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COMBATING THE DIVERSITY DEARTH WITH ANALYTICS

Many companies are struggling to make their IT teams more inclusive. ***Is it time for data analytics to take over the job?***

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Table *of* Contents

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DANIEL HERTZBERG / THINKSTOCK

With the Galaxy S6 and S6 Edge (shown here), Samsung chose to forgo the much-criticized plastic case that plagued last year's S5 model.

REUTERS / GUSTAU NACARINO

Samsung: New Galaxy Phones Are Built for Enterprise Use

It's pitching the Galaxy S6 and Galaxy S6 Edge as popular, stylish — and secure — alternatives for businesspeople who might otherwise be thinking about iPhones. **BY MATT HAMBLEN**

SMARTPHONE MAKERS are targeting the enterprise market like never before, unleashing a slew of third-party productivity and management apps for both end users and IT shops.

Amid all the recent moves, Samsung has made the biggest play: At Mobile World Congress (MWC) in early March, the company announced that it would deploy software from the likes of Google, BlackBerry, Oracle, Citrix and Microsoft in its stylish new Galaxy S6 and Galaxy S6 Edge devices.

Office in the Galaxy

Microsoft's Office 365 suite is even due to be available on the two smartphones, set to be used behind Samsung's Knox security and management firewall, Samsung officials said at MWC. That move echoes Microsoft's decision to offer Office for the iPad and other devices and highlights the company's focus on expanding the ecosystem for its successful productivity software.

Both of Samsung's new phones have 5.1-in. displays and are due to ship on April 10 in 20 countries, including the

U.S. Although the Galaxy S6 was listed for $780 unlocked on Samsung's website in Spain, prices will vary by carrier and country. The Edge, which features a glass screen that curves around both side edges, will likely be more expensive.

Both phones ditch the much-criticized plastic case of last year's Galaxy S5 (which, despite that drawback, was still the second-best-selling phone in 2014, behind the iPhone 5S).

As with the iPhone, the allure of an elegant, premium-priced smartphone — especially one like the Edge — is hard for users to resist. The phones, which run Android 5.0 Lollipop, are likely to be about as attractive to enterprise end users as the iPhone 6 and the HTC One M9, also unveiled at MWC.

Meanwhile, IT managers remain caught between a desire to keep end users happy and productive, and a need to manage data and ensure application security on phones used for both work and personal tasks. Samsung is betting that its latest devices will be popular with IT managers who must craft usage policies and deploy mobile device management and mobile application management software.

> **IT wants security to protect corporate assets, but it should also ask if this is a device [workers] want to carry.**
>
> **ANDREW KO,** VICE PRESIDENT, ENTERPRISE BUSINESS TEAM, SAMSUNG

Good Looks

Phone design matters to businesspeople as much as it does to mainstream consumers, said Andrew Ko, vice president of the enterprise business team at Samsung. "IT wants security to protect corporate assets, but it should also ask if this is a device [workers] want to carry."

Injong Rhee, head of Samsung's Knox business unit, noted that the company's latest Knox 2.4 software for security and management will work on both new Samsung phones. While many observers have questioned the value of Knox, analyst firm Gartner recently awarded it the top ranking for security controls when compared to other security and management products. Specifically, Gartner ranked Knox "strong" in 11 of 16 security control categories, including authentication, encryption, app updates, secure key store, app monitoring and control, secure remote access and device firewall.

Rhee said Knox offers "defense-grade" security and ticked off a list of worker-focused productivity features that are avail-

able in the new phones. They include embedded wireless Qi charging for batteries lasting up to 20 hours with regular use, the ability to charge half the battery in just 10 minutes when a phone is plugged into a wall outlet, Gorilla Glass 4 durability for the glass front and back, and fast 64-bit processing.

Rhee also cited Knox support for leading management and security software products from AirWatch, BlackBerry, CA, MobileIron, SAP, Oracle, Juniper, Cisco, Citrix and Centrify.

> **[S6 phones] will work with the back-end infrastructure.**
>
> **INJONG RHEE,** HEAD OF SAMSUNG'S KNOX UNIT

Enterprise-Ready

Calling the phones "enterprise-ready," Rhee said they will "work with the back-end infrastructure already in place."

Both Samsung phones will also have OneDrive, OneNote and Skype preinstalled, and enterprises using Knox will be able to get twice as much OneDrive cloud storage as consumers get. The result for Knox users: 100GB free for a year.

Samsung defended the lack of a microSD storage expansion slot on the devices, saying it was unnecessary because of the cloud storage options, which could simplify enterprise security by eliminating the loss or theft of corporate data. While the batteries are not removable — a first on Galaxy smartphones — wireless capabilities and quick wall charging are seen as more than making up for that change. The iPhone has never had a storage slot or removable battery, and Samsung said cloud storage and battery improvements have finally made it possible to shift in that direction.

BETWEEN THE LINES | JOHN KLOSSNER

With both phones, Samsung is incorporating Android for Work features alongside Knox and BlackBerry's WorkLife and SecuSuite products for hardware-based end-to-end encryption. That not only allows users to keep work and personal data separate — it also makes it possible for them to receive separate bills for work and personal use. ◆

PAUL GLEN *is the co-author of The Geek Leader's Handbook and a principal of Leading Geeks, an education and consulting firm devoted to clarifying the murky world of human emotion for people who gravitate toward concrete thinking. You can contact him at info@leadinggeeks.com.*

IT Is the Doctor

Wanting to help is great, but sometimes we instead seek merely to please. They are not at all the same thing.

I'VE BEEN PRIVILEGED TO MEET IT professionals around the world, and I'm always struck by their many fine qualities. One of the most common of these is the desire to help others. As a group, IT people believe in progress and hold that technology can be an important part of making people's lives better. At work, we like to see that our products contribute to the efficiency, effectiveness and happiness of users and consumers.

Wanting to help is great, but sometimes we instead seek merely to please. They are not at all the same thing.

When all you want to do is please your users, you become overly eager to say yes to every request. The problem with that is that requests need to be examined. You have to dig and find out what it is that the users actually want to accomplish. When you do that, you will find often enough that what is being requested isn't the best way to achieve the real goal — and sometimes it won't even come close. As IT professionals, we aren't really doing our job unless we determine what will be helpful, regardless of what was asked for. Being experts in technology carries a professional

responsibility to do more than simply fill orders.

Imagine a doctor who immediately says, "Sure — what dose would you like?" when a patient asks for the latest breakthrough drug that's getting buzz in the media. No history-taking, no conversation, no tests. Such a doctor would be guilty of malpractice. No doctor worthy of the title simply fulfills every prescription request that comes her way. Doctors are experts in the diagnosis and treatment of diseases, and they shouldn't start treatment until they have performed their own assessment of the patient's condition.

But we do the IT version of this all the time. Nontechnical users ask us to make changes to applications, security or databases; they request that we purchase new technology; they ask us to develop systems from scratch, and we eagerly comply. And in doing so, we deprive them of the benefits of our expertise. We become order takers rather than professionals.

In the process, we not only miss the opportunity to serve our constituents well, but we also transform our self-image. Instead of thinking of ourselves as competent, caring experts to be consulted the way a patient would consult a doctor, we imagine ourselves being involved in retail transactions with "customers." But thinking of our stakeholders as customers comes with unfortunate associations. "The customer is always right," they say, and no one wants to alienate a customer. But doctors sometimes have to deliver difficult news and convince patients that what they want may be bad for them or may not accomplish what they imagine it will.

Of course, in many organizations our reputation is exactly the opposite. We are known as the "Department of No." This happens when we attempt to take on the professional role and advise our stakeholders clumsily. Instead of trying to understand what they want to accomplish, we simply explain why they can't have what they want. ◆

Doctors are experts in the diagnosis and treatment of diseases, and they shouldn't start treatment until they have performed their own assessment of the patient's condition. But we do the IT version of this all the time.

THE Grill

Karen Blackie

This IT leader manages a follow-the-sun operating model by reducing complexity.

