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MANAGERS, YOU HAVE THE POWER. SHOULD YOU USE IT? 6

TESLA'S MODEL 3 SHAKES UP THE ELECTRIC CAR MARKET 3

Cross-Border [DATA] Blues

The EU's new **DATA PROTECTION REGULATIONS** *are putting pressure on IT teams to achieve compliance — or pay a steep price.*

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Table *of* Contents

Cross-Border Data Blues

7 Ways to Get the Most From Your Vendors

Busting Application Bloat

MORE ON COMPUTERWORLD.COM
Unlimited vacation policies: How to grant time off while keeping IT staffed.

THINKSTOCK

Tesla's Model 3 Shakes Up The Electric Car Market

The rush of pre-orders – for a $35,000 car that won't be available for a year – prompted comparisons to the consumer frenzy sparked by iPhone announcements. **BY KEN MINGIS**

TESLA'S NEW Model 3 electric vehicle won't arrive until mid-to-late 2017. Its design isn't completely finished. And while it'll start at around $35,000, a typically equipped model will sell for north of $42,000, according to Tesla CEO Elon Musk.

But in the week after its formal unveiling, the car drew more than 325,000 pre-orders from would-be buyers willing to put down a $1,000 deposit for a car they can't even see, much less test drive.

The rush of orders indicates that there's pent-up demand for a Tesla with almost-mainstream pricing. (By comparison, the Tesla Model S 70D starts in the mid-$70,000 range.)

Analysts were surprised that an electric car would generate so much interest, especially at a time when gas prices are low.

The number of pre-orders "is amazing, and I don't think anything like that has happened in the auto industry before," said Egil Juliussen, an IHS analyst specializing in automotive infotainment and advanced driver assistance systems. "Tesla Model 3 is the iPhone of the auto in-

TESLA MOTORS

People wait in line to place deposits on Tesla Model 3 cars at a Tesla dealer in La Jolla, Calif.

> **I don't think anything like that has happened in the auto industry before. Tesla Model 3 is the iPhone of the auto industry in terms of pre-orders.**
>
> **EGIL JULIUSSEN,** AUTOMOTIVE ANALYST, IHS

dustry in terms of pre-orders."

The pre-orders also mean an influx of cash for the independent automaker. With $1,000 deposits on each four-door Model 3 ordered, Telsa now has more than $325 million in reservation money.

If all 325,000 orders stand (Tesla will issue refunds to customers who change their minds) the carmaker said in a blog post that it would rake in roughly $14.5 billion.

"This interest has spread completely organically," the company boasted. "We haven't advertised or paid for any endorsements. Instead, this has been a true grassroots effort driven by the passion of the Tesla team … and our current and future customers who believe so strongly in what we are trying to achieve."

The flood of pre-orders led Musk to tweet that Tesla would have to "rethink production planning."

The Model 3 can travel up to 215 miles on a single charge and go from zero to 60 mph in less than 6 seconds. Although it's rear-wheel drive, the Model 3 can be equipped with a dual-motor, all-wheel drive system like the one in the Model S.

Stiff Competition

The Model 3 is seen as something of a warning shot to other automakers.

That $35,000 price tag, before government tax incentives for electric vehicles, means the Model 3 is less expensive than potential rivals such as the BMW 3 Series, according to Chris Robinson, an analyst at Lux Research.

"A base 3 Series with no options and the smallest engine is priced at $33,000. In both looks and performance, [the Tesla Model 3] can certainly compete with that," Robinson said.

The Model 3 could compete with not only the BMW 3 Series, but also other low-end luxury car lines, such as the Mercedes C-Class, which has a starting price of $38,950, and the Audi A4, which starts at $37,300.

REUTERS / MIKE BLAKE

> **Consumer enthusiasm for Tesla has always been very high.**
>
> **CHRIS ROBINSON,** ANALYST, LUX RESEARCH

BMW's own electric car, the i3, is a two-door compact with a starting price of $42,400; it travels 81 miles on a full charge.

Meanwhile, less-luxurious EV rivals aren't much cheaper. For example, Chevrolet's 2017 four-door Bolt EV will have a starting price of $37,500 and the 2017 Chevrolet Volt LT, also a plug-in hybrid sedan, will start at $34,095.

Factor in a federal EV tax credit of $7,500, and the Model 3's overall cost may fall well below $30,000, even before state tax credits are included.

"The thing about electric cars is they're quick," Robinson said. "Electric vehicles have instant torque, which internal combustion engines don't have. When it comes to acceleration, it's tough to beat an electric vehicle.

"It's astonishing that people would put down $1,000 before even seeing the car," Robinson said. "Consumer enthusiasm for Tesla has always been very high. It's like the Apple of the auto world."

"If there are that many people willing to put down $1,000, that's the indicator that they hit it right," said Juliussen.

Overachiever

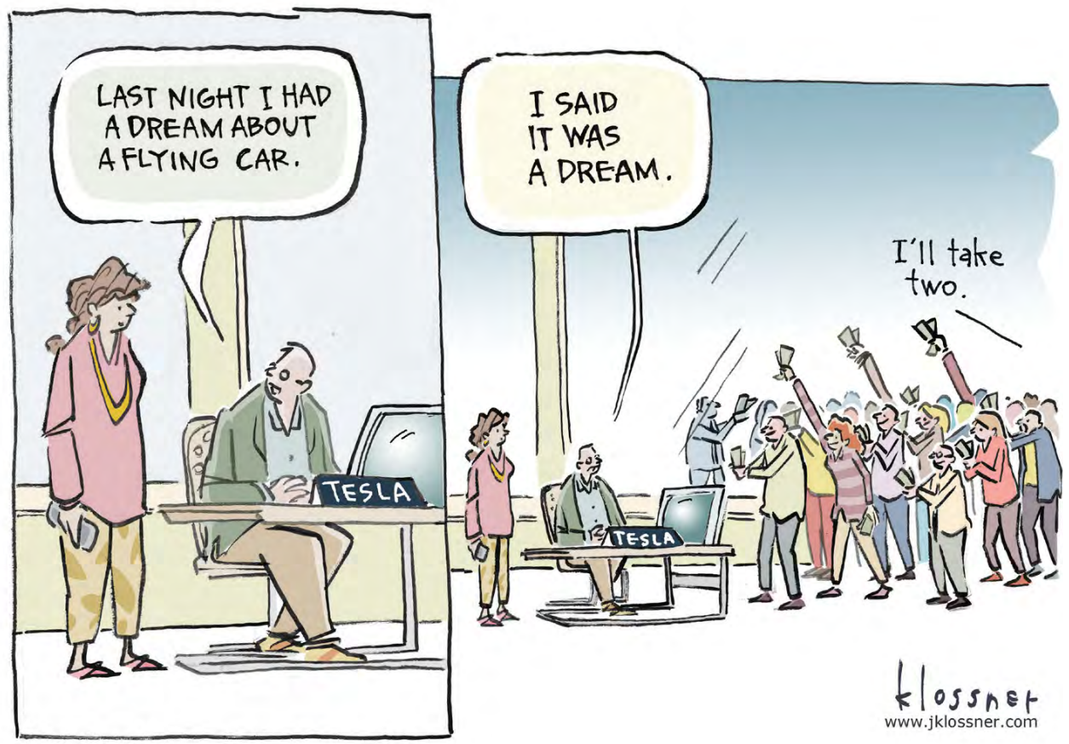
Prior to the Model 3's March 31 unveiling, Evercore ISI analyst George Galliers had predicted that the car would attract about 55,000 pre-orders in the first 72 hours and a little more than 117,000 orders by year's end. That, he said at the time, would be a "huge achievement."

