with Trend Micro global rebranding activities, the intranet team redesigned the interface of the entire intranet to reflect the company's new brand design and the Corporate Identity Standard.

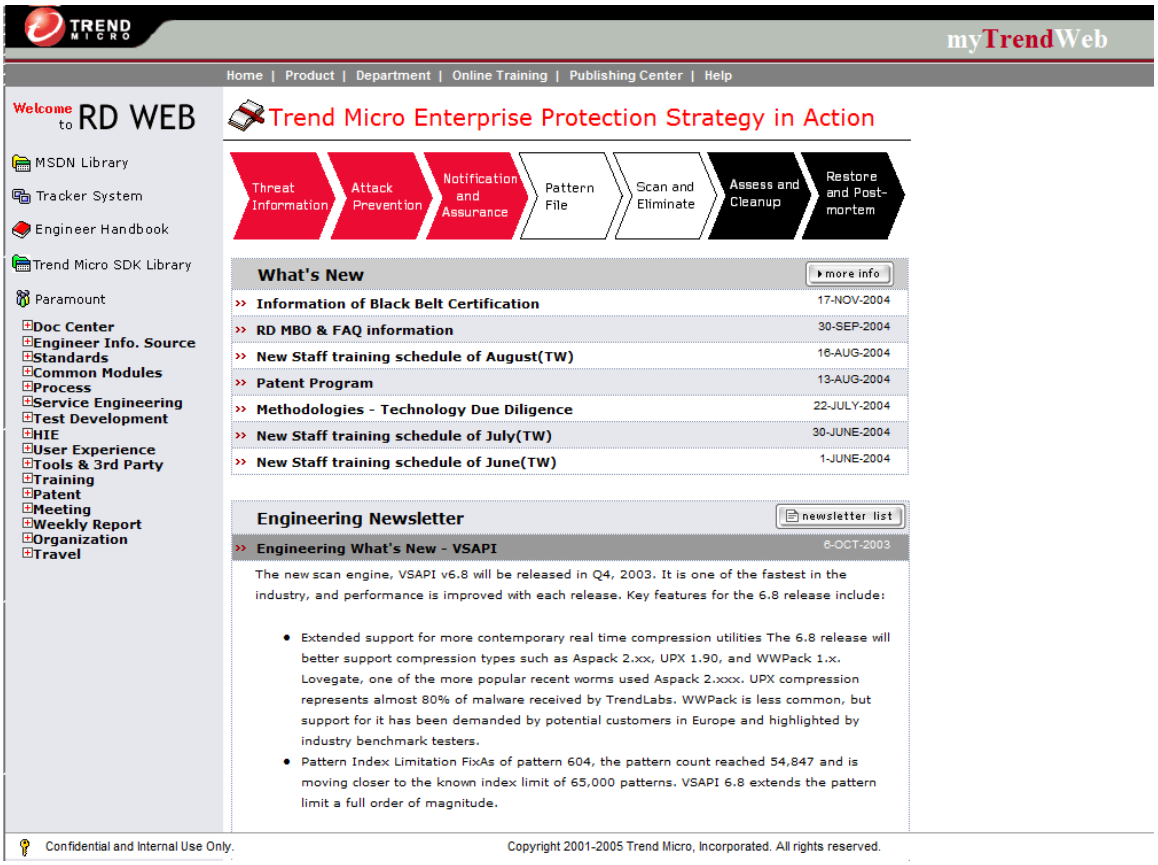
During the redesign, the intranet team also introduced the new *TrendSpace* platform to provide internal social networking capabilities that let all employees publish their own blogs, personal photos, video clips, and documents. The goal of *TrendSpace* is to enable a multimedia-style communication channel on the intranet. This means that the site's content is user-generated—a responsibility shared by each Trend employee—rather than a top-down activity driven by executives or function heads. *TrendSpace* also provides the capability to host global or regional Web-based events, including online surveys and contests.

In mid-2009, the intranet team successfully released the next-generation of Trend CommUnity: the iTrend CommUnity, which integrated with the widget framework developed by Trend Micro's R&D department. Through iTrend CommUnity, employees can customize their own intranet pages with various internal and external widgets that help with daily tasks and improve productivity. The release of iTrend CommUnity represents Trend Micro's Enterprise 2.0 version of its intranet.

"iTrend is exactly the best practice of cloud computing!" says Eva Chen, Trend Micro's Chief Executive Officer. "I personalized my own widget page on the intranet, mesh-up information, internal information and external resources are just a fingertip click away!"



Pictured: The homepage of the previous Trend Micro intranet, which was in place from 2003 to 2007.



Pictured: The homepage of the Trend Micro Research and Development department's internal website prior to November 2003.

Future Plans

The company is planning to accomplish the following site enhancements on the heels of its next-generation intranet launch (discussed above):

- **Develop new widgets.** Trend Micro's intranet team has received valuable feedback during the project's beta testing phase and post launch. Many users have customized their own widgets page and are eager to use the widget-enabled intranet. From this feedback, the team has assembled a list of new widgets they want to create.
- **Define widget templates and the associated registration procedures.** One of the major deliverables planned for after the launch is to design a widget template that would let users create their own widget and register it in the central widget inventory, which is accessible to all employees. This would let other employees select and add the user-created widgets to their own pages. The team believes that providing users with a template will increase the number of widgets available on the intranet, while reducing the engineering effort required for implementing new widgets.

- **Adopt an instant dialog module.** One of the Trend Micro's goals is to adopt new technologies that can improve employee productivity. The company evaluated Plurk-style dialogs—a Twitter-like mini blog popular in Asia; see http://www.plurk.com—and determined them to be an innovative add-on to *TrendSpace's* internal social networking capabilities. The dialogs can also apply to *IdeaSpace 2.0* to encourage instant and interactive discussion of submitted ideas. By adding this instant dialogue module, the team hopes to introduce a tool that will easily capture and organize employee innovation.

Intranet Team

Currently, there are four full-time employees on the intranet development team:

- Elita Chen, Global Project Manager
- Soros Liu, Project Manager
- Alzandy Tan, Business Process Analyst
- Joseph H. Lin, Senior Engineer

The intranet team mainly focuses on intranet implementation and management; the authors and editors who either volunteered or were assigned by each department contribute the information.



Pictured: The intranet team (left to right): Soros Liu, Elita Chen, Joseph H. Lin, and Alzandy U. Tan.

Governance

The following table outlines the intranet team roles and responsibilities in place for the company's intranet:

INTRANET TEAM RESPONSIBILITIES	
Role	**Responsibilities**
Intranet Development Team	• Design and implement new features and enhancements • Maintain and optimize system stability and performance of the intranet • Monitor and manage the headlines news on the homepage • Support and host global and regional online Web activities. • Work with channel owners to ensure that sub-channels and content are aligned with the high-level architecture guidelines
Channel Manager/Owner	• Define the site structure for the business-unit/department/region • Assign authors and editors for collecting and posting content
Editors	• Review, approve, and publish the submitted postings • Post content
Authors	• Post content and submit to editors for review and publishing

GOALS AND CONSTRAINTS

The primary goal of the iTrend project was to develop the site as a pilot platform for the company to adopt the standard widget framework developed by Trend Micro's R&D and to enable this advanced customization feature on Trend Micro's intranet for employees.

"We believe that employees as typical users would not use a feature simply because it is available," says Elita Chen, Global Project Manager. "Employees only use a feature that supports them to work more conveniently and efficiently. The key point is, what tool should be made available for users in order to support their daily work?"

Many of Trend Micro's applications are Web-based already so one of the project objectives was to implement the widget framework so that the team could wrap those existing services into various widgets running on iTrend CommUnity. Those existing applications have their own design and serve different purposes. The difficulty of the iTrend project was in adopting the technical designs already in existence (in those applications, rather than developing a new Web application) without changing the existing design.

"The iTrend project has been a challenging project," says Soros Liu, Project Manager. "Not only due to the underlying technology it uses, but also because it requires a standard protocol among each service for exchanging information."

TIMELINE

The iTrend project took 15 months to complete. The project included two months of feasibility study and widget platform evaluation, two months of architecture design

and migration planning, six months of implementation, three months of alpha testing and the related hardware upgrade, and one month of beta and user acceptance testing.

Below are the key project milestones:

- **June–July 2008:** Solution finding, widget framework evaluation, and feasibility study
- **August–September 2008:** Architecture design and feature set definition
- **November 2008–March 2009:** Implementation of server programs, key widgets, and integration interfaces
- **April–mid-June 2009:** IT infrastructure adjustment and internal beta testing
- **End of June 2009:** Beta release and preparations for launch
- **July 2009:** User acceptance test and minor UI-related modifications
- **August 2009:** Official launch

USERS

Users of the Trend Micro intranet fall into the following groups:

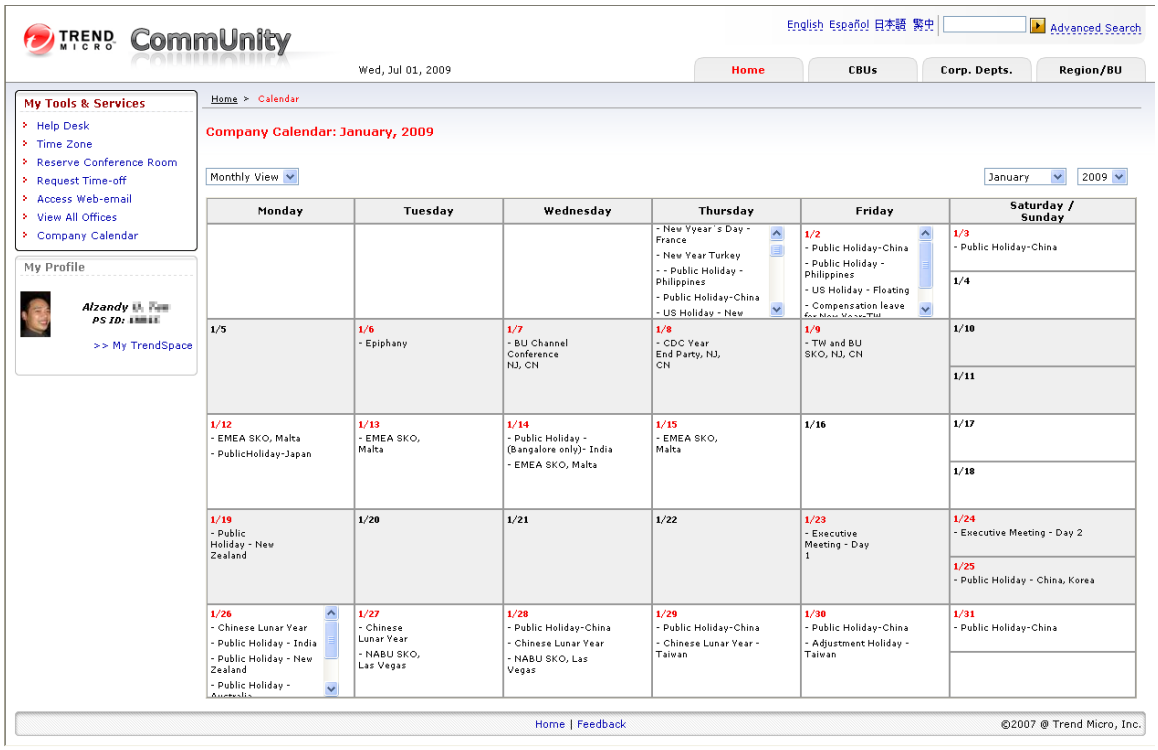
- **Executive team.** Trend Micro's executives regularly publish organization announcements, revenue updates, and information-exchange blogs on the intranet.
- **Authors and editors.** This group collects up-to-date information from business units, departments, and regions and posts it on the intranet in a timely way to share with all employees.
- **Corporate employees.** This group includes departments such as HR, Finance, Administration, IT, Information Security, Business Applications, Technical Support, Product Development, Human Interface Engineering, Service Engineering, Marketing, and Sales. Corporate employees use the intranet to conduct and support their daily tasks and to share and read about news, events, and success stories shared by people in different functions worldwide.
- **Regional employees.** Region employees use the intranet to access local information and events, such as accessing content local to Japan (in Japanese), HR information in the US, and so on.

USER TASKS

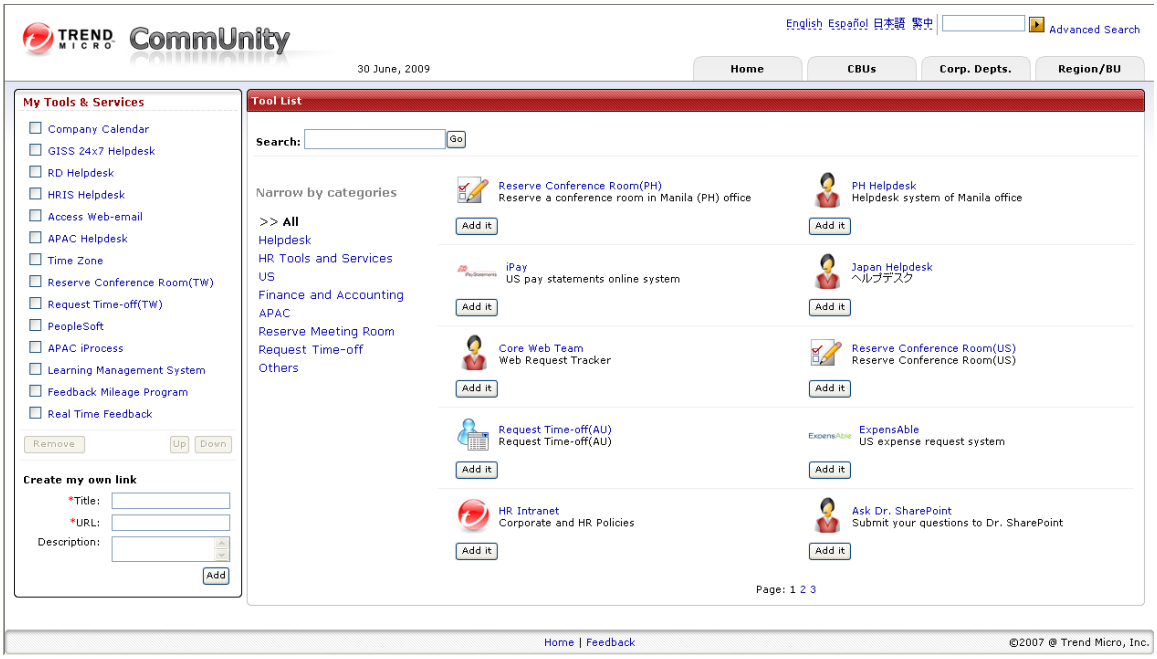
Trend Micro's intranet lets users perform various tasks to support their daily work:

- View the latest executive messages, corporate news, and regional updates
- View recent and upcoming events through the *Company Calendar*
- Check the day's Trend Micro stock quote
- View employee awards

- Access HR and PeopleSoft systems, regional help desks, the conference-room reservation system, time-off request system, and many internal services links (employees can customize their *My Tools & Services* list on the homepage to easily access these tasks)
- Publish a personal blog; upload photos, videos, and documents to share with other employees; and read comments published by other employees
- Participate in global and local activities
- Provide real-time feedback to fellow employees
- View the real-time filtered URL and infection numbers ("Smart Protection Index" box mentioned earlier) captured by Trend Micro products
- Search specific content that lives in various internal applications across the site



Pictured: The *Company Calendar* features all current and upcoming events and holidays happening in Trend Micro offices. Employees can submit calendar entries through their team's editor.



Pictured: The *My Tools and Services* section is customizable and lets users personalize their quick links menu on the homepage for easy access.

DESIGN PROCESS AND USABILITY ACTIVITIES

The Trend Micro team took a two-phased approach to site development.

Phase I

During the first phase of design, the intranet team summarized the requirements and feedback from users through several channels:

- **Feedback email.** The intranet features a link on every page where users can provide feedback directly to the intranet service team. Service team members monitor this account and take actions to promptly address and respond to users' feedbacks and suggestions.
- **Stakeholder feedback.** Intranet team members receive requests directly from stakeholders either by phone, email, or face-to-face meetings. During this initial phase, the intranet team aggregated this feedback so it could be included in the project requirements.
- **Leadership directives.** The intranet is critical in supporting corporate initiatives where design usability is stressed over function. The key factor in supporting such activities is timeliness: delays are not an option. Trend Micro's intranet is the company's primary central information portal, and it supports many executive-level global initiatives. These initiatives often require unique formats. Executives or senior program owners might provide directives that they deem as requirements for the deliverables, but what's actually required for the deliverables can be far different. That is, while might inform the design, they rarely contain the information required to architect function or features.

Phase II

During the design's second phase, the intranet team organized the user requirements into several main pieces of functionality that would be developed for the new site. Each piece of functionality was assigned a set of goals that it would support. As an example, there are four main goals for the iTrend widget framework platform:

- Introduce the widget framework into internal information system
- Create the standard for widget design and implementation
- Give users more customization and personalization capabilities
- Develop useful tools (widgets) to support employees' daily work

Following a Usability Process

Trend Micro's intranet team followed a process to propel the project from the initial requirements stage all the way through to implementation. At each step in the process, there were iterative design loops with cycles of feedback and revision.

In a new project's initial stage, the intranet team communicated with the stakeholders to understand their needs and collect the requirements. From this, the team created a Customer Requirement Document to aggregate the project information and other requirements. This document also addressed the design and use cases. This Customer Requirements Document served as the basis for the wireframes that were developed later.

Expert Reviews

Trend Micro's Human Interface Engineering (HIE) department provided valuable feedback to the team to help improve the UI and the usability of features developed in the iTrend project. Prior to undertaking the iTrend project, the intranet team created a prototype and arranged a demonstration for the HIE department. The prototype consisted of the basic look-and-feel of the existing Trend CommUnity and the key features the intranet team planned to implement on iTrend, such as:

- Add/remove widgets from webpage
- Manage page layout through drag-and-drop of widgets
- Set and save personal preferences into widgets

Wireframes

The team took an iterative approach to the wireframes, completing several revisions to reach a consensus before proceeding with the coding phase.

During the wireframe process, several meetings were arranged with HIE so that they could better understand and communicate the design requirements to the other team members.

The wireframe served two purposes:

- It provided the stakeholders something they could review to confirm that the design captured the requirements and fulfilled their expectations.
- It gave the HIE department a chance to review and provide feedback so the end product had a better UI and usability design.

The wireframes also served as a basis for the graphic design. “Most of HIE’s deliverables are pictures and HTML documents,” says Elita Chen, “Which contain CSS styles and layout definitions.” The wireframes greatly reduced the amount of time required during the technical implementation phase because they could be used directly in the implementation. “The physical technical implementation officially kicked-off from there,” she says.

Testing

During alpha testing, the stakeholders, IT department engineers, and HIE department staff were invited for functional testing and feedback. UI and usability improvement were also conducted per the HIE department’s alpha feedback.

Beta testing followed the completion of the alpha testing, and a larger group of beta testers—which included the alpha testers, the R&D engineers, and select users with non-engineering backgrounds, such as HR and Marketing staff—was invited to participate in testing. UI and usability feedback received from HIE department during the beta testing was marked as a top priority for fixes and enhancements to be addressed prior to the planned launch.

URL AND ACCESS

Trend Micro’s intranet can be accessed at https://myhome.trendmicro.com and the site is set as the default homepage of employees’ browsers.

As a world leader in Internet content security, Trend Micro places security as the top priority for the company’s intranet. Users located outside the Trend Micro network are required to log in to the company’s secure VPN using their employee ID and a password to gain access to the intranet.

TECHNOLOGY

Trend Micro’s intranet is built on Microsoft Content Management Server 2002 SP2 and the customization features are enabled through Microsoft .NET technology.

The network architecture consists of two front-end Web servers with automatic load-balancing equipment to provide high-performance availability. The database service is a set of clustered database servers. Both Web servers and database servers run Microsoft Windows 2003 servers as the operating system.

The intranet team follows Trend Micro’s standard product development process on every implementation cycle. The source code is stored in Trend Micro’s centralized source code control system. Bugs are tracked through Trend Micro’s global tracking system.

The technology behind the content management on the Trend CommUnity is Microsoft Content Management Server, which is built on .NET technology.

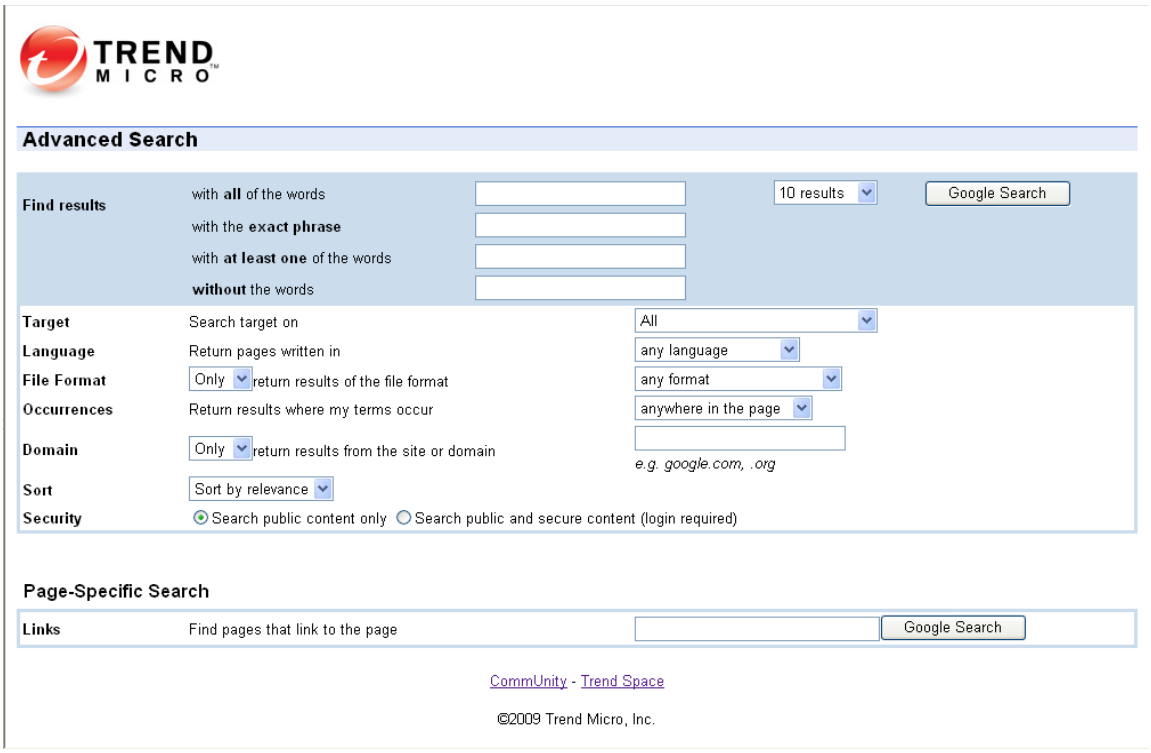
SEARCH

Trend Micro’s intranet uses Google Search Appliance (GSA) for crawling and indexing several key data sources, and the development team built several GSA plug-ins to extend the site’s search capabilities.

Users can search using keywords and apply their search request to specific data sources. The format of the search results page is similar to Google search result pages (as shown below).



Pictured: A search results page on the Trend Micro intranet. The format of the search results (powered by Google Search Appliance) is similar to a Google Web search. The user-generated content posted by employees on *TrendSpace* and the data stored in various internal company applications can also be searched and found through this central search function.



Pictured: The *Advanced Search* page, which lets users filter their searches. Among the options are to select a specific language or to use a keyword to search a specific site or a document file or an employee's TrendSpace site

CONTENT AND CONTENT MANAGEMENT

When the intranet team receives a request for a new "information channel" on Trend Micro's intranet, team members verify the request with the channel owner, then provide necessary support for the requestor to make sure the new information is aligned with the corporate organizational structure and the site's overall information architecture. They also ensure that the proper permission structure is configured.

"Channel" is a term used to describe a specific site, such as department or business unit sites. A channel can contain more sub-channels (sites/sub-sites) and additional content. A new channel might be created if it fits into the existing structure and has approval from the appropriate business unit or department heads.

The site structure and information architecture of Trend Micro's intranet aligns with the company's organizational structure: the intranet sites are defined in the corporate organizational structure and belong to the defined leadership. If a request is sent to the intranet team to create a new site, the team will verify its alignment with the corporate organizational structure and determine which parent channel/site it should be created under. Because the intranet's content is handled and maintained by the assigned (or sometimes volunteer) staff editors of the business units and departments, appropriate permission must be granted to the editors to ensure they can post and edit the correct site.

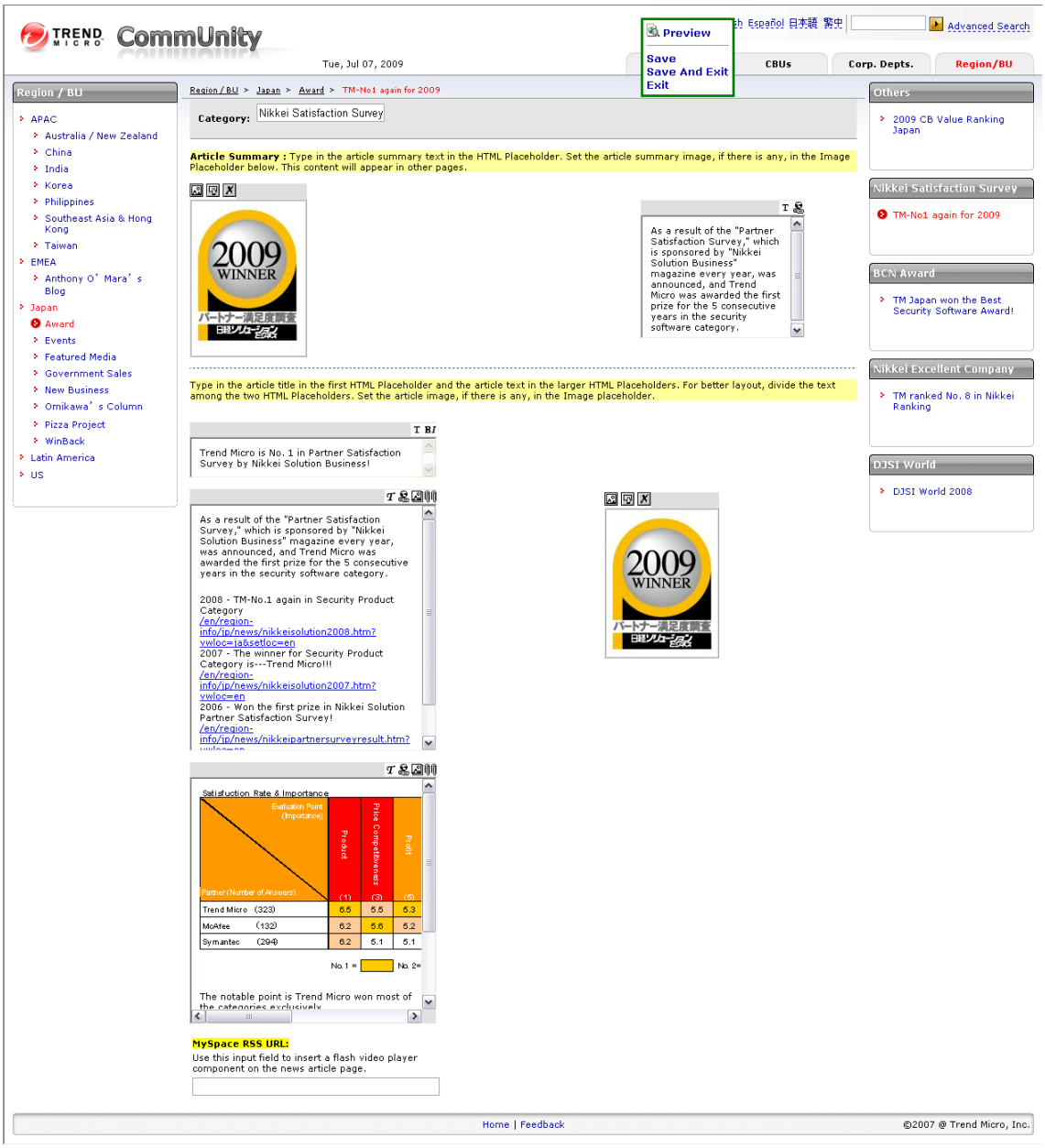
Working with Templates

The intranet team created various templates for content authors and editors to easily create postings on Trend CommUnity. Commonly used templates include the following:

- **Overview templates.** Editors can choose from several types of overview pages, each of which has a different layout and different embedded functions.
- **News template.** This is the standard template for general content.
- **Blog template.** This template is designed specifically for blog content.
- **Redirect template.** Editors use this template to easily redirect a page link to another location either inside or outside of the intranet.
- **Freeform template.** This template provides freestyle content posting for editors.
- **Event template.** This template is for inputting holidays and events on the company calendar.
- **Award template.** Using this template, editors construct employees' award lists and associated information.
- **Item download template.** This template lets editors compose downloadable files and content.

These templates are available for all Web channels; editors simply select a layout that best fits the content to be posted. Each information channel has its own authors and editors. Both authors and editors can post content on Trend CommUnity, but only editors can approve and publish content and decline or delete submitted content.

The News and Blog templates let users designate headlines that will be displayed on the homepage. Content posted using these two common templates is usually important—typically an announcement or high-level message that requires immediate attention from employees. The headline news on the intranet homepage refreshes with new content every three to five days, providing employees updated company news and messages.



Pictured: The content editing view for authorized authors and editors. Various templates are available for editors to post content to the intranet, allowing even those with limited tech skills to easily add or update content. Editors simply log in to the edit mode, select a suitable template, and copy and paste or type directly into the template. A new page is created within seconds. The templates also support images, files, and hyperlinks.

Translations and Localization

The site is translated and localized for all major languages, but it defaults to English as the official site language. All content must be created and written in English when it's first posted to the site. Editors who handle translations monitor the content displaying in the homepage headlines, select the content that is especially important

to their region (including the messages from executives), and make and post content translations. Therefore, not all content on Trend Micro's intranet is translated, but the process ensures that all of the important content is translated into the major languages. The result is better quality and more timely communication in the local areas where the company operates.

Four localized languages have been applied to the entire site: English, Japanese, Traditional Chinese, and Spanish. The user's operating system language determines which of the four homepage languages will be the default. So, users whose computers have an English language operating system are automatically directed to the homepage's default English version, while users whose computers have a Japanese language operating system are automatically directed to the translated/localized Japanese version, and so on. Users can also click the language selection tool at the top of the page to switch between languages.

In addition to the four translations provided to users, Trend Micro's intranet supports Unicode, which allows the site to display in a variety of languages (though it doesn't translate toolbars and icons).



Pictured: The homepage, localized for Japan. Trend Micro has employees in 26 countries, so localizing intranet content is very helpful for employees whose first language isn't English. The intranet provides localization for functional buttons and captions, and allows authors and editors to post translated content in local languages. In this example, headlines and news items are translated and posted in Japanese: ホーム = "Home," セグメント= "Customer Business Units," 部門別情報 = "Departments," 別情報 = "Regional," エクゼクティブメッセージ = "Executive Talks," and カンパニーニュース = "Company News."

FEATURES

Some of the Trend Micro intranet's key features include:

- **Widget framework.** The widget framework is designed to be similar to iGoogle. The iTrend CommUnity is integrated with the widget framework (developed by Trend Micro's R&D department). iTrend CommUnity lets employees customize their own intranet pages with various internal and external widgets that help with daily tasks and improve productivity.
- **Executive communication and CEO's blog.** Trend Micro's CEO, Eva Chen, writes blog posts and publishes on Trend CommUnity frequently as a means of communicating directly with employees. Web Hi-Comm is a high-level communication event (driven by the Chairman's office) conducted on the intranet on a semiannual basis. During these events, executives make company announcements, revenue updates, and present a combination of multimedia videos clips and blog posts. The goal of this event is to provide employees direct access to the executives and present the company's strategy. Employees can ask questions through the Hi-Comm page and receive executives' personal answers instantly.
- ***My Tools & Services*.** The *My Tools & Services* feature lets employees personalize their own frequently used internal and external tools and websites. With this feature, employees don't need to bookmark websites because all of their frequently used quick links are available on their own personalized intranet homepage.
- **Social networking.** *TrendSpace* was created to be Trend Micro's social network system. It provides a personal space for each employee, as well as a group space where a group of users can share experiences and discuss solutions. *TrendSpace* also supports various internal company and employee events, such as photography contests, corporate culture voting, and a movie ticket lottery.
- ***Real Time Feedback*.** Every employee can provide timely feedback to any other employee—including company executives—via the *Real Time Feedback* system. The company recognizes that positive feedback and constructive suggestions for individuals can benefit the whole company by helping to foster continuous learning and growth.
- ***Feedback Mileage Program***. The *Feedback Mileage Program* is a reward system created to encourage users to use the *Real Time Feedback* feature. Employees are awarded mileage points for participation in such activities as offering real-time feedback to the CEO or taking part in a global initiative. When the accumulate mileage points reach a certain level, employees can redeem their mileage for gifts.
- ***IdeaSpace 2.0*.** This is an interactive tool designed to let employees submit innovative ideas and operational suggestions to the executive committee. As with the *Feedback Mileage Program*, users who submit an idea or suggestion through *IdeaSpace 2.0* earn mileage points toward rewards.

PERSONALIZATION AND CUSTOMIZATION

The following are examples of personalization on the site:

- **iTrend CommUnity** lets users customize their personal intranet pages using widgets. Each user who is logged in can create his or her own *My Widgets* page on the site. On their *My Widgets* page, users can add, drag and drop, setup and personalize, and delete widgets.
- ***My Tools & Services*** are customizable quick links that allow employees to personalize their own frequently used internal and external tools and websites. Each customized list is saved in the company's network storage so employees don't need to bookmark websites. All personal, frequently used quick links are conveniently located on the user's own personalized intranet homepage.
- ***TrendSpace*** provides a "personal space" where employees can post blogs, share experiences, and upload pictures and videos. Many project teams have utilized *TrendSpace*'s interactive multimedia capabilities to improve team collaboration and efficiency. The content shared on *TrendSpace* is in rotation for display on the intranet's homepage. This provides instant access to new information directly to employees.

ROI

Trend Micro uses several standard indexes to measure the usage and performance of the intranet, such as page views, unique visitors, and geographic analysis. These tests show a steady growth of intranet usage over time. Page views have seen double-digit growth almost every year. Increases in employee participation are shown by the more than 2,000 postings made on *TrendSpace* by company employees within a calendar year.

Beyond the figures provided by these measures, the intranet improvements have led to many substantial benefits, including:

- **Cost savings and operational efficiency.** To deliver company strategy to each team around the world, the company used to conduct quarterly face-to-face Hi-Comm meetings in countries with major offices. On average, a single meeting cost the company approximately $40,000. Because Trend Micro has more than 30 offices across 26 countries and approximately 10 Hi-Comm meetings each quarter, the total expense of these events could easily add up to at least $1.6 million in a year. Hosting Hi-Comm meetings on the intranet creates both cost-savings and operational efficiencies for the company. And the feedback received on these virtual meetings is also positive. Employees are happy they can read executives' messages and revenue updates, as well as learn about company initiatives, view video clips, and raise questions directly with executives via the blog feature. And, best of all, they can do this whenever they wish and don't need to spend the entire day sitting in a conference room as they did when meetings were conducted live at an outside venue. This new intranet feature is especially beneficial for the non-English-speaking employees, because the intranet offers content translation and localized content.
- **Increase in employee efficiencies.** The intranet's customization capability lets users choose whatever tools they need to support their daily work.