- **Hometown:** Aberdeen, Scotland
- **Best advice you've ever received:** "Be yourself."
- **Next big goal on your agenda:** "To deliver our new enterprise architecture."
- **Current reading list:** *Humans of New York*, by Brandon Stanton. "It's basically a compilation of portraits. It's fascinating. It's funny. It's sad."
- **Hobbies:** "Gardening and boating. We have a powerboat."

KAREN BLACKIE *has held several IT, quality and risk leadership roles in both the U.S. and Europe during her 20-plus years with GE Capital, roles in which she led teams through a quickly changing technology landscape. She now holds the title of CIO, enterprise systems and data, and is responsible for design, development and operations of enterprisewide applications. Working in what she calls "a true follow-the-sun operating model," Blackie oversees 180 people in nine countries. "As one team closes down their day, another team picks up the baton," she says. Her tenure has given her insight into what it takes to build and run a world-class organization.*

What is your division's role? We're a centrally managed organization in different locations, but we work with the speed and agility as if we were local. From the shared services perspective, GE Capital is not any different from other large organizations. We want to eliminate complexity from processes and the system. I think of "smartification" as the new simplification: working much smarter than we did before.

What do you mean by *smartification*? It's a word for me that encompasses everything we've been striving for. It's being more nimble, reducing costs. If you can do all that and work smarter at the same time, it helps the organization across the board.

Face-to-face contact, either in person or with the help of technology, encourages team bonding and strategizing, says Blackie.

To do it well, you need a great team that's business-savvy — that in some cases knows the business as well as the business people do — and they need to contribute to shaping the strategy. If they can do that, that means IT is being successful.

How do you enable this as a leader? One way is by attracting and retaining the right talent. You have to have the core foundational skills to begin with, have the right level of career planning with your team, and make sure the plans are aligned with the business imperatives. From a coaching perspective, all my leaders have individual responsibilities to coach and develop the more junior talent we have and, of course, GE Capital has a very strong people development program.

How should IT be structured and organized to make the most of its promise to improve business results and advance business objectives? I have a team that is constantly looking at emerging technologies, keeping abreast of the industry, watching what's happening generally across our peers. At the same time, we're engaging with our business colleagues and often directly with the customers to understand what they want from us going forward. That's one model. From a service perspective, we're constantly pulsing our user base and asking their input on how we shape our services going forward.

How do you ensure continuity and unity of your team, given its global nature? The follow-the-sun model has a transition period built into it. It's not a direct "I go to bed at 10 p.m. and you pick up at 10:01." There's an hour built in that allows for partnering. The second thing is we're hugely focused on collaboration. We have lots of technology internally here to make sure we have that face contact, so it's not always by telephone. We have times during the year when groups come together for not just work, but for team bonding and strategizing, too. And we're a very open culture, and I'd say that employees would feel very comfortable sharing concerns.

There are a couple of other things we do. Putting leaders at each of these sites is fundamental to making that work, making sure that you have someone who can instill the culture and drive some of the behaviors we're looking for and ensuring that the employees are motivated and have the ability to have input into how we shape the organization and what it delivers.

What are the top characteristics you need for establishing effective global IT organizations of the future? Depth of technology, employing resources

that understand the systems and applications is key, whether it's global or not. The second thing is if you can build a global team that has business process knowledge, it's certainly a success enabler. And having a team that is innovative and creative and constantly challenging the status quo, regardless again of where they sit.

How do you recruit and retain these people? We have a very strong HR organization within GE Capital, and they partner with us in building our training programs and our communications program. Spending time with each individual is also key: understanding what they're looking for in terms of their careers, and working with them to help achieve their goals. The other thing for a global organization is it's very attractive to work on global projects, global programs. There are tons of opportunities that present themselves to the team.

What's the biggest change you've seen in IT during your career, and how did it change you as a leader? The biggest change I've seen is IT having a very strong seat at the table. We're now viewed as one of the most critical partners within an enterprise. That's really very, very positive. And I think from an IT leader's perspective, that helps us — that gives us much more breadth, it helps us understand the business and its strategy and imperative, and it makes us more rounded in how we are as a partner.

Moving forward, what do you predict will be the biggest differentiator in successful IT departments? Speed. Technology has resulted in the world moving at such a fast pace. We know, as the IT organization, that we need to make sure we're keeping up. Being nimble is going to be really important. I'm looking at that in my organization. We're doing much more agile project deployment now rather than the traditional waterfall approach, where you start something and deliver something six or 12 months later. Now it's much more iterative deployment. ◆

Interview by **MARY K. PRATT,** *a* Computerworld *contributing writer in Waltham, Mass. (marykpratt@verizon.net).*

[IT is] now viewed as one of the most critical partners within an enterprise. That's really very, very positive.

DANIEL HERTZBERG
ILLUSTRATION

COMBATING THE DIVERSITY DEARTH WITH ANALYTICS

Diverse workgroups drive innovation and problem-solving, but despite countless programs and initiatives, many companies are struggling to make their IT teams more inclusive. ***Is it time for data analytics to take over the job?***

BY CINDY WAXER

FROM CONTROVERSIES like Gamergate, which sparked death threats against female game developers, to headlines like *Newsweek* magazine's recent "What Silicon Valley Thinks of Women," it's questionable whether things are better for female techies today than they were 20 years ago.

While women make up 57% of the overall workforce, they account for less than a quarter of all technology professionals. And among higher-ranking positions, women represent only 20% of CIOs at Fortune 250 companies.

And Silicon Valley is notorious for its poor representation of minority groups. Google recently released data on the diversity of its workforce. A meager 2% is African-American while 3% is Hispanic. Yet 30% of Google's workforce is Asian; 61% white. "We're not where we want to be when it comes to diversity," says the report, which is posted on Google's site.

Even corporations known for their progressive policies and sophisticated technologies seem stuck in the Dark Ages when it comes to diversity. Only 15% of Facebook's techies are women; at LinkedIn, women make up a dismal 17% of the tech team.

Fortunately, there are some signs of progress. High-profile female executives like Yahoo CEO Marissa Mayer, Facebook COO Sheryl Sandberg and Hewlett-Packard CEO Meg Whitman are now household names. Female CIOs lead IT at Wal-Mart, Symantec and GE.

And formal initiatives are underway to inspire future generations of women and minorities to pursue jobs in the high-tech industry. Facebook and LinkedIn recently announced plans to jointly launch mentoring and support programs at colleges that would lure more female talent to Silicon Valley. In January, Intel earmarked $300 million to improve the diversity of its workforce and make the tech industry more enticing to women and minorities.

Yet many argue that talk of the importance of diversifying IT teams is more lip service than conviction. "Most people, when you ask them how they think they're doing in improving diversity, would say, 'Pretty good,'" says John Reed, senior executive director of IT staffing firm Robert Half Technology. "But when you actually see the data, it can be very disappointing. They rarely have made as much progress as they think."

> **We're not where we want to be when it comes to diversity.**
>
> **A GOOGLE REPORT** ON THE MAKEUP OF ITS WORKFORCE

Banking on Bytes

Faced with discouraging statistics and quickly losing faith in well-meaning policies and programs, many corporations are turning to data analytics to diversify their IT teams.

Best known for driving hiring decisions and identifying skills gaps, the reality is data analytics can deliver the visibility, workforce intelligence and employee engagement needed to improve gender and minority group ratios.

Using tools from vendors such as Visier, PeopleFluent and Workday, organizations can compare their data against

national benchmarks, identify gaps in leadership diversity and measure how their recruitment, retention and career development strategies directly impact the makeup of their IT teams.

The payoff for investing in such highly sophisticated software extends far beyond meeting quotas or ensuring compliance. Rather, a diverse workforce can boost the bottom line, because diversity can foster innovation, drive creativity and lead to improved market share, according to the Center for American Progress.