Tesla has an advantage over traditional carmakers because it can use modern electronics, whereas other automakers are on three-to-five-year vehicle design schedules.

"Tesla designs their electronics much closer to deployment time," Juliussen said. "That gives them a more advanced design for the electronics. It also gives you more performance, and more memory for the dollar. I think they'll compete pretty well against other [carmakers]." ◆

With reports from **LUCAS MEARIAN.**

BETWEEN THE LINES | JOHN KLOSSNER



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.*

Managers, You Have the Power. Should You Use It?

TECHNOLOGICAL and legal changes over the last generation have dealt employers an increasingly strong hand in setting the terms of their relationships with the people they hire. Regardless of whether you think that this is a good thing or a bad one, it's hard to deny employers' clout.

It's less easy to see the costs of exploiting that imbalance in power. They're worth considering. First, though, some background.

Evidence of the power shift can be easily seen in the changes to the conditions under which employment takes place. In the U.S., wages have been largely stagnant for three decades, though productivity has risen. That means virtually all the benefits of higher worker productivity have accrued to employers.

Meanwhile, employers have reduced the financial burdens of providing employee security. The percentage of people in the United States working as contingent workers had risen to 40.4% of the country's workforce by 2010, according to the Government Accountability Office, which also concluded that the contingent workforce level had been at 30.6% in 2005. (Admittedly, the so-called Great Recession fell in the years between those two dates, but 10 percentage points is a very large shift.) And obligations to the full-time workers who remain have been reduced as well. We've all seen how guaranteed pensions have been replaced by defined contribution accounts such as 401(k)s.

In IT, outsourcing continues unabated. And, as *Computerworld*'s Patrick Thibodeau has been reporting, some particularly aggressive companies are exploring new ways to press their advantages even in the terms under which their replaced workers depart.

Every manager walks into the office each morning holding some of the power that flows from just being an employer. You, as a manager, may not feel so powerful in your day-to-day interactions with your staff, but when it comes to dictating the terms of employment, you are. And you are probably under constant pressure to use that power to produce results, reduce short-term costs and minimize long-term obligations.

The question for a manager of technical people is, "When and how should I use that power?" Because you have the power, you can use it whenever you want, but it may not be a good idea to push too often or too hard.

That's because exercising power is not a cost-free activity. You can coerce people into submitting to the conditions of employment ("It's $10 an hour, take it or leave it."), but you can't control how they respond to being coerced. If you're negotiating a one-time transaction, such as buying a new car, you may not care that the dealer's sales manager will be offended by the tactics you use to squeeze an extra 1% out of the price. With luck, you're never going to see him again.

But when you're exercising power in an ongoing employment relationship, you should care a great deal about how the terms you dictate and the tactics you use make people feel. Their attitude toward the organization and you, their manager, directly affects the value they deliver as their part of the bargain.

This is especially true when you're dealing with geeks. The work they do requires engagement, creativity, dedication and commitment. It follows, then, that negative feelings can cost a great deal in productivity and quality. A developer who feels that she is being paid less than her equally capable peers is unlikely to think creatively day and night about how to better architect your system. A support technician who fears that his job may be converted to a contract role is thinking more about where to get a new job than about how to make a user feel good. A contract project manager who has had his hourly rate cut may quit or do something even worse: tell everyone who will listen about his resentment and rage, spreading discontent like a virus among the staff.

This is not to say that you need to pay people outrageous, above-market salaries to avoid offending them. But you do need to think carefully about the consequences of dictating significant or frequent changes to the employment relationship. The value you lose may far exceed the costs you cut. ◆

You may not feel so powerful in your day-to-day interactions with your staff, but when it comes to dictating the terms of employment, you are.

THE Grill

Hervé Coureil

This CIO's business-focused résumé includes a stint as a CFO on his way to building a global IT operation.

HERVÉ COUREIL *spent more than two decades building a career before landing the top technology spot at Schneider Electric, which specializes in energy management and automation. Nothing unusual there — except for the fact that Coureil spent most of his 23 years at Schneider outside of IT, in business and financial roles. In fact, he served as chief financial officer in Schneider's Critical Power and Cooling Services unit before becoming CIO in 2009. Even in an era when CIOs are ex-*

- **Hobbies:** "I read a lot. I read tons of books."
- **Last movie you saw:** "A Bollywood movie with my wife, who is Indian."
- **Hometown:** Angers, France
- **Languages spoken:** English, French and Spanish fluently
- **Ideal vacation:** "I like when it's about discovering a new place."
- **Music playlist:** "Moby. That's one of my favorites. What else? The Cure, from time to time."
- **Favorite food:** Indian food

For two or three years now, we've been changing gears, working on platform strategy, turning ourselves from an internal provider to broker.

pected to be well-versed in business, Coureil's résumé is uncommon. Now, as CIO, Coureil is responsible for information technology, processes and organization globally for the Rueil-Malmaison, France-based company. He oversees a 2,400-person IT team supporting a company with a worldwide workforce of 170,000. Here Coureil talks about stepping into IT and transforming Schneider's technology strategy.

What is your biggest accomplishment as CIO? I was to some extent the first global CIO. We didn't have a centralized global IT function before, so it was really to create this organization from scratch. Every country organization and partner had its own little IT team. We had to put all the collection of teams together, move from a multiplicity of tiny teams and turn it into a global service provider. It meant a lot of things — changing management and leadership and how to get everybody used to not having their own team but to work with their own general service provider. This has been the first big thing I've been doing.

For two or three years now, we've been changing gears, working on platform strategy, turning ourselves from an internal provider to broker. The second phase now is to really structure ourselves as a competitive differentiator, and how do we structure the IT team so it's geared toward the empowerment of the business partners. This is the big strategy that we're pursuing right now.

What was the biggest challenge with that first phase? The main challenge was getting the business partners to step into the unknown.

How did you manage it? It was really transparency. I worked on transparency of our baseline, our performance. I was also trying to show the economic benefits we could derive [from the new strategy].

What were the challenges in moving to a global IT function? When the company is made of tons of little teams that were disconnected, the challenge was for us to create a model and understand what platforms we could scale and what were the areas we needed to keep specialized. So there was a lot of work in defining the platform strategy, figuring out what we could scale or specialize, what were differentiators.

What's driving the second phase as you move toward the empowerment of the business partners? Quickly we realized that as every business becomes digital, the IT department can't be an internal control-it-all kind of department. We needed to take a very different view. So we started defining

> **We want to empower our businesses so they can develop the technology that's right for them.** It took a very different thinking in IT, and it took profound changes in the architecture.

the open framework, which is how will we act as a technology broker. We don't want to necessarily build everything that uses technology. We want to empower our businesses so they can develop the technology that's right for them. It took a very different thinking in IT, and it took profound changes in the architecture.

What do you mean when you speak about empowering the business? We can describe our empowerment strategy in three layers. The first layer is the *deliverer* layer. The idea is to provide consistent capabilities. To be predictable, reliable; to provide end-to-end services transparently; to manage multiple programs at the same time. And to turn projects into a new service.

On top of that, we have the *connect* layer, which is all about the experience of the users. We really try to think about everything that we produce not with technology at the center but with the user at the center.