- **Information transparency as a unifying force.** All employees can get the most up-to-date corporate and product news from the intranet. Therefore, each Trend Micro employee clearly understands the company's strategy in each product field. The entire company is acting more as a single team and moving in the same direction.
- **Employee assimilation is accelerated.** The information structure of the Trend Micro intranet provides the best source for new employees to quickly understand the Trend Micro organization, the business units or department the employee belongs to, and the role he or she has within the organization.



Pictured: The Trend Micro intranet's structure follows the company's organizational structure. The *Customer Business Units* section features strategic events, product and service launches, and successful stories released from each Trend Micro business unit.

LESSONS LEARNED

Following are some lessons learned by the Trend Micro team while redesigning the intranet and implementing new site features:

- **Listening to users can save time.** In most cases, the outcome of the design can be quite different from what the users actually want. In the early phase of project communication, the intranet team used a lot of client-side scripting to provide more compelling visual effects on the page. However, those visual effects were often not what the users originally described and imagined in the feedback they provided. Sometimes these changes even resulted in negative feedback from users because the mock-up designs looked complicated. So, the development team may have spent a lot of programming the front-end effects, but the effort was wasted because the users rejected them.
- **Solicit user feedback on prototypes.** Seek out user feedback on storyboards and prototypes prior to any coding. Using a storyboard prototype is helpful for users to understand the design flow for the functionality. Taking the iTrend project as an example, the team developed a storyboard prototype, in the earliest project stages. It featured all the visual effects and interactivity for demonstration purposes. With this in hand, the company's Human Interface Engineering department was able to review the storyboard prototype and provide expert UI and usability feedback to the team to hone the design to a more professional level. Although it did require more time to prepare a storyboard prototype, the effort spent could save a lot of cost in the later phases.
- **Test across multiple desktop configurations.** Because users' desktop environments vary greatly from place to place, it's important to create multiple test scenarios. The team reports that one of the typical problems, especially when adopting client-side scripting, is that the same webpage might have completely different behavior when users browse it with varying desktop configurations. Trend Micro operates more than 30 offices around the world, and each office has a locally unique network environment. The local users might use different versions of operating systems, so it's important to prepare a comprehensive set of testing environments. The team agrees, however, that the most efficient way to do this is to verify user environments through an "end-point test." This process involves getting a group of selected regional testers from the major offices to use a set of test scripts. Valuable feedback can be gained through this kind of test, such as tips on reader-friendly font size, standard colors, suggested layout designs, and the time required to load a page.

- **More functionality doesn't equal better usability.** The Trend Micro team often received requests to add various features to the intranet. If they had responded to all the requests, the implementation could have taken up to six months. Still, if most of a site's users don't appreciate or use its added functionality, the outcome could be user disappointment. So the team had to find a balance between offering needed functionality and adding features for the sake of adding them—which could add up to a big waste of both money and time. "It is important for the team to judge the requests and recommend the best solution," Elita Chen says. "More often, a popular success of content or a program or a feature resulted from committed ownership."

URS Corporation

Using the intranet:

URS Corporation is a leading provider of engineering, construction, and technical services for public agencies and private sector companies around the world. The company offers a full range of program management; planning, design and engineering; systems engineering and technical assistance; construction and construction management; operations and maintenance; and decommissioning and closure services. URS provides services for power, infrastructure, industrial and commercial, and federal projects and programs. The Sourse was URS' intranet prior to a major acquisition, and the company is currently in the planning stages of migrating all employees to one site.

Headquarters: San Francisco, California

Number of employees the intranet supports: More than 18,000

Company Locations: URS operates in more than 30 countries in the Americas, Europe, the Middle East, and Asia-Pacific.

Locations where people use the intranet: Argentina, Australia, Azerbaijan, Belgium, Bolivia, Brazil, Canada, China, Finland, France, Germany, Indonesia, Ireland, Italy, Mexico, Netherlands, New Zealand, Panama, Saudi Arabia, Singapore, Spain, Sweden, Switzerland, United Arab Emirates, the UK, the US, and US territories

Annual Sales: $10.09 billion

Design team:

The core team was comprised of personnel from two internal departments (Corporate IT and Corporate Communications), plus an independent consultant and an outside design firm.

In-house: Sue Kilgannon, Vice President, Corporate Communications; Tom Lynch, Corporate Vice President, Information Technology; Dave Tumminello, Director of Corporate Communications; Andy Aparicio, Creative Communications Manager; Brian Gendron, Sr. Manager, Executive Communication; Bill Bain, Intranet Manager; Don Roberts, IT Director; Carol Justice, IT Director; Linda Davis, Software Development Manager; Michael Wolf, Senior Developer; John Vaughan, Senior Developer; Sam Jivapong, Senior Developer; Bill Frank, Developer; Joe Zinn, Lotus Notes Operations Manager; Dan Ferner, Systems Architect Supervisor

Independent consultants: Tracy Beverly, Red Top Ranch Consulting; Ed Walter, Strategy Studio Design; Jae Yoon, Strategy Studio Design

SUMMARY

From modest roots as a way to let employees access Lotus Notes databases in 2001, The Sourse has come a long way, evolving into a Web-based tool for business.

The intranet team emphasized the user throughout the design process, listening to what users wanted and working through design iterations to make sure the end results met their needs and provided a usable and consistent experience.

The site's homepage shows the thoughtfulness of the new design. The page has a clear focus on new and updated information, but also reflects an awareness that URS is a company filled with people, not just departments and project teams. The *Employee News* and *After Hours* sections grew out of URS employees' desire to know more about one another and were unexpectedly successful when the new site launched. Employees appreciated and responded favorably to learning about others in the organization. Similarly, *After Hours* content emphasizes employees as people and not just workers.

The Sourse's team makes it a priority to publish up-to-date information on the homepage daily. Content managers in Europe and Asia-Pacific provide their own daily updates to the site for those international audiences, so employees see the information that is most relevant to them. The US team can override local content as

needed if a particular piece of information needs to be pushed to the entire company. All news items on the page, whether company news or employee news, are dated in an international format, with the month spelled out. Users can click on headlines or links to get more details, and they can view the news archives through a link near the section heading.

Users can even submit story ideas for *What's New, After Hours*, and *Employee News* directly from the homepage through a link at the top of each section. The presence of this link also acts as a reminder that users can contribute to Sourse content. This sign of the intranet team's openness to communication from employees can make employees feel that the site is truly a shared resource.

Important announcements are highlighted in the *Billboard* area, which allows the site to feature several items at once. The design of the *Billboard* exceeds other similar designs on intranets and websites. Many such designs force users to either wait as the site pages through each story, or gives users unlabeled ways to navigate between items, such as using numbers to represent stories or forward and back arrows. Neither lets users see the content of interest to them, and both force users to wait for desired content or blindly guess where the item they want might be hiding.

Avoiding these pitfalls, the URS *Billboard* area shows users each available headline, highlighting the one that's currently visible. All headlines are presented in full so users can see the complete headline without viewing the full item. Users can click a headline to view the *Billboard* summary and then follow a link to the full story if they want more detail. The first few lines of content are shown in the *Billboard* area, giving users enough information to decide whether they want more details or not.

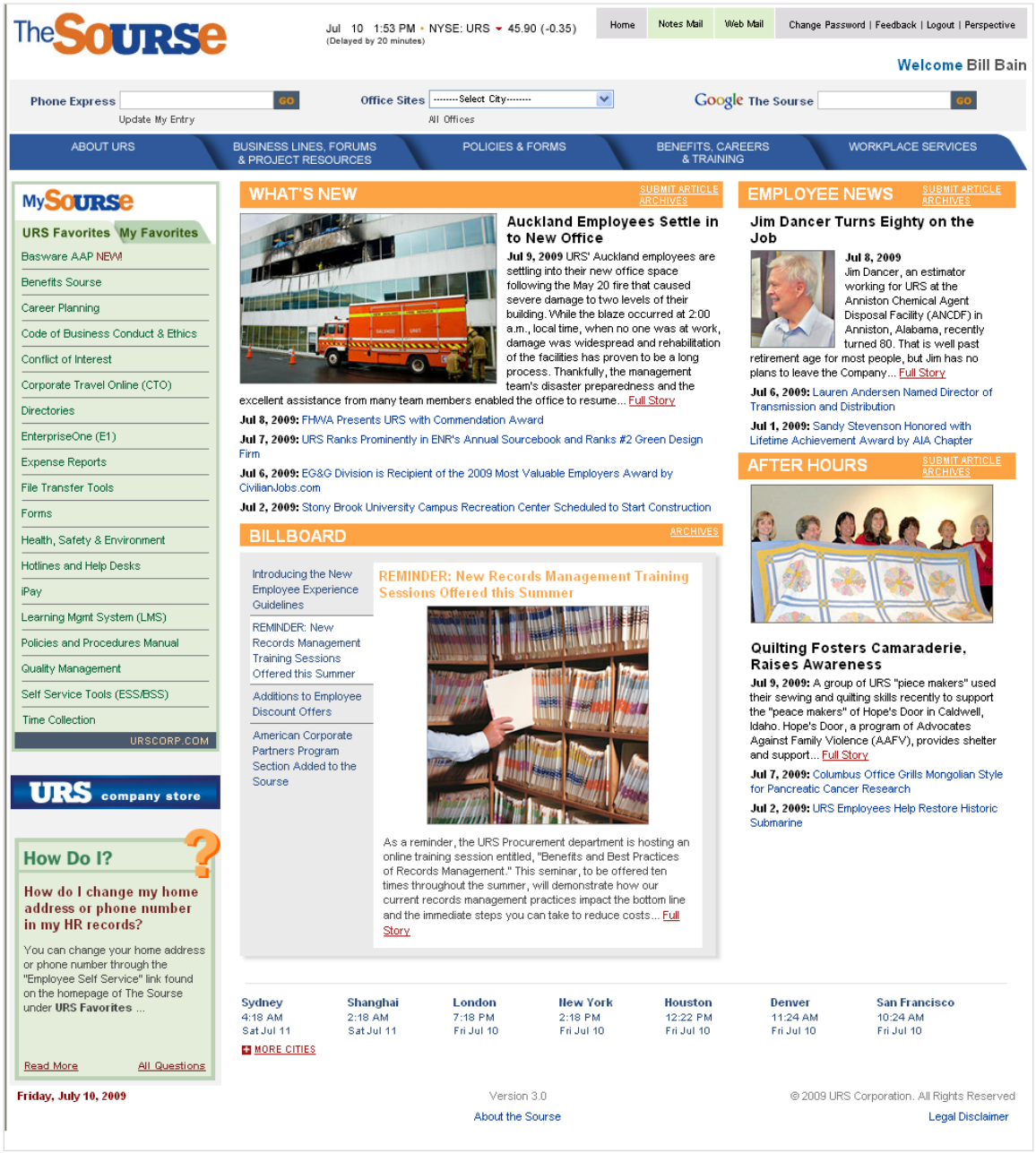
The *Billboard* area is not only well designed, it's also successful: traffic spikes to areas featured in the *Billboard*. Also, when information from the company store is featured in the *Billboard* area, sales surge—not only for the featured item, but also for the store in general.

The homepage has several other features of note. One is the combination of *URS Favorites* and *My Favorites* on the left side of the screen. To balance the company's needs with individual employees' needs, the *My Sourse* section of the page provides a combination of corporate shortcuts and employees' personalized shortcuts. *URS Favorites* reflect the most frequently used resources as gauged by metrics and user feedback, as well as important site content from the corporate point of view; *My Favorites* allows users to create a custom list of links to either internal content or external websites.

A *World Clock* appears at the bottom of the page. A practical tool for the company, it's also a reminder about the global nature of their work and their organization. The clock shows the current time in seven principal regions where URS conducts business, as well as linking to a map with information about other cities where URS has permanent operations.

An intranet homepage, like any homepage, conveys a lot of information about the organization and its priorities. The combination of content and features on the URS intranet homepage shows consideration for the needs of the company from an individual, corporate, and global perspective. Stories about individuals are highlighted and personal shortcuts can be created. Corporate information is clearly conveyed and links to key business areas are provided. The *World Clock* and

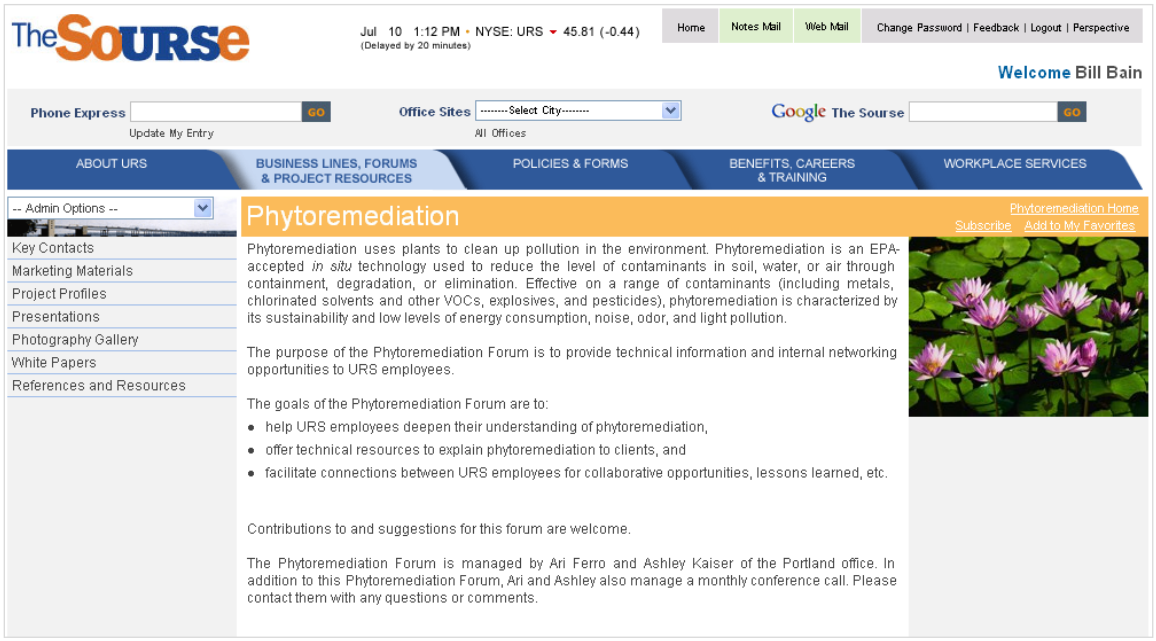
customized homepage news in different regions show the global nature of the organization.



Pictured: The Sourse homepage is a well-designed blend of corporate, personalized, and practical information.

Users rely on the site for day-to-day operations, such as receiving company news, checking email, using the employee directory, and finding forms. However, the site also supports larger business-specific tasks, such as discussing best practices in technical forums, sharing performance information, and monitoring required training completion.

Seventy technical forums provide information and resources for specific audiences and provide an area for employees to share publications and practices. For instance, the *Project Manager Development* forum and the *Leadership In Energy and Environmental Design* forum provide resources to help employees becoming project managers or achieving LEED certification, respectively. Forums about technical topics provide information intended to further employees' knowledge, to help explain processes to clients, and to provide employees with a place to share information, solutions, or documents.



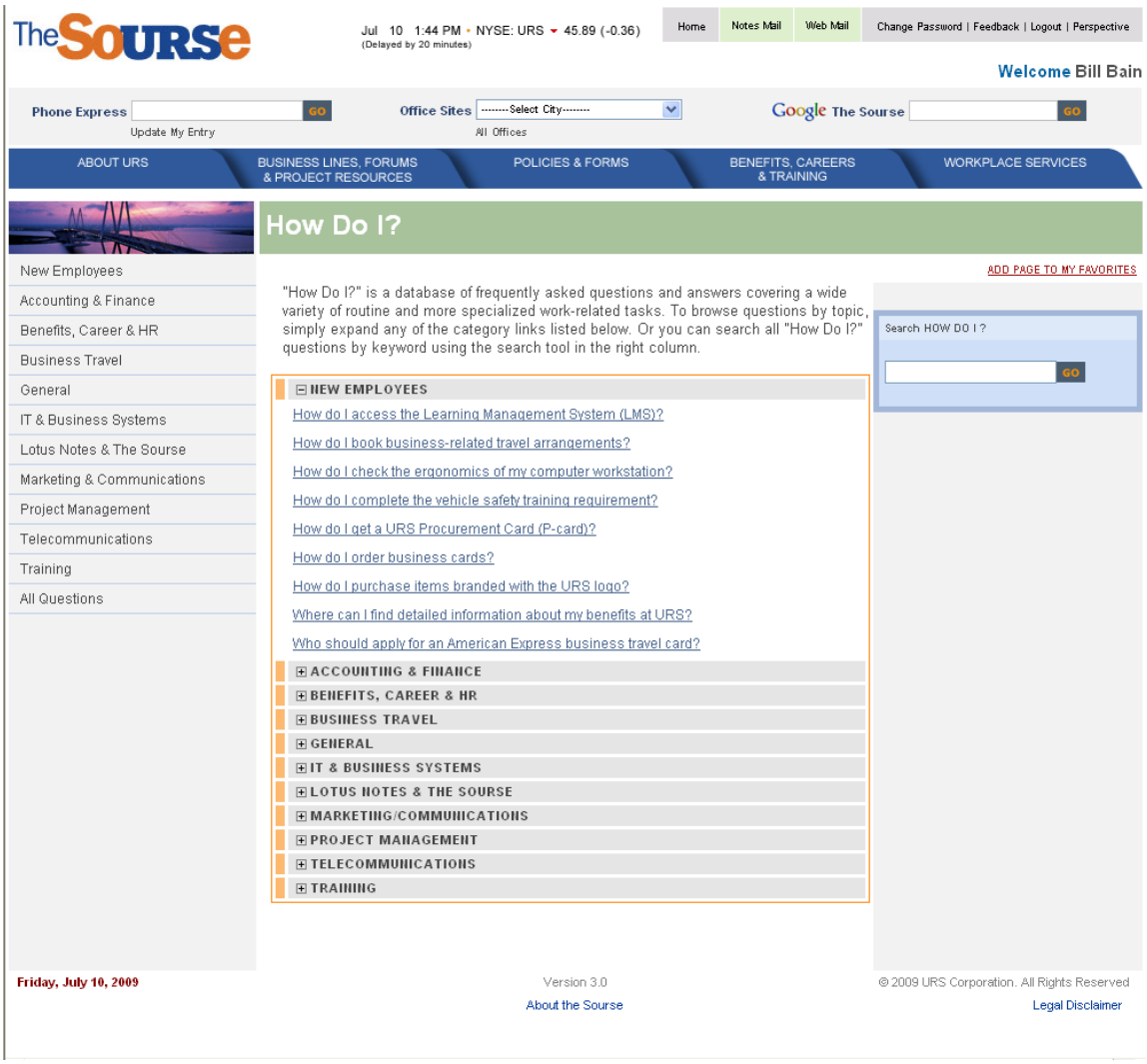
Pictured: The *Phytoremediation* forum. As this page shows, forums promote knowledge sharing by acting as central repositories for targeted information.

Forums focus on technical information, while the site's *How Do I?* feature focuses on the practical. *How Do I?* boxes appear throughout the site to promote tidbits of practical information and solutions relevant to the general content on the page. Both the question and answer are presented in the box.

This provides opportunities for learning throughout the site. Intranets are often faced with the conundrum of having to both provide a wealth of information to answer users' questions *and* making sure users can actually find that information and decipher the answers. Placing *How Do I?* boxes throughout the site is a helpful way to introduce users to information they might need, as well as to act as a reminder that the full tool is available.

Users can click through to view the full tool, which provides hundreds of questions and answers about the most common employee tasks. One section of questions is specific to new employees, answering key questions like how to book travel, get a procurement card, or order business cards. Other categories included questions about business travel, Lotus Notes, and project management.

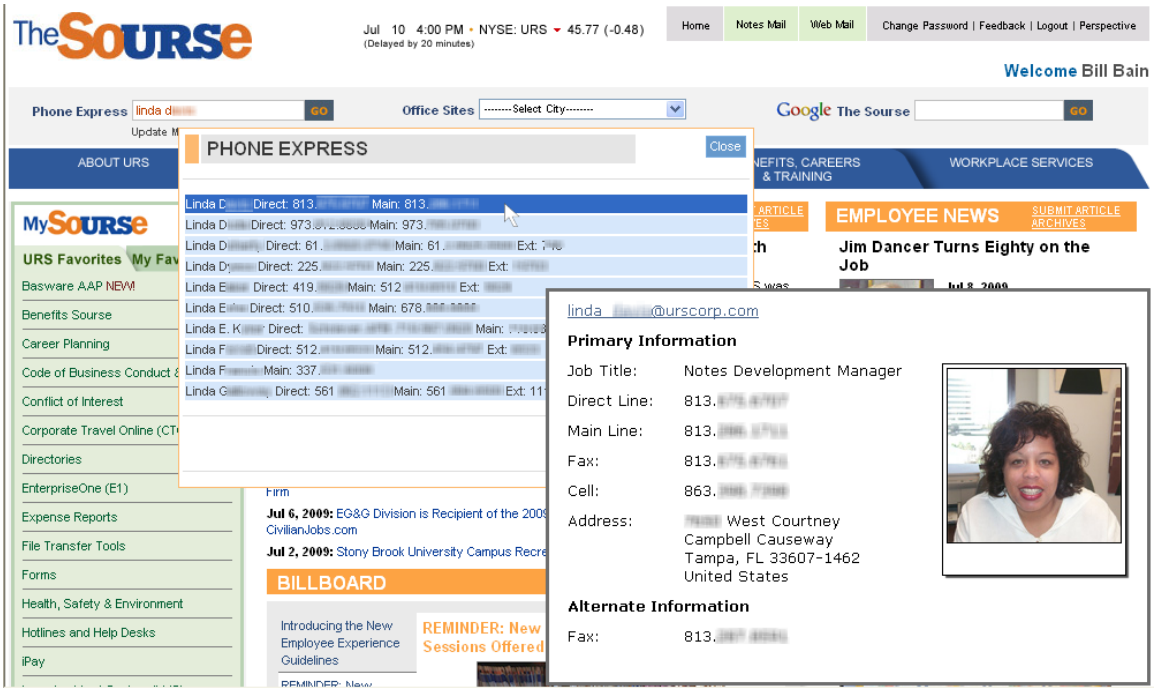
Users can browse questions or search for a specific piece of information using the search tool on the right-hand side of the page.



Pictured: The *How Do I?* database page. *How Do I?* questions and answers are featured in boxes on each page of the site. Users can also navigate to this page, where the full tool can help them find information they need by browsing or searching.

The site provides an open text field for *Phone Express*, the employee directory, on each page of the site. Three search and navigation tools are presented across the page, with the *Phone Express* search in a consistent left-hand location, a dropdown to quickly access *Office Sites* in the center, and the site search on the right. Separating the *Phone Express* search box and site search box may help users remember which box to use for which type of search.

Many organizations struggle with keeping employee content up-to-date, but URS updates the directory nightly, always providing users with current results. The tool uses type-ahead technology in which the site suggests similarly spelled employee names as the user types a query. These appear in a new window beneath the *Phone Express* search box, along with corresponding phone numbers. The user can then select a name from the suggested list, or finish typing the name and click *Go* or hit *Enter* to view an employee's full profile in a new window. Profiles include the standard information, such as job title, fax, email address, and a photo.



Pictured: The *Phone Express* tool gives employees quick access to contact information.

As the team developed the new site, they balanced the need for a consistent site experience with the need for distributed content management to keep site information interesting.

Sites that give too much control to users are often faced with a Wild West of an intranet, where every page, every link, and every piece of content has its own look, feel, and experience. Inconsistency doesn't benefit anyone and causes users to navigate from page to page wondering what the next page will look like and what will be clickable, while also struggling to understand where they are on the site. Retaining control over elements of design, structure, and content is critical to maintaining a usable site.

The Sourse team provides guidelines for contributors. Developing such guidelines is crucial when trying to retain a consistent experience while allowing contributors to have some creativity in creating content.

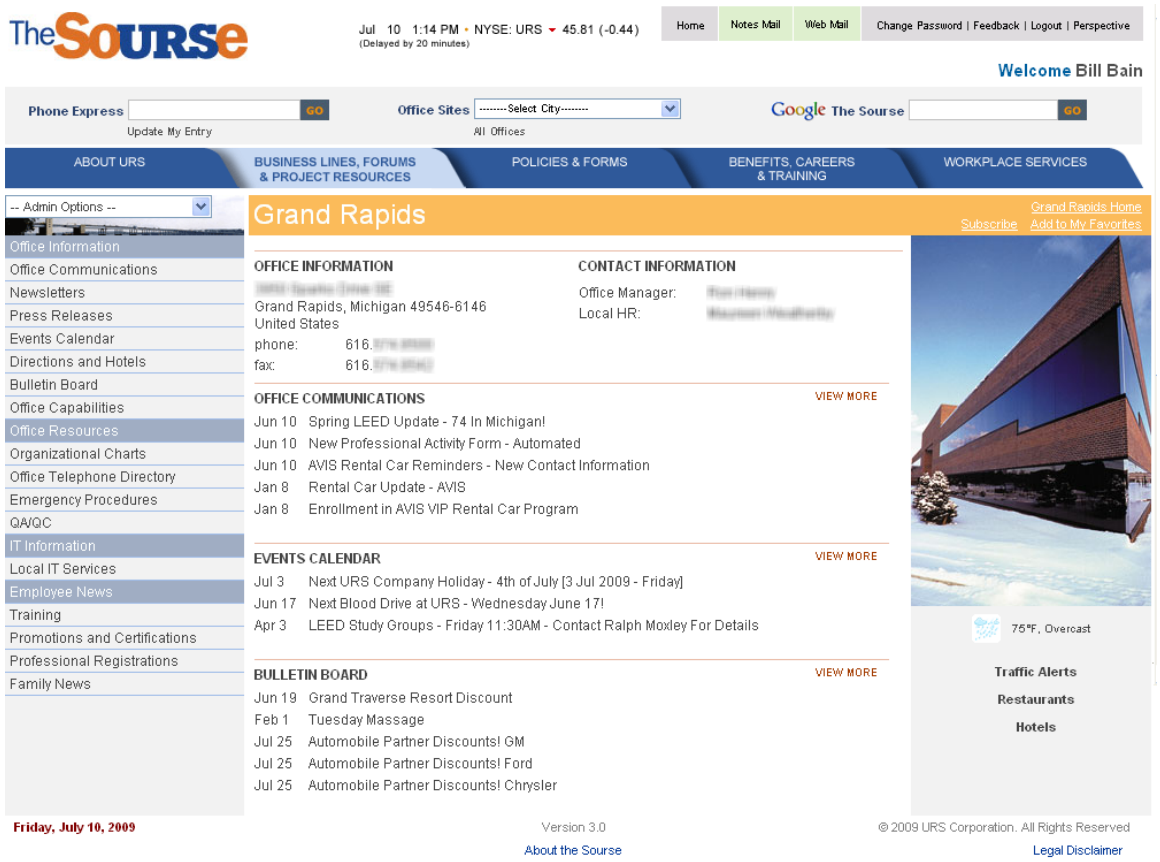
Going into the redesign, the team knew that some offices had developed their own intranets to provide information for their own employees. The team realized local offices were highly invested in these sites, and knew that the new Sourse had to accommodate those users' needs. The team therefore built local office sites within The Sourse to cut down on both duplicate sites and the work required to maintain and create them.

Office sites follow a template, but office leaders create their own content. This lets the leaders continue to provide site-specific content, but share it through the main intranet rather than building their own sites.

Users can navigate directly to the *Office Sites*, if desired, via a dropdown menu at the top of each site page. The team recognized that these sites would be an

important place for offices to share information for and about their specific location, so it made access quick and easy.

Each office has its own page and can publish its own collection of information. For instance, the *Grand Rapids* page provides all critical contact information, including address, phone, and fax, as well as the names of the local office manager and a HR contact. The main page features news and events and even provides links to local traffic information, restaurants, and hotels. Side navigation offers links to more in-depth content, including local press releases, directions, office capabilities, emergency information, and employee news. Such sections on The Sourse provide an opportunity to present localized information to employees on a site that supports a global workforce of 18,000 people.



Pictured: The *Grand Rapids* office site. Office sites are a way to present location-specific information, such as local promotions, certifications, and emergency preparedness procedures.

The team made an effort to include tools and resources that would make a practical difference in employees' days. One of these simple but powerful tools is a training progress reminder, which informs employees about outstanding required training. Employees have to complete a certain series of required training to meet federal or Occupational Health and Safety Administration (OSHA) regulations. The training progress is updated nightly, providing current information for employees. Users can click on *Learn More* at the top of the window to see more information about the requirements.



Pictured: The training dashboard in the site's *Training* section shows users up-to-date information about outstanding and completed training requirements.

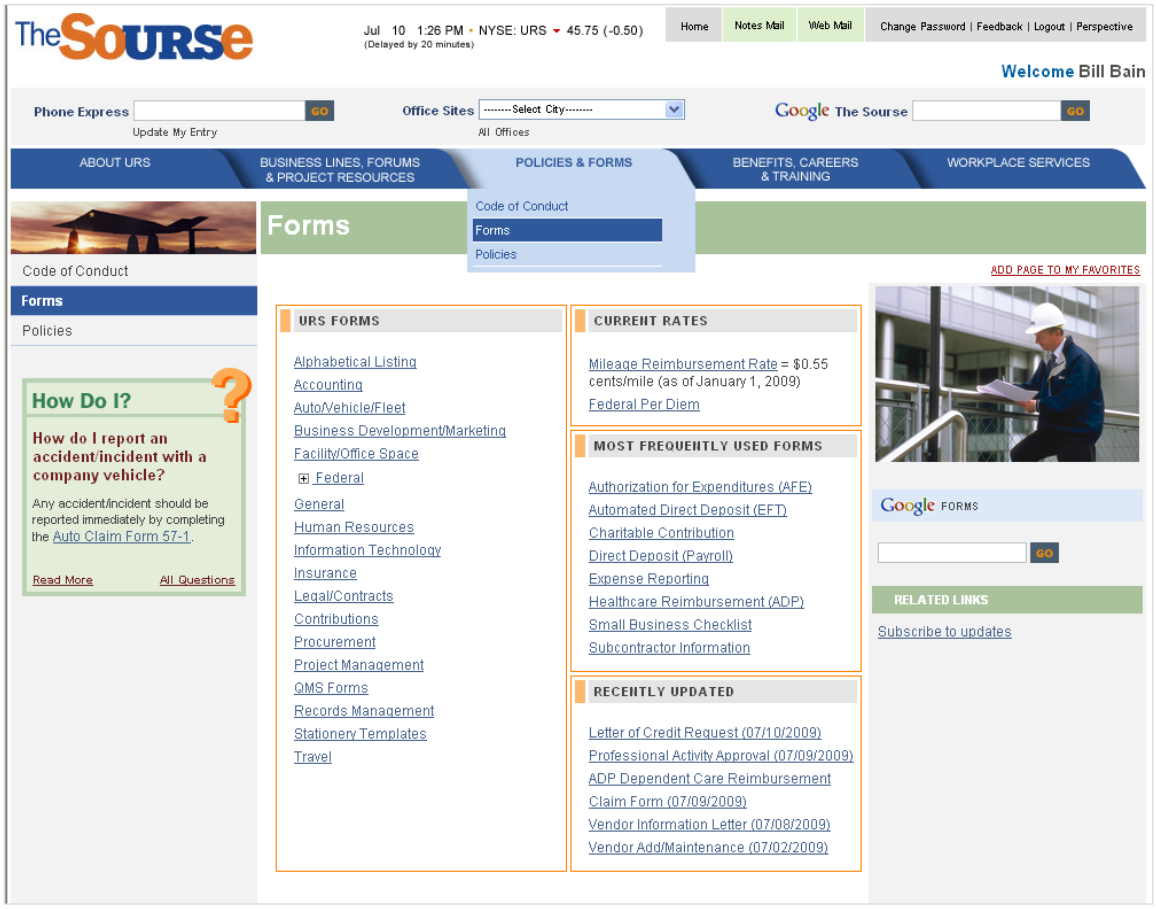
Many intranets struggle with how and where to present forms. Documents are often scattered throughout the site, appearing on departmental pages based on the department that created or maintains the form. This makes it nearly impossible for employees to locate the information they need, unless they know the entire organizational structure of the company. To address this problem, the intranet team created a central *Policies & Forms* section of the site, available via the global navigation, which gives users quick access to all policies and forms, as well as URS' *Code of Business Conduct and Ethics*.

The *Forms* page includes all forms divided by type—such as accounting, HR, and IT—as well as a link to an alphabetical listing of forms for users who know the exact name of the form they need. The page offers two additional views of individual forms, providing links to the most frequently used and updated forms. This gives

users quick access to common forms and also informs users if a form has changed. Updated forms are listed with the date they were updated.

The *Forms* page also includes its own search. The *Forms*-specific search box appears within the body of the page together with a clear heading to distinguish it from the site search shown on the top of each page.

A finishing touch on the page is access to the current mileage reimbursement rate and links to the *Federal Per Diem*—important information that is often used when completing certain forms.



Pictured: Employees can browse an alphabetical list of forms, find a form by topic, see frequently used or recently updated forms, or search within the forms area of the site.

As they were developing the new Sourse, team members realized that making drastic changes to a site that employees visit regularly has a big impact. They therefore made an impressive effort to not only "warn" users that a new intranet was coming, but to inform them about the new version to build excitement and help alleviate fear. Previews of content were offered early on via articles on the existing site. Soon after, office and branch managers were given access to a functional prototype to preview the new site.

The site was carefully tested leading up to its launch, and users could even preview the site the weekend before its official introduction on a Monday. The team also learned from past launches of new sites and applications to do a staged rollout, to

avoid creating an overwhelming amount of traffic—and subsequent bad user experience—caused by announcing and launching the new design to everyone at the same time.

These actions were indicative of the presence of and consideration for users throughout the design process. Surveys helped the team learn about how employees used the site, and the team also used the survey to recruit future usability test participants. Interacting with users, contributors, and key stakeholders throughout the entire redesign and keeping them informed and involved helped to create a site that reflects the needs of the organization. Further, by involving others, the team ensured that each group at the organization feels they have ownership in the site's development.

The team's work isn't done now that the site has launched. Team members collect feedback about the site and are actively working to improve site areas. With site search, for example, they collect data about successful and unsuccessful searches to continually tweak the Google Search Appliance (GSA) to return the most relevant results.

The team involved others, built excitement and anticipation around the launch, and responded to feedback about the site throughout its development, launch, and now through its daily use. Team members happily report that those areas of the site where employees were most involved are the most successful areas.

BACKGROUND

The URS intranet, "The Sourse," was originally created to serve as a central portal to give employees access to resources such as company news, executive communications, forms, marketing materials and discussion forums, and policies and procedures manuals. The original site was launched in 2001 and served as a point-of-access to the roughly 100 Lotus Notes databases being used by employees throughout the company. It was created using Lotus Domino technology and was accessed either through Lotus Notes desktop software or a Web browser.

The site had modest beginnings as a simple portal that gave users access to company news, their email, and other Lotus Notes databases. It has evolved to offer a more robust experience, providing users with more features and customization, and an improved user interface.

Evolution of the URS intranet:

- **Version 1:** The original version of The Sourse launched in 2001 as a simple portal into the company's Lotus Notes databases and provided most employees their first Web-based email access.
- **Version 2:** Launched in 2002, this version featured a new look and feel to the homepage and improved navigation. It also offered end-user customization capabilities with the addition of *MySourse*, a page where users could add links to the features and databases they used most. It also featured a more user-friendly interface for accessing email remotely via the Web.