"Over the last decade, there's been a lot more focus on diversity to provide for differences in points of view, differences in opinion and differences in experience — all of which can be linked to driving innovation and driving improvements to the bottom line," says Brian Levine, innovation leader for workforce strategy and analytics at Mercer, a global consultancy.

Melding people of disparate racial, generational, ethnic and cultural backgrounds can also contribute to smarter problem solving. And a more diverse workforce can stave off costly discrimination claims that can cost tens of thousands of dollars in legal fees to defend. Other ancillary costs include bad press, the inability to recruit talent, high turnover and poor morale. In fact, the U.S. Equal Employment Opportunity Commission received 88,778 complaints alleging workplace discrimination in 2014.

But Charlie Judy, chief human resources officer at Chicago-based accounting firm Baker Tilly Virchow Krause, says the fact that "our clients are diverse" is the most obvious reason for leveraging data to achieve diversity. "Whether measured by diversity of ethnicity or gender, they expect the people who work for them to complement that diversity," he notes.

Analytics in Action

To fulfill that expectation, Baker Tilly launched a program called GROW, for "Growth and Retention of Women," to improve career opportunities for female employees. GROW has four main components: career advancement, flexible work arrangements, mentoring and benefits. At its core is a proprietary analytics tool that gathers bits and bytes from the accounting firm's HR information system and aggregates that data with other key statistics to create a comprehensive two-page dashboard.

The dashboard illustrates staff composition, turnover trends, average tenure and promotions. Along with detailed graphs and pie charts is a color-coded table indicating whether the performance in each of these categories exceeds expec-

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> **BRIAN LEVINE,** INNOVATION LEADER FOR WORKFORCE STRATEGY AND ANALYTICS, MERCER

tations, meets expectations or needs improvement.

"If we start to see a blip up or down in a gender-specific turnover, that immediately raises our awareness," says Judy.

For example, Baker Tilly's data analytics system recently revealed a noticeable uptick in turnover among female workers just as they were approaching the five- or six-year mark of their employment.

"We saw a real marked increase — 5.6% — in total voluntary turnover consistently across geography and service line," Judy recalls.

In response, he and his team studied the "whys," including the life events — such as marriage or children — that coincide with that juncture in a woman's career. Next, they examined whether certain benefits, such as expanded flextime or the support of a mentor, could curb attrition.

> **Our clients are diverse. Whether measured by diversity of ethnicity or gender, they expect the people who work for them to complement that diversity.**
>
> **CHARLIE JUDY,** CHIEF HUMAN RESOURCES OFFICER, BAKER TILLY VIRCHOW KRAUSE

Today, Baker Tilly's record for gender diversity would make a Silicon Valley startup jealous. As of January, 41% of its overall workforce was female, and nearly 40% of those women are IT managers or directors, or hold other high-level positions.

Due Diligence Required

Despite all the good that data analytics can do to diversify IT, it's hardly a magic bullet. For one thing, "there is certainly a legal hot-button issue with implications around the types of data people are willing to share," says Stacia Garr, vice president of talent and HR research at Bersin by Deloitte. To avoid privacy violations, some HR experts recommend that organizations first have their data collection and parsing practices vetted by legal counsel.

Then there's the thorny issue of racial and ethnic identification. Rocky Beach is the director of partnerships and development at Code2040, a nonprofit organization that creates opportunities for black and Latino engineering professionals in the tech sector. The organization's flagship Fellows Program has placed more than 48 students in summer internship programs with tech companies including Airbnb, Intuit, Pandora and GitHub. This year, more than 40 students will participate in the program, which draws as many as 400 applicants.

Beach recognizes the value of data analytics as "useful" and "a whole new angle to determine whether implicit bias is happening" in the recruiting process. But he cautions that "the data points should be the beginning of the conversation and not the ultimate deciding point."

"One of the complicated issues with race and ethnicity is that it's always been focused on self-identification," says Beach. "But it gets really complex when we ask people to self-identify. Some people have very complicated relationships to their own race. Upbringing, social construct and geography all have an influence on how people identify themselves."

What's more, no amount of information can improve gender and minority ratios if the data is inaccurate, outdated or siloed in disparate systems. "Like with anything else, if you don't have clarity with what's happening within your organization with regard to the data, it's very hard to make change," says Garr.

Another potential pitfall: the skill required to store confidential data securely, and translate raw data into actionable insights. No longer are HR professionals simply résumé-slinging talent scouts. Rather, big data has completely revolutionized the role of HR so that statistical aptitude and business acumen are now prerequisites for the job.

Legal and data management challenges aside, data analytics also has its limitations. How easily women rise through the ranks, what programs prepare minorities for senior management, how tenure affects promotions and compensation — those are all metrics that can be used to assess how effectively an organization is diversifying. Less quantifiable is an employee's cultural fit and the role it plays in his or her success.

Behind the Numbers

Another way data facilitates diversity is by revealing the hidden factors that are standing in the way of hiring minority groups. Color-coded pie charts are powerful tools, but sometimes it's the narrative — not the numbers — that reveals a more compelling and accurate story.

"Success is slow and the numbers can be discouraging on their own," warns Joanne Y. Cleaver, founder of communication consultancy Wilson-Taylor Associates. "That's why understanding the underlying factors can help you with culture change that not only drives the numbers but helps you see

> **Like with anything else, if you don't have clarity with what's happening within your organization with regard to the data, it's very hard to make change.**
>
> **STACIA GARR,** VICE PRESIDENT OF TALENT AND HR RESEARCH, BERSIN BY DELOITTE

results in the short term."

Cleaver would know. Wilson-Taylor runs MOVE, a project that measures and supports the advancement of women in the accounting profession. The initiative provides data gathered via confidential scorecards, surveys and interviews to equip organizations to enhance their workforce diversity and advocate for women in their industries.

Cleaver points to a cable company she once worked with that, despite having a significant female viewership, struggled to recruit female IT talent. "Women were a very big audience for this particular programmer and yet their tech department was almost all men," she says. "They felt like hypocrites."

So Cleaver had the cable company's staff complete an in-depth survey regarding the proportion of women in IT leadership roles. Next, Cleaver prepared a benchmark report comparing those results to anonymized data from competing employers. The HR department then aligned that data with the company's business growth goals to detect gaps in technical skills, project management and IT leadership. Next, managers throughout the cable company participated in a poll on the technical aptitude of the staff.

By combining and analyzing those streams of data, the cable company made a fascinating discovery: A treasure trove of untapped tech talent was right beneath its nose. For years, HR had failed to mine that resource. However, as soon as the company began offering leadership development programs, personal coaching and technical skills training, Cleaver says, it "increased the proportion of women on its internal tech staff from basically zero to a third within just a couple of years."

Hidden Truths

Although data can tell a compelling story about an IT team's diversity, it's critical that organizations read between the lines. For example, Levine cites a recent case of a company that had a flawless record for hiring and promoting diverse IT talent. But he says a deeper dive into the data revealed "a critical issue around improving diversity: There wasn't a lot of mobility."

On paper, the company adhered to equitable recruiting and retention practices. But the data showed that many of its more senior IT leaders were holding on to their jobs, preventing younger techies from moving up the corporate ladder.

"For that organization, the solution wasn't so much about more effective diversity management," says Levine. "The solution was more about the organization needing more churn."

In addition to recognizing

> **Success is slow and the numbers can be discouraging on their own. That's why understanding the underlying factors can help you with culture change that not only drives the numbers but helps you see results in the short term.**
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> **JOANNE Y. CLEAVER,** FOUNDER, WILSON-TAYLOR ASSOCIATES

the need for better succession planning, the company also discovered that a lack of "access to supervisory roles" was preventing women from receiving the mentoring needed to further their careers.

That's a discovery gleaned from data analysis that would have helped Daniela Crivianu-Gaita. After earning computer science and engineering degrees in Romania and working there in a number of industries, she left the country in late 1998 and eventually found work as a CIO at The Hospital for Sick Children in Toronto. Today, she is CIO at Gamma-Dynacare Medical Laboratories.