The third layer is the *empower* layer. This is where we put together this framework where our businesses can leverage the platform, the framework where we give them the ability to develop new capabilities within the framework we control, where we facilitate reuse, where we leverage the platform. We have microservices we offer to our businesses so they can assemble what they need.

Your path to CIO is a bit unusual, coming from finance and the CFO post. Does that set you apart from other CIOs? When it comes to financial management, as a CIO you need to make sure you're sticking with terms that are in the business frame, that the business can understand. That's an advantage [of having been a CFO].

Of course, the drawback is that you don't start with in-depth technology experience, so you have to acquire it. You have to have strong people you can rely on who are going to bring you the in-depth experience you're lacking, and you have to develop a network of people in the industry you can trust and exchange ideas with. I've been using people internally, and I've assembled what I think is a great team and also an ecosystem in the industry of fellow CIOs with whom I'm always happy to brainstorm.

You were a finalist for the MIT Sloan CIO Leadership Award in 2015. What do you think earned you that honor? It's this idea of trying to rethink the role of IT, trying to build IT as an empowerment function, taking it away from power struggles and trying to reset IT so you become the source of empowerment for businesses who are on a digital journey.

I think every business is becoming digital, and that's having a profound impact on IT. We've tried to recognize that. We're trying new ways of interacting, and we're building a framework that our businesses can use to develop their own technology services, helping them scale and be secure. The idea was for IT to become a competitive differentiator. So we've worked a lot on this positioning of IT as an empowering differentiator. That being said, we're learning every day.

Can you give an example? They're using an infrastructure layer we built for them, subscription services that were built for them. Ten or 15 years ago, they would have built everything from scratch. We're not trying to build the services for them, we're just trying to enable them to provide the services faster, and we do that by developing as many bricks as we can and then working with them to decide what bricks make the most sense. It's offering the components that they can assemble rather than building everything from scratch.

You oversee the "Schneider Is On" program. What is that, and what's your role in it? "Schneider Is On" is a transformation road map; it's how we're developing high-level strategy. It's a framework where everyone understands the strategy road map and where they sit. My role is to empower, to understand what we need for that transformation to happen. I spent a lot of time understanding what technology is needed to make that road map real. You want to detect the big technology transformations and embark on them before being asked.

What technology transformations lie ahead? The Internet of Things would be the big one. Mobile. Big data. The convergence of those three. ◆

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

> **I think that every business is becoming digital,** and that's having a profound impact on IT. We've tried to recognize that.

The EU's new **DATA PROTECTION REGULATIONS** *are putting pressure on IT teams to achieve compliance – or pay a steep price.*

BY CINDY WAXER

Cross-Border [DATA] Blues

THINKSTOCK

MOST CORPORATE ACQUISITIONS come with a fair share of complexities. But when Accuride acquired a majority stake in Italian truck wheel manufacturer Gianetti Ruote, the Indiana-based company never dreamed of the impact the deal would have on its IT activities. Since Accuride expanded into Europe late last year, its U.S. IT team has had to contend with everything from a stalled cloud strategy and decentralized systems to increases in hardware costs, licensing fees and IT head count.

CROSS-BORDER DATA BLUES

BY CINDY WAXER

Welcome to the European Union, where authorities are requiring companies that handle the data of EU citizens to comply with some of the strictest data privacy regulations in the world, or else suffer dire financial consequences.

"[The new regulations] have impacted our entire strategy for going into Europe and have added costs that we wouldn't normally have," says Paul Wright, CIO and vice president of IT at Accuride. "And that's only the beginning."

Gone is the 20-year-old Safe Harbour pact, invalidated in October 2015 for its inability to guarantee the fundamental rights of Europeans. In its place are sweeping and stringent agreements and legislative proposals including the EU-US Privacy Shield and the newly proposed EU General Data Protection Regulation (GDPR), which includes penalties of up to 4% of a company's global revenues for failure to comply.

"There is a new set of transparency obligations that will lead to business adjustments, capital expenditures and a really different approach to how we engage with third parties and individuals," says Stewart Room, who heads the cybersecurity and data protection practice at PricewaterhouseCoopers Legal in London.

Making Sense of New Rules

Complicating matters further is the lack of clarity around many of these new laws. In mid-April, European authorities rejected the EU-US Privacy Shield, arguing that the agreement doesn't go far enough to protect European citizens' privacy rights. The setback forces EU and U.S. lawmakers back to the negotiating table, leaving U.S. multinationals in a state of limbo. At the same time, once ratified, the GDPR won't become law until 2018. Bereft of Safe Har-

> [The new EU regulations] have impacted our entire strategy for going into Europe and have added costs that we wouldn't normally have. **And that's only the beginning.**
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>
> **STEWART ROOM,** HEAD OF CYBERSECURITY AND DATA PROTECTION PRACTICE, PWC LEGAL

bour but with no clear directive on how to handle cross-border data, U.S. companies are caught up in a maelstrom of confusion and concerns as they contemplate the new privacy agreements.

First, there's the financial burden these new regulations place on businesses with European customers. In a recent Ovum survey titled "Data Privacy Laws: Cutting the Red Tape," a staggering 52% of the respondents said they think that new data protection regulations will result in fines for their companies, and two-thirds said they expect the new framework to force changes in their European strategies. Asked whether they would invest in greater data protection capabilities, 55% said they plan to institute new training for employees, and 53% said they will prepare by adopting new technologies.

But a new regulatory environment also promises to take a toll on IT teams, forcing them to forever change the way they collect and store consumer data across EU and U.S. borders.

52%

OF THOSE POLLED THINK THAT NEW DATA PROTECTION REGULATIONS WILL RESULT IN FINES FOR THEIR COMPANIES.

SOURCE: OVUM SURVEY, "DATA PRIVACY LAWS: CUTTING THE RED TAPE"

Take Accuride, for example. The U.S. manufacturer has been gradually migrating all of its systems to the cloud. However, its all-cloud plan hit a stumbling block when the company acquired Gianetti Ruote. Accuride primarily relies on cloud-based systems, such as manufacturing software Plex, to run its operations. But because of the EU's restrictive data privacy policies, it can't store personal data about its Italy-based employees using its existing systems.

Instead, the company must build on-premises applications in Europe to house this information — a move that comes at a considerable cost. To date, the tally includes more than $65,000 for on-premises servers, $12,000 in annual licensing fees, $25,000 a year for payroll and human resources systems, and $75,000 in additional head count, not to mention ongoing training and support expenses.

Complicating matters further is the fact that there's no telling what other regulatory changes

will arise as the EU's data privacy laws go into effect over the next two years.

"Anytime you're shooting at a potentially moving target, it makes things more difficult," says Wright. "That's why I'm hedging my bets and going with an on-premises solution for nearly everything [in Europe]. I'm keeping nearly every piece of data that I can out of the cloud system just because who knows where the regulations are going in the next couple of years."

The Data Center Shuffle

Peter Oehler understands Wright's reluctance to take chances. He's chief operating officer at Karlsruhe, Germany-based Axonic, maker of Lookeen search technology. "Anytime a new rule comes out or is changed," Oehler says, "we're forced to stop and research what that means for our products and our customers."

For example, last year, Axonic moved its Lookeen.com site to a server in the U.S. to improve site performance for U.S.-based visitors. However, since the EU unveiled new data privacy rules, the company has had to rethink its strategy.