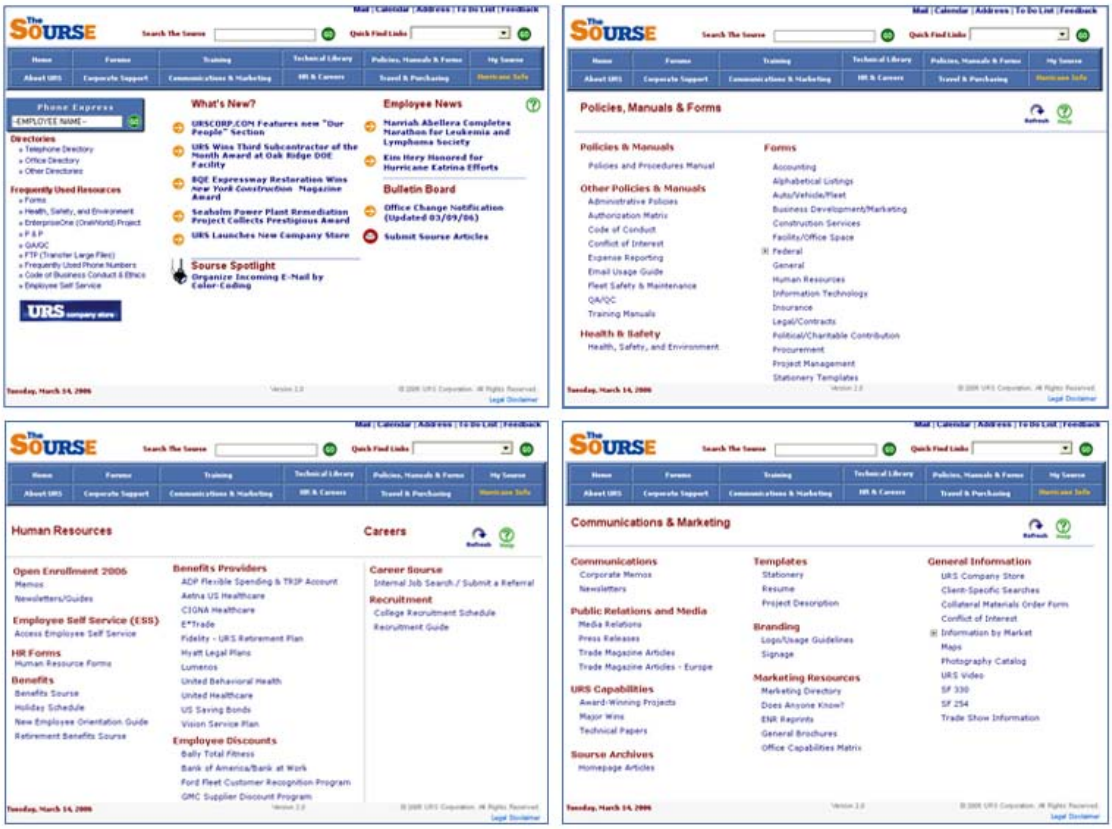
  In the two years after the launch of v.2, the team developed region-specific views for the company's Europe and Asia-Pacific operations. These views allow site managers in each region to publish content better targeted to their regions.

- **Version 3:** Two years after v.2, the team began work on The Sourse v.3, which takes end-user customization to a new level and gives the company's many stakeholders the ability to manage their content themselves. One of the top priorities for the site redesign was to create an intranet that would be accessed solely through a Web browser. The new version also was designed to provide functionality to help build online communities centered around office location, technical specialties, and business lines.

Following is a timeline of major development milestones for The Sourse:

URS INTRANET TIMELINE	
The Sourse—Version 1	
Early 2000	• Planning begins to create an intranet
March 21, 2001	• The Sourse is launched
The Sourse—Version 2	
May 19, 2003	• Version 2 of The Sourse is launched
January 13, 2004	• A separate version of The Sourse is launched for the European region
June 2006	• User research begins to guide future development of The Sourse. Over the next six months, 5,000 employees are surveyed. Interviews, card-sorting exercises, and usability tests are conducted with 50 people
July 13, 2006	• A separate version of The Sourse is launched for the Asia-Pacific region
The Sourse—Version 3	
January–December 2007	• URS completes a major acquisition, which more than doubles the size of the company. This event slows development of the site's new version • During this year, the first user interface designs for v.3 are completed for the homepage and most of the main navigation pages and the developers present proofs-of-concept for most of the new key applications
January 2008	• Development of The Sourse v.3 resumes at an accelerated pace.
February–May, 2008	• Unit testing of new applications and pages begins, including Google; main navigation tabs and pages; forums, office sites, and business lines; capabilities database; *How Do I?* database; *World Clock*; and *My Favorites*
April 1–15, 2008	• All forum managers are trained on functionality of new forums, and migration of content to new sites begins on first-come, first-served basis
May 2008	• A series of articles are published on the existing Sourse offering "previews" of the new version to all employees • A working prototype of The Sourse v.3 is presented to executive leadership, with a demonstration of its new features • All business line leaders and content managers are trained on the new business line sites • A test of the new CMS is conducted in all

	three regions (Americas, Asia-Pacific, Europe) • Code Freeze: All new development ceases • Developers focus on testing and fixing • Server load tests are conducted to verify that the infrastructure originally created to house The Sourse is sufficient to host the new design • Preliminary testing of The Sourse v.3 prototype is conducted among Corporate Communications and IT personnel
June 2008	• Pre-pilot testing (using a detailed test plan) of the new Sourse is conducted among a wider IT community and all employees who previously participated in usability tests • Office and branch managers are given access to a working prototype of The Sourse v.3 in order to preview it before the actual launch • A pilot test (using a detailed test plan) is launched in phases in 10 key American offices; fixes are implemented progressively • A "dress rehearsal" of the launch is conducted over the weekend. All employees logging into The Sourse over the weekend are able to view the new site • A deployment plan for Sourse v.3 is announced to all employees
July 2008	• A pilot test of the European and Asia-Pacific versions of The Sourse is conducted among personnel in each region • The final phase of the launch of Sourse v.3 is complete and all employees are live on the new version of the site



Pictured: Various pages from the previous version of The Sourse.

INTRANET TEAM

Within the company, The Sourse is supported by a team of personnel drawn from both the URS IT and Corporate Communications groups, including project managers, developers, systems administrators, writers, and designers, which comprise the equivalent of approximately six full-time employees per year.

To augment the internal team, the company looks outside its ranks to Tracy Beverly, an independent consultant, who provides the team with guidance on the information architecture and navigation models and usability testing on key site sections. An outside designer contributed graphic design direction and supplemental templates that were handed off to the internal team for implementation. While The Sourse's initial design and development plan (in 2001) was largely defined by outside consultants, with development done by URS personnel, today, nearly all development and management work is completed in-house. This evolution has helped them better meet the needs of their internal clients.

"Using an in-house development team has allowed us to define our own development style and better meet the needs of our internal clients, with a quicker response time," says Sue Kilgannon, Vice President of Corporate Communications.



Pictured: The URS Tampa, Florida team members. (Left to right): Dan Ferner, Don Roberts, John Vaughan, Tom Lynch, Carol Justice, Joe Zinn, Linda Davis, Bill Frank, Sam Jivapong, Michael Wolf.



Pictured: The URS New York team. (From left): Sue Kilgannon, Andy Aparicio, Dave Tumminello, Bill Bain.

GOVERNANCE

The Corporate Communications group is the champion for The Sourse, but both the Corporate Communications and IT departments share responsibility for the intranet and, according to Kilgannon, work seamlessly as The Sourse team. “This positioning has fostered a close collaboration between the two groups,” she says. “And it has allowed us to consider our internal clients’ needs from both a technical and content-oriented viewpoint. Because of our reporting structure, we also are able to ensure that development of The Sourse is in close alignment with the priorities of our corporate leadership.”

The Communications and IT groups have managed The Sourse since its inception. In its early phases, two or three people coordinated the intranet on a part-time basis, but as the site grew and became a more integral resource for employees’ day-to-day

work, positions were added to focus primarily on The Sourse. As the site expanded geographically, the Communications and IT teams in the company's European and Asia-Pacific operations have taken ownership of the content for their respective versions of the site, with content managers designated for each region. The following table shows the breakdown of roles and responsibilities in governing and managing The Sourse.

GOVERNANCE OF THE SOURSE	
Role	**Responsibilities**

Corporate Communications Group	• Formal owner for all Sourse applications
	• Strategic development of The Sourse as primary internal communications tool
	• Works with executive leadership to identify priorities and ensure that The Sourse supports:
	  o New initiatives and programs
	  o Business and operational needs
	  o Quality and safety management programs
	  o Consistent messaging
	  o Ongoing communication with employees

The Sourse Team	• Monitors user feedback to guide improvements to existing applications and future developments • Creates daily updates to homepage content • Manages content for all pages supporting operations (such as HR, Finance & Accounting, and Quality Management) and for corporate information pages • Maintains the *Policies & Procedures* and *Forms* databases • Establishes standards, guidelines, and templates for customizable sections of The Sourse (business line sites, office sites, and forums) and future development • Creates new customizable sections upon request • Trains and supports content managers for customizable sections
Europe & Asia-Pacific Content Managers	• Create daily updates to content on the homepage in their respective regions • Manage content for all pages supporting operations (such as HR, Finance & Accounting, and Quality Management) and for corporate information pages in their respective regions
Business Line Directors	• Oversee the maintenance of content on their respective business line sites. This responsibility can be delegated to one content manager or to several site contributors • Promote the site within their groups
Office Managers	• Oversee the maintenance of content on their respective office sites. Usually, this is delegated to one or two content managers • Promote the site within their offices • Facilitate employee buy-in
Forum Managers	• Maintain content on their respective forums. • Work with the Corporate Communications team to promote their forums internally
Workplace Services Page Owners	• Work with The Sourse team to update their respective pages • Delegate updates or changes to other members

	of the team/department
End Users	• Customize sections of The Sourse, including *My Favorites* and users' personal directory entries • Contribute to collaborative applications such as forums, office sites, business line sites, and blogs • Provide feedback to The Sourse team regarding potential improvements

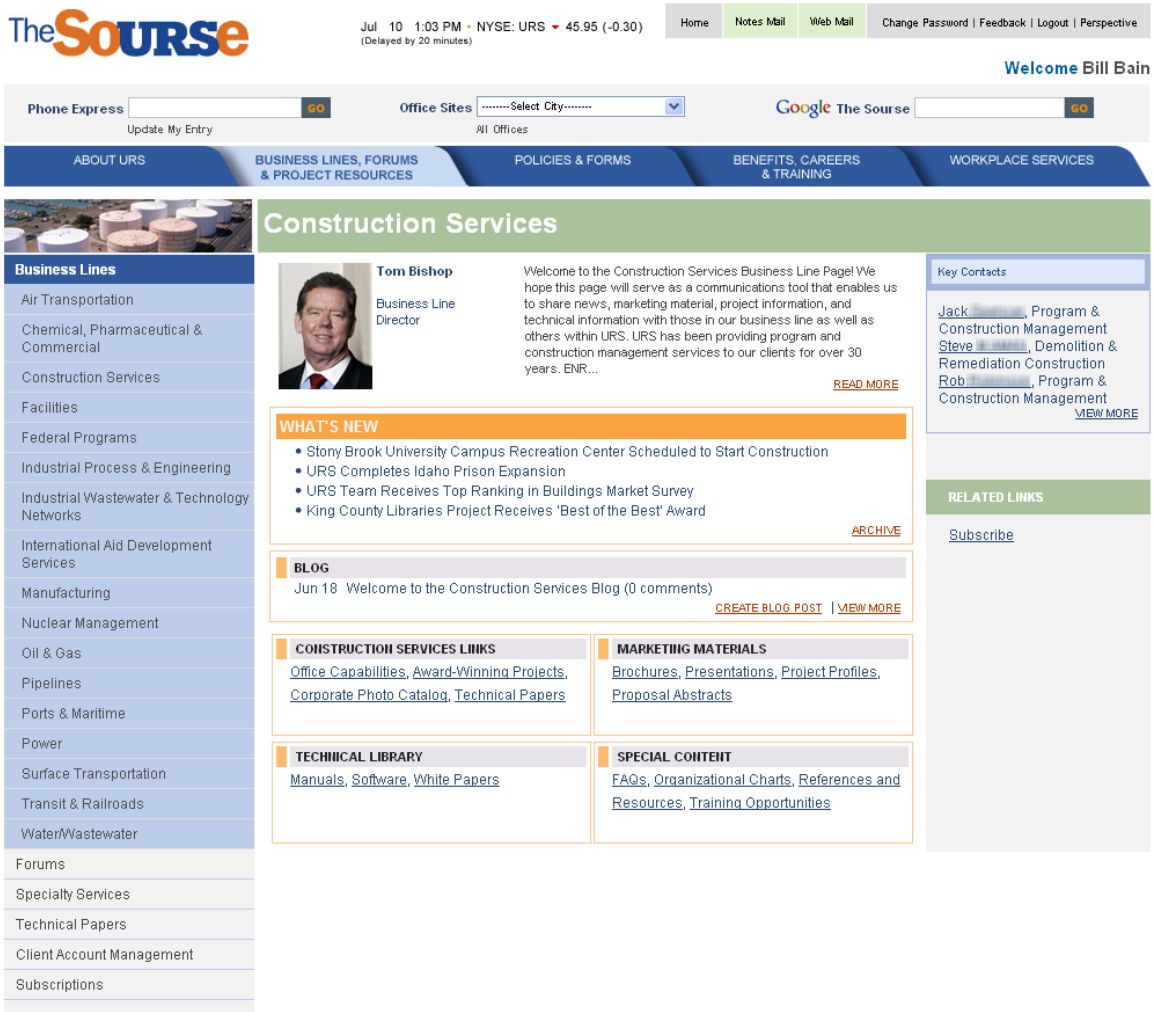


Pictured: The *Finance & Accounting* page is one of 12 pages listed under the site's *Workplace Services*. These pages house all information about each of the various operational support groups, including department *Key Contacts*, featured in the right column.

Centralized Administration: A Delicate Balance

The Sourse team administers much of The Sourse centrally. This lets the team reinforce standards for branding, editorial content, development, and security. "However," says Bill Bain, Intranet Manager, "one of the challenges of having such centralized administration is finding a balance between adherence to standards and giving our users the ability to customize content. One of our top priorities has been to give our employees—both individuals and business groups—ownership in The Sourse and its content."

The team has accomplished this through the development of customized features such as: office sites, business line sites, forums, and *My Sourse*. "Through user surveys and an email feedback feature, we continue to have a dialogue with our users in an effort to find ways to give them more say over future development of The Sourse, while enforcing our standards," he says.



Pictured: The *Construction Services* business line site shows the different resources that business line directors can use to create an online community for their business lines. Through the site, they can communicate with their reports, view the latest industry information, and post marketing materials. Key contacts for the business line appear in the upper-right corner.

USERS

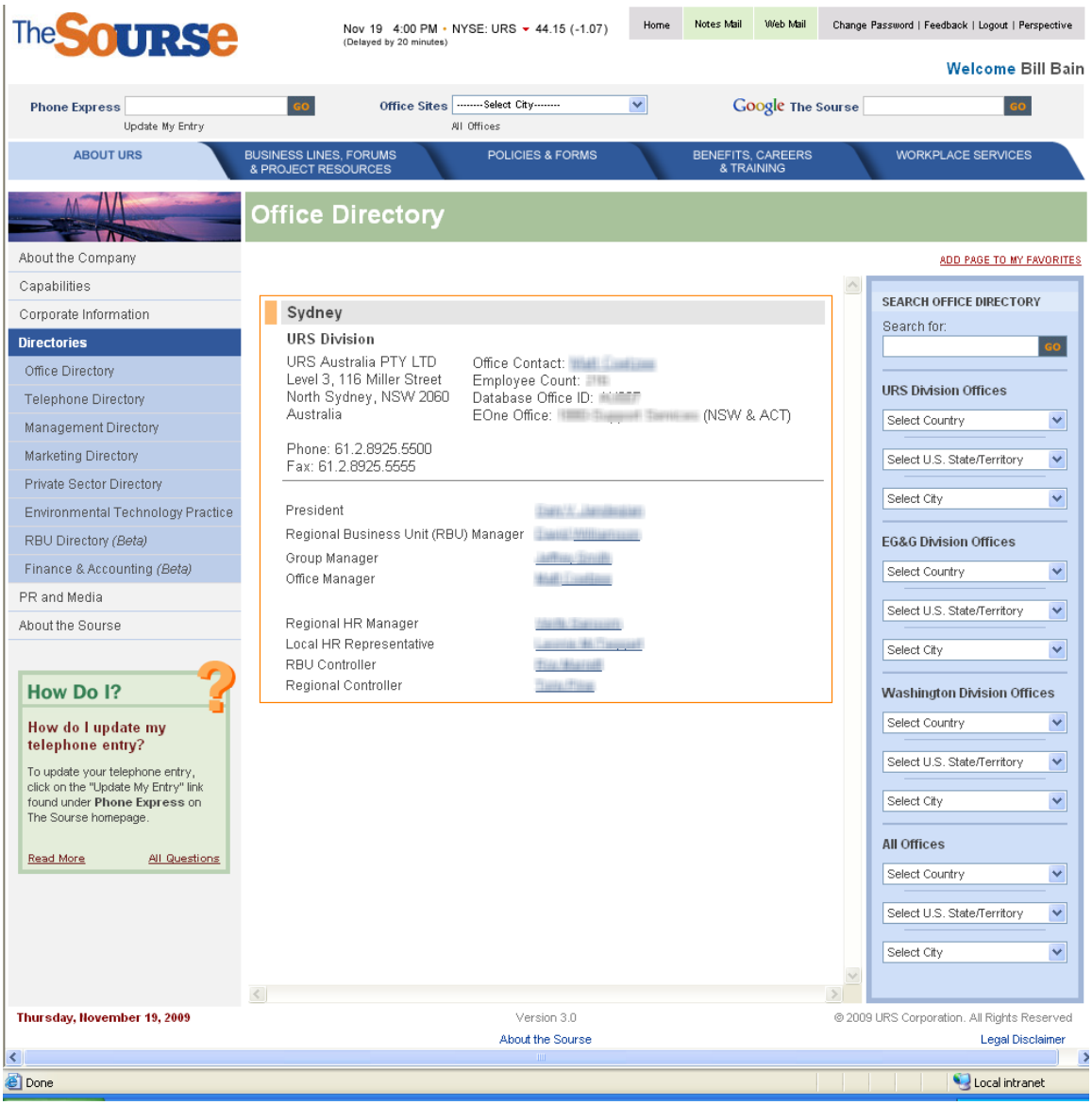
The Sourse is used by employees in every role and at every level of the company, from engineers and scientists collaborating on a project or sharing technical expertise to administrative assistants making travel arrangements or completing an expense report, to the CEO communicating with the company as a whole.

USER TASKS

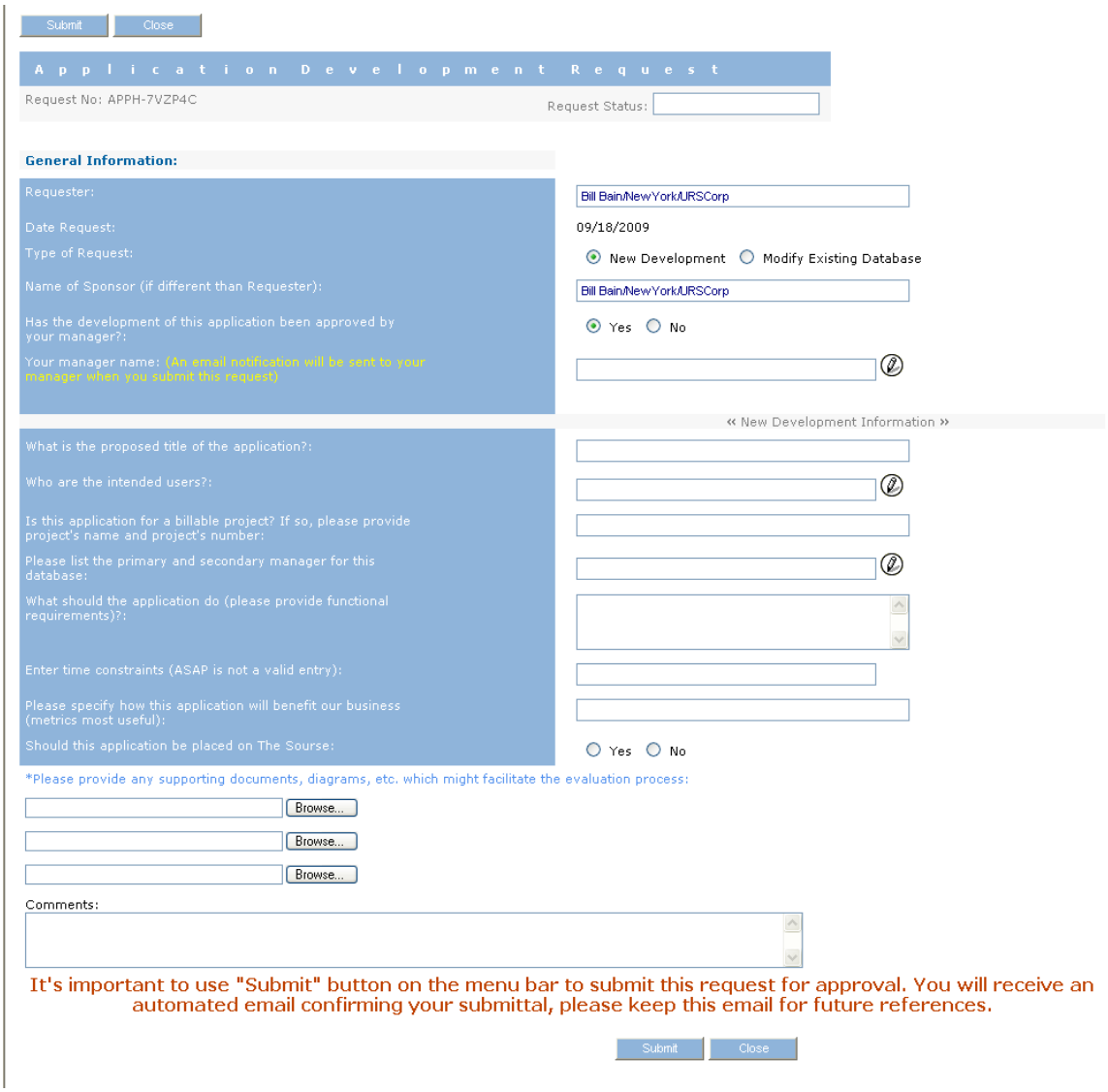
With more than 18,000 users in the Americas, Asia-Pacific, and Europe, The Sourse is an integral part of each office-based employee's workday, providing access to day-to-day tools like email, timesheets, the latest company news, and the employee directory. Employees can use The Sourse to access the latest forms and training resources, external benefits management, and online travel-booking tools, and even resources for planning their careers. The Sourse also provides timely information about matters such as office closures, telephone outages, or events that might severely impact operations at any of the company's locations, including severe weather and natural disasters.

According to a recent survey, URS employees use The Sourse most often to:

- Get the latest company news
- Access the email system
- Locate employee information in the employee directory
- Look-up office information in the office directory
- Navigate to the *Benefits* self-service system
- Take advantage of *Career Planning* tools
- Connect to the accounting system and locate support information
- Find forms in the *Forms* database
- Consult the *Policies & Procedures* manual
- Access file-transfer tools
- Look-up personal payroll information
- Connect to the external timekeeping software
- Find training opportunities and training support



Pictured: The results of an *Office Directory* search for "Sydney."



Pictured: An example *Application Development Request*. This automated form can be completed, approved, and submitted to IT entirely online. Fields with required information such as "manager name" are populated by pulling names from the corporate email address book.

In addition to these day-to-day tasks, employees can also use The Sourse for a number of higher-level activities:

- **Engineers and technical personnel** can use the forums to collaborate and share best practices and technical advice with professionals in other offices—or even across continents. They also can post technical papers for the reference of other engineers or publicize their specialties internally.
- **Business line managers** can provide the latest information about the performance of their respective business lines and communicate with the employees on their teams.
- **Local offices** can update employees about office policies, safety practices, employee announcements, or upcoming events.

- **All employees** can access a number of resources from operational support groups such as Procurement, Finance & Accounting, Legal, and Quality Management. They can also monitor their progress in required training modules, and can report health and safety or nonconformance issues to an incident tracker application, which then allows investigation leaders to monitor and document corrective actions to prevent any similar incidents in the future.
- **Marketing personnel** can access a variety of marketing resources, including a searchable technical-capabilities database, brochures, press releases, history and fact sheet, presentations, resume templates, and videos. They also can connect with other URS marketers to share ideas and resources.
- **Project managers and business development personnel** can access a database of standard contracts and can find guidance on mandatory policies regarding contracts with the US federal government.

THE DESIGN PROCESS

The Sourse is a vital part of the work life of URS employees. And because it's such an important company asset, the intranet team tries to incorporate ongoing upgrades and enhancements to the site. Significant improvements are made every few years, while smaller, more incremental changes are regularly implemented. Over the years, the team identified several large initiatives they wanted to implement, such as an improved search function; an interactive database of technical capabilities by office; micro-sites specifically created for the company's local offices; and additional customization options for forums and business line sites. "We also wanted to address employee feedback stating that it was difficult to find the resources they needed," says Bain.

Based on the amount of work it would take to code these and other new applications for both Lotus Notes and the Web, the team determined that a new, Web-only version of The Sourse would better serve their needs. "This also would allow us to take advantage of the newest Web technologies and give The Sourse a more current look and feel," says Bain.

GOALS AND CONSTRAINTS

Here, Bain lists the goals the team had in mind when undertaking the most recent redesign:

- Eliminate the need to code for two clients (Lotus Notes and Web browser)
- Allow the most frequently used content to be accessed directly from the homepage
- Give users a simple way to populate a list of their favorites
- Create a section where local offices provide customized content to their employees
- Streamline and improve the navigation's usability
- Adopt a more contemporary Web-like look and feel, using the latest Web technology
- Implement a more robust search engine

- Acquire more detailed metrics reporting

An Unexpected Challenge

As is often the case with these types of projects, the team struggled to make the most of a limited timeline. Here, however, the version 3 redesign was greatly affected by a large company acquisition. "In the middle of the development of Sourse version 3, URS announced that it would be completing a major acquisition, essentially doubling the company's size," says Bain. Because staff resources were dedicated to the acquisition and integration during that time, the timeline for the redesign was reevaluated—and extended.

Reaching Everyone

Currently, The Sourse serves all URS corporate staff, its URS Division, and many employees from the company's EG&G and Washington Divisions, with the remainder using intranets from previously acquired firms. "Our next step," says Bain, "is to begin plans to migrate all employees to a single intranet."

In addition to this aggregation, the team is looking at solutions for reaching the company's field-based personnel. "Many of our employees work in the field and do not sit behind a computer," says Bain. "Once we have a single intranet for all employees, we will begin looking at solutions for reaching our field-based personnel, which could include the latest advances in mobile technology and social media. We also continue to look for ways to give users more personalization options."

USABILITY

Involving users

Changes to The Sourse, whether big or small, are made with the users in mind and with the users involved. "Since the very beginning of The Sourse, we have made it a priority to pay attention to user feedback, employing their input to guide its ongoing development," says Bain. "While we approached the redesign with several priorities already in mind (based on user feedback, best practices, and current technologies), we also felt it was important to conduct thorough user research to identify what changes needed to be made and how to implement them."

An email survey of approximately 5,000 users helped to identify the top priorities for the redesign, such as what intranet resources employees used the most, what type of content they felt was missing, and what features they found difficult to use. The team also asked for volunteers to participate in future usability studies.

Following the survey, team members sat down with a small group of employees to observe how they used the existing version (v.2) of the site. They presented the employees with approximately 25 common tasks, such as completing a timesheet, finding and completing an expense report form, locating a colleague's phone number, booking business travel, and consulting the *Policies & Procedures* manual. While they completed the task, facilitators asked them to verbalize their thinking process in order to understand their logic. Users were timed during this exercise.

"These user observations provided us with a clearer understanding of what was needed from our new navigation," says Bain. "In addition to input from the surveys, this information guided us as we created a series of wireframe prototypes of a new navigation system."

During interviews with volunteers from the first survey, the team presented participants with wireframes of the proposed navigation system and asked them where they would expect to find each of the site's 25 most frequently used resources. "We asked them to explain their logic and used the feedback to refine the proposed navigation," says Bain. "This resulted in reducing the number of tabs in the primary navigation from 10 (in version 2) to five (in version 3).

"Our research led us to choose a horizontal top-navigation with dropdown menus activated on hover," he says. "When tested among our users with mock-ups, we found this approach to be the most practical for our needs. The dropdown menu allowed users to identify what pages could be found under each tab, eliminating time wasted by hunting and clicking. As we made changes to the navigation, we continued to test to verify that we were on the right track."

The team tested this new layout in several ways. Approximately 50 phone interviewees performed card-sorting and paper-prototyping exercises to come up with a consensus on what type of resources they expected to find under each tab. The facilitators asked the interviewees to perform the same list of tasks from the earlier observation sessions. Using the new navigation, they found that users were able to complete most of the tasks straight from the homepage in a fraction of the time it had taken previously.

"These tests confirmed what users had been telling us in previous feedback and in our research," says Bain. "While the results were not surprising, they verified that we were progressing in the right direction."

Finding Inspiration

When designing the new site navigation, the team considered how many public websites had approached the challenge of categorizing a broad range of information. "When defining our new approach to navigation, we considered the best practices of many popular websites, such as Amazon, Yahoo!, and Best Buy," says Bain. "We turned to websites such as MSN, CNN, and BBC to consider their treatment of daily news items. Sites like these gave us the inspiration to create a rotating news section like *Billboard* in order to give us some flexibility with real estate."

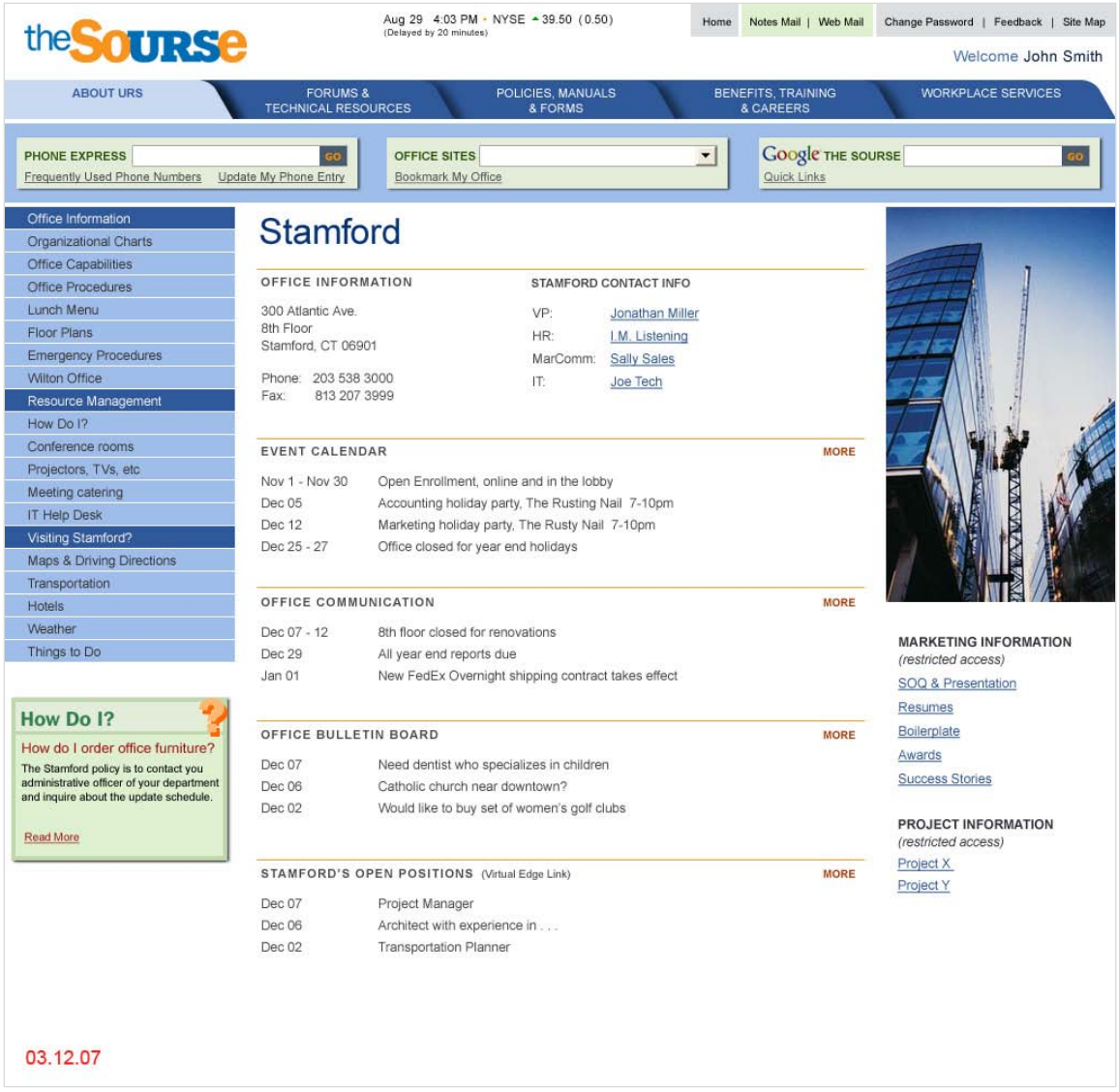
"We also considered the recommendations of the Nielsen Norman Group's *Design Annual* and intranet standards, as well as other intranet design references," he says.

USABILITY BEST PRACTICES

Kilgannon and her team learned a lot while conducting their user activities. Here, they share some of their best practices recommendations:

- **Context is important.** It can be helpful to document the type and version of the participant's Web browser, how they are accessing the intranet, their location, and so on. This information can prove very useful should you encounter technical issues implementing the redesign at a later time.
- **Initial usability efforts don't need to be tightly structured.** When the team first began their employee observation sessions, they were conducted very informally at users' desks over lunch and took less than a half-hour. The results received from these "interviews" pointed to trends that they would see more clearly during subsequent, more formal testing.

- **There's no such thing as too much feedback.** The more you engage with your users, the more clearly you can identify potential issues and develop and test solutions.
- **Be flexible. Be willing to refine your approach.** Practice makes perfect. As you conduct more interviews and usability exercises, you will find better ways to ask for the information you need. Explaining the task you want the user to perform—without unknowingly giving tips or prompts—isn't always as easy as it sounds. Over time, you also may notice and eliminate subtle ways that you may be leading the participant. As you conduct more interviews and usability exercises, you may notice that the participant is confused—not by the task itself, but by the way you have presented it. Always look for ways to be clearer in your requests, without affecting their actions.
- **Let the user do the talking.** Ask the users to verbalize their thought processes, and react as little as possible to their comments and actions. When a user is struggling to perform a test, you may be tempted to nudge them in the right direction. However, it's at this moment that you may get a clear idea of your users' intuitive logic.
- **Be respectful of your users' schedule.** Accommodate the test participants whenever possible. Remember that they are helping you do your job better.



