

GLOBAL INTELLIGENCE FOR THE CIO

ISSUE NINE www.i-cio.com



SPECIAL REPORT

*The power of open innovation:
How new collaboration models
turn ideas into business value*

*Strategic Focus: Lessons
from cloud's early adopters*

*Top of My Agenda: Michelin's
CIO **Agnès Mauffrey**
on business/IT alignment*

YES
HE
CAN!

DELIVERING ON THE OBAMA VISION FOR IT

Vivek Kundra, CIO, US Government

FUJITSU



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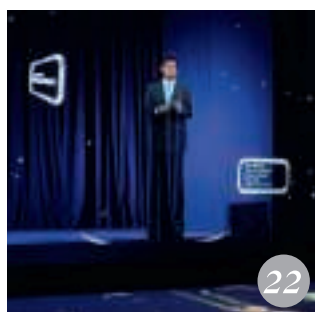
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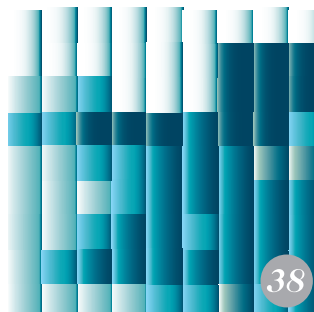
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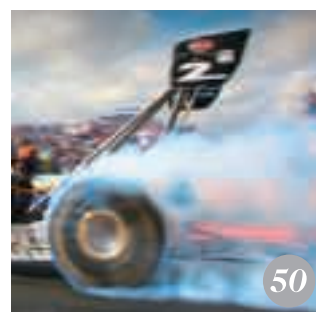
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GLOBAL INTELLIGENCE FOR THE CIO

EDITOR'S LETTER



Welcome

to the latest edition of *I: Global Intelligence for the CIO*, the exclusive publication for group CIOs, brought to you by Fujitsu.

As CIOs everywhere are aware, the way IT is delivered to the business is about to go through a profound change. Cloud computing will change the structure, the economics and to a large extent the business politics of IT.

With this issue of *I* we set out to capture some of the excitement — and portray the challenges — associated with this momentous shift, finding that cloud adoption is approaching a real tipping point as large organizations move from strategizing about cloud to execution.

No other CIO has embraced that more emphatically than Vivek Kundra, the CIO of the US Government and our featured **Cover Profile**. In effect the world's largest purchaser of IT, he is currently pushing through a cloud adoption program designed to shift \$20 billion of the US Government's \$80 billion budget to the cloud. And he is taking that message out to the world; from Brussels to San Francisco, Kundra has been evangelizing the benefits of cloud while challenging CIOs at US agencies to take major parts of their operations to the cloud within the next 18 months.

Underpinning his confidence in the model are numerous “early wins” — tactical cloud projects that have recently moved from pilot to full deployment. Our **Strategic Focus** looks at the lessons learned by cloud's early adopters, profiling projects that indicate some of the knowledge CIOs will need to have when they embark on more strategic implementations.

IT's ability to enable new models is also the theme of this issue's **Special Report** on open innovation. Organizations as diverse as Procter & Gamble, Best Buy, the Brazilian Government and Sanofi-Aventis outline how they have abandoned the notion that product innovation is best served by in-house structures. Instead, they have exploited IT-enabled collaboration models to foster a new dynamism in business innovation by opening up the creation process to business partners, research institutes, employees, retirees, consumers and other outside contributors.

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With CIOs now placing some big bets on innovative IT models, it's good to know what your peers are up to!

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Best International Publication

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Fernanda Torquati
Global CIO,
Telefónica

Before stepping into the top global IT role at €61 billion multinational telecoms giant Telefónica, Fernanda Torquati was CIO for Argentina and then Spain. She is now three years into a major global IT integration project which, through the homogenization and consolidation of infrastructure, is expected to deliver huge efficiencies.