"We may have to consider moving our dot-com website back to EU servers in order to be completely sure that we're in compliance," says Oehler. "The problem with that is that it will make access to our U.S. website slower in comparison to our U.S. competitors. We may take a hit from Google for the slower speed and actually lose a first-page position, which would essentially be a death sentence for our U.S. business. The alternative is to invest in a compliance program, but these have their own significant costs."

The decision about where to situate servers isn't the only IT responsibility heavily impacted by the EU's new and proposed data privacy legislation. Other concerns include vendor management, shadow IT, data security and breach notification.

> **Anytime a new rule comes out or is changed,** we're forced to stop and research what that means for our products and our customers.
>
> **PETER OEHLER,** COO, AXONIC

For instance, under the GDPR, in the event of a personal data breach, a company must notify authorities within 72 hours of becoming aware of the exposure. As a result, IT must shift its focus from simply preventing a breach to making sure the necessary forensic and proactive incident response solutions are in place for quick notification.

New data privacy regulations are also changing the way IT interacts with cloud service providers. Part of the challenge is that cloud technologies make it difficult to control access to data and meet minimal compliance requirements. No longer can companies simply assume that their consumer data sets are being safely stored and processed by third parties. Rather, it's up to IT to ensure that a cloud vendor is securing, storing and processing data in a way that adheres to today's most stringent privacy regulations.

Indeed, according to Wright, properly vetting a cloud vendor now requires asking about its globalization strategy, globalization team, data center locations and new strategies for self-certification — questions that have been known to raise eyebrows. "Vendors think

we're nuts because we're just supposed to be choosing based on which one has the prettiest screen," says Wright. Instead, he says, new data privacy rules have "shifted the conversation" to deeper concerns when it comes to selecting a vendor.

Internally, IT is also facing mounting challenges. Shadow IT — applications built and used without explicit permission from IT — has always been a nuisance for IT professionals. But in light of today's new laws, rogue systems not vetted by IT may be in violation of privacy regulations and could be subject to serious penalties and exorbitant fines. But rather than simply shutting down such systems, IT must find a way to ensure that they're in compliance while still satisfying the technology needs of the business units that set them up.

MULTINATIONAL COMPANIES WITH MORE THAN 250 EMPLOYEES ARE REQUIRED TO HIRE OR APPOINT AN INDEPENDENT DATA PRIVACY OFFICER UNDER THE EU'S GDPR DIRECTIVE.

Another burden on IT is finding the right talent to navigate the choppy waters of data privacy. For example, the GDPR stipulates that multinational companies with more than 250 employees are required to hire or appoint an independent data privacy officer.

Forget about your garden-variety techie. A data privacy officer needs to be a hybrid who not only understands both technology and the legal aspects of the regulations, but also can communicate with senior business leaders to make sure that they understand what's required.

It's a hard-to-fill position that can command an annual salary ranging from $75,000 to $110,000. Tapping in-house talent may not save money because you'll likely have to spend a good deal to train the individual in some aspect of the job.

In fact, according to Oehler, small and midsize businesses may not be able to afford a data privacy officer or a lawyer to handle the changes to data privacy laws, especially since some of the laws affecting data transfers are still subject to change. What's more, Oehler says Axonic "will also need to look at purchasing additional insurance to cover us in the event that we're found in violation."

An Attitude Adjustment

But the biggest burden U.S. IT teams face in today's new regulatory environment isn't financial; nor is it technical in nature. Rather, they must spearhead a shift in attitude toward data privacy — one that's likely to happen at a glacial pace.

"In Europe, data privacy is held in the same regard as freedom of speech in the U.S.," says Oehler. That's a hard sell for U.S. employees accustomed to a steady diet of Facebook feeds and Google ads. But it's a mental hurdle that U.S. companies have to make if they are to continue doing business in Europe.

In fact, German IT leaders — trained in one of the world's strictest data privacy regulatory environments — have a distinct advantage over their U.S. counterparts, says Guido Laures, CTO at Spreadshirt, an online seller of personalized T-shirts that's based in Germany and has offices in the U.S. "Everyone learns data protection rules in Germany," says Laures. "It makes it easier for us compared to an American company that didn't care about data privacy in the beginning but now has to make changes." Spreadshirt's precautionary measures

include running completely separate, dedicated and fully encrypted servers for each of its various locations.

Steps to Protection

Fortunately, U.S. IT teams can heed EU regulations without breaking the bank — or the backs of their IT workers.

Some companies are building data centers in the EU to circumvent the thorny issue of transborder data transfers. Others have already carved out "model contract clauses" — high-priced agreements between data exporters in the EU and importers in the U.S. on how to transfer data out of the EU.

With cloud computing, the challenge arises from the fact that data that originates in one country can end up in data centers all over the world. In such scenarios, IT must ensure that it's in compliance with each region's data privacy requirements.

Some cloud computing vendors offer workarounds to ensure compliance. For example, Intralinks, a provider of hosted collaboration tools, is updating its systems so that it will be able to manage customers' applications while, at the same time, enabling customers to determine where data is being stored and processed. It's a hybrid approach that could minimize the risk of noncompliance.

Cleverbridge, a Chicago-based provider of e-commerce technology and services with offices in Germany and Japan, also helps clients avoid violating privacy laws in Europe. Its strategies include implementing incident response and escalation procedures, which are tested at least once a year, so that companies can avoid incurring data breach penalties.

Blue Coat Systems, a Sunnyvale, Calif.-based security vendor, offers a cloud security platform that ensures compliance by unifying security policies across all cloud applications, scanning for regulated information and preventing it from crossing a border. Blue Coat's technology also assesses infrastructure to determine if data is leaving the EU through shadow IT systems. This approach allows companies to keep regulated data within specific countries while using cloud-based systems.

In-house Evaluations

While there are countless vendors offering products designed to address the data privacy challenges posed by stringent regulations, IT leaders can also take matters into their own hands. For starters, IT teams should always conduct a gap analysis by asking themselves, "What kind of data are we collecting? Where is this data being transferred? Where are we storing our data? What databases and systems are we using to manage this data?" The answers to those questions can provide an idea of an organization's data privacy strengths and weaknesses before IT has to start battening down the hatches.

What's more, PwC's Room says IT leaders need to look beyond the letter of the law to achieve compliance. "The question for CIOs is, 'What are we doing in order to ensure there are adequate protections for information and for privacy?'" he says. "But that's not necessarily about where the data center is located; it's about what's actually going on in the data center and how well it's being run." ◆

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

7 WAYS to Get the Most from Your VENDORS

THINKSTOCK

Strategies have changed dramatically in the past few years, with new approaches like consolidating your vendor lineup and choosing smaller vendor partners.

BY MARY K. PRATT

VENDOR MANAGEMENT once meant squeezing service providers for the lowest costs. That approach won't fly today.

These days, IT departments get more of their services from outside sources than they did in the past, so they need vendors that can keep up with their increasingly complex needs and innovation and integration requirements.

Key vendors can't be out of step, even if they come at bargain-basement prices.

To get the most value from their vendors, leading CIOs employ a combination of policies to forge stronger partnerships

with vendors while spurring them to be more responsive and innovative — all while keeping tabs on the returns that they get from their tech investments.

Here are seven emerging strategies that help IT get the most from vendors.

1 Hold On-site Vendor Events

Leading companies don't want vendors to fade into the background after they sign their contracts. So they hold on-site events where their managers and employees can mix and share ideas with their vendor counterparts.