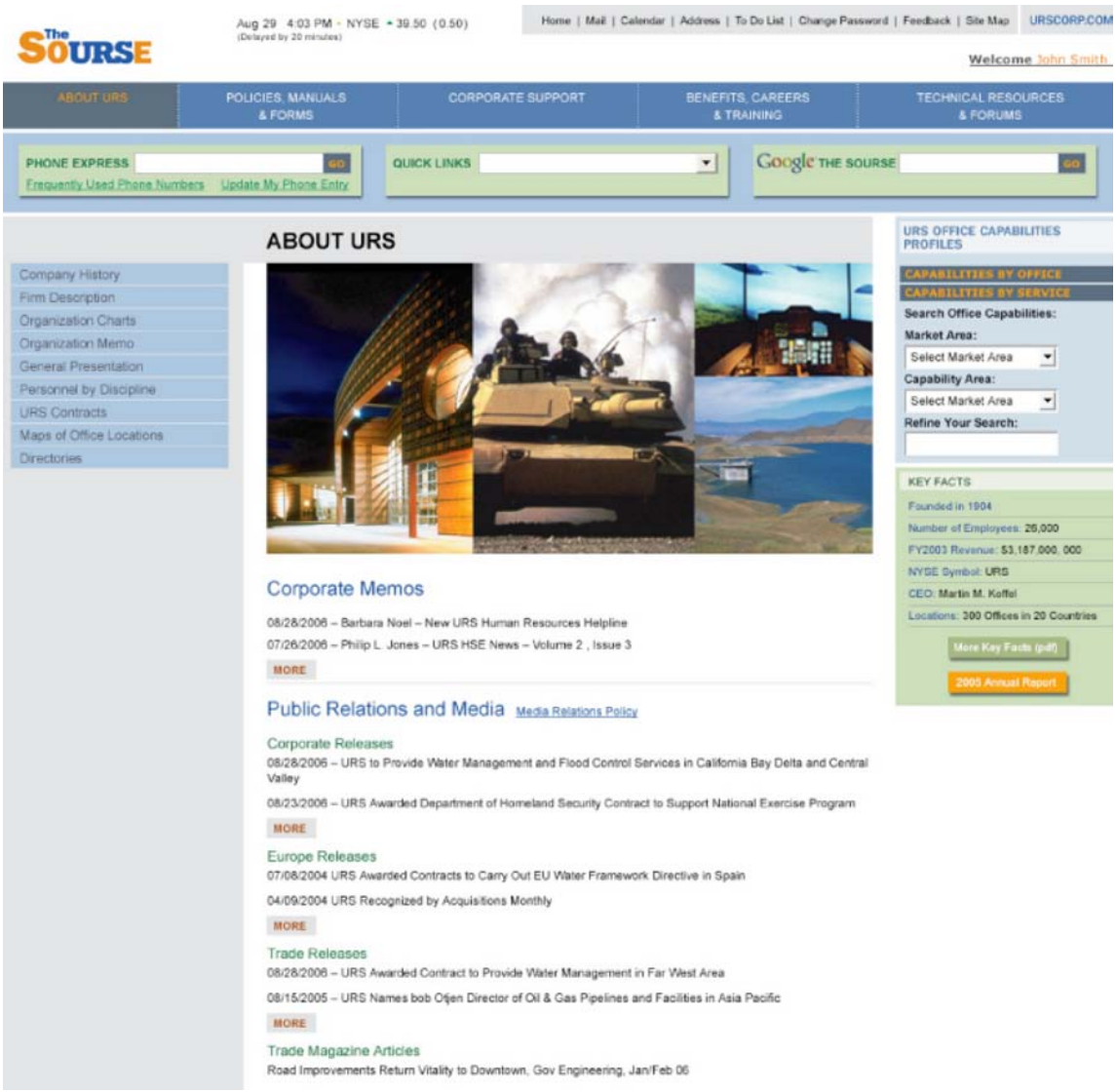
Pictured: An early version of the office site template shows a different color scheme and navigation from what the team finally settled on for the redesign.



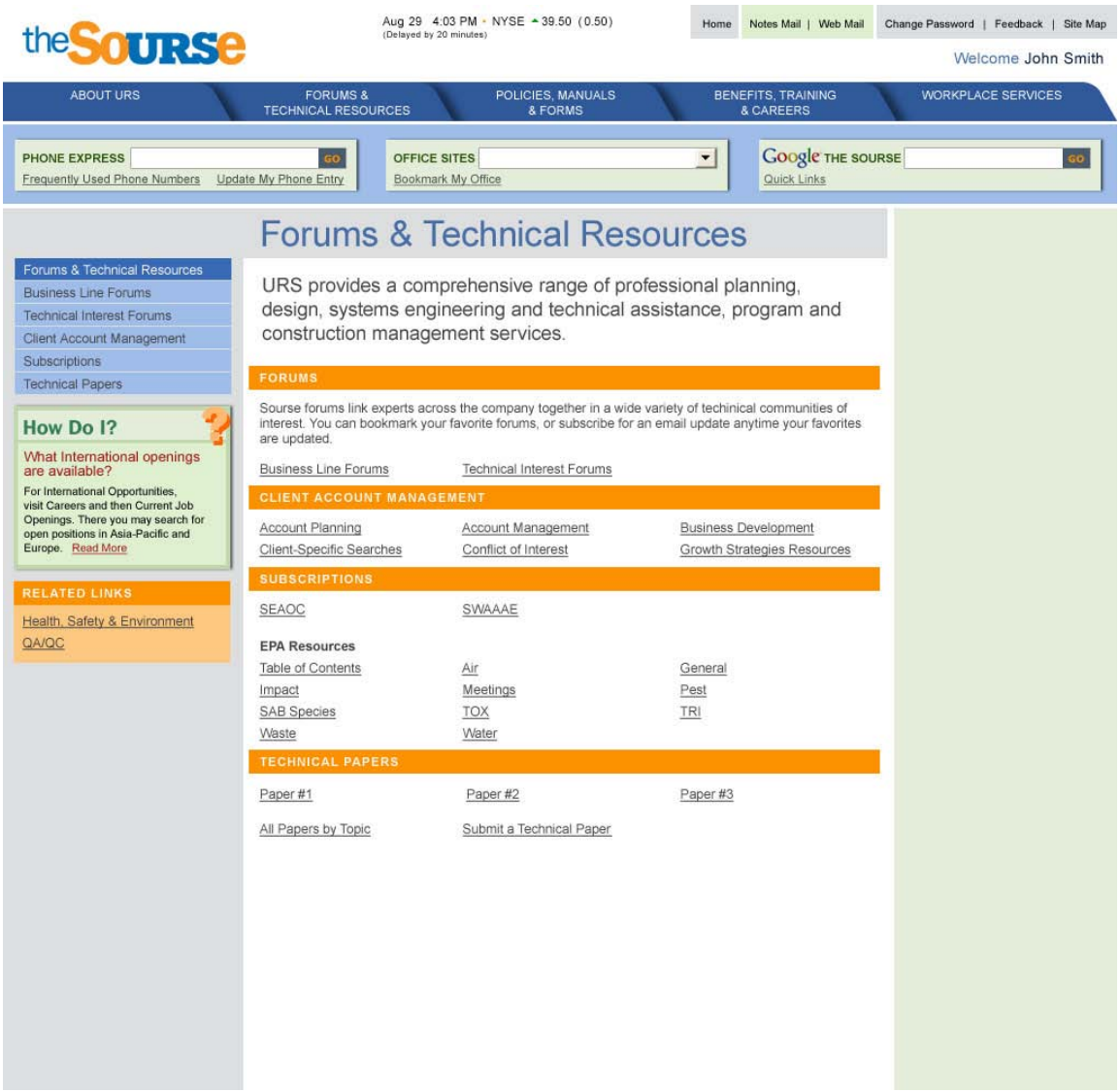
Pictured: This early prototype of the homepage shows a slightly different use of colors than the final design. Note the more "boxy" header, which they later moved above the navigation tabs. *How Do I?* also appears above *My Sourse*, and the *Billboard* treatment is entirely different.



Pictured: The first design of The Sourse v.3 featured rigid tabs at the top of the screen, a different treatment of the header and a much smaller *Billboard* feature located in the right column. The team tabled the proposed *HR Corner* feature, to reconsider it at a later time.



Pictured: This mock-up of the *About URS* page matched the first homepage design, with its box-like tabs and header. The organization of content in the center column was later revised completely.



Pictured: This early mock-up of the *Forums & Technical Resources* page features a very simple layout, with little graphic content.

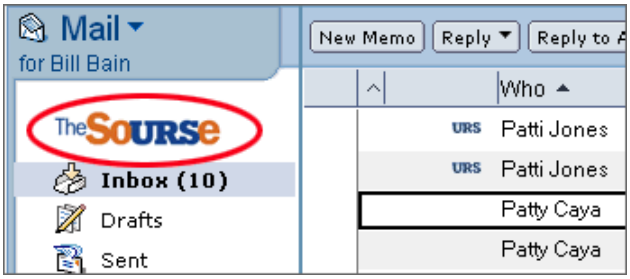


Pictured: An early (and later rejected) color scheme. When honing the look of the various tab pages and the second-layer pages, the team considered a number of different color schemes and treatments.

URL AND ACCESS

Users can access The Sourse at http://thesourse.urscorp.com. A user name (Sourse ID) and password are required to access the site.

The Sourse can be accessed from any Internet-connected computer. Each employee has a specific Sourse ID and password to log in to the site, and while the site isn't automatically bookmarked in users' browsers, it's set to automatically launch when they log in to their email accounts using the Lotus Notes client on their desktop. Users also can launch The Sourse in a new browser window at any time by clicking on an icon in their inbox (see image below). Finally, employees have the option to access their email through a Web browser via the *Web Mail* button in The Sourse's header.



Pictured: When users log in to their email accounts in Lotus Notes, they have quick access to The Sourse via an icon above their inbox link. Clicking this icon will open the intranet in a new browser window.

Some users access The Sourse on shared computers or workstations at client sites. To ensure security for such situations, employees are required to log in with their individual credentials, and an automatic time-out ensures that their accounts don't stay open on these public terminals.

TECHNOLOGY

The Sourse is built on a Lotus Domino platform and hosted on Domino Web servers. The Sourse's user interface was designed using the latest Web technology, including HTML, Ajax, Javascript, XML, Flash, and JSON objects.

"Because The Sourse is based on Lotus Technology, we are able to track who last modified any site document and when," says Linda Davis, Software Development Manager. "This functionality allows us to create sections on The Sourse that are automatically updated based on usage, such as *Recently Updated Forms* and *Recently Updated Policies*."

Several of the site's repositories, such as the *Policies & Procedures*, the *Forms* section, or the component-based sites (business line sites, forums, and office sites) offer revision history functionality. Users also can subscribe to these sections to be alerted via email when any updates are made.

Technology Evolution

Evolving the site technology was a slow process. At first, the team supported the underlying technology for both Lotus Notes and Web access, but over time this redundancy proved time-prohibitive and costly. "With the first two versions of The Sourse, all applications had to be coded twice to be accessed via both the Lotus Notes client and a Web browser," says Davis. "As both the company and The Sourse grew, this process became time-prohibitive."

While planning The Sourse v.3, the team decided to move to a browser-only interface, using current Web technology to make the development process more efficient, and shed the limits of having to design for two clients.

The basic technology behind The Sourse hasn't changed throughout its lifespan; it has always been designed using a Domino platform. "However," says Davis, "the Domino technology has been flexible enough to allow us to incorporate the latest advances in Web programming with each version."

"When we first created The Sourse, we primarily used the Native Domino Formula language, Lotus Script, HTML, and Javascript," she says. "But because the Domino Development Environment allows us to use multiple languages, we have been able to adapt the site over time and incorporate the latest technology. For Sourse version 3, we were able to use many popular Web 2.0 technologies, such as AJAX, right in the same development platform.."

SEARCH

The Sourse employs site search using GSA.

Site-wide search was implemented in 2004, but this early attempt at search was not effective or satisfying for the users. "Users regularly complained about it," says Bain. Improving search was in fact one of the major goals of the 2007 redesign, as users reported that the previous search feature often yielded unusable results.

"Since deploying the Google search, we have monitored our users' experiences and have found the search results and our employees' satisfaction with the search feature to be greatly improved," says Bain. He adds that an additional benefit of using GSA is that it offers many tools to prioritize results according to employee feedback. It also provides a log that reports on search strings that don't yield usable hits; the team uses these reports to proactively address each search issue. As a result, the search function is continually being refined to meet the users' needs.

The GSA was deployed to all users with the v.3 launch. "We continue to update and refine Google Search on an ongoing basis," says Bain.

The site also features section-specific search tools for different parts of The Sourse, such as *Forms*, *Policies & Procedures*, and the *Office Directory*. Each of these search tools yields results only from its respective section.

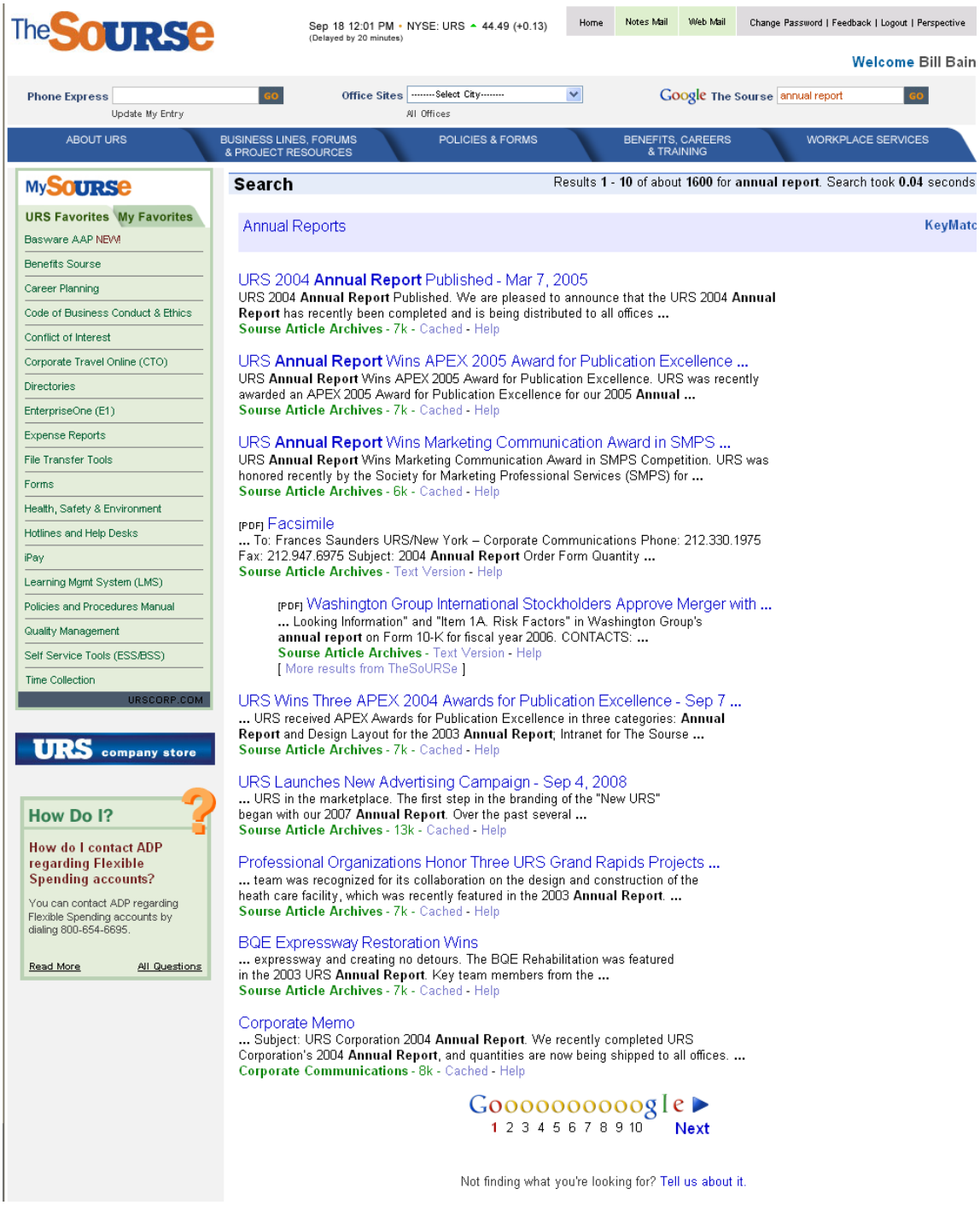
Improving Search through Constant Monitoring

Maintaining a commitment to improving search means that the team must be vigilant about monitoring search results and making adjustments to both the search appliance and the site's content to address any shortcomings as they are discovered.

To this end, team members implemented a button at the bottom of every Google search results page asking users to report whether they found what they were looking for. Bain says that his team reviews this feedback each week and requests changes from the developers. "We also review overall search metrics regularly to identify the most common searches and make adjustments for unsuccessful terms, missing content, etc."

This kind of constant monitoring not only improves the search appliance's performance, it also gives the team information that helps them optimize the site's content so that it's easy to find.

"For instance, when one employee reported that a search for 'maternity leave' did not yield results for our maternity leave policy, we decided to investigate," says Bain. "We found that because the policy used strictly gender non-specific phrasing, the word 'maternity' did not appear anywhere in the policy. We were then able to designate this policy document as a *KeyMatch* for the 'maternity leave' search string."



Pictured: The results of a Google search for the phrase “annual report.” Note the *KeyMatch* at the top of the screen.

MOBILE ACCESS

The Sourse can be accessed through the Web browser on some mobile devices, but the site hasn’t been designed or optimized for these devices. Bain says there’s a growing demand for mobile access among employees, so he and his team are beginning to investigate various methods for implementing mobile applications.

CONTENT MANAGEMENT

Content on The Sourse is administered in several ways. Homepage content is published using a CMS that was designed in-house. "This gives us the flexibility to manage content in all three of our geographic regions: the Americas, Europe, and Asia-Pacific," says Bain. Content can be customized by region or even by country. "Not only does this allow each region to have ownership of its own content, but it also facilitates the sharing of content, and helps to underscore our company's ability to collaborate across continents," he says. Because homepage content occasionally must appear in all three regions, the Sourse Team can override any local content if necessary.

The CMS also lets Bain and his team conduct an automated review process for anything to be published on the homepage. The lifecycle of a homepage article can be completed entirely through the CMS, from draft to final version, and then submitted to the appropriate team members for review. Reviewers can proof, edit, and approve the article with the click of a few buttons. The CMS offers text editing and redlining capabilities similar to those used in Microsoft Word.

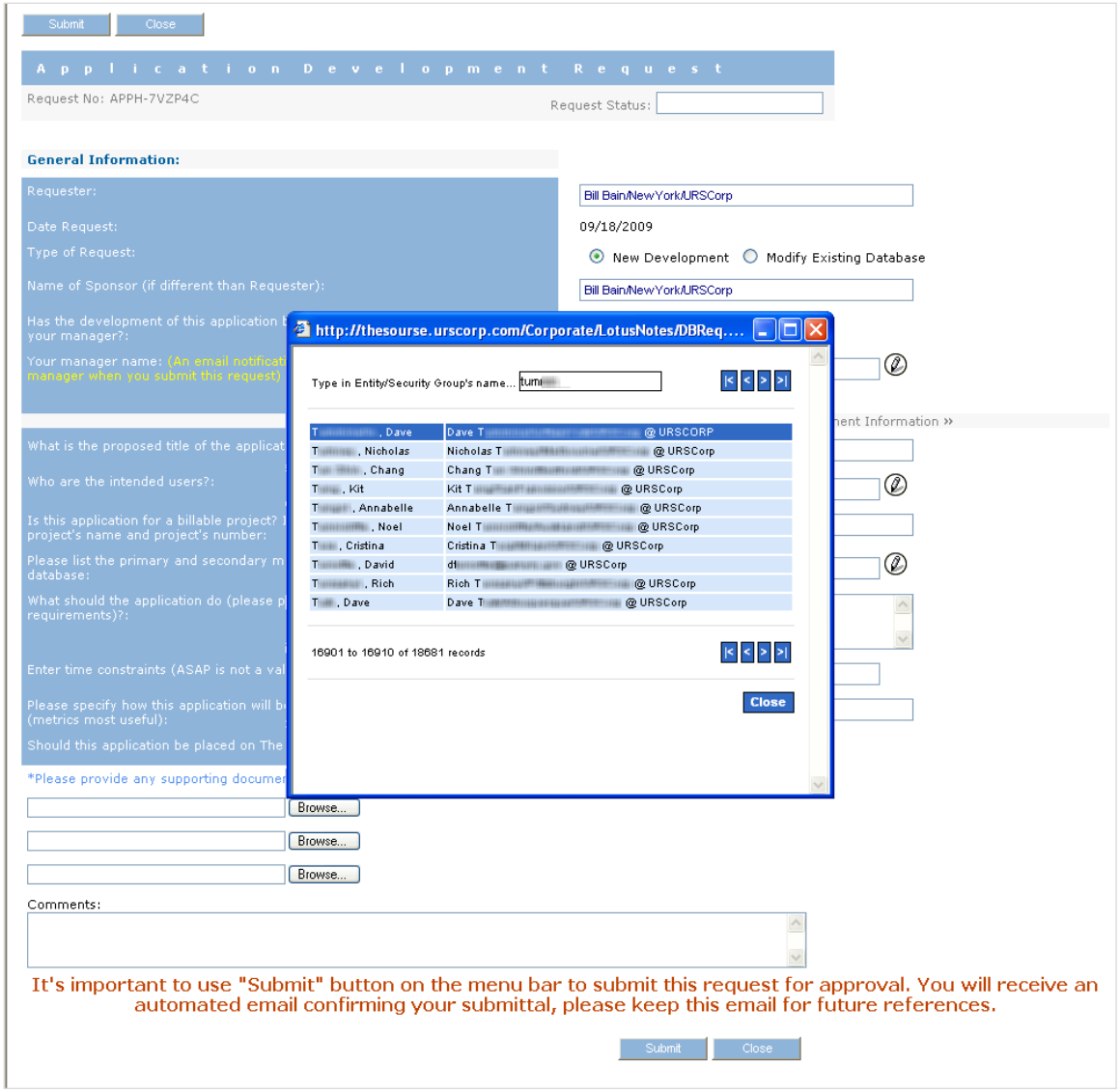
"We also have used The Sourse's *Forum* template to create a *Sourse Team Forum*, which houses a running editorial calendar, a blog used to discuss and develop future homepage articles, and a repository for notes from our weekly calls as well as discussion points for upcoming calls," says Bain.

Content management for other site sections is the responsibility of each section's owners, including those with business lines, office sites, and forums. The team has created administrative tools using Domino-based technology, which allows each content owner to update or make changes to their content. These changes are published immediately.

Using Templates

There are established templates for many portions of The Sourse, such as office sites, forums, and business line sites, as well as for applications such as blogs and document repositories. "These templates allow us to quickly generate new applications that adhere to our user interface guidelines," says Bain. "Templates also ensure that all new applications match the look and feel of The Sourse and follow the same navigational logic." The templates were created using style sheets that provide guidelines for elements such as fonts, graphics, navigation, attachments, and pick lists.

Enforcement isn't an issue; before an application is created, it must go through a specific approval process, which includes a review by the Sourse Team. Using an existing template, new applications can be deployed by the intranet manager and administered by content managers.



Pictured: By clicking on the pencil icon to the right of any field, the user can pull information from the corporate address book to populate that field.

Standards and Guidelines

The Sourse team has developed over 150 standards and guidelines to govern site usage, development, and maintenance. “The goal of these guidelines is to ensure high-quality and consistent content, organization, and presentation of information on The Sourse, as well as compatibility and interoperability between applications and platforms,” says Bain. The standards and guidelines include the following topics:

- **The Sourse** and its role and history as the URS intranet
- **Home page and site-wide structure,** including legal standards and guidelines for navigation, content organization, and homepage sections
- **Site management,** including Site Manager and Site Sponsor Agreements, review and approval processes, testing, and usability standards

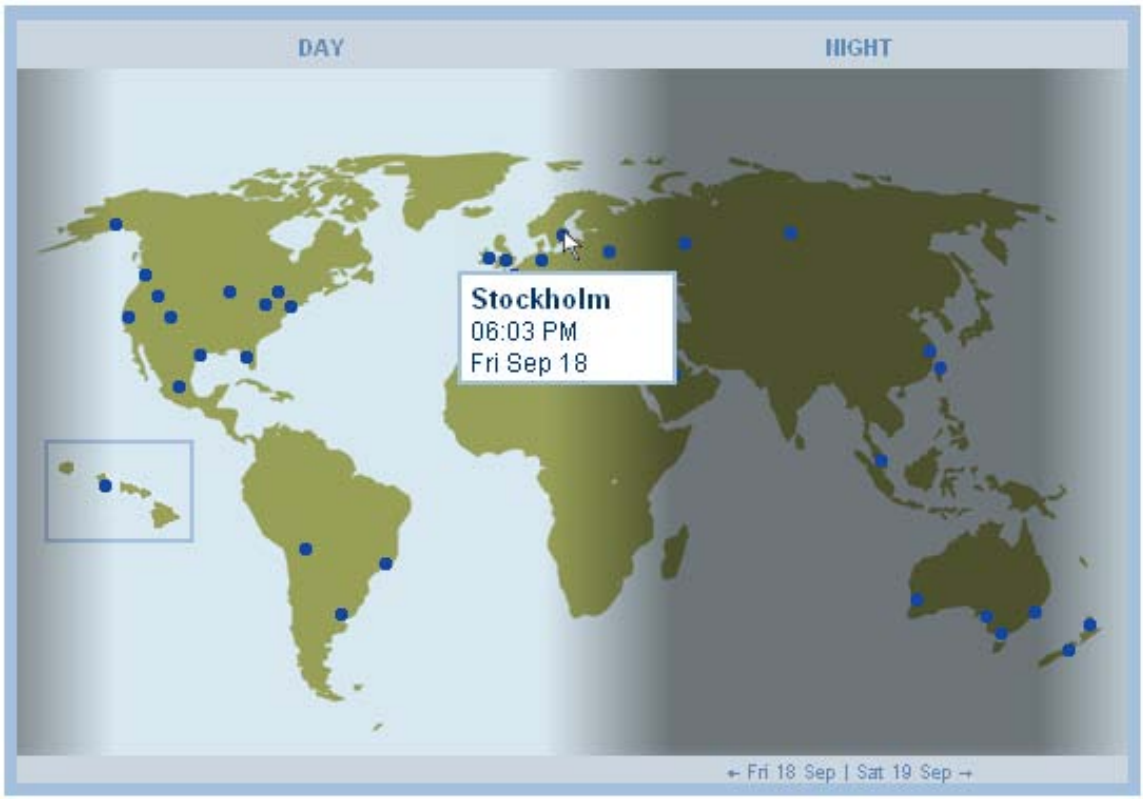
- **Content,** including the *Corporate Style Guide*, writing for the Web, restricted/prohibited content, and a checklist for good content
- **Design,** including standard look and feel, and guidelines on fonts, graphics, photos, logos, and use of animation
- **Security,** including appropriate use, access for non-employees, and secure hosting standards
- **Technical standards,** including site-wide tools and technical specifications
- **Component-based sites,** including business line sites, office sites, and forums
- **Writing for the Web,** a corporate style guide that provides a set of standards for all copy that appears on The Sourse. This section also includes guidelines for strategically writing for the Web

FEATURES

The Sourse includes a number of unique features; following are some of the most used and useful:

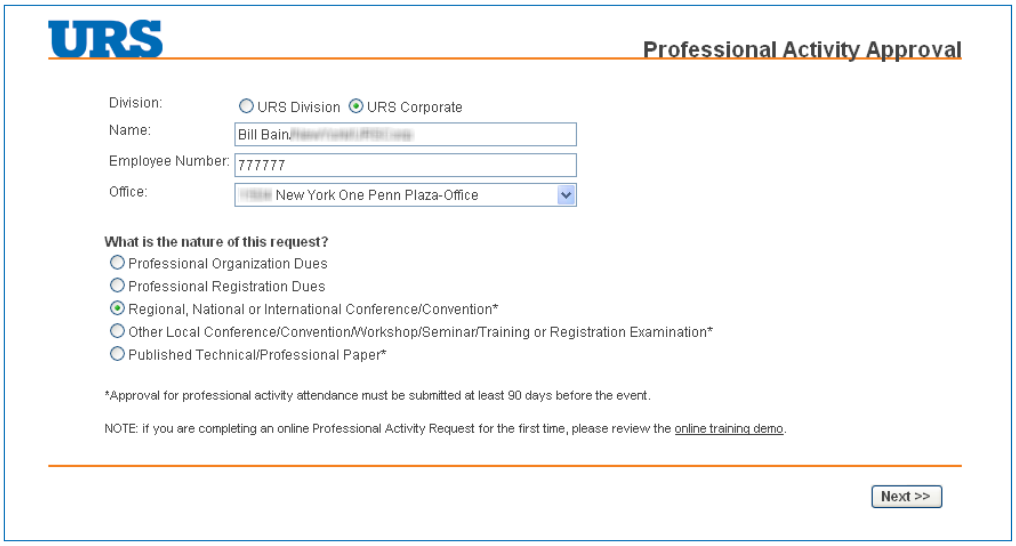
- ***Phone Express*.** One of The Sourse's most highly used features, the *Phone Express* directory provides type-ahead technology and also lets users scroll through first or last names alphabetically. The application pulls from an existing phone directory that is updated nightly. In addition to yielding phone numbers, the *Phone Express* "results" page offers a full range of contact information for each employee, including email and office addresses, alternate contact information, names of office assistants, and even photographs when employees opt to provide them.
- **Subscription function.** Many pages or applications include a subscription function that lets users subscribe to be automatically notified via email if a change or addition is made to the page or application (such as an office site or forum). Subscribers also can regulate the frequency of emails, choosing a weekly or monthly summary of updates, rather than a daily notification.
- ***Most Frequently Used Forms*.** This section is continually updated based on user metrics and has proven to be a very popular feature.
- **Office sites.** These sites facilitate intranet communication at the local operations level. Previously, several locations invested time and labor into developing independent websites to meet this need. With the *Office Site* template, the team can now give office leaders an easy and economical option that ties into The Sourse's role as the primary tool for internal communication at URS.
- **Business line sites.** These sites allow directors of the company's various market areas to build online communities; share industry, company, and department information; and enable their technical personnel to communicate between offices and even across continents.

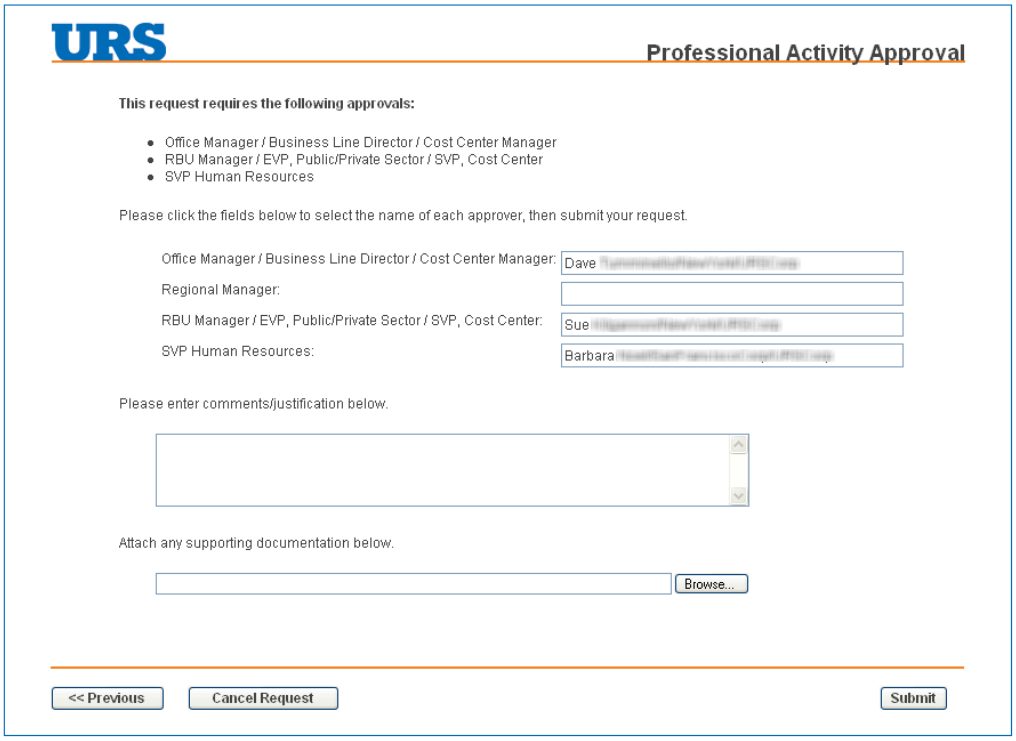
- ***URS Favorites / My Favorites.*** The *Favorites* feature was designed to balance company priorities with user preferences and limited homepage real estate. Through this feature, the Sourse team can provide links to vital company resources and information, such as the company's *Code of Business Conduct and Ethics* and the *Time Collection* system. It also lets users create links to the content they use most frequently, whether it's on The Sourse or the Internet. Recently, the team expanded the use of *My Favorites* to facilitate the annual performance review process, providing links to each users evaluation form as well as to the forms of their direct reports.
- ***World Clock.*** The synchronized *World Clock* on the homepage shows the current time in seven principal cities where URS conducts business and links to a more comprehensive map displaying other cities with permanent URS operations. When the user hovers over any designated office, the current time and date at that location appears.



Pictured: The world map of URS locations. At the bottom of the homepage, users see the current time and date in six of URS' key cities. By clicking on *More Cities*, users are taken to the world map, which displays 36 cities around the world where URS operates. Hovering over any of the blue dots makes the city's time and date appear.

- ***How Do I?*** This database offers users a robust list of frequently asked questions and answers about how to do or find something related to working at URS. Designed to ameliorate the complexities of a large, multinational corporation, **How Do I?** helps employees who want to carry out various tasks, such as order personalized business cards, make business travel arrangements, update their *Phone Express* entry, or report a workplace injury.