However, like many effective CIOs, Torquati didn't initially set out on a career in IT, her first job being at the Argentinian branch of consultancy firm McKinsey — where, as she puts it, she “learned to speak the language of business.” In our profile of her career path to date, she explains how this all-round experience has equipped her well for the strategic challenges she currently faces.

► **p45 This Way Up**



Kal Patel
President, Asia region and
enterprise EVP, Best Buy

According to *Fast Company*, the US magazine dedicated to entrepreneurship and innovation, Best Buy's Kal Patel is one of the 100 most creative people in business today. This is a claim that's hard to argue against: since he joined the big-box electronics retailer in 2003, he has been instrumental in instilling the mindset that, to create genuine value for customers, business innovation must be a decentralized and collaborative process. Proof of this is that most of the company's smartest ideas — such as Twelpforce, which provides customer service via Twitter — have come directly from employees, and not an isolated research and development department.

We could think of no better person, therefore, for a board-level view on IT-enabled open innovation, the subject of this issue's Special Report.

► **p18 Boardroom View**



Agnès Mauffrey
CIO,
Michelin

When discussing the service her IT department provides to the world's largest tire manufacturer, Agnès Mauffrey insists: “We do not have *clients*. We have *colleagues* who need information systems and technologies to meet their objectives.” This statement is at the core of everything she believes about business/IT alignment, which is one of the biggest challenges she faces at a company with 50,000 IT users in 170 countries. Therefore, since joining Michelin as CIO in 2008, she has ensured that members of her team spend as much time as possible working in the field alongside the other business functions to truly understand their IT needs.

Such a strategy allows her to state, with justification, that “IT is a major contributor to the performance of Michelin” — a claim that any successful CIO would be proud to make.

► **p36 Top of My Agenda**



Frank De Saer
ICT director, Belgian
Federal Dept of the Economy

In his eight-year tenure at the Belgian government department responsible for economic growth and business development, Frank De Saer's most notable achievement so far has been the creation of the Crossroads Bank of Enterprises (CBE), a single register for all company-related data in Belgium. A huge benefit of this is that it now takes just three days to start up a business in the country — one of the fastest such processes in the world.

Using IT to drive dynamism and efficiencies for citizens is a passion for De Saer. He is now working on CBE 2.0, where as much of the data as possible will be opened up to create a streamlined, self-service operation.

In this issue of *I*, he argues that open data is a key criterion for the delivery of enhanced public services in these cash-strapped times.

► **p20 Barometer**



CASE STUDIES How Volvo creates business value from its massive data resources; UPS on delivering mobile services to customers; open innovation at Daimler; and many more.



VIDEO Keynote speeches and executive viewpoints from the latest Fujitsu thought-leadership events, including: Marion King, CEO, VocaLink; Neil Cameron, ex-CIO, Unilever; and many more.



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REVIEWS. EVENTS. RESEARCH. PEOPLE.

THE QUARTER

The pain of platform proliferation

Conflicting mobile environments are creating an apps support headache.

The consumerization wave sweeping through IT is putting a new set of pressures on tech support teams. While for most of the last decade the biggest mobile challenge was supporting BlackBerry email, IT organizations are increasingly tasked with ensuring their mobile apps — for both consumers and employees — work flawlessly across a burgeoning range of environments.

And two recent landmark events in the fierce wars between mobile “ecosystems” — the virtuous triangle of operating system, device and developer community that has proved so successful for the likes of Apple — will have brought little comfort to CIOs hoping for an end to the headaches caused by this fragmentation.

Firstly, in the closing quarter of 2010, Google’s Android overtook Nokia’s Symbian platform as the market-leading smartphone operating system. According to research firm Canalys, Android gained a market share of 33% — up from 9% the year before.

Secondly, Nokia announced in February that it would work closely with Microsoft to make Windows Mobile 7 (WM7) its primary smartphone operating system. But despite hopes that this tie-up would remove one platform from the equation, the Finnish phone maker failed to completely relinquish Symbian, and it plans to sell “about 150 million” more Symbian phones, said CEO Stephen Elop.