Although Crivianu-Gaita had to improve her English when she arrived in Canada, she says it was a lack of mentorship earlier in her career — not a language barrier — that posed the greatest challenge. "There were instances when I had a particular issue to deal with, like change management or relationship management, and I didn't know where to go," she recalls. "Being surrounded by men, I was afraid to some extent that they would look at me as weak because I didn't know how to handle the situation."

Quantifying Culture

No matter what else is going on in the world, IT pros from other cultures may find that adapting to the customs and practices of new colleagues can be among the most difficult hurdles to overcome.

Ask Amit Srivastav. President of Infinite Computer Solutions, Srivastav was born and educated in India and worked for a number of large international companies, including Microsoft, before immigrating to the U.S. nearly 15 years ago. He describes his early days in America as a "baptism by fire."

Shortly after he arrived in Silicon Valley to pursue his dream of working for a hot tech startup, "the whole market went from boom to bust," he says. So he moved to New York to work with a consulting firm. Two days after he landed, 9/11 happened.

Yet Srivastav says one of the toughest challenges he faced was adopting a North American approach to sales and service.

"Earlier in my career, I would follow up ferociously [with clients]," he recalls. "Then I realized that wasn't the right thing to do. I had to tone down my approach and not make my clients miserable by hounding them."

Years of working for multinational corporations helped Srivastav make a seamless transition to North America. But it does raise an interesting question: Is a new immigrant's struggle to fit in something that can be detected via data analytics? After all, it's easy to crunch numbers on tenure, training and technical skills. But what happens to the IT worker with all the right experience but a poor understanding of a company's — or a country's — culture? That's precisely where a living, breathing HR

> **There were instances when I had a particular issue to deal with, like change management or relationship management, and I didn't know where to go.**
>
> **DANIELA CRIVIANU-GAITA,** CIO, GAMMA-DYNACARE MEDICAL LABORATORIES

leader can come in handy, making sure such people aren't getting passed over for promotions or losing out on proper training.

Crivianu-Gaita agrees. "There is a science but there is also an art to making the final hiring decision," she says. "Nothing, no matter how sophisticated these data analytics may be, will tell you about how a person will fit in a certain department or team. That requires human intervention."

But for all of its challenges, data analytics is an effective alternative to poorly enforced policies, half-baked initiatives and corporate lip service. The statistics don't lie: Organizations need to up their game when it comes to diversifying their IT teams.

And as more organizations view diversity as a competitive edge rather than a compliance requirement, IT professionals can expect to see data analytics play a bigger role in their career advancement. ◆

WAXER *is a Toronto-based freelance journalist. She has written for various publications and news sites, including* The Economist, MIT Technology Review *and CNNMoney.com.*

TO SUCCEED, KEEP IT SIMPLE

The right data can help you keep tabs on who's getting promoted, what training programs are producing the strongest leaders and how certain policies are luring foreign workers. But learning how to make the most of that data takes skill. Here are some suggested shortcuts on how to better leverage data to achieve greater workforce diversity.

1 DON'T OVERDO IT. It's easy to pull reams of data from bloated HR systems. But data is useless if it's not carefully poked and prodded for meaningful insights. "The real bang is once you've extracted data, what are you doing with it?" says Charlie Judy, chief HR officer at Baker Tilly. "How are you interpreting that data, and how will it inform your actions going forward?" What's more, he adds, there's a real risk of collecting so much data that you simply don't know where to start. "You can quickly slip to the dark side when you're overwhelmed," he says.

2 TAKE ACTION. Don't get caught in the trap of rolling out a data analytics program simply for the sake of gathering data. According to Stacia Garr, vice president of talent and HR research at Bersin by Deloitte, only 10% of organizations actually change, adjust or refresh their diversity strategies based on the data they collect and analyze. "Even those organizations that are tracking data, they're not necessarily doing anything with it," laments Garr, adding that a lack of action is a missed opportunity to improve diversity.

3 STAY FOCUSED. Benchmarks and key performance indicators are valuable metrics for gauging diversity. But getting too caught up in the numbers can make you lose sight of your objective. "The thing you have to be careful with is that [data analytics] doesn't turn into affirmative action – where you're trying to achieve numbers and quotas," says John Reed, senior executive director of Robert Half Technology. "What it should be about is identifying the best candidates for the job."

– CINDY WAXER

Modernizing Apps *for the* MOBILE WORLD

IT shops are looking mostly to their existing software providers for an assist when extending enterprise apps to mobile – and finding compelling ROI along the way.

BY ESTHER SHEIN

AT SASKPOWER, an electric utility serving the Canadian province of Saskatchewan, the IT philosophy is leverage, buy or build — in that order. So when SaskPower wanted to make its SAP applications available on mobile platforms, officials first looked inward to see if those systems could be extended out.

With baby boomers retiring and younger employees coming in, SaskPower finds that staffers' technology expectations are changing, says Sheldon Smith, director of technology innovation. Younger people, accustomed to getting an iPad

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and a charger and jumping right into the job, "don't like the idea of coming in and taking two weeks to learn a system," he says. "It made us realize the bar had been raised."

Hoping to create a consistent mobile experience across different devices for users of several SAP applications, SaskPower turned to SAP Fiori, an interface designed for several mainstay SAP applications, including Hana and the Business Suite. One of the great features of Fiori, says Smith, is that it detects which type of device a person is using and automatically adjusts itself, a concept known as responsive Web design. For instance, certain fields that can be seen on a PC aren't displayed on a mobile device because the device's screen is too small.

Now, if someone in a business unit asked for an SAP mobile app, IT wouldn't have to deploy a whole new system, because it's possible to add mobile components to existing back-end software, Smith says.

For example, he says, SaskPower's leadership team had complained about the complexity of using SAP to do everyday tasks like looking up vacation days. With Fiori, Smith's group was able to build an app called My Quotas, which was deployed about a year ago. Now, mobile device users can easily tap in to the back-end HR system to see what they have available for sick days, vacation days and earned time off.

"A very simple app pops up. It knows who you are, and shows you in real time how many days you have," Smith explains. "That app alone has probably been our most popular."

In an age where bring-your-own-device policies are becoming the rule rather than the exception, people expect to be able to do their jobs using mobile devices. As a result, more and more companies are becoming mobile-centric and making enterprise applications available on mobile devices, says Bill Rom, managing partner at 151 Advisors, a New York-based consulting firm.

"As there becomes a need for employees to gain access to different types of data, companies are looking at extending those applications or data sets from multiple apps and delivering those to the mobile devices first," he says. Mobile-centric apps often increase the productivity of employees, experts say.

> **[Younger employees] don't like the idea of coming in and taking two weeks to learn a system. It made us realize the bar had been raised.**
>
> **SHELDON SMITH,** DIRECTOR OF TECHNOLOGY INNOVATION, SASKPOWER

Many mobile apps have dashboard-like interfaces so users can easily access data from multiple enterprise applications, like order-entry, HR and CRM systems. With such a system, a sales rep, for instance, could look at a customer profile before going into a call, Rom says.

Companies use internal development teams or third parties to add mobile components to enterprise apps, often with prebuilt mobile frameworks. Rom says there's strong demand for mobile app development, and the growth trend is expected to continue "as

more and more companies recognize that there are benefits to extending just about everything out to the mobile device, because the mobile device is with the employee 24 hours a day."

Screen Size a Challenge

Yet tools like Fiori, Oracle's JD Edwards EnterpriseOne Mobile Framework and others used to build mobile extensions of enterprise software will often yield interfaces that look different from those on the desktop, Rom says. That's because the original versions of the systems were designed for larger screens than the ones on tablets or smartphones. Nonetheless, the modified version of an application "will display on a mobile device in a way that is very pleasing and functional, given there's less real estate," he says.

Van Baker, an analyst at Gartner, goes a step further. He says while codeless mobile app development platforms are frequently being used to easily build out a mobile front end for existing back-end systems, "we think that's a terrible idea. A lot of enterprise app vendors simply see mobile as another front end to their existing applications or another access point to their existing apps."