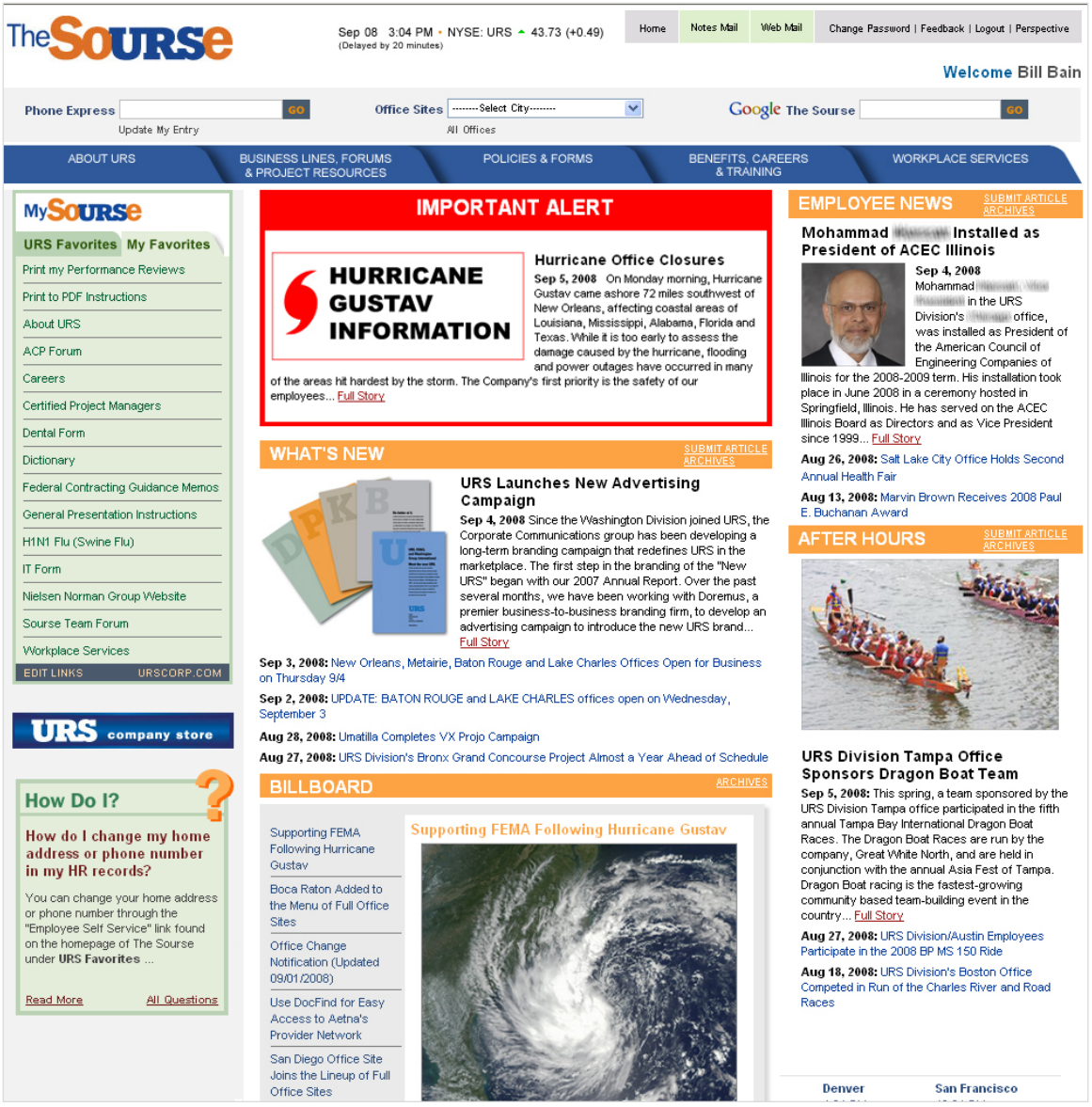


Pictured: Two screens from the automated *Professional Activity Approval* form. The URS team is in the process of automating all forms so that the process of completing, submitting, and approving forms is carried out entirely online. The lengthy *Professional Activity Approval* form was one of the first to be automated; users can now input the required information through a series of screens.

Supporting Mission-Critical Tasks

Nearly all applications on The Sourse are business-related and mission-critical for a particular company role or function. The Sourse provides access to the business tools that employees need to do their jobs, ranging from general tasks, such as finding an address and phone number, or a policy and any related forms; to more specific job tasks, such as locating a contract template or accessing required training modules. The Sourse is also used by all employees for personal tasks, such as locating benefits information, accessing timekeeping software, or finding payroll and accounting information. Following are several mission-critical features of the site:

- **The Sourse homepage.** As the primary tool for internal communication at URS, the Sourse homepage provides instantaneous information to employees about matters such as:
    - Upcoming deadlines for various corporate initiatives (benefits open enrollment, internal awards programs, and performance reviews)
    - Office closures or telephone outages
    - Computer viruses (such as Conficker) or human viruses (such as H1N1)
    - Disaster response actions
- **Emergency management module.** The Sourse was designed to be able to instantly implement new sections on the homepage to provide resources and information following hurricanes or other disasters that might affect employees' safety. This feature is based on a Hurricane Katrina page that was created on The Sourse in response to the disaster in 2005. Immediately following the catastrophic storm, the company's first priority was to locate all employees in the affected region, verify their safety, and ensure that their immediate needs were met.



Pictured: An *Important Alert* section can be implemented on the fly to alert employees to any type of emergency or computer virus threat.

"Within 48 hours, we built a new 'tab' on The Sourse, the *URS Employee Hurricane Resource Center*, which provided an online form for employees to notify us of their location and immediate needs, allowing us to provide assistance," says Kilgannon. "The site also served as a repository for a complete range of information that employees might need, including links for FEMA and insurance assistance, and emergency healthcare information." When URS helped to relocate affected employees to nearby URS offices, the Resource Center provided three employee support bulletin boards, allowing employees from the company's Gulf Coast offices to post requests for anything they needed while transitioning to their temporary residences. These requests included everything from furniture and household items to information on local resources, such as churches, schools, and doctors. Employees from other locations also responded to the posts if they were able to provide the requested item or information.

The Hurricane Katrina module was so successful and well received that the team designed The Sourse v.3 to accommodate similar modules. The team can now customize and implement a module similar to the *Hurricane Resource Center* on the homepage within minutes.

- ***Training* dashboard.** The Sourse's *Training* page features a personalized dashboard that lets users track their progress on the training modules they're required to take each year as a URS employee. Each employee's training status is automatically updated each day.
- ***Policies & Procedures Manual*.** The governing document for employee conduct and business practices at URS is the online *Policies & Procedures Manual*. Employees refer to this document for guidance on subjects ranging from organizational structure, international trade laws, HR, quality assurance, and IT and accounting procedures. Employees can subscribe to the *Policies & Procedures Manual* to be notified of updates.

  This section is tied closely to the *Code of Business Conduct and Ethics* that also resides on The Sourse. Employees are periodically required to read and formally acknowledge the *Code*, which describes the principles behind the company's policies and practices.
- ***The Health, Safety, and the Environment & Quality Improvement Incident Database*.** The European and Asia-Pacific versions of The Sourse offer an application that allows employees to report health and safety or nonconformance issues. The application then enables investigation leaders to monitor and document corrective actions to prevent any similar incidents in the future. Plans are underway to launch this application in the Americas.
- **Performance review forms in *My Favorites*.** To facilitate the annual employee performance review process, a link is automatically added to each employee's current and past self-evaluation forms under the *My Favorites* tab, located in *MySourse* on the homepage. Supervisors also have a link to the *Performance Managers Evaluation* form. Using this link, employees can access their own personal information or the information of their direct reports.

Features that Create Buzz

Sometimes a simple feature can really make a splash with users. That was the case when the URS team went live with the new homepage, featuring an employee news section. "We knew employees were interested in news about themselves and their fellow employees and that they wanted photos," says Bain. "However, when we first went live with the new homepage and the employee news section we were very pleasantly surprised at the 'buzz' that these stories created."

One of the first employee news stories featured an Australian employee who had been named a Yale Fellow. According to Bain, over the following days, colleagues around the world flooded his inbox and voice mail with congratulations. "Features like this help to make a company of more than 45,000 employees feel like a closer community," he says.

Team members were also surprised by the interest generated by the site's *Billboard* stories, where they periodically highlight a new promotional item added to the *Company Store*. The manager of the *Company Store* reports a surge in the number of orders—not just of the highlighted item, but of other items as well—when these items appear on the site. "Similarly," says Bain, "our raw metrics data reports spikes in visits to office sites, forums, and other pages that are highlighted on *Billboard*."



Pictured: As with the other article sections on the homepage, users can view a complete story under *Billboard* by clicking on *Full Story*.

Supporting New Hires

Using the intranet as a resource for new hires is often a much-appreciated feature on company intranets. URS uses the *Welcome New Employee* section to support new hires. This section includes an orientation presentation; a checklist of tasks that must be completed within the employee's first few weeks; links to new employee training, helpdesks, and help lines; an introduction to The Sourse; and a link to the *How Do I?* database, which includes a robust compendium of questions and answers specifically for new employees. According to Bain, this information was previously distributed in extensive orientation packets, which consumed staff and budget resources to compile. HR representatives can now direct new hires to this information on The Sourse, eliminating considerable costs.

To further support new hires, the Sourse Team also developed an application called *New Employee Mailbox*, which automatically generates a series of emails to the new employee from key executives providing details about resources available to them and explaining appropriate procedures for their use.

These emails include:

- A welcome message from the CEO
- A message from the Vice President of HR, describing the URS new employee training curriculum
- A message from the Vice President of IT explaining URS policies governing IT and where to find them on The Sourse
- A message from the Vice President of Health, Safety, and the Environment outlining required safety training and various related resources available
- A message from the Vice President of Corporate Communication, providing an overview of The Sourse and how to use it

KNOWLEDGE MANAGEMENT

Knowledge management is handled through two specific features on The Sourse: forums and the *How Do I?* database.

- **Forums.** The Sourse forums serve as topic-specific document and knowledge repositories, including the ability to identify key resources and ask questions. The technical papers section makes available all papers presented by URS employees at professional forums.
- ***How Do I?*** The *How Do I?* feature is a repository of hundreds of the most frequently asked questions about work at URS. Question topics can range from day-to-day tasks, such as how to complete an expense report, to more specific information, such as where to find the company's Dun and Bradstreet number.

  Each page features a *How Do I?* box that displays a randomly selected question and its answer. Questions are tagged so that they'll appear primarily on pages germane to their subject matter. (For example, benefits questions will appear primarily on the *Benefits* page.) Employees also can browse the entire database of questions, sorted by category.

BEST PRACTICES

Sometimes teams learn their lessons the hard way and by doing so they come up with some valuable best practices that other teams can learn from. Here are a few from the URS team:

- **Email and intranet go hand-in-hand.** By tying the intranet closely to the company's email system, the team ensured that The Sourse is a daily presence for every employee.
- **Communicate as a team.** The team attributes at least part of its success to the quality and frequency of its communications. Since the launch of version 1, the Sourse Team has met weekly to discuss any issues, provide updates about ongoing projects, establish future priorities, and review user feedback. During each subsequent redesign and launch, the Sourse Team has met more frequently throughout the week and during regularly scheduled comprehensive all-hands meetings where the entire team meets face-to-face in either New York or Tampa. They also meet biweekly with the content managers in other geographic regions.
- **Use storyboards to focus your concept.** During the initial discussion and brainstorming phases of each of the redesigns, the team found that visualizing proposed ideas helped give direction to the discussion and debate. Their consultant, Tracy Beverly, guided this visualization process by keeping careful track of any ideas discussed and creating storyboards or rough visual representations. These storyboards were intended to be working documents, used to refine the concepts and evolve over time. They were very useful. They gave the team a visual basis for dialogue, allowing them to react to concrete details rather than abstract concepts. They also helped to clearly define new ideas, identify which concepts required additional research, and ensure that there was agreement on the conclusions reached.
- **Don't let resources get lost in transition.** Documenting changes can be critical. Each time the team moved from one version to the next, Beverly created an extensive spreadsheet that listed each and every application, page, or paragraph of information on the current version, and described where it would be found on the new version. This simple practice ensured that all employee resources would be available without interruption.
- **Deploy in phases.** With the first version of The Sourse, the team was especially eager to share the new site with the entire company and made the decision to launch it for all employees on one day. With the large number of users accessing the site at once, the networks in several locations became overwhelmed. That painful experience taught the team that it's better to deploy in phases. Since then, they have not only deployed every successive version of The Sourse in phases, but also used this same phased approach to introduce any new applications that they think will generate heavy user traffic.

- **Stay close to your users.** During the launch of Sourse v.3 and in the months following, the team paid close attention to feedback submitted via the homepage link and had Corporate Communications staff at all levels reading and responding to submissions. This allowed them to make immediate fixes; it also reassured users that they had support for the new technology and weren't just left alone to fend for themselves. The team still reviews feedback each week as part of regular Sourse team calls and they schedule regular meetings with the company's stakeholder groups (Training, Procurement, Accounting, and so on) to address their needs and ensure that The Sourse is evolving to better support their initiatives.
- **Stay close to your leaders.** With The Sourse, the intranet team has been fortunate to have support from the company's CEO and key executives from the very beginning. During his quarterly conference calls with all employees, it's not uncommon for the CEO to underscore the use of The Sourse as an important tool in employees' daily work life or to encourage them to use the site. In return, the team makes it a priority to ensure that The Sourse aligns with leadership's corporate goals and supports its initiatives.
- **Keep your stakeholders involved.** The team made the decision early on to reach out to stakeholders early in the design process and continue to keep them involved throughout each stage of the redesign. They keep stakeholders involved by meeting with them regularly to ensure the new design continues to meet their needs. At each phase of the redesign, the team involved literally hundreds of key executives, operations managers, and members of support departments to assess their requirements and solicit input. This not only provided valuable feedback to the group, but as an added benefit it helped facilitate buy-in because each group had ownership in the site's development.
- **Keep content fresh.** The Sourse team maintains a running editorial schedule to ensure that new articles are posted to the homepage each day. The articles are tagged so that they automatically appear on any related office or business line site, helping to keep their respective *What's New* sections from becoming stale or obsolete. The team also conducts periodic audits of each site section to ensure that all out-of-date information is removed.

RESULTS

Measuring an intranet redesign's success is often a tricky proposition. Relying on anecdotal measures or measures of increased user satisfaction is the route many teams take to judge whether or not a project is successful. If the users are happy, the site is a win. At URS, in addition to those types of measures, team members can also point to several operational improvements made possible by the enhanced functionality that the new site offers.

URS is benefiting from improvements in the following operational initiatives:

- **Automating performance reviews.** New functionality on The Sourse enables a new automated performance review process that can be conducted conveniently and securely online. All resources needed for the review process are populated in each employee's *My Favorites* section on the homepage.
- **Facilitating training.** A new *Training* dashboard gives employees an easy way to monitor their progress in completing training modules that all URS employees are required to take annually. From the dashboard, employees also can access the training system to complete any outstanding requirements.
- **Automating manual processes.** The *Pyramid Awards* site facilitates the management of a new, company-wide awards program entirely online. Employees in all three divisions of URS can access the site, where they can find complete program details, submit a nomination form, and monitor the progress of their submission. The site also facilitates the approval and judging processes.
- **Reducing paper, eliminating costs.** The Sourse is helping to eliminate costs due to paper distribution. As an example, HR has compiled all the information that a new hire needs to get started at URS and placed it on The Sourse. Previously, extensive orientation packets were created to give the new employee guidance on everything from completing timesheets, managing benefits, and using the *Policies & Procedures* manual, to booking travel, conducting an annual performance review, and even using The Sourse itself. Now, HR representatives simply show new hires where this information can be found on The Sourse, eliminating substantial labor and paper-distribution costs.
- **Automating forms.** The company has seen surprising savings resulting from the automation of forms. "When we launched a version of the *Authorization for Capital Expenditure* form that could be completed, submitted, and approved entirely online, one project manager calculated how much money he would save on processing that form alone," says Davis. "By his calculations, the cumulative labor costs associated with printing, completing, scanning, and mailing the form as often as he did could prove to be substantial. Add to that the expenses of overnight courier, the savings became quite significant."
- **Reducing resource expenditures through template reuse.** With the creation of the *Office Sites* template, the team has noticed an increasing number of offices developing a site on The Sourse, rather than using personnel and budgetary resources to develop sites on their own.
- **Improving communication.** Since the beginning of The Sourse, the company's CEO has been a proponent of using the homepage to communicate corporate-mandated or emergency information. With its use of photography and graphic elements, the completely revamped homepage has increased users' attention to such information when it's posted. The new graphical user interface keeps employees engaged and helps to clarify how posted information is relevant to their day-to-day work activities.

- **Reducing time spent "hunting" for information.** The addition of *URS Favorites*/*My Favorites* to the homepage also has decreased significantly the amount of time employees spend hunting for information or resources on The Sourse.

  Also, the searchable *Office Capabilities* database provides an overview of the services and technical capabilities available in each of the company's division offices. The database can be searched by city, state/territory, employee count, market area, and specific capability. Marketing and business development personnel use it to pursue work based on the capabilities of a specific office or region, or to highlight the expertise that can be shared at URS across borders.

Added Functionality

Another way to gauge a site's success is to take a look at the list of things users can now accomplish thanks to functionality provided by the redesign:

- Access *Most Frequently Used* resources from the homepage with one click
- Easily create a list of their *Favorites*—including external sites
- Forward news articles to their colleagues
- Access the *Health, Safety, and Environment* site without having to re-authenticate
- Change geographic perspective and view other regions' versions of The Sourse (if they have a legitimate business need to do so)
- Create a customized page for their local office
- Change the look and layout of their forums without help from the IT development group
- Subscribe to business line, forum, and office sites
- Use Google search to find usable results

Positive User Feedback

Positive user feedback is nearly guaranteed from an enhanced, well-executed intranet site. And the URS team has received its fair share. "We were pleased with our final product when we launched Sourse version 3," says Bain. "But we were still pleasantly surprised at the positive feedback that came in via the Feedback feature on the homepage. We continue to receive positive comments, both via Feedback and our Sourse surveys."

Here is a sampling of the user responses that typify the positive feedback the team has received since relaunching the site:

> *"I just wanted to note that I think the new Sourse format is significantly better than the previous and that the team responsible has done a fantastic job in making The Sourse more relevant to how we do business, making resources easier to find, and offering interesting business and human-interest articles. Overall just a great job! Thanks!"*

"What I'm looking for is usually so easy to access (especially all the links in the left column). I haven't found the need to set up personal favorites because everything is already there. I do like and use the defaults set up in My Favorites *(manager dashboard, my performance reviews, forms)."*

"Because of the way The Sourse has been designed, it is relatively easy to find what I'm looking for without having to add personalized links."

"The search function has improved dramatically. Thank you—it wasn't very useful before, but I just used it and was pleasantly surprised."

*"Three minutes into the new Sourse and all I can say is SWEEEEET! The '*URS Favorites/My Favorites*' menu is awesome and fast!!! Nice work! Looking forward to exploring more, but at first blush you all done good."*

"You've done a terrific job with the new format that befits a worldwide company. After 18 years as an employee I feel that the company is getting younger and getting more sophisticated at the same time. Kudos to every one that had a hand in it."

Responding to Negative Feedback

Of course, not all user responses are positive, but knowing how to handle negative responses can be a very useful exercise in keeping users engaged and reassuring them that they are being heard. "One individual submitted feedback with the subject line, 'Stupid Corporate Idiots Who Screwed Up the Web Access,'" says Bain. "We found that by responding (in many cases via telephone) quickly and personally to all feedback, including negative comments like the one above, we were able to emphasize to our employees that their input is always appreciated, and that we were proactively working to address their concerns."

LESSONS LEARNED

The Sourse team shares some of the lessons learned from it intranet redesign:

- **Always design for the end users.** Because both groups that govern The Sourse are corporate departments, the team first approached the organization of content using a structure that mirrored the company's organizational structure. While this made perfect sense to the team, user research found that employees viewed the content very differently—they viewed it based on their perspective of the company and how the information related to them. This taught the team an important lesson: always remember for whom you are designing—the end users.
- **There is no such thing as too much user research.** Of the many new features of Sourse Version 3, the most popular are those that the team researched, prototyped, and tested exhaustively. As you seek input from a greater number of employees, the direction for development becomes clearer—and you can trust that that direction will result in a highly usable application.

- **Give the users what they want.** The *URS Favorites* section on the homepage proved the axiom, 'Give them what they want!' All the work and discussion that went into defining and designing the user treatment for this feature was worth it. Test results showed the vast majority of users preferred to go straight to their key applications using this list rather than navigating via the tab and other navigational elements.
- **There is no shortcut around evolution.** Many of the new features offered in version 3 build on previous incarnations. While expert review and consulting best practices will help to develop a highly usable intranet, good design is only effective if it takes into consideration 'the way we do things here.' Finding the balance between design and culture is a slow process and must evolve over time.

Wal-Mart Stores, Inc.

Using the intranet:

Wal-Mart Stores, Inc., (NYSE: WMT) serves customers and members more than 200 million times per week at more than 8,000 retail units under 53 different banners in 15 countries. With fiscal year 2009 sales of $401 billion, Walmart employs more than 2.1 million associates worldwide. A leader in sustainability, corporate philanthropy, and employment opportunity, Walmart ranked first among retailers in Fortune Magazine's 2009 Most Admired Companies survey.

Headquarters: Bentonville, Arkansas

Number of employees the intranet supports: 1.4 million US associates are authenticated to access mywalmart.com. From its launch in March 2009 to October 2009, 565,510 associates have registered on the site and 101,321 have created public profiles. Forty-three percent of registered users with public profiles contribute content to the site.

Company locations: Walmart operates more than 4,100 facilities in the US

Locations where people use the intranet: Anyone on the Walmart payroll within the US can access the site, including those working in corporate and regional offices and satellite support centers for Walmart Stores & Neighborhood Markets, Sam's Club, Pharmacy Centers, Optometry Centers, Data Centers, Logistics, Warehouses, Truck Fleets, and Aviation

Annual sales: $401 billion (2009)

Design team:

Walmart has an in-house Web strategy, usability, and development team that works with Rockfish Interactive, its development agency.

In-house, Corporate Communications (core team): Suraya Bliss, Senior Director of Web and Digital Strategy; Ryan Travis, Senior Site Manager; Ben Newton, Senior Manager, Content Strategy; Dana Reynolds, Senior Manager, User Experience; Charlotte Clark, Team Coordinator

In-house, Benefits Communications: Julie Horner, Senior Director, Benefits Communications; Terry Homesley, Director of eBenefits, Benefits Communications; Micah Laney, Senior Site Manager, Website; Sandy Tang Vohs, Manager, Technical Webmaster Content and Design; Sundance Trosper, Senior Manager, Online Marketing; Beverly Litzinger, Project Manager, Online Marketing; Donna Joyce, Project Manager, Online Marketing; Russell Shaffer, Project Manager, Online Marketing

Rockfish Interactive: John Cox, Director; Justin Hill, Senior Developer/Team Lead; Shawn Camp, Senior Web Developer; Scott Stamps, Senior Web developer; Daniel Worthy, Web Developer; Chris Rice, Web Developer; Rustin Treat, Web Developer; Joey Nelson, Creative Director; Ryan Kee, Senior Designer

SUMMARY

Rather than build a traditional site, Walmart has built a successful social networking intranet with corporate content available throughout. The first vision for the site reflected a more standard approach, focusing on benefits and providing utility and content from the top down, emphasizing corporate information and values. Early research into associates' preferences and interests made the team reconsider the site's entire structure and a new direction quickly emerged. Rather than focusing on corporate information and allowing interaction among associates as a secondary goal, the team flipped their priorities and set out to build a social network that would convey corporate information while allowing and encouraging associates to build relationships, connect around shared passions, and share information.

Emphasis on the user started early in the planning process, and the team conducted research throughout design and development to always keep the associate at the center of the site development. The team used surveys, focus groups, and usability tests to continually assess whether they were going in the right direction and making the site as simple as possible. An aim of the site was to make it easy to use for every associate, regardless of Internet experience. The team continues to listen to users' requests and accommodate them whenever possible.

Access to the site is mostly through associates' home computers, making it even more remarkable that 565,510 associates and counting have registered on the site. Enticing users to interact with the site, putting associates first and corporate second, helped the team accomplish this feat. The site is a trusted source for up-to-date and accurate information from the company, but is primarily a way for associates to communicate, participate, and get to know one another. This is quite an undertaking—and achievement—for a company with associates spread across more than 4,100 facilities.

Even the site's URL emphasizes the personal over the corporate. Users access the site via www.mywalmart.com. The team realized early on that they did not want to be in the position of pushing content out to associates; they needed to invite the users in.

The homepage emphasizes this focus on individuals and the community. While navigation across the top of the page provides easy access to corporate-level information and resources, the body of the page is focused on the individual. Content areas on the sides of the page, which follow the user throughout the site, give users quick access to up-to-date information. Users can add or remove "widgets" of content or leave the default settings. The only permanent widgets are the profile box, calendar, and *Walmart News*.

The user's public profile is highlighted in the upper left-hand corner of the screen, dominated by the user's picture and name. The site lists how long the associate has worked at Walmart, emphasizing loyalty as well as providing a bit of information about the associate. The *Profile* widget contains practical details and shortcuts, informing users of updates since their last visit, including updates to *Activities* and *Forum Posts*, as well as summarizing any outstanding *Alerts*, including *Friend Requests*, *Birthdays*, and *Anniversaries*.

The center of the homepage summarizes additional new and ever-changing information, including blog postings, videos, and an associate spotlight. Each focuses on connecting people, building community, and providing easy access to information. The *Associate Spotlight* presents individual associate's stories, taking a look at Walmart from a personal perspective. The middle of the page also summarizes news, new content, or upcoming deadlines, and allows the team to ask for continual user feedback. As an example, users were asked to complete a quick survey to "play a part in making *Benefits* easier to use."

The homepage provides plenty of space to present company information. A rotating display allows the site to prioritize important stories, events, or deadlines, such as the dates for open benefits enrollment. News headlines are displayed on the side of the screen, providing quick access to recent Walmart news as well as a link to view all news headlines. A featured video is not only displayed, but is playable on the homepage. Users can quickly navigate to more videos via the *Video Center* link or can scroll through videos using the *Previous* and *Next* links. They can play, pause, or mute the video, as well as adjust the volume through the player.

Such content is updated on a regular basis, based on site traffic patterns. The site sees a biweekly spike based on the payroll calendar, so the team makes sure to add fresh content three days before the expected spikes.

Current and updated information is further emphasized with the prominent display of the date, current stock price, and local weather, including the current weather and a weekly forecast.

Forums are a key component of mywalmart.com, and as such, have their own place on the homepage. Changes to forums are highlighted on the homepage, including a summary of recent changes and tabs to access changes to additional forums, including *Mine*, *Friends*, and *New*. Forums encourage community-building and feature questions and topics such as a forum devoted to Associates of the Year, or simply asking where a particular forum's participants are located. Such topics point out the diversity and distance among associates, while simultaneously drawing associates with similar experiences, interests, or backgrounds together, regardless of physical location.

The site's clean and clear design makes it easy for users to find content of interest, to see which links are clickable, and to pursue more detail when desired.



Pictured: The Walmart homepage nicely balances the site's emphasis on community and people while providing room for corporate information and news.

Encouraging employees to interact freely might strike fear into the hearts of some corporate executives. Trusting their community, but acknowledging the possibility for potential problems, the Walmart team worked to create a set of guidelines for using the site that would encourage participation while still keeping the site on track and welcoming to all users. The site was created with central Walmart beliefs in mind, such as the company's Three Basic Beliefs and Values:

- Respect for the individual
- Service to our customers
- Striving for excellence

Unlike many corporate intranets, users are encouraged to "leave your work at work." The company aims for associates to talk about work or resolve work-related issues at work—with their managers—rather than on the site.

The site lets users create their own forum topics, which go through a moderator review to ensure that they're appropriate for the site as well as to remove the possibility of duplicating an existing topic. A full-time community manager is responsible for approving topic requests. Once topics are approved, associate responses go live in real-time. Associates self-govern discussions on mywalmart.com, while the community manager passively follows discussion threads. The community manager also sends personalized email messages if any topic or post is rejected. These steps help ensure the consistent direction of the site. Associates are encouraged to choose open, inviting topics that will inspire discussion and participation on the site, helping a geographically dispersed workforce connect with one another.

Posts can be removed if reported as inappropriate by the community. But problems on the site are rare and the forums are a popular place for associates to share information, get to know one another, and participate in discussions. Each post is accompanied not only by the user's name, but his or her profile picture as well.

Users must register with the site to use it and must also create a public profile in order to interact with others. Creating a public profile requires that users accept the site's terms of use, which are largely intended for social networking purposes. Users can view the site, but not post, without accepting the terms. Currently, 43 percent of registered users with public profiles contribute content to the site.

Topics range from bonuses to reusable shopping bags to paperless paychecks to carbon emissions. The main forums page allows users to find or browse discussions by subject or topic. Each topic is shown with a clear title, the name of the person who started the discussions, and the name of the last person to post to the forum, along with the time it was updated. Users can "see" the community they are interacting with because profile pictures are shown beneath each topic name. The number of posts and the number of users are highlighted to the right. Showing who is participating as well as showing the popularity of topics helps encourage further participation. Users don't log on and see a set of empty forum topics; they see evidence of a lively and involved group of associates who are building an online community.

Corporate associates as well as field associates participate on the site. However, to maintain transparency and trust, corporate associates identify themselves if they are posting topics in forums or discussions. This helps the site retain its authentic feel.

This focus on authenticity is carried through to more corporate sections of the site as well, where there are general guidelines for content, but no formal style guidelines.



Pictured: Forums are a central part of the Walmart intranet, allowing associates to meet one another and have discussions about a range of topics. Pretty much anything is fair game for the boards, pending approval, so long as it's not a discussion of associates' day-to-day work.

Forum pages make it simple for users to read or join the discussion. The topic or question is displayed prominently at the top of the page, together with a clear and easy to locate link to *Post a Reply*. The page shows users how many posts have been added to the discussion and how many people are participating. Associates' replies are listed below in chronological order to make it easy to read through a threaded discussion from beginning to end. Users' names and profile pictures are displayed, adding to the sense of community and openness. Associates are reminded at the top of the screen that Walmart policies apply and that the use of the forum is voluntary.

The reminder points out that user are not to engage in “off the clock work” on the discussion pages.

Forum posts are community monitored, meaning that users are responsible for reporting something as inappropriate. Posts reported more than once are automatically removed for review. Content can be reposted if the reviewer determines the content in question follows site policy. A simple *Report As Inappropriate* link beneath the poster’s profile picture serves a dual purpose. It allows associates to report content that is questionable, but it also acts as a consistent reminder to associates to make sure any posting follows the Walmart guidelines.



Pictured: Discussions are easy to follow on forum pages, and each conversation features large profile images of the participants, giving each a personal feel.

The profile page provides information about each registered associate on the site. Users can submit their own profile pictures, which are checked to ensure they are

appropriate, or can choose one of a selection of silhouettes if they prefer not to post a picture for all to see. Many associates choose to upload pictures of that show a bit of their personalities or their lives—including pictures of people with their families or pets, doing fun activities, or in beautiful places.

The profile page provides information about the associates' friends as well. Continuing the theme of a social network rather than a stiff corporate intranet, users can create relationships by making friend requests and confirming friendships with others. This information is used to populate the *Friends* section of the forum so users can quickly see forum posts that their friends have added. A summary of friend activity is featured prominently on users' profile pages. If friends have started a discussion or joined one, their comments are displayed on the page, together with a profile picture, a link directly to the friend's profile, and link to the relevant discussion forum.



Pictured: Profile pages give users a quick view of their friends' recent site activity.

Another main goal of the site is to ingrain the company's values, such as working in the community and working toward sustainable practices. Corporate content on the site is linked to community features, helping to make even the more "official" content on the site familiar and accessible. For instance, the *Volunteerism* area is a mixture of corporate information about volunteer programs, associates' stories about particular projects and successes, blogs on devoting time to community work, and even videos showing related content. Forums are incorporated throughout the site, highlighting posts and topics related to the page—in this case, encouraging associates to discuss experiences and volunteering opportunities in their communities.



Pictured: The landing page for *Volunteerism* presents a broad view of community involvement by associates around the country, from large national campaigns to local revitalization projects and scout troops.

Even the normally stoic executive biographies on the site show some personality. The team searched for casual photographs of executives, to match the style of the

site. Personal details are included in the biographies. For instance, the head of Legal once worked as a tailor—a fact that few in the organization would know. The approach tries to make executives more relatable to associates by providing more than the basic education and experience.

Even the method of viewing executive biographies is unique. When associates mouse over a profile, the photo enhances, a short bio description appears, and the photos reorganize to show the reporting structure of the organization. Another click on the executive's photo brings up a full profile description, with details added specifically for the intranet that bring out more personal aspects of each individual.



Pictured: The site provides executive biographies that emphasize personal aspects of each individual.

The *Video Center* gives users quick access to all the site's videos, which are also displayed throughout the site. Users can create a playlist of videos, lining up the brief segments they want to watch. The playlist is displayed on the side of the main

player. Users can play, pause, or stop the video as needed or adjust the volume through the site. A description of the currently selected video, including the length and user ratings, is shown below the video player. Users are invited to rate the videos after watching them by clicking on a star in a five-star rating system.

Users can search the *Video Center*, using a dropdown menu to select a particular channel or tag, or they can enter a search term. They can also browse from a list of the latest videos shown at the bottom of the page, each with a title and some with a brief description. Each video is shown with the option to play it immediately or to add it to the playlist.



Pictured: The Walmart *Video Center* provides a central location for users to find videos of interest. Relevant videos are also incorporated into pages throughout the site.

The emphasis on community doesn't mean the site overlooks the importance of being a trusted source of internal information. Sections such as *Knowledge Center*

give users more standard intranet fare, such as fact sheets and news headlines. *Knowledge Center* content often comes from RSS feeds from the company's public corporate website, www.walmartstores.com.

Shared content isn't the only aspect of the public site that influenced the intranet. The team also took lessons learned from usability testing of the public site to determine the best design practices for the internal site. Sharing knowledge between sites can help companies built even stronger and more usable sites, both internal and external.



Pictured: Corporate information is available on the site as well, such as fact sheets and news about sustainability, some of which comes directly from Walmart's public-facing corporate site, www.walmartstores.com.

The Walmart intranet is a work in progress. Launched before all planned content was completed, it's still a success and associates are already engaged in the site. With more user-focused sections, content, and tools in the works, the site will continue to

develop as an associate-centered, interactive, informative resource to engage and connect employees.

While the site's creative structure certainly wouldn't work for every organization, it's a great solution for this company's particular workforce. The social aspects of the site help users connect in a way that would be impossible without the site, bridging geographic barriers to connect with others across the country. The site expands the Walmart community beyond the confines of the each store's walls.

BACKGROUND

The foundation for mywalmart.com was laid in January 2004 with the launch of walmartbenefits.com, an associate communications portal focused on providing access to benefits content and applications to associates while they are at home. As the number of registered associates grew, the focus rapidly expanded. "The benefits site became a key channel for all types of communication to associates at home, providing access to vital information all day, every day, even during Hurricane Katrina and other critical situations," says Terry Homesley, Director of eBenefits, Benefits Communications.

Today, mywalmart.com is heir to much of the *Benefits* site's content, which includes associate discounts and other related information. Throughout the evolution from *Benefits* portal to mywalmart.com, the development team has stayed focused on not only providing information that associates need, but doing so in an accessible manner. "We provide quick and easy access to benefits, personal and financial resources, regardless of the associate's experience using the Internet," says Homesley.

mywalmart.com is deeply rooted in the idea of social networking and the advantages that such features provide for associates to further engage with the company, but in a less formal, less top-down manner. The site's social focus provides associates a place to go for trustworthy information and a place to interact with each other. Because mywalmart.com was not a redesign of an existing site, but rather was built from the ground up, the team was able to create an entirely new site experience for Walmart associates while adhering to the business purpose of the former *Benefits* site.