Meanwhile, Apple and BlackBerry-maker Research In Motion (third and fourth respectively in the smartphone stakes during the last quarter of 2010) are both fighting their corners aggressively, making the possibility of further market consolidation very unlikely.

The result is that, for the foreseeable future, no single mobile operating system is likely to achieve the kind of dominance that Microsoft Windows has enjoyed on PCs. That hegemony may have its detractors, but at least it reduces complexity for IT departments.

The momentum is currently with Android, but an overall victory by Google may not solve many problems. One big downside of the open source development model it uses is the fragmentation of versions and implementations: according to research in January by website TechCrunch, only 0.4% of Android phones were using the latest version, 2.3; 52% were still running version 2.2; 35% were on version 2.1; and 13% were on even older versions. (By contrast, around 90% of Apple phones use the latest version of its iOS.) Add to this the serious malware concerns emerging on Android’s platform, and the pain for mobile support teams is unlikely to subside any time soon. ●

I FURTHER READING:
Special Report, “Mass market mobility”: tinyurl.com/6jcxwa5
Diageo’s CIO on “Seizing the mobile Internet opportunity”: tinyurl.com/64sg6tr



INNOVATION AT THE SHARP END



Innovation is at the top of most corporate and public sector agendas. But to successfully turn great ideas into real business value, executives need to foster a truly innovation-led culture.

Organizations that fail to take a lead in providing groundbreaking new products and services to their customers will quickly find themselves being left behind by the competition — but creating this kind of innovative culture requires the right kind of leadership.

That was the clear message delivered by the three keynote speakers at the latest Fujitsu Executive Discussion Evening in London: Marion King, CEO of VocaLink, a leading payments services provider to the banking industry; David Smith, CIO and CTO of Fujitsu, UK and Ireland; and Matt Kingdon, chairman of innovation consultancy ?What If!.

Addressing an audience of business and IT leaders from both the private and public sectors, VocaLink's King called for CEOs to lead innovation. "It can't come from the bottom up," she stressed. "The CEO and every business leader has a responsibility to create a culture of innovation and to make sure that it's driven through the organization."

She also argued against the siloing of R&D departments away from the main business. "You can't just have innovation bolted on the side," she said. "It needs to permeate your organization's DNA. People need to believe in it, and drive it forward."

Managing risks

Based on her own experience as head of an international company that processes 90 million bank payments per day in the UK alone, King identified three key elements needed for the kind of innovation that drives growth: intangibles, tangibles and timing.

She explained: "The intangibles are the energy, the ideas, the enthusiasm — the things that you can't bottle. The tangibles are the people who are going to

make it happen, the business plan, the products and services. And the third element is bringing those two together at the right time."

Managing the risks attached to game-changing innovation should not be ignored, she added. She pointed to a current VocaLink project to offshore the Swedish banking industry's critical payment infrastructure to the UK. This is a first, as banking transactions are traditionally managed in the country in which they originate.

"The technology can allow us to do it," said King, "but it's the traditions of banking that won't allow it. However, this is critical infrastructure, so you really have to move the market carefully."

VocaLink's solution, she said, was to replicate in the UK exactly what exists in Sweden, but on new technology that will enable more change in the future. "So we're providing the perception that this isn't a major game-change. But the reality is we're breaking down the barriers of payments processing having to be in the domain in which the transaction happens."

A growing challenge

Speaking at the same event, Fujitsu's David Smith, who has responsibility for driving innovation within his organization, argued that the innovation challenge is growing constantly.

He listed several major global trends that are bringing this into sharp focus. "With the rise of the BRIC nations [Brazil, Russia, India and China], a billion new consumers are coming — but they're not going to have much money to spend," he said. "New devices, such as iPads and other tablets, are becoming prevalent, changing the way the world engages with



itself. And then there's cloud computing, which is an inflection point in technology."