"They want the vendor to have a better understanding of the business, but it's also for vendors to take that information back to their own workers so they can develop ideas that are much more tailored and targeted and relevant to the business's needs," says Gartner analyst Christopher Ambrose.

Such events can help change the nature of the relationship from "purely transactional" to "much more strategic," he says. "You are able to develop those relationships beyond sales and even beyond the CIO level out into the business [units]."

The Governor's Office of IT for the state of Colorado wants its vendors to feel they're part of the team, with enough knowl-

> **The vendors were so excited to have a peek into the various initiatives that were coming up.** It gave them an opportunity to say, 'Here's where I can help.' It allows them to make strategic contributions.
>
> **DEBORAH BLYTH,** CISO, GOVERNOR'S OFFICE OF IT, STATE OF COLORADO

edge of the IT environment and its challenges to develop plans for improvement, says Deborah Blyth, the office's chief information security officer. So the state's IT leaders in March held a daylong conference during which they shared their five-year technology road map.

"The vendors were so excited to have a peek into the various initiatives that were coming up. It gave them an opportunity to say, 'Here's where I can help.' It allows them to make strategic contributions," Blyth says.

2 Choose Small Vendors

B.J. Fesq, chief architect and chief data officer at CIT Group, says he has a personal preference for working with small vendors — particularly when his company is one of the vendor's larger clients.

"You're much more important to them, so they're much more attentive," he says.

Fesq says that dynamic gives him leverage when negotiating contracts; he says he can get good prices not only on core services, but also on extras such as training.

Moreover, Fesq says a larger company may have enough pull to sway a smaller partner's upgrade and technology development plans. "You can influence the product road map," he adds.

Another advantage of working with smaller vendors is that they may be more responsive and nimble than larger companies, says Ambrose, noting that both of those qualities can help client companies gain a competitive edge.

Ambrose says he has seen CIOs partner with small vendors for their agility, their innovative technologies and their willingness to collaborate. And if bigger vendors see you doing business with small companies, they may be inspired to be more agile, innovative and collaborative themselves.

> [With smaller vendors], you're much more important to them, so they're much more attentive. **You can influence the product road map.**
>
> 
>
> **B.J. FESQ,** CHIEF ARCHITECT AND CHIEF DATA OFFICER, CIT GROUP

3 Consolidate Your Roster

When Stephen J. Gold started as executive vice president and CIO at CVS Health four years ago, he says he developed a framework to help drive decisions on which vendors to use, when to use them, and for what jobs. With the framework as a guide, he reorganized his company's approach to hiring vendors, opting to keep innovative and strategic work in-house while turning to vendors for commodity services.

Gold says his next step was to reduce the number of vendors, in part to get better prices by negotiating more work spread across fewer providers.

That seems to be a trend. Analysts and IT leaders say companies are rethinking the need to bring in a different provider for each and every need and are instead opting to hire just a few key vendors that can each handle a large part of the

IT department's outsourcing requirements.

Angel Garcia-Manso, director of the program management office at Goodwin Procter, says IT leaders once used multiple vendors to handle a single project or function. But now, he notes, "I see value in consolidation in specific areas. Complexity is increasing, so integration is becoming more and more difficult. So in some cases it makes sense to consolidate so you can get better integration. And if you go to one vendor, you might get better pricing."

4 Create a Tiered System of Relationships

Tim Mills, director of the Portfolio Management Office at Lahey Health, says he puts his vendors into one of three categories: They're either tactical, strategic or partners. The relationship he has with each vendor depends on its classification.

Mills says he wants to get the best service at the lowest price from tactical vendors, while he sets a priority on ensuring that his strategic vendors are capable of supporting his IT team as it delivers on critical initiatives. And he wants partners to deliver technical and business insights to his IT department to help his team navigate challenges and identify opportunities.

With partners, "we're not just waiting for vendors to come to us with a sales pitch. We go out to them and say, 'This is what we want, these are our clinical requirements,'" he says. "They're providing us insight to help us move forward and grow."

He points to the relationship he and his team cultivated with the vendor of Lahey's electronic health records system. The vendor not only implemented and supports the EHR system, but also helps Lahey understand the changing U.S. healthcare landscape and how advances in technologies will impact healthcare delivery in the future.

"We feel we get more value doing this partnership rather than just price," he says.

5 Build True Partnerships

Ambrose says many leading IT organizations are looking to create an "ecosystem of supply," in which CIOs expect their top vendors to act like true partners.

"What they're trying to do is get these vendors to build strong relationships and strong levels of trust," he says. "This is beyond the strategic vendors. They might have one list of strategic vendors, but a smaller list of 'true partners.'"

Like Mills, Beth Spriggs separates her vendors into different categories.

Spriggs is vice president of technology at Leadership for Educational Equity (LEE), a nonprofit advocacy group. She says there are some LEE vendors whose products are practically plug-and-play and whose contracts don't require much negotiation. Then there are four key vendors that provide her organization with essential services. Spriggs says she fosters close relationships with those four, visiting their offices, learning about their work and culture, and encouraging them to keep up with her business and its strategies.

"We go to them and say, 'This is a problem we're having,' and they help us solve it," she says.

She says she cultivates real partnerships with them, and that strategy pays off for both sides. Spriggs says she can count on them to get all hands on deck

when she has an emergency, but she, in turn, has occasionally pushed back her deadlines when a vendor had to shift resources to other clients in crisis.

"It creates the feeling that your problem is my problem, and it has worked very well," says Spriggs, who is a frequent speaker and lecturer with the Project Management Institute.

6 Share the Risk

"The problem with conventional vendor agreements is that the vendors get paid either way," whether a project succeeds or fails, says Gold.

So he and other CIOs are drafting new types of contracts that call for vendors to share some of the risk. Gold says he's using a shared-risk model with some of his vendors, structuring contracts that punish them financially if a project fails but reward them financially if the project goes right.

Forrester analyst Marc Cecere says he's seeing more contracts that tie payments to vendor performance. "We're starting to see an uptick in risk-based or value-based contracts, and I think you're going to see more of those in the future," he says.

7 Create Transparency

IT executives with mature vendor management practices say they communicate with their vendors beyond sales meetings and negotiation sessions. They talk with their counterparts at the vendors and share information about their strategic plans and the challenges of implementing those plans. Analysts say it's a new level of sharing that can yield vendor-driven innovations that will ultimately benefit customer and provider alike.

The Colorado Governor's Office of IT wants vendors to know about its projects and how they can contribute. So every year the office publishes a playbook (online and in print) that highlights recent accomplishments and future plans.

The approach pays off. Says Blyth, "We love when people come forward and can help with something that's strategic." ◆

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> **The problem with conventional vendor agreements is that the vendors get paid either way** [whether a project succeeds or fails].
>
> **STEPHEN J. GOLD,** EXECUTIVE VICE PRESIDENT AND CIO, CVS HEALTH

BUSTING [APPLICATION] BLOAT

Trimming applications can save money, but be prepared for a potentially tedious inventory process — and for users with emotional attachments.

BY SANDRA GITTLEN

PAUL VALENTE, a Chicago Public Schools systems engineer, jokes that his employer is "a $7 billion organization with a $6 billion budget."

THINKSTOCK

Not surprisingly, the underfunded department has a short-staffed IT team, so Valente is always looking for ways to cut costs and streamline operations — and he feels he has struck gold with an application rationalization scheme.