Surveys conducted with Walmart's associates revealed several critical statistics that helped guided the company's direction for mywalmart.com. These included:

- 83 percent of associates expect the company to have a functioning social network
- 81 percent of associates want information about the company when not at work and they don't want another corporate information site written from the Home Office's perspective
- 78 percent are interested in connecting with other associates
- 79 percent said they would use social networking tools if available

Like a standard corporate information website, mywalmart.com provides associates with facts about the company, which helps the company to:

- Educate associates
- Shape perceptions and build pride
- Motivate associates to get involved in their communities

- Enable associate to be Walmart reputation ambassadors and tell the company's story to friends and family

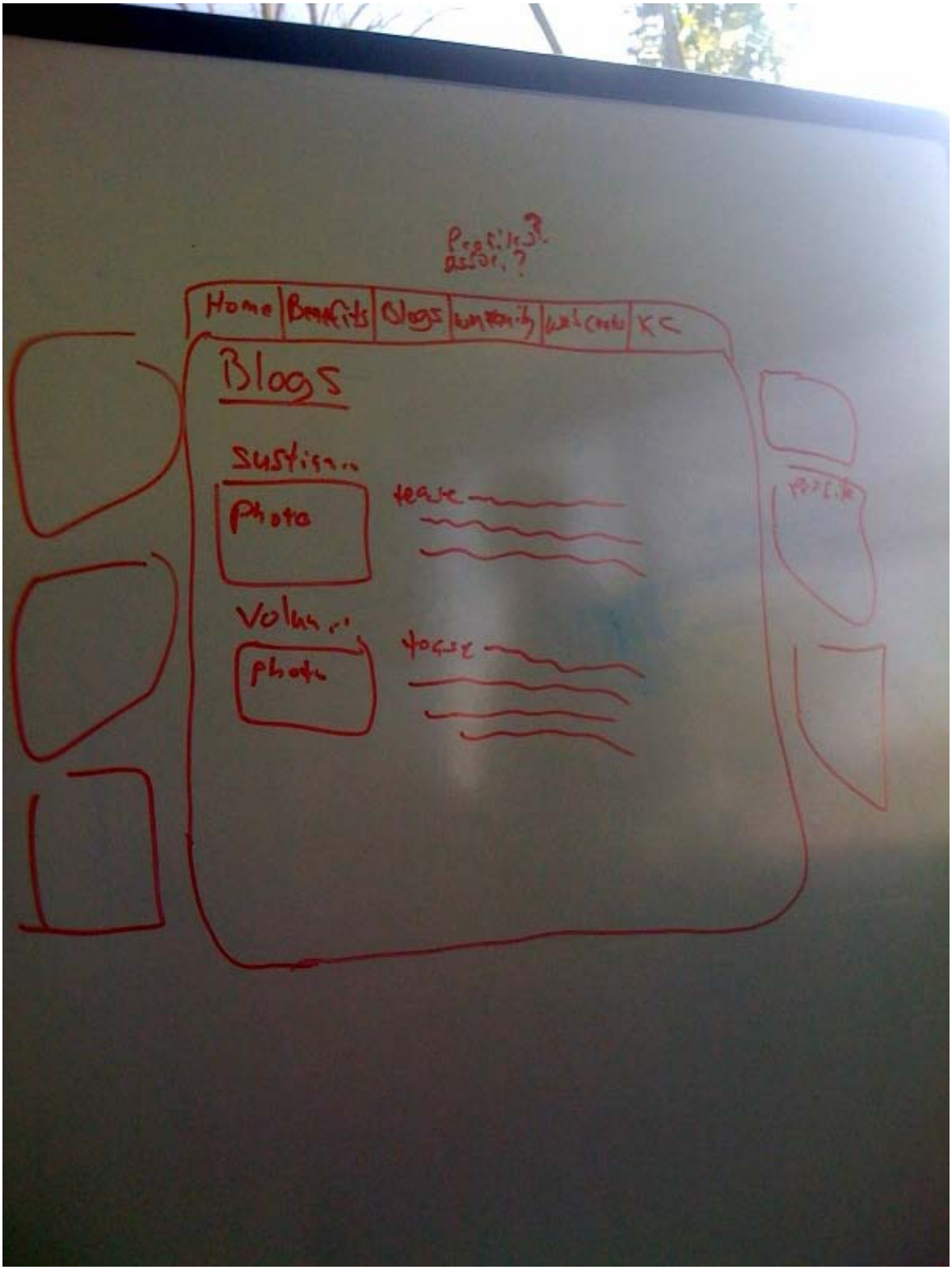
The site also fulfills a practical business need, providing a single platform for many departments wanting to reach associates with:

- A single source of truth
- One brand experience
- Consolidated development
- Redundancy elimination
- Corporate content, news, and fact sheets are fed to this site via RSS from walmartstores.com

Looking Ahead

Following the site's March 2009 launch, mywalmart.com continues to gain momentum and expand. The company will complete the redesign/integration of benefits within the next year and develop a work-scheduling tool in 2010. A host of other features will follow in future releases, including:

- **Emergency Operations Center** to assist associates from home in times of local or national emergencies (applying tools and lessons learned from managing the Hurricane Katrina disaster)
- **Work schedules** that individuals can check from home
- **Mobile widgets** for work schedules, pay stubs, and site alerts
- **Merit badges** for site participation and group membership
- **Career mentoring** and matching mentors with mentees, along with career and personal growth tools and resources
- **Personal sustainability** goal tools with progress markers to share and challenge friends
- **Associate-only classified ads** (Walmart currently uses the public classifieds offered on walmart.com)
- **Direct sharing of associate videos**
- **Audio, photo, and video contests** with peer voting for winners
- **Direct messaging** among accepted friends
- **Profile photo decoration** for birthdays and work anniversaries
- **"Have you met…?"** friend-finding tool based on similar interest metrics with enhanced personal info tool in profiles
- **Management connection center,** an authenticated managers-only social network section permitting more business-related resource sharing
- **Peer-reviewed products** on the walmart.com retail site



Pictured: A rough sketch of potential new navigation taxonomy that will be tested in the next round of usability studies conducted for the site.

TEAM

Site Ownership

mywalmart.com operates under the auspices of Corporate Communications, within Corporate Affairs. This provides a number of advantages. “Because Walmart’s communication and public relations professionals are focused on reaching and engaging associates, they provide a broad overview of internal work streams, explaining the business holistically, rather than from an internal business perspective,” says Suraya Bliss, Senior Director of Web and Digital Strategy. “They are also in tune with the external climate, which often shapes dialogue on the site.”

“Working in silos is clearly counterproductive,” says Bliss. “As we continue to develop mywalmart, we work across the company to consolidate sites or content into mywalmart that as standalone projects would splinter associates’ experience and fragment message delivery. This provides a consistent experience with the Walmart brand, ensures consistency of information, and lowers costs.”

Team Roles

Five functional areas within the company provide core support and/or content for mywalmart.com. These include: Corporate Communications, Benefits, Ethics, Legal, and Internal Systems Division (ISD). These teams maintain separate internal reporting structures while sharing vision, strategy, and tactics. Responsibility for site strategy resides in Corporate Communications.

The following charts break down individual team roles and responsibilities to show how the many constituencies involved in the site work together to support mywalmart.com:

CORPORATE COMMUNICATIONS TEAM	
Role	**Responsibility**
Web and Digital Communications Sr. Director, Corporate Communications	• Responsible for digital and platform strategy for corporate affairs, mywalmart.com, and Walmart's external corporate reputation site, walmartstores.com
Site & Strategy, Corporate Communications—Senior Manager and Team Lead (core team)	• Evaluates business requirements and procures in-house, third-party, or agency-provided solutions
User Experience & Usability—Senior Manager (core team)	• Coordinates and ensures that design agencies, usability providers, and solution providers meet the needs of users and business partners
Content Strategy, Corporate Communications—Senior Manager (core team)	• Schedules and coordinates all communication campaigns on the site and manages campaign assets such as videos, artwork, and banners; also manages community and user content issues
Community Manager	• Full-time agency employee who monitors user-generated content and approves moderated topic requests; responds to all user inquiries; and reports back on user content to business areas that might wish to engage associates in conversations
Subject Matter Experts (SMEs) & Editors	• As-needed writing assistance for SME blogs and voice and tone oversight for corporate content; might be pulled from any available communications team or agency as needed
Feedback Administrator	• Part-time; replies to user questions or forwards comments to the right department

SUPPORT TEAMS	
Role	**Responsibility**
Legal Advisor	• Provides legal support as expert on online policy and user agreement; reviews corporate content as needed
Ethics	• Provides ethics and content moderation support; reviews user content as needed and passively moderates profile photos; manages gross misconduct on the site

BENEFITS COMMUNICATIONS TEAM	
Role	**Responsibility**
Director, Benefits Communications	• Oversees online associate communication regarding benefits and associate discounts
Senior Manager, Site Strategy, Benefits Communications	• Manages strategy and develops/implements solutions for internal and external online communication platforms
Manager, Site Operations, Benefits Communications	• Manages user experience, design, content, graphic development, and implementation
Senior Manager, Marketing Strategy, Benefits Communications	• Manages strategy for online benefits marketing across the company; develops and implements campaigns
Manager, Online Marketing Projects, Benefits Communications	• Develops and manages online marketing solutions; manages vendor interaction and legal requirements for associate discounts

WALMART INTERNAL SYSTEMS DIVISION (SITE SUPPORT)	
Role	**Responsibility**
ISD Business Analyst	• Provides IT support
ISD Project Specialist	• Provides IT support
ISD Programmer Analyst	• Provides IT support

ROCKFISH INTERACTIVE (DESIGN AND DEVELOPMENT SUPPORT)	
Role	**Responsibility**
Senior Developer/Team Lead	• Provides technical leadership and direction for the Web development team; coordinates all development and deployment efforts
Development Team (4)	• Responsible for all HTML, Javascript, .NET, and SQL code implementation and testing
Senior Web Designer (part-time)	• Responsible for all creative aspects of the site, from original design through ongoing revisions
Senior Account Manager	• Coordinates change requests, project management, and reporting to client and production team
Technology Director	• Project coordinator through launch; oversees ongoing development

Changing Responsibilities

Staffing within Corporate Communications was initially a shared responsibility. Staff split their time between content development and project management. As the business focus for the site broadened and social media became the focus of the site,

the need for specialty positions emerged. Staff responsibilities shifted to accommodate the changes:

- The site manager is now more focused on acquiring new technology to support new features, such as associates' ability to track their sustainability efforts and check their work schedules from home.
- The content manager became a coordinator of strategic campaigns across the site. One campaign might include a feature story, fun poll, artwork, related forums and blogs, videos, and links to outside resources. This is all done in coordination with other company communication channels, such as *Walmart World* magazine.
- A full-time community manager was added to keep subject matter experts (SME) informed about where they could lend their expertise to support associate forums and to report back each week on trends that might be of interest to the business.
- A usability and user experience staff member was assigned to accommodate wireframe redesigns, recommend and evaluate Web solutions, and coordinate usability objectives with Walmart's design firm.
- The Benefits Communications staff is actively working to repurpose its content and strategy within the new social network context.
- Walmart's legal department assigned personnel for support and guidance.
- Corporate communications provided a resource to the company's Ethics department, with a "dotted line" reporting structure back to the mywalmart.com core team. This change keeps all ethical decision-making in the proper department, but provides a staff member to help out with the challenges of hosting user-generated content.

Working with Agencies

According to Bliss, agency support has always been part of the Web development business model and agencies are considered an important resource. Specifically, for mywalmart.com, Rockfish Interactive has been the primary production agency working on the site from its inception through the development and maintenance phases. The typical back and forth between the internal Walmart team and the Rockfish Interactive team goes something like this:

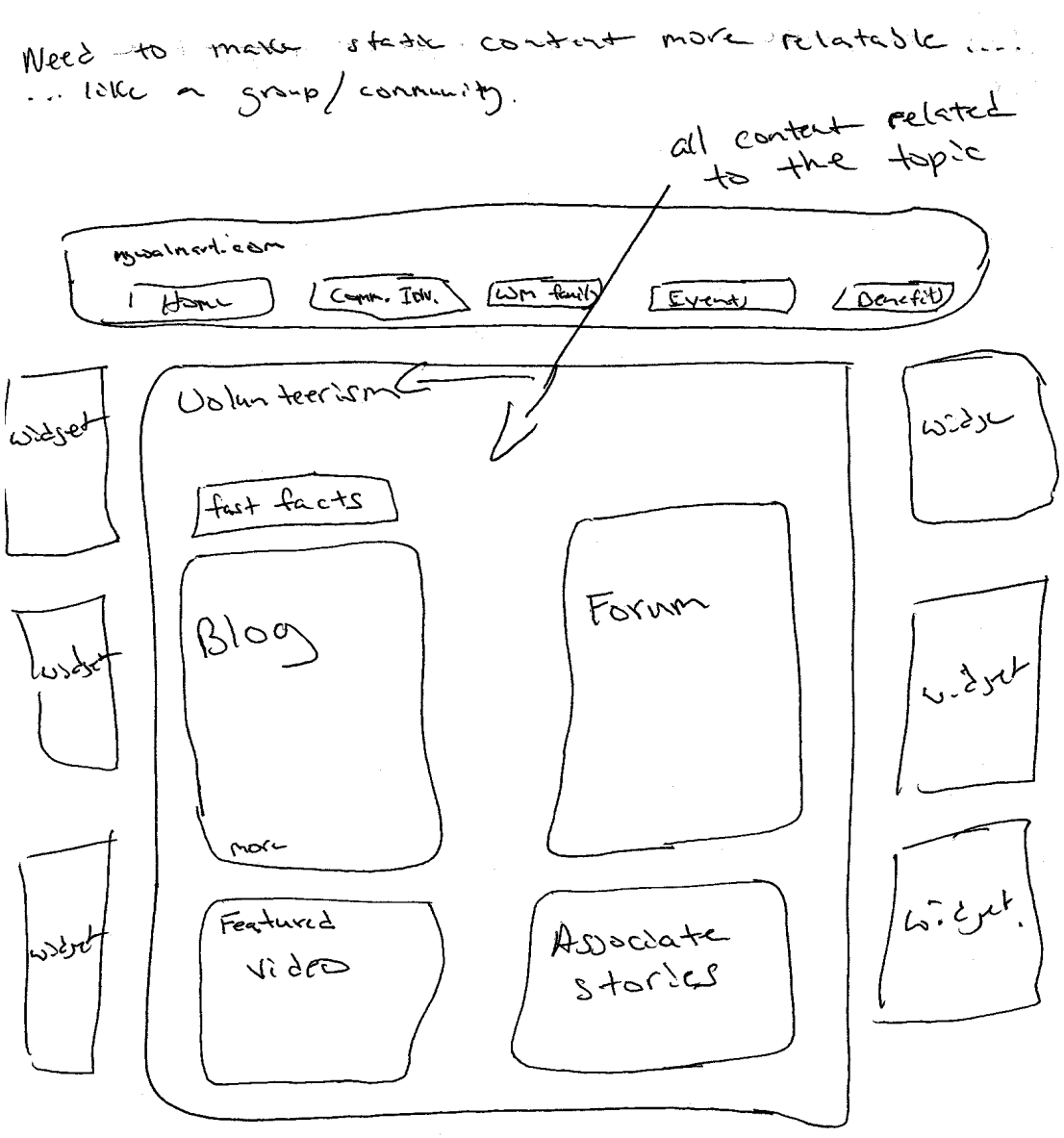
- **Site planning.** Walmart team members, who consult with internal clients to understand their business objectives and requirements, do the site planning. "From here, our Corporate Communications team creates a design concept and meets with internal clients to discuss how content or applications would look and function," says Ryan Travis, Senior Site Manager. "This work is typically completed prior to sitting down with Rockfish Interactive."

- **Design.** "Rockfish Interactive reviews Walmart's vision sketches, which may be as rough as white-boarding or as refined as fully realized mock-ups in Photoshop," says Travis. During the development stage leading up to rollout, a core team staff member spends time at the agency clarifying objectives, approving design modifications, and considering the design and functional enhancements that Rockfish Interactive offers.
  Walmart works with Rockfish to achieve consistent brand interpretation across many of the company's sites and to define the nuanced differences between the company's social network properties versus Walmart's corporate reputation "look and feel."
- **Ongoing support.** As the site reaches the maintenance and enhancement stage, this partnership with Rockfish Interactive enables the internal team to focus its efforts on accommodating requests as the site grows and gains momentum within the organization. As the site evolves, so does the partnership between agency and Walmart teams.

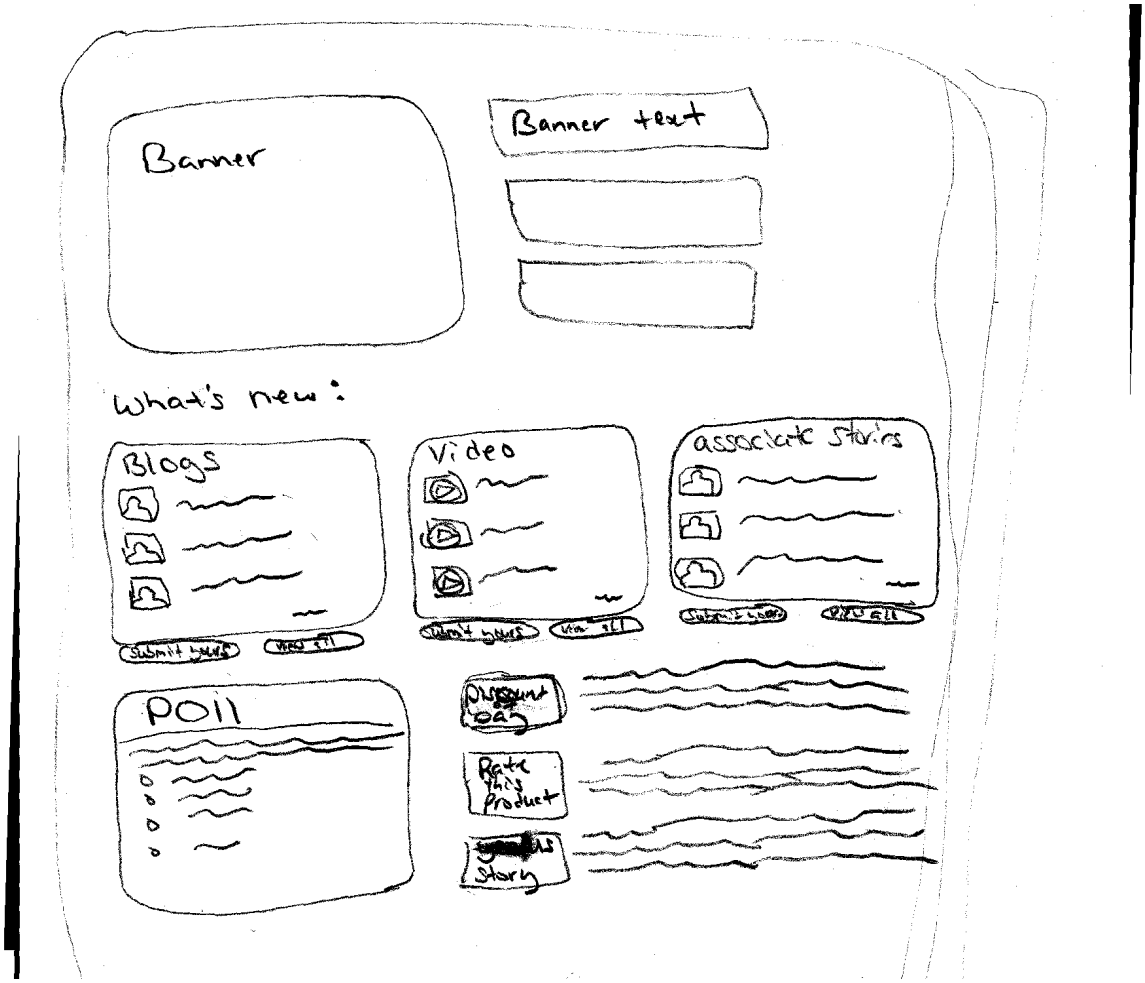
  "We are increasingly partnering with Rockfish Interactive for creative work on digital assets, such as video editing and banner creation," says Ben Newton, Senior Manager, Content Strategy. "As we gain internal attention and buy-in, we must focus on strategy and coordination of accommodating requests, leaving less time for creative maintenance."

  Rockfish Interactive works closely with the Walmart team, providing a dedicated coordinator who attends all team meetings, captures ongoing concerns and ideas for improvement, and works as a liaison with Walmart's developers.

  Walmart also has established lasting relationships with multiple usability and metrics-tracking agencies and consultants for other types of support. These include: User Centric, Human Factors International, Omniture, and Forrester Research.

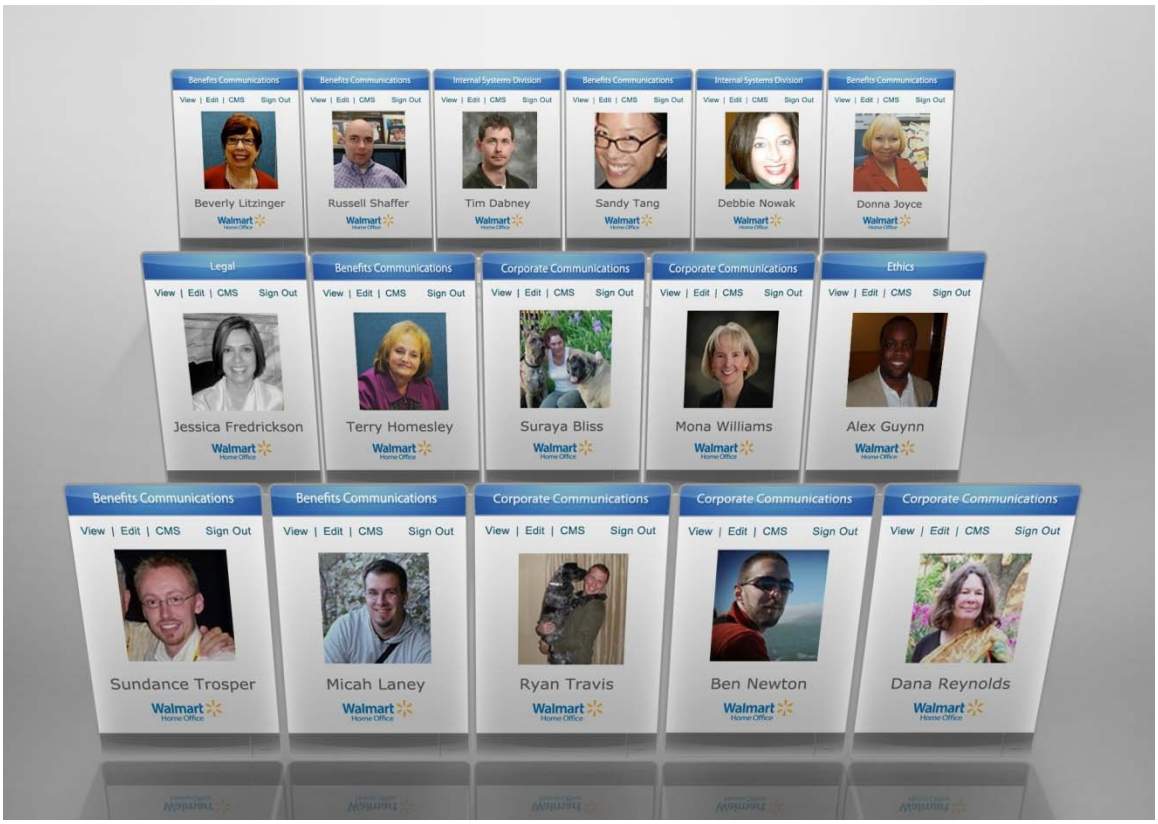


Pictured: This sketch was the product of many conversations regarding the team's usability study findings. Once team members agreed that it was sufficient as a ballpark interpretation of the data, they moved onto wireframes, coding, testing, and then ultimately the site design that associates use today.



Pictured: A sketch of the second-generation homepage for mywalmart.com. The challenge was to maximize content “above the fold” without cluttering the page.

Meet the team



Pictured: The mywalmart.com team. (Top row, left to right): Beverly Litzinger, Russell Shaffer, Tim Dabney, Sandy Tang, Debbie Nowak, Donna Joyce; (middle row, left to right): Jessica Fredrickson, Terry Homesley, Suraya Bliss, Mona Williams, Alex Guynn; (bottom row, left to right) Sundance Trosper, Micah Laney, Ryan Travis, Ben Newton, Dana Reynolds.



Pictured: The Rockfish Interactive team. (Back row, left to right): Peter Gustafson, Justin Hill, Joey Nelson, Scott Stamps, Lisa Thurber; (front row, left to right): Kenny Tomlin, John Cox, Daniel Worthy, Ryan Kee, Dustin Solomon.

GOVERNANCE

Intranet governance is a continual challenge as companies step deeper into the emerging area of social media inside the enterprise. Employing social elements on the intranet means that companies have to make a decision early on: either let the community flourish on its own and take action only if there is an infraction of the site's rules, or have the company act as a guiding hand in moderating what content goes live after users have submitted it. Walmart has taken a "gentle moderation" approach, providing sets of guidelines that users must accept before using the site and also providing moderation to help ensure the site's consistent direction.

Setting Governance Policies

Associate use of mywalmart.com is governed first by a Digital Social Network Policy established by the company's HR department to govern associates' conduct regarding company information disclosed on social networks writ large. If someone is a Walmart associate he or she is expected to adhere to this policy whether using mywalmart.com or interacting with people outside the company on social networking sites such as Facebook.com.

A hurdle prior to the launch of mywalmart.com was writing the site's Terms of Use (TOU), which aligned with Walmart's corporate Digital Social Network Policy, with specific demands for an associate website.

The site policy is a set of legal guidelines that helped create the site's TOU. Any associate who wants to participate in the site's community section, build a public profile, contribute content, participate in the forums, and so on must accept the TOU before being granted "write" privileges. Users who decline the TOU may view content in the community but may not contribute to it. Users with private profiles (those who have registered but not accepted the site policy and TOU) may view all portions of the site and still have access to benefits applications, online pay stubs, and so on.

In addition to the TOU, the company has developed Community Guidelines, which take the policy and TOU legalese and distill it down into a digestible, easy to understand set of guidelines that serve as a handy reference for site users.

The benefits of accepting the TOU are full participation in the site and include the following functions not available to the read-only users:

- Only associates with public profiles appear in the *Friend Directory* and can exchange friend requests.
- Profiles must be public before a user can submit content in any form, including profile photos and forum posts. Public users who don't wish to submit a photo can choose from a variety of silhouette avatars.

The following is an at-a-glance look at Walmart's governance policies:

- **Digital Social Network Policy**: Applies to all Walmart employees globally and covers expected behavior concerning company information, both inside and outside the company. This is a global HR policy.
- **Terms of Use (TOU)**: Users who want to contribute to the community must agree to these legal terms. If they don't, they can only read the content.
- **Community Guidelines:** Distills the TOU into a handy reference (see below) written in layman's terms.

MYWALMART.COM COMMUNITY GUIDELINES

mywalmart.com was made for you. Almost every page has a place to share your thoughts and stories for other associates to see. Here are a few simple guidelines to keep in mind when contributing to the site.

What to do…

1. **Share your thoughts:** We want to know what you think. Join the conversations on the site.
2. **Stay on topic:** If you join a conversation, keep your comments related to the current topic. This helps everyone follow the conversation. If the current topic doesn't interest you, hit the "Request a New Topic" button, and submit a new topic for review.
3. **Show respect:** We're all aware of the Three Basic Beliefs and the importance of showing respect for the individual. Everyone deserves that same level of respect on the site, too.
4. **It's ok to disagree:** We don't all see eye to eye on everything. Wouldn't that be boring? If you disagree about something posted, say so. Just remember to do it in a respectful way.
5. **Have fun:** Enjoy and make this your site. Get involved. Share your thoughts and experiences. Learn what others think and join the conversation.

What not to do…

6. **Don't break the law:** Don't post anything that involves or promotes illegal activity.
7. **Don't be mean:** Don't post anything obscene, lewd, discriminatory, or anything intended to harass someone. And don't gossip about other associates.
8. **Don't take your work to the site:** This site is not for chatting about setting that new modular or discussing the wonderful P&L report you're creating. There're plenty of other topics to learn about and discuss on the site. Leave your work at work.

Still have questions or concerns…

9. If you're unclear about what's appropriate for the site, refer to the site's Terms of Use and our Social Media Policy.
10. If you run across any inappropriate content on the site, you can use the "Report as Inappropriate" button to let us know.

Content reported as inappropriate twice by the community is automatically pulled from the site for review.

Moderating User-Generated Content

The Walmart team developed a premoderated approval process on all forum topic requests to help ensure content remained appropriate and relevant to the site's goals. The team also installed the following reminders in several key areas on the site, including in every content submission form and on the forums themselves: "Associates remember our use of mywalmart.com is voluntary. If you choose to participate, Walmart policies apply, including the rule against off the clock work."

Also, Walmart posted the following tips on starting new discussion topics within the "What can I do here?" link in forums:

- **Keep work at work.** We're unable to post any topics that are work-related, such as how to improve your department, perform your job, or improve job-related tasks.
- **Be inviting.** Remember that forums are conversations. A topic should be open-ended and invite discussion and opinions different than your own.
- **Protect privacy.** Help protect our associates' privacy. Don't ask associates to disclose personal information such as email, addresses, and phone numbers.
- **Submit a new topic.** Make sure there isn't a similar forum already on the site.

Walmart's governance policy was developed so that the company could effectively monitor user-generated site content to ensure mywalmart.com remained focused on its original goal and Walmart's core values, yet not discourage associates from providing a steady stream of content. The following shows how this moderation is enacted on the site:

- **Forum topic requests, blogs, and associate stories** are "premoderated," meaning that, before publishing, topics must pass these standards:
  - Meet site policies and user agreements
  - Original, not repeated topic

    - Noncompensable: not topics that can be interpreted as fulfilling any work requirements or job duties
    - Have a broad appeal: topic isn't limited to a single site location or person, but inclusive of associates everywhere
    - Rejected posts are returned with a personalized letter explaining why they were rejected
- **Forum posts and blog comments** are community moderated and passively monitored by a community manager, meaning:
    - Posts that are reported more than once are automatically removed
    - Site managers review removed content and can reinstate it if it passes site policy and (if necessary) a legal/ethics review
- **Profile photos** are passively moderated after they are posted. Ethics reviews all new/changed photos uploaded on site profiles daily
- **Friends** are managed by each user and can be requested, blocked, or ignored, per user preference.

Within the first eight months of mywalmart.com's launch, 742 total forum topics were approved out of a total of 2,639 submitted. Travis says most of the 1,897 unpublished topics were rejected only because they were redundant with topics already posted. The forums generated more than 26,893 posts with 8,883 unique users contributing. The thread with the most posts (1,605 responses from 1,471 users) asked the question: "Where are you all from????"



Pictured: This widget displays an associate's “Walmart Family,” which are the users this associate has “friended” on the site. Associates can click on their friend’s photos to view their most recent activities on the site.



Pictured: This screen shows how a user would search for “friends” on the site.

Self-Policing

In addition to the moderation provided by the Walmart team, community members on mywalmart.com also have the power to flag content as inappropriate or objectionable. Flagged content is always reviewed, and Walmart’s Ethics office makes the final determination on what action should be taken. Rare infractions to policies include:

- **Discussions that touch on wage and hour concerns.** These might include conversations about fulfilling a job requirement or giving operational direction to improve a process. Walmart removes these posts and reminds community members to propose these ideas at work to their managers while on the clock.

- **Statements that infringe on privacy.** These types of statements include discussing the health or sexual orientation of another associate or customer.

Dealing with Infractions

Despite having policies and safeguards in place, some users will inevitably push the envelope of what's acceptable. When that happens, the company takes action to try to rein in the user, first with a gentle nudge, then with more emphatic action. Thankfully, on mywalmart.com the latter doesn't happen often.

"Users who mildly push the policy's boundaries receive a personalized email with a description of our concern, a reminder on the policy, and encouragement to follow it in the future, while thanking them for being a part of our community," says Newton. "To date, we've only had to remove two forum posts for gross misconduct. If a post is questionable, we partner with our Ethics department to determine whether to leave the post up and follow with an educational post defining why it is inappropriate; or, to remove the post with an explanation. Usually, the community corrects itself and intervention is unnecessary."

Handling Gross Misconduct

Users who engage in gross misconduct, such as publishing inappropriate photos, have their profiles locked as private and receive an explanatory letter. Although Newton says it's a rare occurrence, it does happen. "The ethics department treats the situation exactly as it would had the event occurred on any Walmart physical property," says Newton. "Walmart is proud of the community. With nearly 101,350 public profiles, only four inappropriate photos required removal. To date, we have never had to lock a user's profile for an inappropriate forum post."

He also notes that previously posted content of users who make their profile private (voluntarily or not) doesn't automatically disappear from the site. This preserves continuity in the forum threads.

Managing an "Optimal Level of Dissonance"

Companies that embrace social features on their intranet must first understand that not everything said in those channels will be favorable toward the company. And then they must figure out how to handle that reality. A healthy acceptance of all employee commentary—both good and bad—can provide the company with a valuable opportunity to engage in the conversation rather than shutting it out.

"We recognize that not all comments will be in our company's favor," says Bliss. "We consider this valuable feedback. We also understand that these conversations will take place somewhere, and letting them occur where we can join the conversation is to everyone's advantage.

"Also, permitting an optimal level of dissonance is both engaging to users and demonstrates Walmart's respect for dissenting points of view, which earns our associates' trust," she says "We keep a sharp awareness of the important balance between a free-for-all and what is appropriate for a Walmart property."

TIMELINE

From inception to rollout, the mywalmart.com site took approximately a year and a half to complete. The following timeline outlines the major milestones along the way:

MYWALMART.COM PROJECT TIMELINE		
Task	**Responsibility**	**Timing**
Inception	Walmart Corporate Affairs	October 2007
Executive Alignment	Walmart Corporate Affairs	December 2007
Research	Rockfish Interactive	November 2007
Design prototype	Rockfish Interactive	February 2008
Socialize concept deck	Corporate Communications /Walmart Benefits	February 2008
Reconcept for social networking		
Establish new business goals based on social networking	Corporate Communications	May 2008
Stakeholder team meetings begin	Corporate Communications /Walmart Benefits	June 2008
Review policy	Legal	May–December 2008
Secure legal approvals	Legal	May 2008–ongoing
Secure operational approvals	Corporate Communications	May 2008
Select usability agency via RFP	Corporate Communications	May 2008
Conduct usability study	Corporate Communications /User Centric	July 2008
Conduct mapping	Corporate Communications	August 2008
Create wireframes	Corporate Communications /Rockfish Interactive	September–December 2008
Develop redesign based on usability study and business input; expand CMS to accommodate user-generated content management	Rockfish Interactive	September–December 2008
Develop community moderation processes	Corporate Communications /Ethics/Legal	November 2008–January 2009
Socialize social network concept deck	Corporate Communications	November 2008–February 2009

Finalize Social Network Policy and User Agreements	Corporate Communications /Legal	November 2008
Create development schedule; develop social platform	Walmart ISD /Rockfish Interactive	September 2008–March 2009
Conduct staging/testing	Walmart ISD/Rockfish Interactive	January–March 2009
Develop user authentication	Walmart ISD	January–March 2009
Go-live to build strategic user-generated content from Home Office SMEs	Corporate Communications /Subject Matter Experts	January–March 2009
Internal marketing	Corporate Communications /Walmart Marketing	October 2008–February 2009
mywalmart.com Official Site Rollout March 2009		
Manage site adoption rates (both community and technical adaptations)	Corporate Communications /Walmart ISD/Rockfish Interactive	March 2009–ongoing
Develop business analysis and requirements for needed enhancements	Corporate Communications	March 2009–ongoing

Rollout enhancements:
• *Friends* activity list
• Forum widget
• CMS upgrades
• User status
  o Profile
  o Roles
  o User-generated content per user tool
  o User photos
  o Email user
  o Correspondence history
• Feedback manager
• New/updated profile photo review tool
• Email templates
	Walmart/Rockfish Interactive	Beginning April 2009, 12-week rolling schedule of analysis, proposal, design, approvals, development, test, and rollout

• Document templates		
Complete Benefits Integration		
Evaluate site	Benefits Communications/Corporate Communications	June 2009
Conduct mapping	Benefits Communications	August 2009
Prototype integration design and navigation layout	Benefits Communications /Rockfish Interactive	August 2009
Conduct usability studies	Benefits Communications /Corporate Communications /User Centric/Human Factors International	September–November 2009
Finalize design based on usability study findings	Benefits Communications /Rockfish Interactive	December 2009
Enhance CMS & site tools for Benefits applications	Rockfish Interactive	September 2009–January 2010
Content development	Benefits Communications /Walmart ISD/Rockfish Interactive	October 2009–February 2010
Conduct staging/testing	Benefits Communications /Rockfish Interactive	February 2010
Develop marketing plan	Benefits Communications /Corporate Communications	November 2009–February 2010
Integrated Benefits Rollout February 2010		
Manage anticipated adoption rates	Benefits Communications /Corporate Communications /Walmart ISD/Rockfish Interactive	February 2010–ongoing

GOALS

Business Goals Meet User Expectations

Walmart's stated business goal for developing mywalmart.com was to provide a "one-stop-shop" for associates to interact with each other while delivering a consistent brand experience. To that end, the site's look, feel, tone, voice, and messaging all reflect Walmart's brand and culture.