However, he also urged caution about jumping on the latest innovation bandwagons. He cited recent research by MIT Sloan business school, entitled "The Five Myths of Innovation," which investigates fashionable strategies for promoting innovation: "The Eureka Moment," "Build It and They Will Come," "Open Innovation is the Future," "Pay is Paramount" and "Bottom-Up Innovation is Best." Agreeing with the researchers' conclusions, he argued that all of these

"YOU CAN'T JUST HAVE INNOVATION BOLTED ON THE SIDE — IT NEEDS TO PERMEATE YOUR ORGANIZATION'S DNA."

approaches can have their place, but no one technique by itself can act as a panacea.

Turning to Fujitsu's own approach, Smith described how the company is linking its innovation processes more closely with business demand, arguing that it's not enough to come up with clever inventions without finding real-world applications for them. "An invention without business value is not innovation," he said.

He also expressed a desire to extend the company's internal open innovation network to include customers and partners from outside the organization — and was

impressed when it emerged in a poll of the invited guests that 87% of respondents are planning to initiate innovation collaborations with clients or partners/suppliers — or both — during 2011.

"What we haven't worked out yet, however, are the rules of engagement," he cautioned. "How do intellectual property rights work in that scenario, for example? There's some work still to be done there."

It's all about culture

In his keynote speech, ?What If!'s Matt Kingdon, whose global client list includes Unilever, Nissan, Shell, Deutsche Bank and Microsoft, stressed that culture — rather than strategy — is the main driver for creating an innovative organization. He warned that too much talk and not enough action was a common blight in many enterprises. "Every day, there are millions and millions of pounds being wasted where people are being very 'strategic' about innovation," he said. "But strategy alone doesn't help us innovate."

Kingdon's advice is to create a "pocket universe": a part of the business that the organization is prepared to experiment with. Within this, he identified five critical "levers of change": employees with a hunger to innovate; a leadership team with enough talent and experience to be credible — and the ability to collaborate; the ability to see problems from different perspectives; the ability to work in unusual ways; and destroying the "way-we-work-around-here mentality" to encourage faster decision-making.

"These separate high-performing innovators from also-rans," he concluded. "And the way to create real change is to roll your sleeves up and just give it a go."

● For more on Open Innovation, see Special Report, p12.

Keynote speakers, from left:

Marion King, CEO, Vocalink: "Every business leader has a responsibility to create a culture of innovation."

David Smith, CIO and CTO, Fujitsu, UK and Ireland: "An invention without business value is not innovation."

Matt Kingdon, chairman, ?What If!: "The way to create real change is to roll up your sleeves and just give it a go."

Guests at the Fujitsu Executive Discussion Evening discuss the hot topic of business innovation.

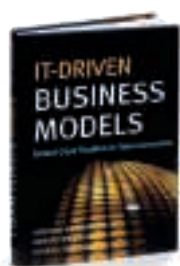
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IT-DRIVEN BUSINESS MODELS

Global case studies in transformation

Henning Kagermann, Hubert Osterle & John M Jordan

The rapid pace of technological advancement is empowering innovative business models that are transforming the ways companies are able to drive value for their customers — and therefore themselves. That is the central tenet of *IT-Driven Business Models*, whose primary author, Henning Kagermann, was the CEO of German ERP software giant SAP until 2009. It examines a wide variety of emerging business constructs that CIOs would do well to grasp if they are to be more than just operational heads of IT.

As might be expected from such a renowned CEO, each chapter switches effortlessly from big-picture concepts

CIOs would do well to grasp the variety of emerging business models.

— macroeconomic trends such as the shift from the traditional vertical company towards business ecosystems based on collaborative networks — to illustrative case studies from dozens of the world's most impressive organizations, including ABB, Apple, IKEA, LEGO and Telefónica. As such, it provides a truly global perspective (if a somewhat ERP-biased one) on the way IT is powering business innovation. This standpoint, combined with an expert's appreciation of technology's transformative role, makes for a text that really gets to grips with how the businesses of the future will either succeed or fail.