"When we look at all the applications within the organization, we find commonalities and can steer purchasing toward these programs and achieve volume discounts," Valente says.

Reviews like the one Valente has undertaken usually involve a strategy that's referred to as software rationalization or application portfolio management (APM), where IT takes inventory of the applications in use across the enterprise and then determines, with input from stakeholders such as financial teams and line-of-business leaders, whether programs should stay or go. Those that aren't immediately shut down can remain as is, migrate to a hosted platform or software-as-a-service offering, or get marked for future retirement.

John Picciotto, senior principal at Accenture, says most organizations engage in portfolio reviews as part of an annual quest to wring savings of 5% to 10% out of their budgets. Application rationalization, which involves taking action on the review, can lead to streamlined operations and reduced complexity, and could possibly "jump-start more innovative solutions," he says.

> **When we look at all the applications within the organization, we find commonalities** and can steer purchasing toward these programs and achieve volume discounts.
>
> **PAUL VALENTE,** SYSTEMS ENGINEER, CHICAGO PUBLIC SCHOOLS

But achieving savings can be tricky because applications "are rarely sitting in the data center with no one using them," Picciotto says. Migrating to another application or another iteration of the application, such as a hosted service or SaaS offering, causes "unanticipated disruption to the business resulting in pushback from the very customers the CIO is trying to save money for," he adds. Therefore, he recommends focusing more on matching the portfolio to the business need instead of just trying to eliminate applications.

Michael Biddick, CEO of Fusion PPT, a consulting firm in Vienna, Va., says organizations don't rationalize their applications enough. But when they do, they realize 12% to 15% in savings, which can be substantial, depending on the volume of applications in their portfolios.

He has noticed a shift in the reasons IT turns to application rationalization. In 2010, data center space savings and consolidation drove such efforts. "You rarely hear anyone talk about that now because they can always spin up another server instance elsewhere," he says. Now the goal is to make applications more efficient and effective and to meet higher customer demand.

Rationalization is in the spotlight once again, Biddick says, because of its potential to reduce costs associated with renewal of maintenance contracts and the infrastructure and staff required to support software.

First Step: Full Inventory

Valente hopes to see all of those benefits as he deepens his commitment to application rationalization.

In the first phase of his project, Valente used Flexera Software's AdminStudio inventory and rationalization tool to catalog applications and to start gathering application usage metrics for the system's 300,000 students and 40,000 faculty and staff members.

"We thought we were going to discover a couple of big software packages with 20,000 installations," Valente says. Instead, AdminStudio turned up 39,000 individual applications across 120,000 Microsoft Windows devices, 20,000 Apple Mac desktops, 90,000 Google Chromebooks and 80,000 Apple iPads.

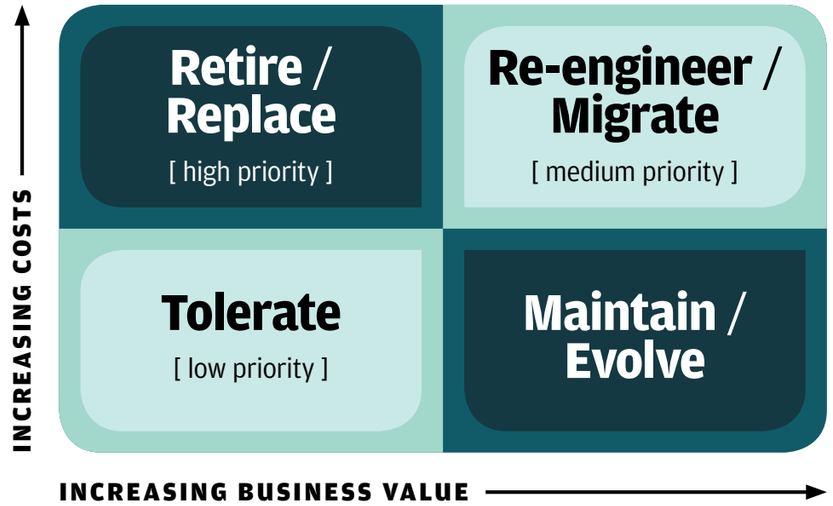
"It shed light on what we have, which is a big mess of software," Valente says. For instance, he expected to find 10,000 copies of Adobe Reader, but only 100 turned up. Exacerbating the problem is the fact that education is an industry that attracts "a lot of weird software," such as testing and learning packages for individual textbooks, he says.

However messy the findings may be, they enable Valente to start the project's next phase, which is to work with Chicago Public Schools leaders to determine which applications are necessary and which are redundant or out of date. "If the packages are valid and useful, we might be able to bulk-buy them and negotiate a savings or, if they are free, make them safely available," he says.

"When we went into this, we didn't know if it was going to be worth the purchase price, since software rationalization is a high-dollar product," he says. Now, he not only thinks it was worth the cost, but also plans to open the user interface to the education technology and procurement departments to extrapolate critical data. For instance, he expects them to be able to glean information that will help the schools negotiate lower renewal fees for Microsoft Office, because officials now know that Office usage has decreased as usage of Google Apps has increased.

APM: Cost *vs.* Value

Application portfolio management usually involves a strategy where IT takes inventory of the applications in use across the enterprise and then determines, with input from stakeholders, whether programs should stay or go.



Mastering Mergers

Frank Scavo, president of Strativa, a management and IT consulting firm, says mergers and acquisitions and business unit purchasing autonomy are leading causes of application proliferation and can result in a company overspending on IT by 25% to 30%.

When business units are allowed to choose their own applications, IT can end up with a lot to support even if each instance of a certain type of software is smaller, Scavo says.

He recommends using a survey of users to assess an application's importance, the actual business value it delivers and its technical quality. Many times, an assessment of a system by actual users can be significantly different from IT's view.

"It's a very enlightening exercise that we can do relatively quickly," Scavo says.

He recommends that application rationalization project teams include an executive sponsor, a project manager, users who understand the applications, and business leaders who will review and take an interest in the results.

In the end, organizations might decide that, despite its faults, an application should be salvaged because of its value. "The IT organization might have a strong feeling about the health of its applications, but it really helps to have some quantitative evidence from users," Scavo says.

> The IT organization might have a strong feeling about the health of its applications, but **it really helps to have some quantitative evidence from users.**
>
> **FRANK SCAVO,** PRESIDENT, STRATIVA

Picciotto takes a different approach, evaluating each application based on six criteria: strategic alignment, functional adequacy, technical adequacy, financial fit, technology risk and application redundancy.

Rather than just gather information, he says, IT should define "an approach that ensures the quality of the data gathered and the supporting analysis."

Francois Estellon, CIO at a big manufacturing company, calls application rationalization "essential," especially when it comes to mergers and acquisitions.

When a deal is imminent, Estellon, who has served as CIO at several large companies, says he makes sure he gets in on the early stages of due diligence to perform application portfolio reviews ahead of an offer. Having to migrate larger programs such as an ERP system can affect the value of the deal and the costs afterward. "If I know what systems they are using, there are synergies I can leverage right away such as purchasing and supply chain management," he says.

Ideally, Estellon likes to have a questionnaire filled out by the seller that provides a portfolio analysis, including what equipment applications are hosted on, how many people have access to them and other specifics. However, this doesn't always happen, he acknowledges.

Inventory software provides him with technical details, such as when an application was last accessed and what infrastructure it's tied to, but not its business value. Therefore, he also

works with the owners of applications to figure out where the software fits in the buying company's portfolio or if it's necessary to migrate to something more modern. "It's a painful process," he says.