In an effort to determine Walmart associates' expectations for the site and marry the business goals with the user goals, in 2007, the company engaged a research firm to conduct a study to determine what mattered most to associates and what values

would drive their online interactions. Walmart wanted to find out what messages resonated with associates and which communication channels they used and trusted. "We wanted to understand where they were getting their information and what they trusted," says Bliss. "We wanted to find out what they expect from Walmart and meet their expectations."

The research results indicated that family, community, and opportunity were values that mattered most to Walmart associates. In addition to these value pillars, the researchers discussed various communication channels and which ones resonated with the participants—in-store meetings, corporate publications, the intranet, casual conversations with colleagues, and so on.

The research revealed that associates wanted an online channel to communicate with the company and they wanted social networking features.

It was with this information in hand that the intranet team began to formulate how the site would align with the company's value pillars and also accomplish the associates' communication goals to create an ideal mywalmart.com site experience.

Associate Engagement Goals

While the business goal of mywalmart.com is to turn corporate content into meaningful conversations, the company also aims to instill pride in its associates and drive higher interest in topics that might otherwise be ignored.

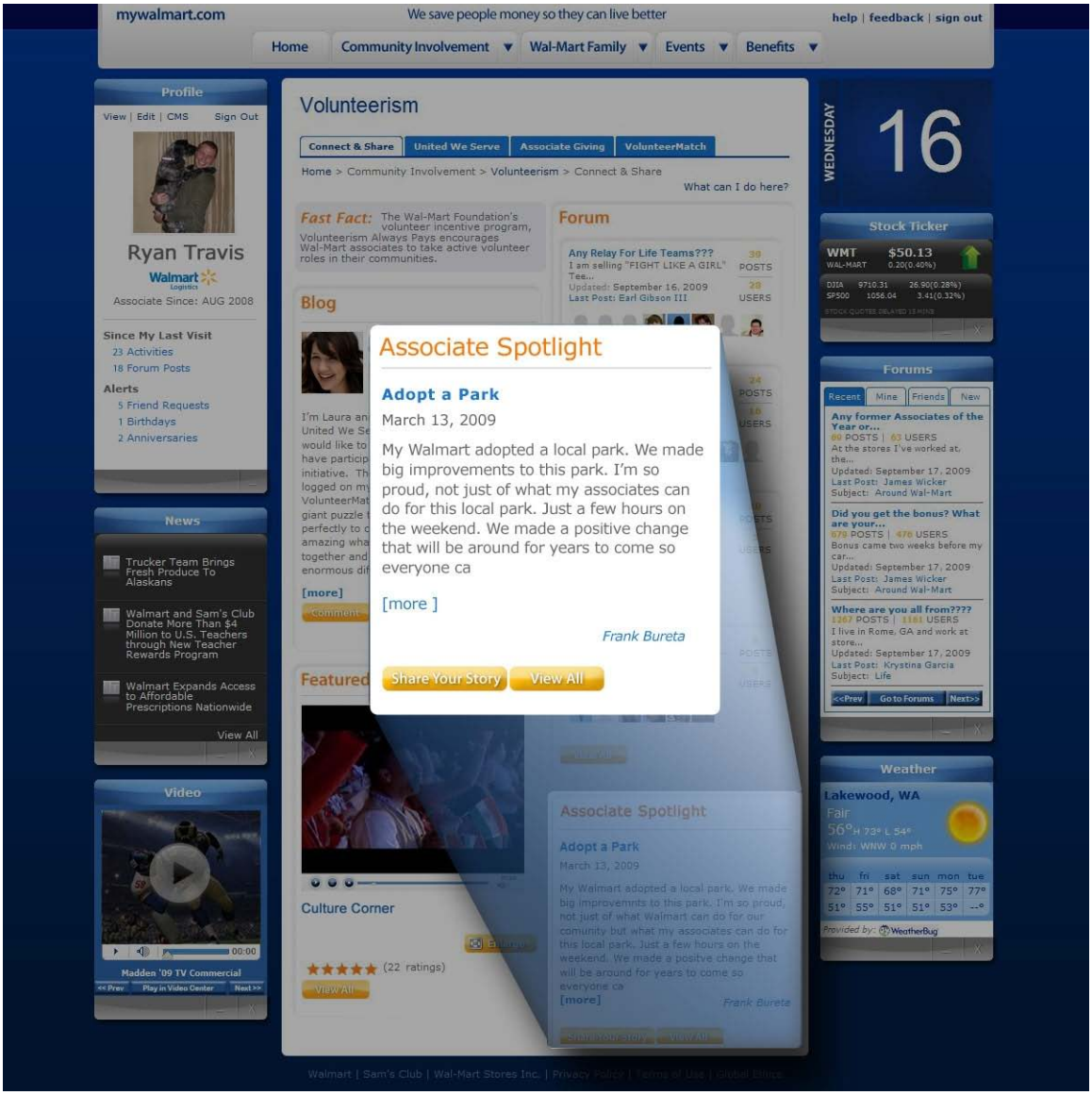
Additionally, the company aims to have the site accomplish the following:

- **Educate and enable associates as company ambassadors.** Research conducted for the company reveals that nearly one quarter (22 percent) of the US population knows someone who works at Walmart or Sam's Club. Social media, such as the mywalmart.com features, let the company provide associates with information that makes each of them more informed stewards of the Walmart brand.

  "Associates know a large part of the population," says Bliss. "If we make it easy for associates to access accurate information about the company and connect with each other, when a topic comes up regarding the company, they will be able to engage with the conversation because they are armed with accurate information.

  "We wanted to provide a place where we [the company] inform associates by providing the facts online," she says. "And create an environment where associates can discuss topics with each other with accurate information within reach."

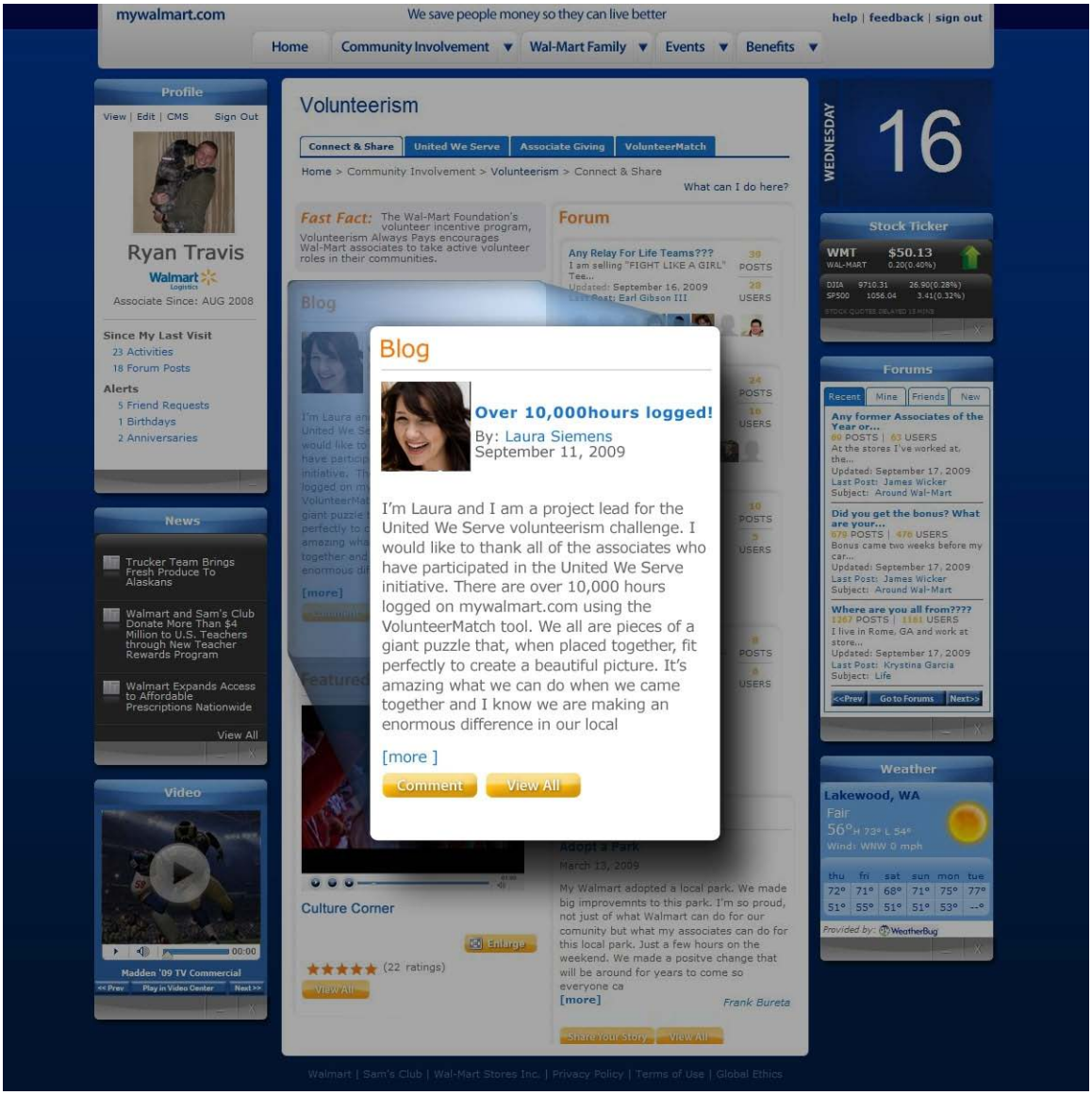
- **Reinforce and celebrate Walmart's culture**. Through the social media channels on mywalmart.com, associates can share success stories with one another and participate in activities that reinforce the idea of Walmart as a second family. "Associates rally around their coworkers," says Bliss. "Helping each other, supporting each other. And this online forum becomes another place where this can happen."



Pictured: An example of an associate story. Associates share personal testimonials on the site. Many of the stories are about the how fellow associates in their store or club rallied to help them out during a difficult time. Associates also use this section of the site to recognize one another. These stories are reused in other corporate communication vehicles such as the company's internal magazine (*Walmart World*), internal memos, and presentations.

- **Support career and personal growth.** According to Bliss, three quarters of Walmart managers began their careers as store associates. "On the site, we make sure that we share that kind of information with associates so they can see that those opportunities exist and are available to them," she says. Currently, associates can read about new positions on the site and, as the site expands in 2010, the career section will provide easier ways for associates to see what jobs are available and also have an opportunity to discuss them with other associates.

- **Enable community involvement.** mywalmart.com helps associates learn about volunteer opportunities and gives them the opportunity to sign up and get involved in their local communities. They can also learn more about Walmart's environmental sustainability practices and how to incorporate these into their own lives. Other community involvement opportunities on the site include the ability to register to vote and become involved in Walmart's community action networks.



Pictured: An example of the *Connect & Share* blog in the site's *Volunteerism* section. The blog, forum, video, and associate stories in this section all contain content that pertains to volunteerism and getting the company's associates interested in making an impact in their communities.

- **Encourage peer networking through shared experiences.** The company is planning to offer career building, interpersonal growth, and diversity support groups on mywalmart.com in the future. Currently, associates have

the opportunity to participate in video chats with executives and visiting celebrities.

- **Provide associates with resources to help them "live better."** mywalmart.com includes extensive personal health, tax and financial planning tools, and other resources.

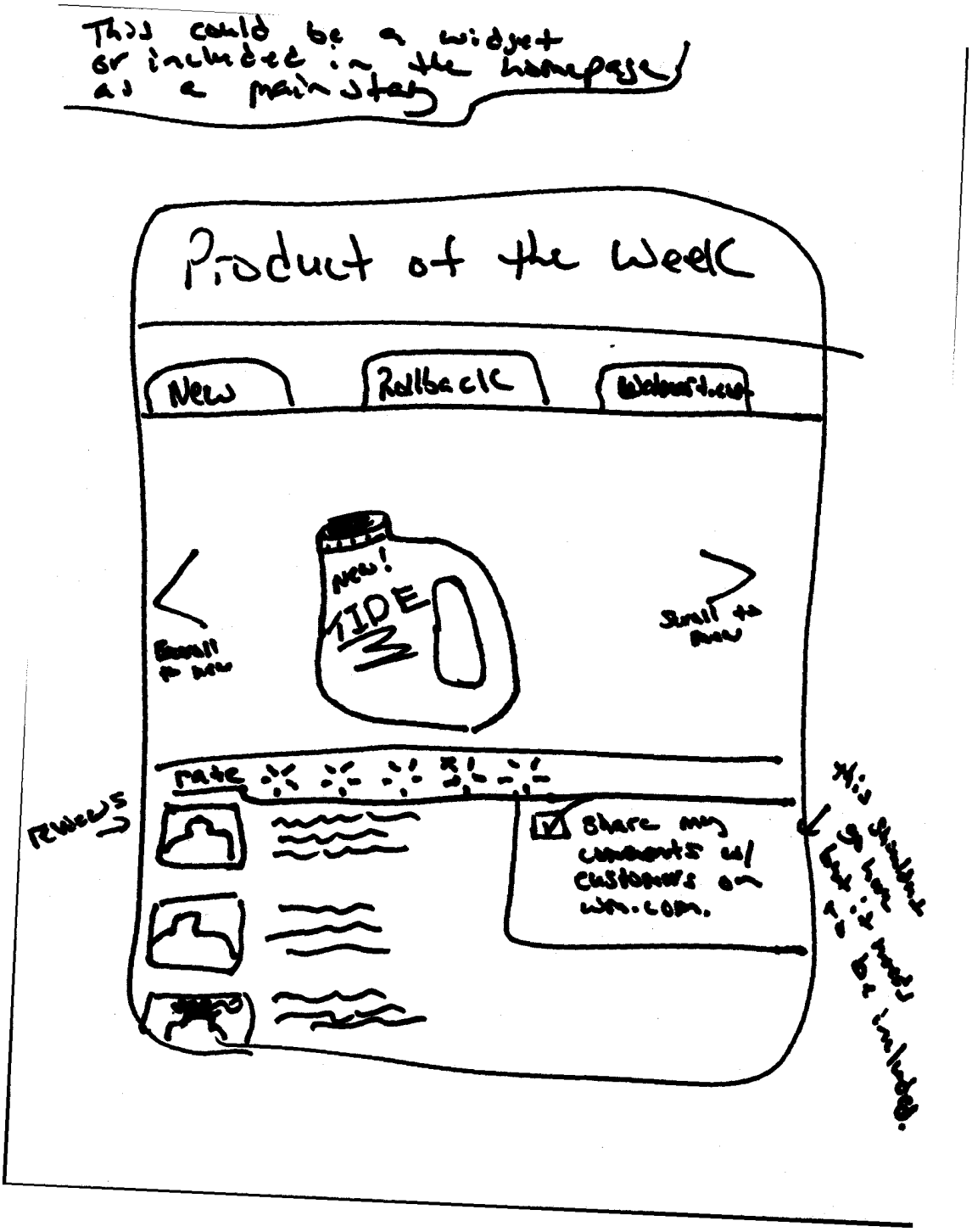
  Healthcare resources include:

  - Direct health resources (such as the Ask Mayo Clinic Nurse helpline and Resources for Living for telephone counseling)
  - Healthy lifestyle resources including recipes, diet, and exercise tools
  - The ability to research health care options (such as network physicians and hospital rating reviews)
  - The ability to enroll in health benefits on the site

  Financial planning resources, including the ability to:

  - Manage beneficiaries
  - View upcoming and previous pay stubs
  - Take advantage of discounts and financial services
  - Manage investments and profit sharing

- **Offer peer-reviewed products and classified ads.** In partnership with walmart.com, the site is slated to provide a place where associates can share their knowledge of products sold by the company. The site lets associates rate products and comment on them, providing clarifying details and other shared information that helps other associates who might find be in a situation where that information is helpful. "The site lets them share their opinion about things," says Travis. "Not just positive, but negative, too. Honest opinions. People trust people like them so it's better than reading what a copywriter wrote about that product."



Pictured: A sketch of a feature currently under development. Once completed, this widget will allow associates to provide expert ratings and reviews on products from the company's internal site mywalmart.com and have their comments included in an RSS feed to the company's ecommerce site, walmart.com. The company believes this functionality will create greater online connectivity between customers and associates.

Procedural Goals

Hundreds of thousands of associates visit the site each week, and the company especially sees a spike in site traffic each payroll cycle. To keep the site fresh for these visitors, content updates appear daily and all corporate-generated content is scheduled to refresh three days before these biweekly traffic peaks. Additionally, Walmart aims to:

- **Align communication** with other divisions and channels.
- **Establish and maintain ethics and legal processes** through user-reported content review; passive but complete moderation on all user photos; and guidance on community mediation responses.
- **Provide customer service** to the user through personalized email replies based on standardized templates; status feedback on all forum topic requests (whether content has been accepted or rejected and why); and feedback within three days on all user questions, which range from site comments to benefits questions.

Constraints

Like many intranet teams, the Walmart team was operating under a series of constraints as they built the new site. These included:

- **Site access.** Because the site is accessible only from outside of work, ensuring that user authentication preserved associates privacy and guarded their records information was a challenge. “This is a particular challenge, as mywalmart.com is behind our firewall and our company must insure all users are currently employed here,” says Travis. “We’ve put additional security measures in place to safeguard financial and health plan enrollment and beneficiary changes.”
- **Timeline.** The Walmart team also experienced challenges with site development and rollout during the holiday season when the company must yield to operational priorities during peak shopping times.
- **Maintaining ethical standards** pertaining to ethical and legal parameters .
- **Avoiding distraction.** Because the project commanded such a high profile within the organization, it was difficult to maintain a through line from planning to launch. Gate-keeping, establishing priorities, and protecting mywalmart.com developers from ad hoc requests were daily challenges, but managing them well were the key to making the project a success.
- **Technical constraints.** A few essential site tools—such as friend messaging and user-generated videos and photo albums—were unavailable at rollout because of server space and cost constraints. The site’s search tool, metrics dashboards, and flexible content templates were also unavailable at first. Many of these features have since been added or are now in development.

USERS

Though mywalmart.com is an intranet, the site is available only to current associates who log in from their home computers. The site currently has 565,510 registered

users, and Walmart expects that number to jump to more than 800,000 once the *Benefits* site is fully integrated in February 2010. Login is restricted by authentication to anyone currently on Walmart payroll within the US, including those who work in corporate and regional offices, satellite support centers, Walmart Stores & Neighborhood Markets, Sam's Clubs, Pharmacy Centers, Optometry Centers, Data Centers, and Logistics (including warehouses, truck fleets, and aviation).

USER TASKS

The site is divided into three main areas, offering the end user a variety of options for both accomplishing vital benefits-related tasks as well as interacting with fellow associates in an online social environment:

1. Benefits

Users can accomplish benefits-related tasks including:

- Access online pay stubs
- Access and manage 401(k) and profit sharing information (through single authentication, associates can log in to mywalmart.com and have direct access to their retirement brokerage accounts to sell stock, look at their 401(k) balance, and so on)
- Access the list of associate discounts

2. Social networking

The site's social network areas receive one-third of all page views. These features include access to user-generated content in forums and blogs and "friend" profiles.

3. Corporate information

The remaining page views are exclusively corporate information pages, such as news and topical knowledge centers. Corporate, however, is also strategically interwoven throughout the forums and blogs.

USABILITY

Starting with Research

Research was at the core of the design and development of mywalmart.com. "First, we researched and applied findings from other intranet research," says Dana Reynolds, Senior Manager, User Experience. "Most important was a usability report we completed in 2007 prior to redesigning our corporate Internet site, walmartstores.com." This report helped the team identify which elements of style, layout, and navigation they should incorporate into mywalmart.com to provide a consistent experience. "It also gave us valuable insight into navigation and organization pitfalls to avoid," she says.

Early user testing revealed that the initial prototype design (based on traditional information site design, where the corporate information was front and center) was ineffective at reaching associates in the manner they desired. "We had the look, we just didn't have the right focus," says Reynolds. "We didn't know yet how important social networking would be to meeting that goal. This study was the first step to making that evident."

The prototype featured navigation based on the company's "corporate reputation pillars" concept terms and the landing pages featured corporate content—and only corporate content. The early usability tests proved that this approach missed the mark. Content was neither easy to find nor easy to digest. "Walmart was still marketing ideas to associates, not inviting them to join the conversation," says Reynolds.

Using card-sorting methods and taxonomy structures, the team tested the reputation pillar approach to the terminology and naming conventions and found that this approach fell short of user expectations. "We found that as navigation terms, 'community,' 'opportunity,' 'family,' and 'rewards' were poor indicators of the content which fell under them," says Reynolds. "We consulted with business areas to understand their goals and messaging objectives, and then we reorganized these reputation pillars as interwoven context rather than as navigation categories."

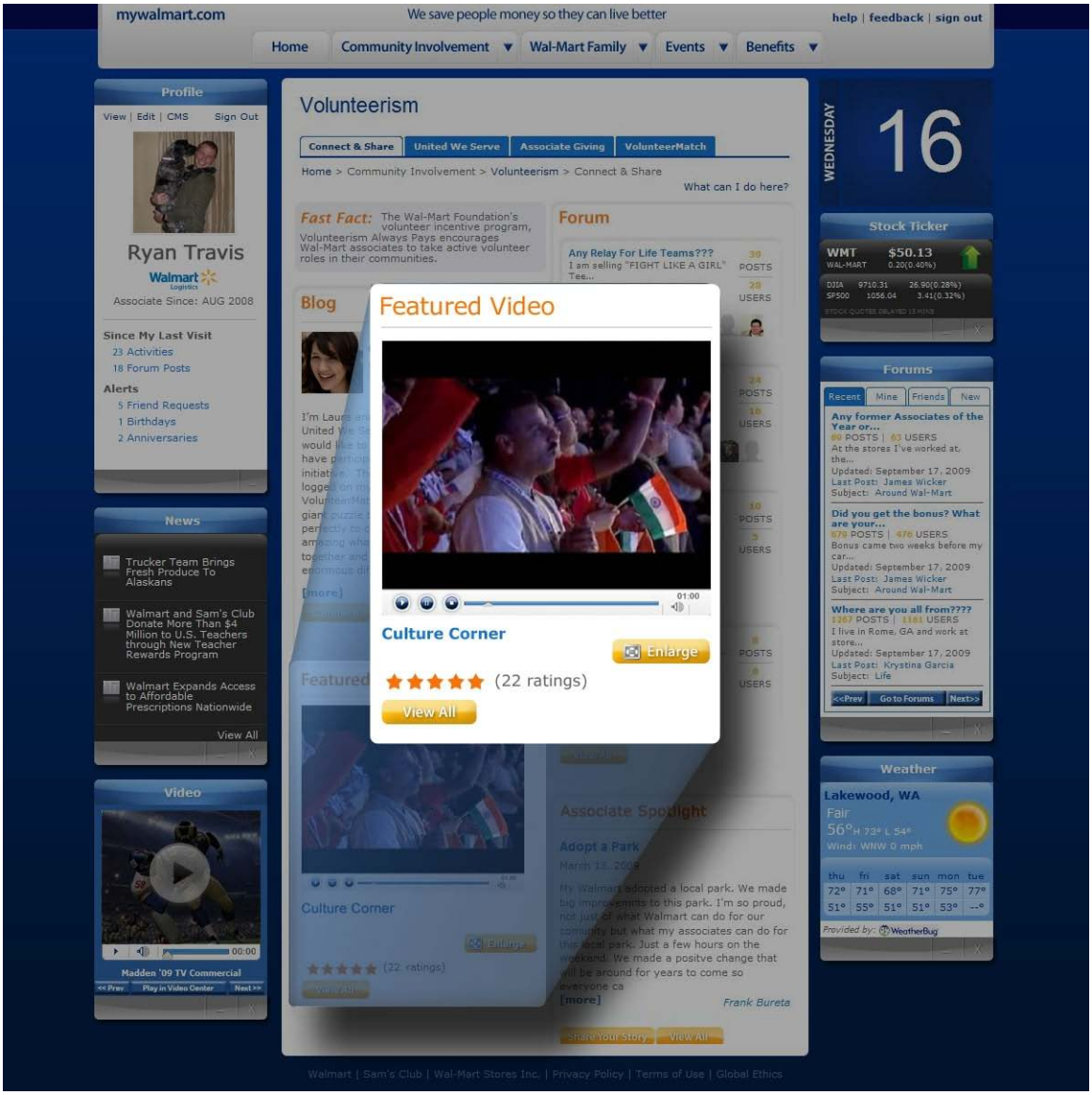
Usability Study

At the conclusion of these early research activities, Walmart worked with User Centric to conduct a usability study of mywalmart.com. Twenty-nine associates participated face-to-face in off-site testing facilities in Arkansas and Chicago. Participants came from four facility types, drawn from 11 different facilities (including urban, suburban, and rural locations). Participant tenure with the company ranged from four months to 22 years. And participants' Internet habits ranged from none to daily use, with two-thirds of the participants having some experience with social networks. More than half had volunteered in their communities. The team used screen capture to track users' browsing behavior during scripted task scenarios and also captured responses, impressions, and feedback.

Test Results Point the Way

According to Reynolds, the test sessions revealed that from the user's perspective, there was lots to read and little to do on the site. "The importance of putting the user in the center of the site, and making sure the site laddered up to corporate information was clear," says Reynolds. "So, the team redesigned the site as primarily a social network."

The subject area landing pages became hubs of user-generated content: blogs, forums, associate stories, and videos, with the company only occasionally posting forum topics that they wanted to put on associates' radar. (Corporate associates identify themselves when engaging in forums for full transparency.) Tools and corporate resources served as support on the topics users found most compelling.



Pictured: An example of a *Connect & Share* video. Videos are refreshed on the *Connect & Share* pages to compliment the blog's message. Videos can be commercials, brownbag events, celebrity shout-outs, seminars, and so on. The only requirement is that the video reinforces the primary *Connect & Share* theme for that content cycle.



Pictured: An example of a *Connect & Share* forum. The discussion threads on each of the six *Connect & Share* pages contain discussions relevant to the community they're in.

Engaging users with the prototype provided the team with valuable feedback and direction for the site. "The usability study helped us determine associates' understanding of the purpose and value of mywalmart.com, as well as the types of features associates are most interested in and which they would be most likely to use at home," says Reynolds. "The study also helped gather specific feedback and expectations for the type of content, level of detail, and overall relevance of the site features, which were key reputation drivers."

But most of all, the study pointed the way for the company to place social media components at the core of the site, rather than at its periphery.

"Before the study, Walmart considered social media components 'added features,'" says Reynolds. "The study revealed that social media was the site's primary

engagement draw. As a result, the homepage and all landing pages underwent an overhaul to refocus on user-generated content."

Usability as a Tool for Continual Improvement

Applying usability testing methodology isn't just a one-off activity that the team applied during the design process. They plan to use those early tests as a baseline for ongoing engagement with the users toward the goal of continual improvement.

"We are committed to continuous improvement and consider usability—along with intelligent use of metrics—key to continued success," says Reynolds. "Early studies established baselines, but there's always room to improve. We have an ongoing usability budget and are scheduled to conduct two major studies this year, as well as ongoing surveys, associate focus groups, and analytics on feedback and site usage."

This year, the mywalmart.com team will have Human Factors International conduct an expert review of the site. And Walmart and User Centric will conduct follow-up user interviews to validate scheduled changes to the site's *Benefits* section. Internal staff also attended Human Factors Internal training for certification as usability analysts this year.

Lessons Learned from Usability Testing

Reynolds points out two things the team learned during their usability activities:

- **Overbook your sessions.** "Because of the cost and coordination challenges involved in face-to-face interviews, we recommend overbooking to ensure every slot is filled," says Reynolds. "Our own staff informally interviews extra subjects and provides related surveys on topics the study doesn't cover."
- **Solicit different perspectives.** "Different usability service providers demonstrate areas of expertise in different areas," she says. "And we recommend cycling through a variety of agencies to get a broader evaluation of the site through various lenses."

URL AND ACCESS

The site's URL is mywalmart.com. Only authenticated Walmart associates can access content, and the site is available only to associates outside of work. Associates who manage the site may access it from work on the corporate LAN.

More than 10,000 associates access mywalmart.com through mobile devices, such as smart phones, each month.

TECHNOLOGY

The software and technology platform behind mywalmart.com is the following:

- **Design:** Adobe Photoshop
- **Development:** Microsoft Visual Studio 2008, .NET 3.5
- **Database:** Microsoft SQL Server 2005
- **Web Server:** Microsoft Windows Server 2003
- **Content Management:** Custom build, ground-up
- **Project Management:** Basecamp and MS Excel

SEARCH

Applying effective search to an intranet is often both an initial challenge and an ongoing process of improvement over time. Search effectiveness is important, especially on an intranet where search results can be critical to finding information quickly. "Search on mywalmart.com has an interesting history," says Reynolds. "Our company's internal intranet usage taught us that users utilize search versus browsing at a 50/50 ratio. So getting it right was very important."

To understand how search evolved on mywalmart.com, you have to know a little bit about the site's history and evolution. The walmartbenefits.com site pre-dates mywalmart.com, and during the first year it was a "site within the site," accessible only to users who first logged into mywalmart.com. "The intention," says Reynolds, "was to fully integrate the old *Benefits* site within the year."

Although walmartbenefits.com had its own search, it was segregated behind its own firewall. This left Walmart with a choice between two imperfect solutions:

- **Option 1:** Have two searches on the dual site (one in the *Benefits* section, and one in the new mywalmart.com section) while it was still in transition. Users would then be able to search mywalmart.com content when they were in the new site area. However, they might not know that this was a dual site and try to search content using the "wrong" search tool. This could result in users not finding what they were looking for and thus assuming that essential benefits content didn't exist.
- **Option 2:** Don't offer search on mywalmart.com until the *Benefits* content is fully integrated. Users' experience on the *Benefits* side of the site wouldn't change, but the new social media features and content wouldn't be searchable.

The company chose the second option. The comprehensive search will rollout when the *Benefits* site fully integrates into mywalmart.com in early 2010. As expected, Walmart has had users requesting search for the social media content, but the outcry has not been overwhelming.

When search rolls out early next year, associates' posts can be searched. In the interim, the company has met the majority of the associates' search needs in two ways:

1. **A forum widget** organizes the forum content in digestible and relevant chucks. For example, the widget provides instant access to forum topics submitted by the associate or their friends. It also provides a real-time snapshot of all new post and most popular discussion topics
2. **An associate's profile page** functions like Facebook's *Wall* feature, letting associates see what their friends are posting without having to search for it within the forum.

Search Technology

The technology behind the comprehensive search that the team is working on is Google Search Appliance (GSA). "We chose this tool because it can handle traffic requirements," says Reynolds. "And we consider GSA the standard in search." In addition to implementing the search appliance, the company is looking at other options to augment simple site search. "We're seriously looking at implementing an ad model that will increase marketing opportunities for associate discounts," says

Terry Homesley, Director Benefits Communications. “Walmart also plans to include a sponsored links model, which will feature content based on user search terms.”

Walmart doesn’t yet track which searches are most common.

The ad model Homesley referred to would work similar to Google Search results on the Web, except instead of other businesses buying the keyword ad spaces that appear around the search results, the company would post products and benefits associated with the search term. This in-house ad model will give associates greater exposure to benefits they might be unaware of, as well as products the company sells and associates might come in contact with.

MOBILE

“Mobile access is definitely a goal for next year,” says Bliss. “Currently, the site is accessible and functional via mobile, however, we have yet to optimize it. The team is also considering adding mobile widgets for primary user tools such as pay stubs and work scheduling.”

CONTENT MANAGEMENT

CMS Technology

The CMS was custom developed for Walmart, using the following technology:

- ASP.NET
- VB.NET
- jQuery/JavaScript
- LINQ
- MS SQL Server

mywalmart.com has a multitiered content management structure. Following is a breakdown of various CMS areas and the functions they control:

- **Users/user-generated content.** Site administrators can search for individual users and view/edit any profile information as necessary. Administrators have a one-stop shop for viewing any and all of an individual’s activity, including previewing their public profile, what (if any) admin roles they might have, content they’ve generated on the site, and a history of their profile pictures. Questionable content can be moderated directly and notifications can be sent to a user either as a freeform message or via a template/form letter.
- **Site feedback.** Any feedback users leave can be viewed, assigned a reviewer, and given a due date. Any time a piece of feedback has a change in status or some action taken, that item’s history is updated with appropriate information for tracking progress.
- **Admin navigation structure.** Administrators can change the CMS navigation to a different configuration or order that better suits their preference or needs.
- **User-facing site navigation structure.** All but top-level navigation can be manipulated. New site sections are added with this tool, which also updates the site navigation menus and breadcrumbs.

- **Subjects (for taxonomy).** mywalmart.com is centered on a subject-based taxonomy. For example, blog posts and forums are assigned to the subject area that best represents the content, such as volunteerism or sustainability. Subjects can be added, deleted, or edited in this area of the CMS.
- **Email templates (for user notification).** Site administrators can send notifications to a user's personal email account through the mywalmart.com CMS. To improve workflow, administrators can create form letters for common notifications and simply fill in any necessary information and personalize the message.

Content

The following content areas can be administered through the CMS:

- **Documents/pages (including descriptions of how the templates are integrated into the FCK editor):** The CMS allows administrators to create content pages at will. Administrators use a form to enter necessary metadata to identify and organize pages/documents and a freeform WYSIWYG editor to enter content. Style sheets are applied to keep all content consistent. To improve consistency beyond just styles, the editor allows the administrator to choose a template for content components, further solidifying a consistent experience throughout the site.
- **iSite configuration settings.** This area of the CMS is used strictly for setting technical configurations, not content. It was conceived as a work-around for some technical implementation that was restricted because of hosting arrangements.
- **Executive org chart.** This org chart lets users get to know Walmart executives through an interactive Flash application. Users can click on an executive to see the reporting structure around that individual and click through to read a bio.
- **Footer links.** Site administrators fully control footer links and can add, edit, or remove them.
- ***Associate Giving*.** This page displays associations with charitable organizations.
- **Categories.** Administrators can manage content categories for the organization.
- ***Fast Facts*.** Administrators can pull *Fast Facts* content onto the landing page from any subject area, remove it at will, and offer context by associating it with a particular subject.