> **To think there's a one-to-one relationship from the mobile app and the application on the back end is just the wrong way to think about it.**
>
> **VAN BAKER,** ANALYST, GARTNER

Instead, he says, "what you're going to want is the ability to pick three or four fields from multiple back ends and deliver that to a person on one screen so they have all the relevant information." This might include information on which open orders a customer has and their shipping status, or whether there are issues in the supply chain.

"To think there's a one-to-one relationship from the mobile app and the application on the back end is just the wrong way to think about it," Baker says. For a mobile app to be really good, it needs to be easy to interact with and must take content into consideration. "It needs to be economical with a small number of steps needed to complete a transaction," he says. Using contextually relevant information is the right way to build a mobile app — not simply offering a front end to a CRM, supply chain or order system. "Unfortunately," Baker says, "that's the way a lot of enterprise platform vendors are thinking of mobile."

Baker says he has talked to many enterprise IT development teams that are being asked to extend applications such as expense management systems to smartphones. He says tools like that may offer convenience, but he points out that merely extending an app doesn't make an employee more efficient. "It just makes the apps more convenient or easier to access — but you won't get the big bang for the buck," he explains. "You'll get good productivity gain if you design the app correctly to begin with."

Right now, Gartner estimates that just under 25% of enterprises are doing exclusive internal development of mobile apps while about 17% or 18% are outsourcing the work, and the rest are doing a mix of the two,

according to Baker.

Not a lot of mobile apps are being built from scratch, and mobile app development is still in the very early stages, he says. The vast majority of enterprises are building 10 or fewer mobile apps, while between 25% and 30% have not built any, he says. "I think we'll see activity this year," he predicts. "The pressure on IT organizations to deliver mobile apps is huge. They're getting overwhelmed with requests and they're not responding quickly enough . . . so business units are going around them and contracting with third parties."

Extending ERP Systems

Like SaskPower, many organizations that have added mobile components to existing apps are typically doing so to give users a front end to SAP systems.

Last year, when Allied Specialty Vehicles (ASV) wanted to give stockroom workers real-time inventory data, IT selected a mobile app development platform from Catavolt. Now, when workers are pulling items from a "pick list" — a list of the parts needed for manufacturing a vehicle — they scan item bar codes that originally came from Mapics, the company's mainframe-based ERP system.

The scanner is paired with an iPad that has Bluetooth, and the inventory transaction "occurs in real time in the system, so there's perpetual inventory," says Joshua Bradbury, IT project manager and systems administrator at Orlando-based ASV, which manufactures firetrucks, school buses, RVs and other vehicles. This lets workers see current inventory levels whenever they look in the system.

With the Catavolt app, workers can also make notes about missing parts and key in all inventory transactions to the

How to Get Started

COMPANIES thinking about adding mobile components to existing business apps should start the process with the goal of trying to improve the way an employee can interact with customers, says Bill Rom, managing partner at 151 Advisors. They should ask questions like these: How can an employee access information in a system more easily without having to go to a PC or make a phone call? And how can an employee carrying a mobile device become more efficient?

"With the building of any app, there has to be a plan of what I'm trying to extend out [and] for what purpose," he says.

Joshua Bradbury, IT project manager and systems administrator at Allied Specialty Vehicles, says IT needs to ensure there is data integrity. "You can put a lot of stuff on mobile devices but . . . it has to be correct and accurate data," he says. It also needs to have authentication functionality for industries that are regulated.

"Really look at the process itself and see how mobile will fit into that process," advises Paul Krueger, CIO at Stewart & Stevenson. Companies also need to examine what the use cases are and make sure everyone is on board with how mobile apps will work and what the benefits will be. "Unfortunately," he says, "IT gets looked upon as a candy store — and you don't want this looked upon as a candy store initiative."

— ESTHER SHEIN

Mapics system right on the iPad. Bradbury says ASV opted to extend the ERP system rather than build a new mobile app from scratch because of the ease of using Catavolt to enter the data into Mapics. Catavolt follows the same methodology for editing and validating transactions that the PC version of Mapics uses, he says, adding: "It's about simplicity."

Building a mobile app in this way is pretty straightforward and doesn't require a lot of testing, he says. Bradbury creates a data object in Catavolt, which brings up a list of data objects from the Mapics system, and he picks the one he wants — purchase orders, for example — and then sets up a view for how to display it on a mobile device. "It probably takes a full day or two to set it all up because once you extend it to Catavolt there's a little bit of coding in XML [required]," he says.

> **Users say it's a lot faster, more user-friendly. When they want to look up information, they don't have to walk across the warehouse to find a PC.**
>
> **JOSHUA BRADBURY,** IT PROJECT MANAGER AND SYSTEMS ADMINISTRATOR, ALLIED SPECIALTY VEHICLES

ASV employees have been pleased with the apps. "Users say it's a lot faster, more user-friendly," says Bradbury. "When they want to look up information, they don't have to walk across the warehouse to find a PC." With another feature of the app, an item inquiry option, when a user selects a part number he sees the item's stock status, purchase orders and manufacturing orders, plus the locations where it can be found, he says. Previously, when users performed inquiries on PCs, they had to open four windows to get the same information.

Bradbury has also used Catavolt for tools that enable workers to request time off and receive manager approvals via phones and tablets.

The mobile tools have proved invaluable because they save time, Bradbury says. In 2014, inventory transactions for 317,000 parts were being issued for pick lists at one plant. Entering one part into the system the traditional way took 20 seconds; with the Catavolt app, it takes two seconds. That saved a total of almost 73 24-hour days of data entry work, or 176 10-hour workdays, he says.

Bradbury has used Catavolt to build mobile extensions of some 20 applications, including a quality assurance tool, a defect entry system and a system for notifying workers when chassis arrive in parking lots.

Testing, Testing

The popularity of mobile apps in everyday life spurred Houston-based Stewart & Stevenson to look at extending functionality from its Oracle JD Edwards ERP system to mobile devices.

Business analysts, managers and "casual users" are now testing apps that extend 23 JD Edwards modules for sales, supply chain, service and credit functions, says Paul Krueger, CIO at Stewart & Stevenson, a designer, manufacturer and provider of specialized equipment, parts and services for the oil and gas industry and other markets. The modules were built with the EnterpriseOne Mobile Frame-

work, which makes it possible to take JD Edwards ERP tools and give them a responsive design to accommodate tablet or smartphone screens.

"The last thing you want is people having to do the pinch-and-expand movement to read information," Krueger says. JD Edwards has developed more than 70 out-of-the-box mobile apps that can be downloaded from Apple's App Store to extend existing ERP functionality and provide critical ERP information on demand, he says.

Once the test groups determine how well the mobile apps are working, IT will look at creating mobile-ready versions of existing apps for Stewart & Stevenson's service technicians. Krueger says the team will use EnterpriseOne or a third-party tool to help reduce development time.

Cost and time considerations led the company to decide to add mobile components to existing apps. "There is always a cost with developing and maintaining interfaces and interoperability," he explains. "We would rather the mobile development comes with the software supplier, so when we do an ERP upgrade, we automatically get an upgrade to the mobile apps without a lot of additional work. Wherever we can use what our key strategic partners have developed, we will opt for that."

That's not to say that mobile tools will be created for all job functions, Krueger notes, because certain types of heavy transactional work, such as accounts payable or accounts receivable, don't lend themselves to a mobile environment.

Krueger says he expects that a new field service orders app will yield a 25% to 30% reduction in the time between when a service call is received and when the customer is invoiced. With the mobile app, service technicians will be able to transmit information while they're still in the field, rather than having to wait until they return to the office.

SaskPower's Smith says the biggest return on investment will be a reduction in the number of clicks it takes employees to do what they have to do. "There are a lot of fields in SAP," he explains. SaskPower has so far launched three apps, which allow employees to enter the hours they work, get time sheets approved and view their pay stubs. The hours-worked app has reduced the number of clicks from 11 to four. Smith says about five more HR-oriented functions have been tapped as likely candidates for being ported to mobile.