Once the deal closes, Estellon eliminates applications that haven't been used in years — what he calls low-hanging fruit. For applications that are used but aren't business-critical — what he calls "nice-to-haves" — he calculates the support costs and creates a chargeback if the business wants to keep them.

Typically, only 5% to 10% of the applications are left standing after that, and those are the ones that stay, he says. They include programs unique to a geographic region and those that fulfill essential functions, such as an accountant's cost center consolidation database. Compliance mandates might be another reason to keep certain

Don't come into the discussion thinking you are going to win with numbers and logic. It is emotional.

FRANCOIS ESTELLON, CIO AT A MANUFACTURER

systems, he says.

The price tag for application rationalization can run to six figures, he says, and the application discovery process alone can take three to six months. Shutting down applications is costly, too. For instance, Estellon once migrated 6,000 people who were using 400 Lotus Notes-based workflows and applications to Microsoft SharePoint, with each application costing $20,000 to $30,000 in development and testing.

And he warns that IT should never underestimate the attachment of a user to an application. "Don't come into the discussion thinking you are going to win with numbers and logic. It is emotional," he says.

Francois Tricot, CIO at Ceva Santé Animale, a 4,000-employee maker of veterinary pharmaceutical products that's based in Bordeaux, France, and has offices in the U.S. and more than 40 other countries, has had to rely on application rationalization to keep up with Ceva's acquisition rate of two to three companies per year. "I am always rationalizing," he says.

Tricot has optimized the company's application portfolio so acquired companies are assured that the platforms he's offering them are as good as what they had. He has developed a system whereby applications are put into three categories: corporate services supported by the IT team at headquarters, including Intuit's QuickBase for sales, HR, CRM and project management; global services supported by local tech teams, such as information security; and local services that employees buy and operate autonomously in-country, such as payroll tools.

Making employees aware of the parameters of these categories avoids some of the murky waters other IT teams encoun-

ter in application support and takes the emotion out it. Standardizing core services, he says, fosters agility, which users appreciate because they can get up and running on Ceva's system quickly and can collaborate easily. "I would prefer to spend money on R&D rather than IT," Tricot says.

Tight at the Core

Paul Martine, CIO at Citrix, has spent years fine-tuning his application rationalization process. Supporting Citrix's 10,000 employees in 39 countries and 100 offices, Martine has been able, despite numerous mergers and acquisitions, to keep a highly optimized portfolio of some 300 applications.

The key, he says, is to develop standards for core applications. For instance, the company at one time supported two CRM systems, Salesforce for the sales team and Siebel for tech support. It settled on Salesforce after ensuring that all Siebel business processes, including the ticketing system and services module, could be performed in that system. Collapsing onto one SaaS-based CRM platform enabled Martine to reallocate dedicated in-house resources such as staff and data center space. "We had a fairly large team managing Siebel CRM specifically for the tech support organization," he says.

Martine starts the application evaluation process each September, calling on business leaders to submit their requirements. "They have to list what they need and what they want," he says. He then helps them create an ROI model for each application. "Probably 70% of the time, we can meet their needs with the existing application portfolio," he says, adding that IT sometimes has to enhance a software program.

> **Probably 70% of the time,** we can meet [users'] needs with the existing application portfolio.
>
> **PAUL MARTINE,** CIO, CITRIX

If a new application is needed, Martine will assess whether another one can go. All expenses associated with applications are tracked through Apptio, which analyzes metrics such as management costs, licensing and labor.

He points to one area where he finds application redundancy acceptable: business intelligence. When it comes to BI, Martine says, there are distinctions in capabilities, so he lets users choose from Birst, Tableau or Microsoft.

Delivering the application portfolio virtually from a storefront means Martine is rarely surprised by what's on the network. "All applications live within the data center," he says. "We don't put anything on the endpoint."

Even newly acquired companies are rapidly onboarded to Citrix's application portfolio. For instance, their finances are transitioned to a corporate-approved SAP system. "Less than 30% of acquired companies' applications have to be kept, as there is always something here [in our portfolio] they can migrate to," he says.

Martine says the attention he has given to application rationalization pays off. "The less you have to manage," he says, "the more you get to innovate." ◆

GITTLEN *is a freelance writer and editor in the Greater Boston area.*

Security Manager's

Journal

Stop Passing Around Those Passwords!

The company has an official password vault, so why are employees sharing a spreadsheet that contains scores of passwords? **BY MATHIAS THURMAN**

THERE'S NO AVOIDING THE FACT that security incidents will happen. The best I can hope for is that they don't completely ruin my day and that they aren't specific to my organization, so that I can write about them and possibly help my readers through similar situations.

What happened last week was one of those situations.

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It started when a system administrator, newly hired as a contractor in our India development center, asked me after just a couple of days on the job for administrative access to several key development servers in order to manage accounts. He told me that the password he had for those servers didn't work. That raised a couple of questions in my mind. Why wasn't he asking his local supervisor to sort that out? And why was he going straight for administrative access when all he needed were plain-vanilla passwords?

I decided to get his manager's take on the situation. He agreed: This contractor didn't need an administrative level of access to those servers. And he thought it odd that the guy was saying that his credentials didn't work.

With that in mind, I looked at some logs from one of the development servers the contractor wanted admin access for. I saw many unsuccessful login attempts from a Linux server on the India subnet. I had root access to that particular server, so I logged in and took a look at the contractor's home directory. It was disconcerting to find that it was world-readable, which is not the standard for such user accounts. That prompted me to dig deeper, and I discovered two files of interest.

The first, named "password_list.xls," was password-protected and appeared to be encrypted. Well, that was good, right? But the other file, called "password.txt," was a text file with one entry. You guessed it: It was the password to the encrypted Excel file.

Trouble Ticket

At issue: There's an easily accessible spreadsheet containing sensitive passwords in an employee's home directory.

Action plan: Find all such spreadsheets and eliminate them, change passwords on all compromised resources, and get users to rely on the sanctioned password vault.

A Sickening Discovery

I opened the spreadsheet to find a plethora of server names, IP addresses, server purposes and the administrative user IDs and associated passwords. Not good at all. The file contained account information for resources that were long ago retired, so it hadn't been compiled by this new hire. In fact, I learned, the file had been prepared by a former employee and passed around. This was a sickening discovery, alleviated only by the fact that it was no longer hidden from me.

But I had to consider all of those resources to be compromised. My reaction was swift. First, I removed the files and reconfigured the contractor's home directory. I then called a meeting with the general manager for our India office and our head of IT. We went through the list of accounts and rank-stacked them according to risk. For example, anything in the DMZ that was Internet-facing and any resources containing sensitive data got a priority of 1, meaning that the password had to be changed within 24 hours. The lowest priority that we assigned called for the account passwords to be changed within 72 hours. The extra time was needed in some cases to ensure that we didn't impact any business processes.

I also ordered a discovery scan to find all locations that contained those password files. Because we don't have a robust data loss prevention infrastructure, I had to resort to conducting broad file-storage searches, both on the internal network and in the cloud, for files containing the word *password*. (We use Google Docs for collaboration, and there are third-party tools that allow for expanded reporting and searching against all files. I found one, installed an eval copy and was able to conduct my searches.)