Community

Site administrators moderate content in the site's *Community* section as follows:

- **Inappropriate material.** Site users can flag user-generated content as inappropriate; this CMS area allows administrators to track content that has been flagged and to remove or reinstate that content when necessary. Content can also automatically be removed when the number of flags by users reaches a defined threshold. Content that has been automatically removed is also administered in this area.
- **Language filter.** All user-generated content must pass through a language filter before being submitted. This CMS area allows administrators to update the list of banned language as necessary. This tool prevents submission of content that contains forbidden words.
- **Shared story moderation.** Users shared stories are submitted to be approved before being displayed on the site. In this area, site administrators review and approve or reject shared stories.
- **Profile photo monitoring.** User profile photos are posted without active moderation on mywalmart.com. Photos are reviewed by a site administrator daily, after they go live. This interface allows for quick batch processing and avoids requiring the admin to review the same photo more than once.
- **Video chats.** Users on mywalmart.com can submit questions through the site to visiting celebrities or executives who answer them in either live streamed or pre-recorded video. This CMS area allows administrators to schedule chats and moderate the questions users submit.
- **Blogs.** Each subject area on mywalmart.com has a blog; this CMS area allows for the creation of blog posts as well as moderation of comments when necessary.
- **Forum topic approval.** This area provides a quick way to review forum topic requests submitted by users. Upon approval the thread is added to the appropriate subject area.
- **Forum response approval (for actively moderated forums).** To date, mywalmart has never proactively moderated responses to the site. Responses to forum topics appear on the site in real-time. Associates self-govern content, while a community manager passively follows discussion threads. However, capability exists to set a forum topic to be "actively moderated," this area will show all responses to that topic. Upon approval, the posts are made live on the site.
- **Resource management (photos and documents).** This is a central repository for images and documents used throughout the site. It provides for file upload and associating necessary metadata with a resource.
- **Homepage management.** This area lets administrators manage the elements that appear on the homepage.

Content Owners

Because mywalmart.com incorporates content from many areas of Walmart, the list of content owners continues to grow as the site gains visibility and buy-in across the company. As of this writing, the following site areas receive content from the following departments:

- ***Benefits*:** Benefits Communication
- ***Volunteerism*:** Walmart Foundation, Global Associate Communications, and *Walmart World*
- ***Sustainability*:** Business Sustainability, Global Associate Communications, and *Walmart World*
- ***Civic Duty*:** Corporate Affairs (including Advocacy & Outreach, Public Affairs, Government Relations, and Constituent Relations)
- ***Around Walmart*:** Marketing, Merchandising, Ethics, Privacy, Pharmacy, walmart.com, and Operations
- ***Entertainment*:** Marketing, Merchandising, walmart.com, and Shows & Events
- ***Life*:** walmart.com

Editorial Schedule

A cross-functional group led by Corporate Communications manages the site's editorial calendar. This team includes members from Benefits Communications, Corporate Affairs, Operations, walmart.com, Marketing, and Government Relations. The team's members meet biweekly at an editorial calendar meeting led by the Senior Content Manager. There, they discuss and finalize site content options on a two-week (in advance) basis. So, for example, content options for September 15–30 are discussed at a September 1 meeting. Site content is refreshed at least every two weeks to coincide with the site's peak traffic timeframe (the weekend when associates can view their online pay stub).

Because of the constant need to develop and deliver relevant site content with limited internal team resources, Walmart adopted this method to refresh and update various sections of the site. It also helps to increase stakeholder engagement with the content relevant to their business areas.

Content options are based on upcoming events and initiatives relevant to the content owners' business areas. After the editorial meeting, a final content task list is created on the mywalmart.com team's SharePoint site for all content owners to review and track their progress. The Senior Content Manager works with content owners to coordinate content (blogs, forum topics, images, banners, legal review, and approval).

Maintaining Editorial Standards

For mywalmart.com to remain a vital part of the Walmart associates' online resources, the company must work hard to keep the site both fresh (in terms of content) and consistent (in terms of corporate message and tone). As Newton explains, there are three key areas related to maintaining that consistency:

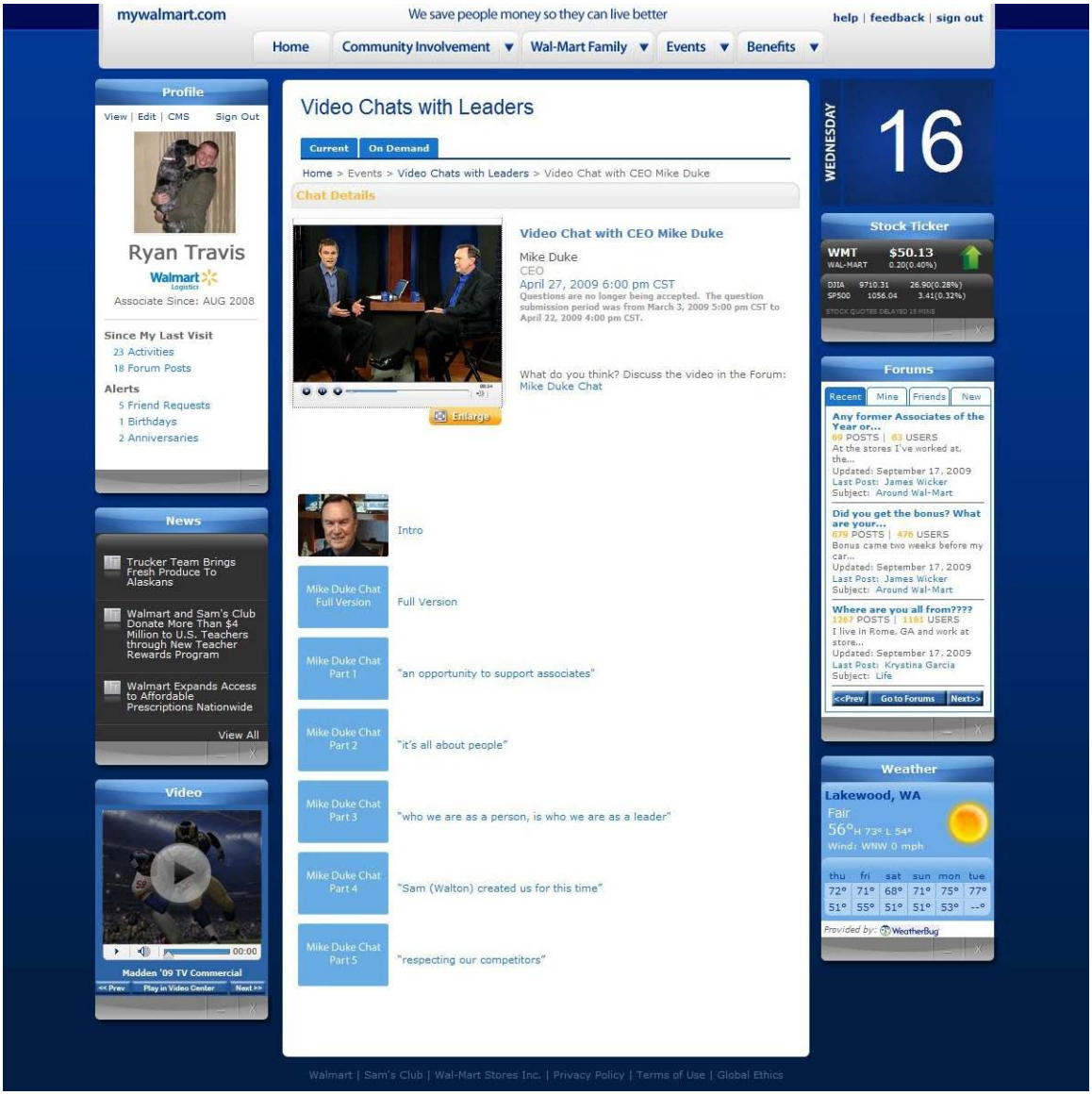
- **Voice.** "With blogs and forums, we use a personal tone and voice that avoids a 'corporate' feel," says Newton. "We found that associates think 'personal, local, corporate, then global,' whereas the Home Office thinks 'corporate, global, local, then personal.' For associates to listen to our company, we needed to reposition content in a way that invited associates to listen and exchange dialogue."
- **Look and feel.** All graphics adhere to Walmart's corporate brand guidelines to maintain a consistent look and feel (font, color, and photos).

Consistent moderation. The mywalmart.com team developed a set of community manager guidelines, including moderation guides and standard email "situational response templates." These are built into the CMS and managers can access them from any user-generated content location. Because the templates are built into the CMS, it's easy to enforce and distribute them as needed. All correspondence is archived on a per user basis.

FEATURES

Because the site is new and still evolving, many interesting features will be added soon. Some of the current features include:

- **"Look who's talking"** shows profile thumbnails of people involved in a forum conversation.
- Essential **user management tools** in the CMS include email templates, email history, and a profile photo manager.
- **Content and fact sheets** from Walmart's corporate site are pulled into the intranet using subject area tags. The walmart.com *Ratings and Reviews* link takes users to the external retail site's *When you're the customer* section.
- **Forums** are one of the site's critical features. They provide value to the associates and account for a significant portion of the site's traffic. "The walmart.com forums revealed a gap in associate understanding and illuminated false assumptions on our company's part," says Bliss. "When we created an environment where associates go for trusted information, repeat traffic rose. This gave our team an audience for corporate messages and exposure to programs associates might not have known about otherwise. Also, creating relationships on the site reduces the perception gap between different branches of our Walmart family."



Pictured: Celebrity and executive Web chats can be hosted on mywalmart.com, both live and taped. The site has featured chats with CEO Mike Duke and NASCAR Driver Jeff Burton, for example. An easy-to-use video player allows associates to watch in real-time and ask questions or watch later at their leisure.

Personalization and Customization

At this stage of the site's development, customization and personalization features are limited. So far, associates can select and arrange widgets on the homepage; create public profiles to store photos, work history, facility, and hometown; track friends' activities; and keep track of birthdays and anniversaries. Users can also create friend filters for forum content and create personal playlists in the video center.



Pictured: The discussion forums are the most popular section of mywalmart.com, so the team created a forum widget that displays on the homepage. It gives associates an immediate snapshot of the most interesting topics. The widget has four tabs: *Recent* displays the most recently discussed threads; *Mine* displays topics the user has personally submitted; *Friends* are topics the user's "friends" have commented on, and *New* shows the latest topics posted to the site. Since this feature went live, activity in the forums has greatly increased.

Even with limited personalization, users want what they want and there's a risk to corporate content if users can just bypass it as they seek out their preferred content areas. "Although we're proud of how we've evolved our major landing pages into topic-based social network hubs, associates prefer navigating directly to blogs and forums they're interested in versus first visiting a topical landing page," says Travis. "We redesigned the homepage to better support a more direct user content navigation approach. This brings blogs to the homepage and access to popular

content such as the forums via widgets. The trade-off is less exposure to corporate 'support' content and fact sheets, but better UI."

Throughout initial design and testing, Walmart learned it was critical to "ladder up" and let navigation and design follow the hierarchy of user interest:

1. Themselves
2. Their friends
3. Their immediate coworkers
4. People elsewhere in the same job
5. Their facility
6. Their company in the US
7. Their company around the world

"Usability tests proved that our associates were not interested in simply being told corporate information," says Reynolds. "They wanted to interact with each other and be a part of the conversation."

This is a challenge for the organization, because the business need is—at least in part— to communicate information to users. "The most challenging aspect of personalization is that it does, to some extent, diminish control over content, resulting in uncertainties related to strategic messaging in communication campaigns," says Travis. "We are investigating how personalization affects site usage metrics and if it makes some metric data too ambiguous to be useful."

It's a delicate balancing act because users want personalization (and choice) as much as companies want to control the experience.

"It's tough to figure out the right level of personalization," says Bliss. "We want to have a useful site for both the company and our associates. This site is not just about providing social networking functionality, but giving associate information and a voice. If we design for 100 percent personalization, they [the associates] may not set up their page to get new information about the company. There needs to be the right mix, where associates control the content they receive, but where we can still make sure they get the information they have told us they want."

Achieving this balance is an ongoing challenge and one that the Walmart team has not solved quite yet.

Enterprise 2.0

While most company intranets are just dipping their toes in the water when it comes to social enterprise tools—toying with a feature here, or a set of features there—mywalmart.com was built from the ground up to support online social interaction among associates.

"Most of mywalmart.com is built around the use of Web 2.0 features. Almost every facet of content is related to some sort of social media component, with an eye toward user engagement and interaction," says Reynolds. "For example, an announcement about a new corporate initiative will have a comment section on the same page. These features were all a part of the roadmap from the inception of the project."

The company's senior management has stated that this is a space Walmart must be in to be both competitive and relevant.



Pictured: Each blog is written from the perspective of an associate rather than from a "corporate position." The blogs are designed to start from a personal perspective, then ladder up to the local, corporate, and global impact. This approach reflects a key finding from the team's usability study: associates think first in terms of the individual, then the store, the corporation, and lastly the larger global impact. Previously, the intranet showcased content from the perspective of the corporate, global, store, and finally the individual.



Pictured: The most recent blog entries appear on the site's homepage. If an associate doesn't select a blog, three new blog options display when the homepage is refreshed.

Engaging Stakeholders

While designing and developing the site, the team spent a significant amount of time meeting with individual stakeholders and company leadership to align goals and expectations for the site. This process helped ensure that as the site was planned, designed, and built, everyone's concerns were taken into account and addressed. It also helped ensure that leaders at all levels were aware of the project and saw it as a communications resource that they can leverage if they wish.

This seems to have worked. The intranet team was able to work with executive leadership to create special biographies for the site that give associates insight into executive personalities, not just their qualifications. The company's CEO and COO have used the site to host special chats for associates. Clearly, company leaders are

just beginning to exploit the possibilities presented by this new communication channel.

ROI

Measuring Success

Currently, mywalmart.com is primarily measured based on its ROE: return on engagement. The Walmart team has encountered the holy grail of intranet development: how to measure success.

"Metrics are very challenging, and many programs are too new to show trends," says Reynolds. "Our team currently relies on conversations to determine what's important to associates and extrapolates from that the effectiveness of our messages."

Relying on user satisfaction and usage is often the next best thing to hard numbers. And by these measures and by all accounts, mywalmart.com is a success so far.

"Participation on mywalmart.com exceeds industry standards and is considered a benchmark for success," says Reynolds. "Additionally, Walmart measures page views on campaign assets—and participation in forums and blog comments on those same topics." The company measures the campaigns against one another and creates its own benchmarks.

"Determining hard ROI is a deliverable and in our roadmap for next year," said Bliss. Analysis projects that mywalmart.com is on track to deliver returns for the company equaling at least 10 times the cost of development. "This kind of result could not be accomplished without the partnership of key areas of the company—Benefits, Operations, Marketing, and HR to name a few. Working cross functionally toward a common goal is the key to delivering real and long term ROI."

METRICS		
Metric	**Goals for first year**	**Progress: first eight months**
Page views per month	2 million	1,784,696 million
Registered associates	400,000	565,510
Public profiles	100,000	101,321
User-generated content	5% with public profiles	43% with public profiles
Increase off-pay cycle visits by 10%	28% (90% return every 10 days)	

Other measurable results include:

- mywalmart.com currently has 565,510 registered users
- Since its launch, traffic to Walmart *Benefits* content has increased by 20 percent
- 43 percent of associates with public profiles have submitted some kind of content

Establishing Goals

The following goals have been set for the intranet team to work toward:

- Five percent of total associate traffic will engage Walmart's ecommerce site (walmart.com) as well as government relations and marketing initiatives
- Associate opinion surveys for registered users will increase by five percent
- The site will achieve a five percent increase in awareness of key issues related to the company's directives, including sustainability, health care, community, and opportunity.

A more intangible, but no less important goal of the site is to empower associates to share their thoughts and influence their community of peers beyond the geography of their own store.

"Before mywalmart.com, associates weren't able to belong to and influence a community of associates beyond the walls of their facility," says Bliss. "Walmart associates grow with the company. mywalmart.com helps them stay in touch with people they have worked with in the past and connect with other associates who they otherwise may never have known."

User Feedback

Another important measure of a site's ultimate success comes from user satisfaction, and mywalmart.com has achieved a high level of that as well. The following comments, pulled from users on various parts of the site, illustrate this success (we've omitted last names here to protect users' privacy):

> *"I think this is great. I'm hooked! It is so cool because it is only for Walmart associates, which gives us common ground and links us together like a family. You get to find out that there are other associates that are going through what you're going through and can offer advice or encouragement. Thank you for creating this unique site!" (Sharon)*
>
> *"I check out the forum daily. Don't comment daily but I do go back to the last time I remember checking to make sure I don't miss anything. It's been fun meeting and chatting with many." (Dan)*
>
> *"I find myself coming in to mywalmart about every time I check email or Facebook. Sometimes I stay awhile if there are interesting conversations going on. I do look forward to being able to connect directly one on one with like-minded people. Thank you Walmart for providing this forum that we can meet our coworkers that we might otherwise never have the chance." (Katie)*
>
> *"I would like to say how much I love the concept of communicating with fellow associates. I have always thought of my store as a big family. In my first year of employment I was given the honor of going to a year-end meeting. There I realized just how big this family is and that just like at my store, the feeling of family was experienced in that few days with thousands of associates from all across the world. I like, that for a company this size it still feels so personal and small. I really enjoy hearing everyone's opinions even the ones I do not agree with :) I am very excited to watch this site grow. I have always said the only thing*

consistent about Walmart is change. Thank you Walmart* once again for being consistent, I LOVE it. What's next? :)" (April, forum post)*

BEST PRACTICES

In developing mywalmart.com, the team learned some valuable lessons that they've translated into best practices to share with other intranet development teams:

- **Build a base.** "When getting into social media, start at the point where you are only slightly out of your comfort zone. Once you prove to the organization that 'the sky won't fall,' begin layering on greater functionality."
- **Let the community lead.** "Adapt first to where your community leads you, or they won't follow you when you want them to."
- **Trust the community.** "Have the courage to permit dissent, and permit the community to self-correct."
- **Enhancements should be ongoing.** "Anticipate the need to produce and rollout enhancements often and with limited development time."
- **Build trust by interacting.** "Personalized, timely feedback to users is essential to maintaining trust."
- **Make sure moderation is bulletproof before you need it.** "Make sure moderation standards are solid for all anticipated scenarios before rolling out a social network. Do fire drills and test all built-in moderation tools in your CMS. The mywalmart.com team has rarely needed them, but it helps everyone sleep at night knowing they are prepared."
- **Archives should be part of the launch plan.** "Anticipate server space to archive everything, especially user-generated content, feedback, and correspondence indexed with each user. This way, future correspondence with the user can accurately reference past interactions in the proper context."
- **There is no such thing as done.** "Your site will never be complete. It's a constant evolution. Make sure your leadership and tech support realizes that they're in it for the long haul and that budget and resources are appropriately allocated."
- **Usability is ongoing, not a one shot deal.** "Ensure ongoing usability is a part of your cycle of continuous improvement."
- **Know your culture and plan accordingly.** "Depending on your culture, it may make sense to moderate more aggressively initially. Doing so could help you establish the tone and site culture you desire. Associates will follow their peers' behaviors."
- **Make attribution required.** "Not allowing anonymity drastically cuts down on inappropriate content. There is a marked difference in quality between anonymous feedback and profiled forum content."
- **There is no such thing as done—REALLY!** "Your site is *never* complete! Yes, it's been said already, but it bears repeating."

LESSONS LEARNED

Sometimes the things that go wrong teach the best lessons. The Walmart team, like many others, encountered a few stumbling blocks along the way, including:

- **Employ metrics early.** "In order to get quality data, we should have developed better tracking metrics earlier in the process."
- **Know how to interpret the numbers—from the start. "**Staff should be trained on how to interpret the metrics prior to launch; the process moves too quickly afterwards."
- **Don't lose valuable feedback.** "When forum conversations move to the next page, new contributors miss previous administration messages. Given this, we should have launched with 'sticky posts' (always at the top of the page) for administrators to support forums that tend to veer off topic or press the boundaries of site policies. This would have been especially useful when the site was new and users were first getting acquainted with the culture of the forums."

Surprises

Along the way, the mywalmart.com team also came across a few surprises:

- The adoption rate was greater than expected
- Associates actually welcomed moderation based on Walmart's primary "respect for the individual" core value
- The quality, scope, and popularity of forum conversations has been greater than expected

Recommendations for the Intranet Design Process

Understanding the lessons learned from these great intranets will help you design a better intranet for your organization or your client's organization. You can also make other, more process-related moves to improve intranet usability. Based on the above cases, the 2001–2010 winners, and our experience testing intranets, we offer a few of the most important recommendations for designing a usable intranet. Note that these recommendations have changed very little in the last few years.

WATCH PEOPLE WORK

When designing intranets, don't forget that you already know who the end users are. They're the people you pass in the hallways, the employees sitting next to you in the cafeteria, and the staff members who park next to you in the garage. Use these interactions to your advantage and ask to watch how your colleagues work. See how they're using and not using the intranet, and where design opportunities exist for making the intranet a more useful part of their day-to-day jobs.

CONDUCT USABILITY EVALUATIONS

Remember that you don't need a complete, finished design to garner useful usability feedback. In fact, it's better to get early feedback on incomplete designs. Just test with prototypes and paper mockups. Or, if you want to introduce design elements similar to those you see on a particular website, use that website to test the features. You can watch people using any current system, even if it's not an intranet, to determine which features are well designed.

Looking through all of this year's design submissions, we once again observed a lack of consistently applied usability processes. In particular, many companies skimped on regular usability testing, heuristic evaluations, and field studies. Yet even the busiest development teams, or those with the craziest deadlines, should take time to watch people attempt basic tasks using the design. It doesn't take long to do a quick test. We also encourage design teams to get a group of designers and developers together—even for just 20 minutes—to review a site's design, and then to identify, discuss, and agree on the top usability issues.

PERSONALIZE AFTER YOU CREATE THE INFRASTRUCTURE

Personalizing the intranet can help people find what they want and expedite work. Hiding things users don't need can also have positive effects by eliminating clutter and overload. However, personalizing is about more than designing the interface; it also involves designing systems for collecting and tracking timely information about users. This process typically involves HR and other departments and sometimes many databases as well. In short, it can be a lot of work.

We suggest all intranets ultimately strive to give each user an effective, personal experience. But don't get ahead of yourself and try to do this before the backend infrastructure is in place.

HELP CONTENT CONTRIBUTORS SUCCEED

The most well received intranets are those with fresh information that people need and want. One way to keep information updated and interesting is to provide methods for employees to add and edit information. Letting users—or designated

content providers—contribute content gives them a stake in the intranet's success. Such efforts invariably produce compounded returns: fostering excellent content providers results in better content, which leads to an intranet with more varied and useful information, which drives more employees to visit the intranet more often, and thus ensures that the intranet remains a business-critical tool.

CONSIDER ACCESSIBILITY

Many companies employ—or will at some point hire—people who use assistive technology. Yet almost all of the intranets submitted for consideration posed accessibility problems for users with low vision, no vision, or motor-skill challenges. The chief accessibility offenders: using too many graphics, tiny text, poor contrast, limited space between links and text, and small targets. Unfortunately, at many sites, introducing these exact features seems to be a new trend. On the positive side, while many submissions do overuse graphics, many others use graphics sparingly, and when they do use them, they are well labeled for users with low vision or no vision.

MEASURE ROI

Most of the winning intranets made obvious strides, fostering great usability improvements and no doubt creating productivity and efficiency gains for their companies. Yet few intranet teams formally (or even informally) measured ROI. Often, such measurements are not a priority because of tight schedules and the way in which organizations allocate money. For example, the money to design and maintain the intranet might be allocated to the vice president of IT, while the actual productivity gains are found in the HR department.

Regardless, it's important that teams pause to measure the time users require to accomplish a task, both before and after a redesign. Take this decreased task time and factor the resulting financial savings across your organization. Then, make the gains known to the different departments involved and also at higher levels, so that even the most upper-level managers understand the importance of well-designed internal systems.

Consider other ways to measure ROI on the intranet as well. Does moving information online result in any printing savings? Does automating a process free up time for the department that used to handle the same task? Does providing essential tools and information to employees save them time from finding the same information for themselves? Do collaboration tools or stories about individual projects or employees result in new work sold, new solutions found, or new collaborations across the organization?

Intranets Not Selected: Common Issues

Each year that we conduct the *Intranet Design Annual* it gets more and more difficult to choose only 10 winners; we inevitably find more than 10 truly excellent designs. Still, there are some designs that seem to be stuck in the early 1990s. While we won't name or show examples from intranets that didn't make this year's top 10, the following are some of the problems we saw across submissions that are not among the winners and that are not included in this report.

CLUTTERED PAGES AND A LACK OF INFORMATION DESIGN

Many sites make it a challenge for users to find what they need, with pages offering an unorganized mix of links, headlines, icons, images, and navigational options. Poor information design and visual design make it nearly impossible to quickly understand what a page has to offer.

Many sites suffer from showing too much at once. A common manifestation of this problem is the "over-widgeting" of a page. A widget is a bite-sized, compartmentalized piece of information. Intranet designers fond of widgets seem to share the belief that there's no such thing as too many widgets on a page. Which, unfortunately for them, isn't the case.

Just because content is in a small box doesn't mean it's okay to put 40 of them on a page. Users need to know what to look at. Pages should show users a clear priority of information.

This lack of information design extends beyond the use of widgets. We saw many entries this year with oddly sized columns of information; very wide columns along the right side of the page seemed particularly popular. This area is commonly used for additional, related content. But on many designs, it seemed to be an area for competing content.

When no information is prioritized in the design, users don't know what to look at. When everything is the same size, nothing stands out. When everything is a different size, content competes for users' attention.

Other sites are filled with unnecessary images and unclear icons. Every news story doesn't need a picture. Every tool doesn't need an icon. Every piece of information doesn't need its own stock photography image. Every departmental page doesn't need a large, difficult-to-decipher image at the top of it.

Some sites consisted of page after page of lists of links. It doesn't make for a very fulfilling experience on a site when every link leads to another page of links, which leads to another, and another. Further, some sites gave no thought or effort to how their links were presented, with the resulting pages looking dated and incomplete due to a complete lack of design. Unattractive fonts, poor use of white space, uneven columns, and a lack of headings make content harder to use.

A final problem with these cluttered pages: they often included wasted space at the top of the page. For all the clutter down below, many designers wasted half of the top of the page with unnecessary banners, stock photography images, or huge page headings. These had the unfortunate effect of pushing content off the first visible page, requiring users to scroll on nearly every page of the site simply to see what the page had to offer.

POOR INFORMATION ARCHITECTURE

We often see problems on sites that are obviously cobbled together from a variety of different departments or offices, with no common structure across the pages of the site. This is an age-old intranet problem, and this year's entries were no exception. Other issues of site structure were more prevalent this year.

Several of this year's entries were organized based on the company's structure. While this is an easy way to organize information, it's not a good way. Users shouldn't need to know what department is responsible for a form in order to find the form. Employees shouldn't need to know the inner workings of a department they have no relationship with in order to find the answer to a question. Organize by the type of content on the site, not by who created the content.

Another common problem was navigational flyout menus… that flew, and flew, and flew. Intranets have to organize a tremendous amount of information, so several layers of navigation might be required to move users to the right content. However, showing all those levels at once through complex, lengthy, and impossible to use flyout menus isn't the best way to get users to the content they need. Users rarely manage to maneuver the mouse in exactly the right pixel path to get to the needed item on a flyout menu's fifth layer.

A final issue with information architecture: many sites offered users no indication of where they were on the site. Navigational options disappeared. Menu options changed without reason. Breadcrumbs reflected categories that didn't appear in the visible site navigation. The two key roles of navigation are to tell users where they are and where they can go. When users don't know where they are, the navigational structure has failed.

FOCUSING ON THE TECHNOLOGY RATHER THAN THE INFORMATION

Some programmers or designers jump at the chance to try out a new tool or approach. If they can create layers on pages, and open small windows above the main site, they'll do it. If they can create windows that pop up as users type to offer information or suggestions, they'll do it. If they can make a rotating carousel of headlines on a homepage, they'll do it. If the portal offers a new feature, they'll use it. If they just learned a new programming trick, it'll appear on the site.

None of these things are inherently wrong. But using every possible new trick or design element at every opportunity isn't a good idea. Pick the right design or programming solution based on the information that is being presented, not on the exciting ability to do something new. Editing is necessary. Remember the early '90s, when every webpage had animated gifs? Remember the Flash intros of later years? Does anyone look back on those days longingly?

Selection Criteria and Process

The Nielsen Norman Group intranet design and usability competition seeks to recognize the best examples of intranets that are easy to use and meet users' needs. In July 2009, we posted the call for submissions on http://www.useit.com and http://www.nngroup.com. Companies and organizations were invited to submit screenshots, descriptions of the intranet design and how it works, notes about the design process and usability methods employed, detailed information about users, and the intranet's goals.

In response, we received submissions from organizations big and small, from a number of different countries, and from across many industries. To judge the entries, pick our winners, and complete this report, we followed a four-step process:

1) Initial design reviews and numeric rankings
2) Follow-up questions with the top submissions (as necessary)
3) Thorough design reviews on the top entries to choose the top 10
4) Follow-up interviews with the top 10.

Each step is detailed below.

INITIAL DESIGN REVIEWS AND NUMERIC RANKINGS

Based on the initial submission information, the three judges (see *About the Authors*) conducted simple design reviews and whittled down the entries to the tier-one submissions. In addition to written commentary, we rated each site numerically. We based these ratings on criteria typically viewed as key to intranet usability, including some criteria that emerged from submissions and trends in our previous contests. We rated the following criteria in each submission on a 0 to 3 scale (with 3 being the best rating):

Navigation:

- Main navigation on every page
- Consistent/easy navigation
- Consistent style across the intranet
- No horizontal scrolling
- Minimal vertical scrolling

Design:

- Pleasing aesthetics
- Engaging homepage design
- Good contrast between text and background
- Easy-to-read text
- Easy-to-read links
- Good use of graphics
- The right amount of text
- The right number of links

- Clean design

Search:

- Consistently available search
- Relationship to employee search
- Good search design (ideally, a simple open field at the top of pages)

Personalization and News Delivery:

- Personalization/catering to different offices or cultures
- Organization-related news
- Information about internal groups

Content:

- Well-written text
- Employee directory or directory search
- Content posting and editing capabilities
- Meeting business needs

Overall:

- Simple forms
- Support for the main corporate functions
- Encapsulation of the organization's spirit
- Use of innovative, fun, or original features
- Accessibility features
- Originality or something special

FOLLOW-UP QUESTIONS WITH TOP TIER (WHEN NECESSARY)

In addition to completing the design reviews, we took a look at all the information the organizations submitted. We considered the target users, their tasks, and how well the site's applications might help them complete these tasks. We did not conduct usability evaluations with users. We do believe such studies are the best way to reveal what works and what doesn't work about designs. And we've completed some large-scale usability research studies accordingly.[5]

After our reviews, we asked follow-up questions as necessary for clarification or if a submission seemed incomplete.

THOROUGH DESIGN REVIEW

Based on the initial scores and notes about the intranet submissions, we narrowed our candidates down to the top 25 and dove in again. We conducted more thorough design reviews of those sites, with the goal of narrowing the field down to the 10 best intranets.

[5] *Intranet Usability Guidelines*, *2nd Edition*, 10 reports covering intranet usability are available for purchase at http://www.nngroup.com/reports/intranet/guidelines/.

FOLLOW-UP INTERVIEWS WITH TOP 10

After selecting the winners, we contacted the teams and asked them to answer a series of follow-up questions about the site, their team, and their process. We asked for detailed information about design decisions, research and usability evaluation methods used, challenges faced, and lessons learned. We asked for some general information from all of our winners, as well as detailed questions about specific aspects of each winning design.

Some of the general questions we asked each team included:

- How did the intranet start?
- How many people comprise the intranet staff?
- How is the intranet governed?
- What are the goals of the intranet or redesign project?
- Where will the site go from here?
- What were your project's main usability methods?

About the Authors

Amy Schade is a Director at Nielsen Norman Group. She has conducted worldwide user research, including traditional user testing, longitudinal studies, and eyetracking research, running studies in the US, Canada, Europe, Asia, and Australia. She has authored reports about intranet usability, intranet information architecture, email newsletter usability, and site map usability, as well as coauthoring a report on messages sent through social networks and RSS feeds. She regularly presents tutorials on these topics as well as on writing for the Web. In addition, she works with clients large and small to improve their websites, intranets, and newsletters, with clients in industries such as music, publishing, banking, travel, e-commerce, and education. Prior to joining NN/g, Schade was a Senior Associate in Information Architecture at arc eConsultancy. At arc, she created and revised site architectures for clients ranging from a family-related content site to a transaction-based sponsorship marketplace. Schade has also held a variety of positions in Web production and advertising. She holds a master's degree from the Interactive Telecommunications Program at New York University and a BA in communications from the University of Pennsylvania.

Patty Caya (www.pattycaya.com) is a multiplatform journalist, editor, and award-winning digital media producer. In her writing, she specializes in topics relating to usability, social media, and the business and technology of the Web. For over a decade, she has split her time between journalism projects and Web consulting. She has consulted for many of Boston's top interactive agencies, leading Web and intranet development projects as well as usability testing, research, and design initiatives. Her client roster spans a wide range of industries and includes leading national brands alongside mission-driven nonprofits. She has a BFA from New York University's Tisch School of the Arts and has pursued advanced coursework in the Information Design Program at Bentley College.

Dr. Jakob Nielsen (www.useit.com) is a principal of Nielsen Norman Group. He is the founder of the "discount usability engineering" movement, which emphasizes fast and efficient methods for improving the quality of user interfaces. Nielsen, noted as "the world's leading expert on Web usability" by *U.S. News and World Report* and "the next best thing to a true time machine" by *USA Today*, is the author of the best-selling book *Designing Web Usability: The Practice of Simplicity* (1999), which has sold more than a quarter of a million copies in 22 languages. His other books include *Hypertext and Hypermedia (1990), Usability Engineering* (1993), *Usability Inspection Methods* (1994), *International User Interfaces* (1996), *Homepage Usability: 50 Websites Deconstructed* (2001), *Prioritizing Web Usability* (2006), and *Eyetracking Web Usability* (2009). Nielsen's Alertbox column on Web usability has been published on the Internet since 1995 and currently has about 200,000 readers. From 1994 to 1998, Nielsen was a Sun Microsystems Distinguished Engineer. His previous affiliations include Bell Communications Research, the Technical University of Denmark, and the IBM User Interface Institute. He holds 79 US patents, mainly on ways of making the Internet easier to use.

Additional Judge:

Kara Pernice is the managing director at Nielsen Norman Group and heads the company's East Coast operations. Since joining NN/g, Pernice has led several intercontinental research studies and wrote associated reports about topics such as intranets, the Web and accessibility, senior citizens, public relations, and site maps.

She has developed and taught numerous seminars about these topics and about a variety of usability methods, such as the product life cycle, field studies, emotion and design, usability testing, and eyetracking. She is coauthor of the definitive book on eyetracking for websites, *Eyetracking Web Usability* (2009). Additionally, Pernice has worked with clients in many industries. Before joining NN/g, she established successful usability programs at Lotus Development; Iris Associates, an IBM subsidiary; and Interleaf. She managed the first usability program for Lotus Notes and the Domino server, and after her team's work, *PC Magazine* wrote, "If this were summer camp, Lotus Notes would walk away with the Most Improved Camper award." Pernice chaired the Usability Professionals' Association conferences in 2000 and 2001, was presentations chair for UPA 1999, and was conference advisor for UPA 2002. She is on the editorial board for a new intranet magazine, *The Journal of Intranet Strategy and Management*. She has an MBA from Northeastern University and a BA from Simmons College.

Acknowledgments

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Finally, thanks to Keri Schreiner for copyediting this report, to Susan Pernice for her assistance, and to Kara Pernice for judging this year's entries.

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