Employees want information on demand, wherever they are; they "don't want to be tethered to a laptop or desktop," says Krueger. And citing another benefit of the mobile migration, he adds, "We're trying to work with people on a work/life balance."◆

> **Wherever we can use what our key strategic partners have developed, we will opt for that.**
>
> **PAUL KRUEGER,** CIO, STEWART & STEVENSON

SHEIN *is a journalist with extensive experience writing and editing for both print and the Web, with a focus on business and technology as well as education and general interest features.*

An Inside Track *on* OPEN SOURCE

These companies swear by the strategic advantages gained when their IT workers contribute to open-source projects.
But strict guidelines are paramount. **BY MARY K. PRATT**

MICHAEL BRYZEK saw open source playing a big role in his company's IT infrastructure, right from the start.

The CTO and co-founder of online retailer Gilt Groupe, Bryzek built the eight-year-old members-only shopping site using the Web framework Ruby on Rails, the Linux operating system and the object-relational database system PostgreSQL—all open-source tools.

He says open source doesn't have the "friction"—that is, sticking points like contractual limits—that typically come with commercial products. He also says his engineers can be more creative and innovative with open source.

"We know open source

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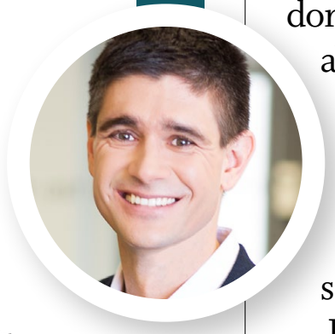
works. It's super successful. So why not just adopt it?" he says.

But Bryzek isn't just a proponent of using open source; he supports contributions back to open-source projects, too. And he isn't just speaking as a techie interested in using open-source tools as a technical exercise; he's also speaking as an executive who sees corporate benefits in letting his employees participate in open-source communities.

"In the scientific community, sharing has always been a cornerstone. Open source is that [cornerstone] for the software community. So when we think about the people we want to attract and those most successful here, they're well-trained scientists and engineers," Bryzek says. "And we find that what motivates this group the most is the ability to make their own decisions, to see the results of their work, and to share their work. Open source is one expression of that."

Enterprise IT shops are increasingly using open source throughout their operations, and they're more willing to let their employees contribute to and participate in those communities. The 2014 Future of Open Source Survey found that more than 50% of all enterprises are expected to contribute to and adopt open source. Additionally, 30% of the respondents said they make it easy for employees to participate in or start their own open-source projects.

> **We know open source works. It's super successful. So why not just adopt it?**
>
> **MICHAEL BRYZEK,** CTO AND CO-FOUNDER, GILT GROUPE



The 2014 Future of Open Source Survey, produced jointly by Black Duck Software and North Bridge Venture Partners, in collaboration with Forrester Research analyst Jeffrey Hammond, drew responses from 1,240 industry influencers. Of those, 42% were from vendor companies and 58% were from nonvendor organizations.

Like Bryzek, respondents said they see various benefits to having their workers engage in open-source communities. Among other things, they said doing so helps them cut costs, gain a competitive advantage, and recruit and retain top talent.

At Gilt, about 100 of the 1,000 employees are technologists who write code. Bryzek estimates that 80% to 90% of user-facing applications are based on open-source software, while 50% to 60% of back-office systems are open source. As part of the company's commitment to open source, Bryzek says his staffers are free to contribute patches to any open-source product, and they can make other contributions under certain conditions. For example, they can contribute material that is of value to the community but doesn't contain domain-specific information about Gilt.

Although coders make up just 10% of his workforce, Bryzek says Gilt does indeed benefit from those open-source contributions.

For one thing, contributions help ensure that software stays in working order and can continue to be maintained. And participating in an open-source project can improve an engineer's output in general: Because contributions are subject to broad peer review,

Setting Guidelines *for* Contributions

COMPANIES must consider risks associated with their employees contributing to open-source projects, and it's helpful to have key guidelines in place to guard against problems.

Such guidelines should go beyond the standard enterprise policies governing the use of open-source products, such as those dictating which licenses and development tools to use.

An organization moving into a contributor role should determine the extent to which contributing employees will engage in that activity and how being a contributor might change an individual's job responsibilities. (Some IT shops have employees who focus full time on leading open-source projects.)

IT leaders also need to worry about workers contributing information that is proprietary, security-sensitive or faulty (for example, containing bugs or viruses). Organizations with mature procedures use reviews and scans to guard against such problems, and they set up additional safeguards, such as having staffers volunteer to be editors for published material. They also set documentation requirements and even expectations around promoting use of the contributed material.

And there's one more thing to consider: If a company itself isn't the project sponsor but allows workers to contribute as individuals, it risks losing star technologists whose work on the project will be visible to other companies and headhunters.

— MARY K. PRATT

the people who submit them generally aim to do high-quality work and prepare solid documentation, Bryzek says.

The mentality is, "I know teams will review my work, and I want to make sure I advance a project instead of causing harm," he explains.

Providing opportunities to work on open-source projects also helps Gilt recruit and retain talent, Bryzek says, noting that innovative people want to be in a culture that supports creativity and engagement.

"Open source is a way to help creative people express themselves, so it can only help with innovation," he says. "And innovation drives growth."

First Steps Into a Contributor's Role

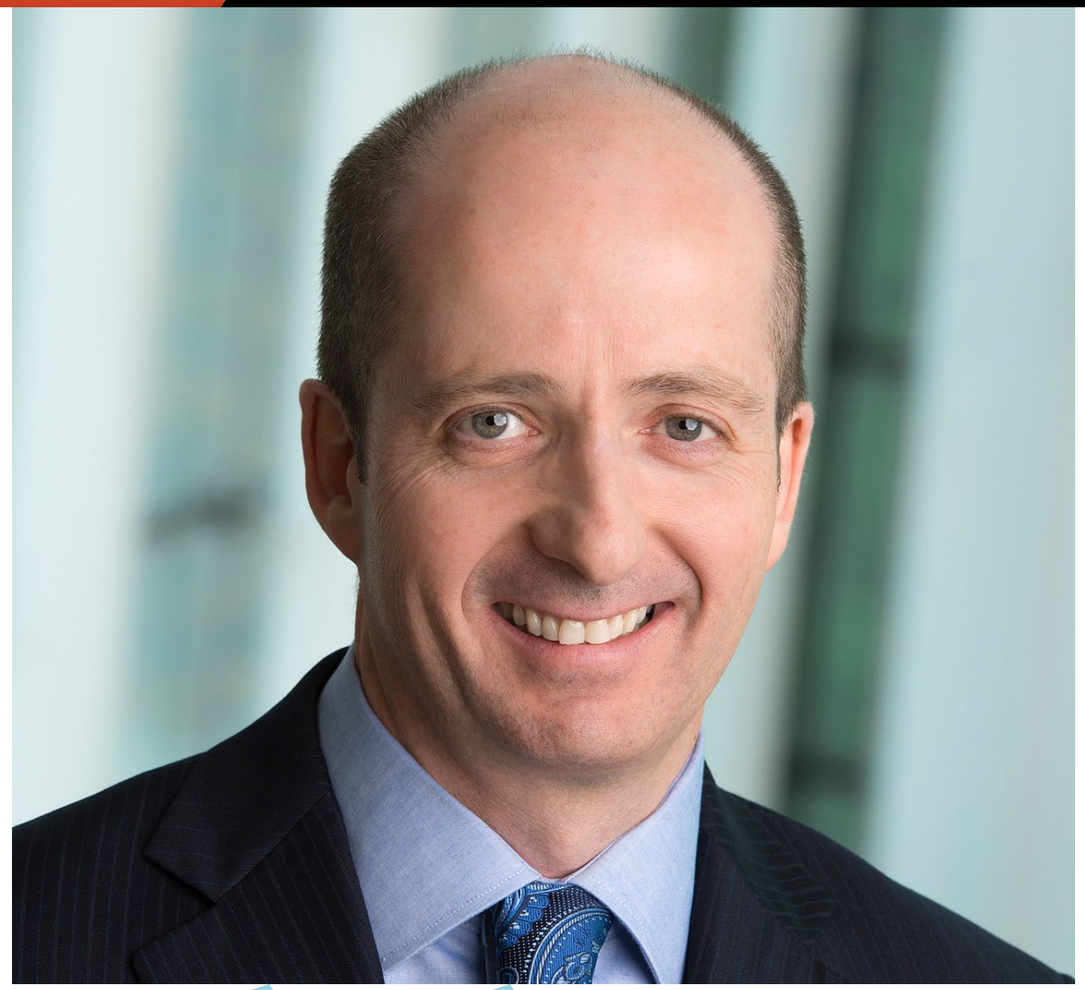
Those kinds of benefits are enticing others to expand their roles in the open-source community.