I also put a data filter rule in our firewall to trigger an event if someone tried to transmit a file called "password." Then I sent a companywide message warning against the use of spreadsheets to maintain passwords. We have a corporate-sanctioned password vault that allows for the secure storage, management and sharing of passwords, so there is (generally) no reason to keep passwords on spreadsheets. I say "generally" because certain passwords, such as encryption key passphrases and passwords for critical resources, are printed out and kept in a safe, because we're just too paranoid to store them in an online, digital password vault.

There was just one more thing to do to put this incident behind us: Our general manager in India terminated the contractor. ◆

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.*

Anything in the DMZ that was Internet-facing and any resources containing sensitive data got a priority of 1: Its password had to be changed within 24 hours.

SHARK TANK

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

HAL MAYFORTH ILLUSTRATION

Rule of Thumb: No CapEx = No Future

CONSULTANT PILOT FISH working on an automation project at a steel mill discovers he's going to need a particular piece of software, so he goes to his manager for approval. "I was told that we couldn't buy it," says fish. "Instead, we should write our own." Fish knows that will be far more expensive than an off-the-shelf package. But then he ferrets out the real story: The mill's owner isn't willing to make *any* capital investments in this mill. Then how is this automation project being implemented? As "repairs." Minicomputers, terminals and networking gear are being billed as "replacement parts," and programming time is officially "servicing labor." Says fish, "By playing this game, the mill's engineers spent a lot more money getting what they wanted, since they had to pay more per hour for our time, and we had to write software that would've been better bought. And

I finally entered a support ticket with the title 'The cat killed my mouse.' Within an hour, a tech was at my desk asking me to retell the story, much to the amusement of those around me.

though they did improve productivity and quality, the company shut down the mill a few years later."

Isn't That What the Org Chart Says?

It's early days for customer relationship management, and not everyone at this database vendor has gotten the hang of using the new CRM system. A pilot fish at one of the vendor's customers can attest to that. "Our salescritter didn't quite understand the concept," says the fish. "His contact at our company was Mike, and in the title field for the address of Mike's boss, he literally put in 'Mike's Boss.' When Mike's boss started getting bills and other mail from the vendor addressed that way, he came down hard on Mike. It took several months and repeated calls from Mike to the salescritter before the 'Mike's Boss' mail stopped coming. Meanwhile, Mike cringed every time his boss came over with a new piece of mail to remind him to get it fixed."

We Call This Knowledge Transfer

Business analyst pilot fish is working from home on her laptop when her cat jumps up on the desk and walks across the keyboard. "Then I noticed the laptop mouse wasn't working," says fish. "I knew some set of keys had been touched by the feline invader that locked the mouse, but had not a clue how to undo it. Next day I got back to the office, ported the laptop and used my wireless mouse. I asked our developers and a few random geeky co-workers, but no one knew how to fix the problem. I finally filed a support ticket with the title 'The cat killed my mouse.' Within an hour, a tech was at my desk asking me to retell the story, much to the amusement of those seated around me. The tech retreated to his office and returned a few minutes later, saying, 'You have a very smart cat. The command to lock and unlock the mouse is FN F5.' Suddenly the odd-looking icon on the F5 key was very clear – and 30 people learned how to lock a laptop mouse." ◆

TRANSFER SOME KNOWLEDGE TO SHARKY *via sharky@computerworld.com. You'll snag a snazzy Shark shirt if I use it.*

THORNTON MAY *is a speaker, educator and adviser and the author of* The New Know: Innovation Powered by Analytics. *Visit his website at thorntonamay.com, and contact him at thornton@thorntonamay.com.*

Trending Toward the Unknown Unknowns

THE WORLD IS ONE BIG TREND — actually a billion interdependent micro-trends. We are surrounded by them. Everything that has more than one data point has a corresponding trend. Unsurprisingly, the media is *obsessed* with trends. Quality journalism is being buried under an avalanche of listicles enumerating trends.

As an IT executive, it is critical that you stay on top of the trends that really matter. Unfortunately, there is a trend toward executives spending too much time on unimportant trends. Next-generation leaders will need to become masters at trend triage: figuring out how much time and resources to allocate to which trends.

The Anger Trend

Marian Salzman, a fellow futurist and CEO of Havas PR North America, told *The Economist* in December 2010, "Anger is the color of the zeitgeist, and anyone who isn't tapping it risks appearing out of touch." Looking at the political discourse in this election year five years later, it would seem Salzman was onto something. But do IT executives have to tap into that anger?

Truth be told, for seasoned CIOs, a useful skill is not so much managing one's own anger as it is managing the aggregate anger and disappointment of those outside of IT.

It has always been thus. Since the first mainframe was installed, non-IT professionals have been perturbed — bordering on angry — about how

much computing costs, how long things take and the functionality that is ultimately delivered. IT professionals for the most part have become quite adept at dealing with the anger of relatively uninformed constituents. (Perhaps people who think a CEO would make a good president should turn to a CIO instead.)

A big part of a CIO's success comes down to the ability to talk angry users off the ledge. Great CIOs have groomed formerly angry users into aggressive "expecters" — people who try to do more with technology but understand that the path forward is a process.

Technology as Part of Product/Service Design

Several years ago, the head of marketing at a top business school told me that cup holders were a key part of the automotive buying decision. Today, I imagine, the far more critical factor is technology integratability — the ability of a car to integrate seamlessly with the technology that consumers use in their daily lives, such as cellphones, mobile apps, wearable devices, cloud services and data storage.

A big part of a CIO's success comes down to the ability to talk angry users off the ledge.

This bespeaks a trend that extends far beyond the automotive industry: Products and services today have to be designed with external technology in mind. I call this full-range/free-range technology.

We are not so far away from the day when every product sold and every service rendered will come complete with a help desk and a mobile app.

Historically, IT was responsible for procuring, deploying and maintaining the technology used in manufacturing and selling a product. Now, however, IT has to have a hand not just in the technology inside the product but also in the full-range/free-range technology seeking to integrate with the product.

That means IT has to be included in the design, execution and delivery of products and services. I expect that rotations in product/service design will become a core part of the career path of future generations of IT leaders.

Making decisions under conditions of uncertainty has been a defining characteristic of effective leaders throughout the ages.

Uncertain Futures

Uncertainty reigns. We live in a time of profound upheaval. Many feel a general sense of disorientation and worry that leaders and institutions appear to have lost their bearings. Many leaders are uncertain what will happen next and what they should do next.

Before you start building a bomb shelter in your backyard and stockpiling guns, ammunition and Spam in the basement, it's important to realize that this isn't the first time our species has experienced a "Boy, things are really confusing" moment.

Uncertainty is not a new thing. Making decisions under conditions of uncertainty has been a defining characteristic of effective leaders throughout the ages. It was 82 years ago that American theologian Reinhold Niebuhr felt the need to share his *Serenity Prayer*:

> *"God grant me the serenity*
> *to accept the things*
> *I cannot change,*
>
> *the courage to change*
> *the things I can,*
>
> *and the wisdom to know*
> *the difference."*

There are things we can control. There are forces that can be precisely modeled. Consider the troika of knowledge states that Secretary of Defense Donald Rumsfeld set forth in a Feb. 12, 2002, Pentagon briefing:

> *"There are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns — the ones we don't know we don't know."*

One of the key trends to which all leaders need to allocate significant time and resources is this: Known knowns are becoming a smaller percentage of the knowledge set. The best path forward is to accelerate your ability to get smart about the things you know you don't know and amplify your capacity to anticipate the unknown unknowns. ◆