Capital One is a case in point. George Brady, executive vice president of technology operations, says the McLean, Va.-based financial services company started using open-source software around 2000, when it shifted to Linux, and has expanded its use of open source over the years, because the tools free up engineers to do more creative work and help the company improve time to market.

"It's a strategic advantage for our business," Brady says.

Now Capital One is moving from just using open-source software to getting involved in the community. "[We're] picking our spots around projects and communities that are aligned with our interests," he says.

Although he stresses that Capital One is just beginning to venture into a contributor's role, he says the company's IT workers are already looking at how they can contribute bug fixes or new features and func-



> **It's certainly in the company's best interests to show up in those projects, because then we attract people who are passionate about that, too.**
>
> **GEORGE BRADY,** EXECUTIVE VICE PRESIDENT OF TECHNOLOGY OPERATIONS, CAPITAL ONE

tions; they're even thinking about how they could eventually handle projects.

Why make the move? For starters, Brady, like others, says it's a draw for the engineers.

"The contributions they make are very visible. Inside the company and outside, too, others see their great work. This really is their résumé," he says. "It's certainly in the company's best interests to show up in those projects, because then we attract people who are passionate about that, too."

Although employee engagement is key for corporate success, Brady says Capital One leaders also believe contributions will help better align what's happening in the open-source world to what the company itself needs in order to grow. He says the company has "an interest in development going a certain way, which is why we have an interest in maybe owning projects."

Moreover, he says, "our company was founded on an information strategy, and when you look at evolution in [open-source technologies like] Hadoop, for example, that's very important in our business because of our focus on information and data. So it's in our interests to be active in this community."

A Competitive Advantage

Andy Mulholland, an analyst at Constellation Research, says companies also encourage contribution to open-source projects as a way to have their own workers "become familiar with the software as an aid to their own adoption and use." That can lead to more innovation from the workers "because it encourages them to realize that they can be more creative," he says.

Executives can certainly understand the value of better alignment, strong employee engagement and recruitment

advantages as reasons for the IT shop to support open-source contributions. But there are still more to be gained.

IT leaders like Brady and Bryzek, along with analysts and other open-source proponents, say larger benefits of open-source contributions accrue from the openness of development activity, the requirements to share and the processes that support such interactions.

Specifically, IT leaders say because software is reviewed by peers and contributions come from multiple sources, many great minds (and not just the limited pool of people in one organization) are continually helping make products better.

"No one department or organization has cornered the market on great ideas," Brady says. "We know there are a lot of great engineers outside Capital One who can advance the projects we care about."

Additionally, IT leaders point out that the open-source approach to development can spill over into internal projects. And when in-house developers embrace open-source culture, they can deliver open-source-style innovation.

Public Code, Public Benefit

At some organizations, the benefits can be greater still.

Sonny Hashmi, CIO for the U.S. General Services Administration, says using open-source software has yielded increased flexibility and cost savings, along with more robust and reliable platforms. He believes in the benefits of open source so strongly that last year he established a requirement for agency developers to consider open source before they look at commercial products.

He also expects developers to contribute back to the open-source community, not only for the reasons cited by other CIOs, but also because he believes it's the right thing to do as a government entity.

"The taxpayers pay for the work; the product should be owned by the taxpayers," he says, explaining that if the code is public, then taxpayers don't have to pay for developers in other agencies to create the same thing over and over again.

> **No matter who you are, I think it's a fair bet that there are more smart people outside your organization than inside. And by contributing, we can tap into that.**
>
> **SONNY HASHMI,** CIO, U.S. GENERAL SERVICES ADMINISTRATION

Although most CIOs don't have to worry about taxpayers, they do share Hashmi's sense of obligation when it comes to sharing.

So just as using open source is an accepted part of the equation for enterprise IT these days, so is giving back, says Hashmi. Because everyone benefits when all parties participate.

"Part of the real beauty of open source is if you develop a community around a problem you're trying to solve, you get the multiplier effect. Because no matter who you are, I think it's a fair bet that there are more smart people outside your organization than inside," he says. "And by contributing, we can tap into that." ◆

PRATT *is a* Computerworld *contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*

Security Manager's Journal

Making the Case for Security

In his debut before top executives, our manager has just a few minutes to get them to see what needs to be done to better secure the enterprise.

HAVING WORKED at my new company for several months, I was recently invited to talk to executive management about the state of our security. I had half an hour to introduce myself and discuss my philosophy, my initial findings and the priorities I think we should have.

Thirty minutes isn't much time, and I figured that I should be prepared to talk for just 15 minutes, so that I could give the team time to ask questions. I had to make that quarter of an hour count.

FIND FULL COVERAGE of IT security at **computerworld.com/category/security0**

Before me were the CEO, the CIO, the CFO, the CTO and the vice presidents of sales, marketing, support and operations. I told them that I had been in security long enough to know what sorts of things work. There's the rule of least privilege, which enforces access controls based on granting an individual only the privileges he really needs. There's security awareness and the idea that changing employee behavior is a crucial ingredient of a strong security program. There's the acknowledgment that we're only as strong as our weakest link. There's the all-important realization that security is a process, not a point solution.

Real-world examples helped get my points across. When I talked about the weakest link, I noted that even a big company like Target — with a multimillion-dollar budget and a huge security staff that followed PCI DSS and other industry-standard security protocols — could still be breached because its HVAC vendor allowed a PC to be compromised. On the subject of employee behavior, I cited many recent breaches that had been caused by one person doing something he shouldn't have done. When the topic was security as a process, I said we need technology to help secure the company, but that no single device or piece of software can guarantee a secure infrastructure. Security, I said, is a product of people, policies, processes and technologies that, when combined, increase our security posture, and thus decrease risk.

I was only five minutes in and didn't mind too much when

Trouble Ticket

At issue: The new security manager meets with executive management for the first time.

Action plan: Be organized, provide concrete examples and create a vision of how security can be improved.

I lost two minutes while the CEO told a war story.

Where We Stand

Next, I needed to give the executives my assessment of our security stance. The assessment, I explained, was based on things like my observations during the new-hire process, a review of existing documentation, security evaluations, interviews, business process reviews and the monitoring of our network.

I spent some time focusing on what we can learn by monitoring the network. We recently conducted a proof of concept of a Palo Alto Networks firewall, which came with cool bells and whistles that can show us how our network is being used from a security and risk perspective. I shared some of what we've learned: We have traffic going to and coming from more than 60 countries. We're using more than 30 cloud file storage systems. Employees are violating our corporate remote-access policy by using peer-to-peer software and remote-control software such as LogMeIn. They're also accessing pornography sites, which is a legal, HR and security problem. The firewall told us we're under attack and pinpointed the type of attack being used. It singled out several internal resources that were potentially compromised and communicating with malicious command-and-control sites on the Internet.

> **Before me were the CEO, the CIO, the CFO, the CTO and the vice presidents of sales, marketing, support and operations. I told them that I had been in security long enough to know what sorts of things work.**

Everyone paid attention. There was an awkward silence, followed by expressions of disbelief that employees could engage in such behavior. But the data could not be ignored, and the value of the tool that had made the behavior visible was clear.

This was my chance to jump into my top findings and recommendations. I strongly advocated tightening the corporate network by segmenting into security zones, restricting the use of and access to risky applications, and obtaining visibility into threats to our company. That last point was a thinly veiled plea for the funds to purchase a tool that would give us the kind of monitoring we had seen with our Palo Alto proof of concept.

I also recommended arming our PCs with more advanced endpoint detection capabilities, adopting a tighter group policy and deploying full disk encryption. Finally, I reinforced my belief that technology isn't the whole story by arguing that changing behavior is essential if we are to avoid falling victim to the types of security breaches we have seen in the news. In other words, we need to implement an enterprise-grade security awareness and training program.

So I have made my arguments and presented my concerns. I hope it gets us on the road to better security. ◆

This week's journal is written by a real security manager, **"MATHIAS THURMAN,"** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

SHARK TANK

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

HAL MAYFORTH ILLUSTRATION

Never Missed It, Apparently

THIS ORGANIZATION DECIDES to outsource its central supply function to other departments, and that leads to the usual game of musical locations. "The space that was occupied by Central Supply is now being taken over by the mailroom, and the former mailroom space is being taken over by the copy center," reports a pilot fish in the middle of it all. "While cleaning out Central Supply, we discovered unopened boxes containing a computer and monitor. The shipping date on their mailing labels is almost 10 years ago. The computer is a model that has been replaced companywide over the past two years. I'm not sure which is worse: that the intended user of the PC never complained about his missing computer, or that the PC was never found during the annual inventory of Central Supply."

Why We Love Outsourcing

After this company outsources its software purchasing, pilot fish is still responsible for some soft-

Purchasing insists the order was for a new license, not support. Look at my original order, fish says. Result: Denial. Confusion. More confusion.

ware that has an annual support charge. "I dutifully submitted the request that the fee be paid, being very careful to note that this was just for the support charge for the existing license. The exact amount of the charge was listed in the request," says fish. After several weeks with no word from Purchasing, fish gets a call from the software vendor — thanking him for buying another license. Huh? Fish calls Purchasing, which insists the order was for a new license, not support. Look at my original order, fish says. Result: Denial. Confusion. More confusion. "They had no process for correcting orders with vendors," sighs fish. "After a couple of weeks of back-and-forth email between me, Purchasing and the vendor, it was decided that the vendor would just carry the overpayment as a credit and charge future service fees against that credit. At that rate, the credit should last about 14 years."

He's Busy — Too Busy to Listen

Support pilot fish logs in to a user's PC to install some software, then leaves a voicemail to let him know the job is done. "I stepped away from my desk, and when I got back I had two voicemails from him," says fish. The two messages are pretty much the same. "He said the username on his login screen was 'administrator,' and his password was not working. He let me know how busy he is and how important it is that he get logged in. I called back and told him he needed to switch to his own username. He said his password worked fine before the change I made. I told him again that he needed to switch usernames and log in as himself. Once he did that, it worked fine. Before getting off the phone, he let me know again that he had not changed his password and was not sure why it worked fine this time. He still didn't realize that he had been using his password on the admin account." ◆

KEEP SHARKY BUSY TOO.
Send me your true tale of IT life at sharky@computerworld.com. You'll score a sharp Shark shirt if I use it.

BART PERKINS *is managing partner at Louisville, Ky.-based Leverage Partners, which helps organizations invest well in IT. Contact him at BartPerkins@LeveragePartners.com.*

Lessons to Be Learned From a Project Nightmare

The Labor Department's experience reinforces the need to follow good contract management practices.

THE U.S. DEPARTMENT OF LABOR (DOL) is in the middle of an Oracle Financials implementation that has gone horribly wrong. Its experience should serve as a cautionary lesson for enterprises planning major projects.

In June 2008, the Labor Department awarded Global Computer Enterprises (GCE) a 10-year, $50.4 million contract for an Oracle Financials project. The first part of the contract required GCE to migrate the department to Oracle financial software running in the GCE cloud. The remainder was for software maintenance and hosting services.

Early in 2010, the department reported that it was live on Oracle Financials and that older systems had been decommissioned. Unfortunately, by the end of 2009 it had spent $11.5 million and, according to Washington insiders, had only implemented a small part of a total financial software package. Implementation continued and costs increased. From 2010 to 2012, the department spent another $57.7 million with GCE on implementation and cloud hosting.

In 2013, the FBI began investigating GCE's alleged use of foreign nationals on federal contracts requiring U.S. citizens to perform the work (presumably, GCE sought to reduce its

operating costs, but it violated contract terms and potentially compromised personally identifiable information in DOL databases). Although GCE collected another $14.5 million that year under the original contract, it was running out of money.

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In September 2014, GCE filed for bankruptcy. The Labor Department had to scramble to keep its financial systems operating, so it engaged Booz Allen Hamilton to help out until it could migrate to the Department of Transportation's shared services platform.

This saga reinforces the need for good contract management practices, such as these:

■ **Own your data.** The DOL failed to include language in its contract that required GCE to create a data extract process and return the data to the department in a machine-readable form. It wasn't until June 2012 that the department began trying — unsuccessfully — to get GCE to return its data.

The situation got messier, and even more expensive, after the bankruptcy. GCE petitioned the court to sell "interfaces, licenses, servers, software and documentation" in a complex deal to keep the Labor Department operating. On Dec. 3, 2013, GCE was awarded a new $23.5 million sole-source contract to transfer selected assets to the department and to create 624 reports with an interface to a new DOL data warehouse. In FedBizOpps.gov, the department reported that "GCE is the only source available to perform this service."

■ **Own the licenses.** It's unclear who now owns the Oracle licenses. It appears that the licenses for the DOL financial systems were purchased by GCE in its own name. Since Oracle typically limits license transfers, it's likely that the Labor Department will be forced to buy new licenses to continue operating its financial systems.

■ **Select a cloud provider with care.** The Labor Department was operating in the GCE cloud when the bankruptcy was announced and was faced with the immediate shutdown of the GCE cloud. Since the new data repository was not yet operational, the department had

no options and was forced to take over the lease for the space housing the GCE cloud servers.

When moving to the cloud, few organizations create plans listing the actions they'll take if a cloud provider ceases to operate. Make sure you do. While smaller cloud providers' services may be cheaper, it's safer to use Amazon, Microsoft or another major company.

■ **Be suspicious of low bids.** GCE far underbid its competitors for the Labor Department contract, whose asking prices were between $75 million and $85 million. Question any bid that's significantly lower than the others, particularly from a small company. (GCE was a small business with only $37 million in revenue in its best year.) Investigate very low bids carefully, and make sure you understand the reasons behind major price differences.

■ **Monitor progress closely.** Outsourced projects require constant supervision. Monitor closely, carefully and regularly. Question the outsourcer thoroughly regarding any discrepancies against plan. Even based strictly on budget, the GCE project was in trouble by the end of the first year. Things only got worse during each subsequent year. Rather than waiting for further failures, launch a detailed review as soon as concerns emerge.

The Labor Department ignored basic contract management principles and has paid a high price in consequence. And it isn't out of the woods. Despite all the money spent to date, Deltek reports that the department "may have a continuing requirement for Oracle Federal Financials Commercial Off-the-Shelf software, Information Technology (IT) hosting and administration." Deltek estimates that the new expanded-scope RFP will open for bid in August 2015 and be awarded in May 2016, with a contract value of $238 million over eight years.

This debacle demonstrates the importance of careful contracting and excellent project management. Conceptually, both are straightforward. In practice, both require an enormous amount of work, consume huge amounts of time and require great attention to detail. But the cost of failing to perform these critical functions can be far higher. Just ask the Department of Labor. ◆

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