● For an extract from this book, on P&G's open innovation expertise, see page 17.



BLIND SPOT

A leader's guide to IT-enabled business transformation

Charlie Feld

Charlie Feld is something of a hero to CEOs and CFOs. When their IT operations have been going badly wrong — diluting value rather than supporting its creation — they have called in Feld's turnaround team to run the IT function under contract, to align it with business goals and then (typically after a year or two) hand it over to a handpicked, in-house unit as a renewed, best-in-class entity.

The Feld Group did that at Burlington Northern Railroad and electricity company Westinghouse, and parachuted its teams in to run IT at Coca-Cola, Southwest Airlines, Home Depot, Coors and numerous other companies (before being acquired in 2004). The secret behind those turnarounds was Feld's IT management framework. Developed when he was CIO at Frito-Lay, the PepsiCo snacks division, it "significantly improved the odds of success for big IT-enabled business transformation." Critically, it also helps to eliminate IT as a "blind spot" for business leaders.

Feld's highly accessible book explores the four "planks for change" behind his approach, and maps those onto five phases that pace its execution. It also provides plenty of evidence of the framework's effectiveness in a series of in-depth case studies on companies he has worked with.

But *Blind Spot* is not only about re-aligning IT; its main thrust is on ensuring that IT becomes a highly visible and well-understood part of every business leader's knowledge-base, with Feld concluding that "after 50 years, it is time to manage this profession in a more structured and understandable way." Few in IT would disagree.

Also out this quarter...



BUSINESS IN THE CLOUD

What every business needs to know about cloud computing

Michael Hugos & Derek Hultzky

A exploration of the impact of cloud in the enterprise for "recovering complexaholics."



OVERCONNECTED

Where to draw the line at being online

William Davidow

How the Internet is distorting economics, politics and our lives, by a genuine digital visionary.

APPOINTMENTS

Who's moving where. . .

New roles and opportunities for CIOs around the globe.

Movers and shakers

► AUSTRALIA

Donna Watt has become CIO at brewing giant **Fosters** • The **Department of Health and Ageing** has a new head of IT, Paul Madden.

► CHINA

Andy Bien has taken over as CIO at the **Airport Authority Hong Kong** • Stephen Mak has become interim **Hong Kong Government** CIO.

► GERMANY

Frederic Wohlwend is now CIO of pharma firm **Merck**.

► SOUTH AFRICA

Telecoms provider **MTN** has made Lambo Kanagaratnam its new CTO.

► SWITZERLAND

Alan Hippe, from German steelmaker **ThyssenKrupp**, is taking over as CIO at pharma giant **Roche**.

► UK

David Cooper is the new CIO at **British Gas** • **Barclays Bank** has hired the CIO of US telco **Verizon**, Shaygan Kheradpir, to become COO of retail banking • Retail giant **Tesco** has promoted IT director Mike McNamara to CIO • Joe Harley, ex-CIO at the **Department of Work and Pensions**, is now **UK Government** CIO.

► USA

Al Tarasiuk, ex-CIO of the **CIA**, is now CIO for the **Intelligence Community**, a new body coordinating 17 agencies • Rich Strader, who was on temporary assignment as CIO at **Volvo Car Corp.**, has returned to **Ford** as director of IT security and strategy • The states of **Colorado**, **Michigan**, **Illinois** and **New Hampshire** have new CIOs: Kristin Russell, David Behen, Sean Vinck and Bill Rogers, respectively • **Barclays Capital** has hired Joe Squeri from **Goldman Sachs** as CIO for corporate/investment banking and wealth management • Susan Lawrence is the new **US Army** CIO • Hotels group **Marriott** has made Bruce Hoffmeister global CIO • Isobel Thomson is the new CIO at foods company **Heinz** • Health insurer **Aetna** has appointed Michael Mathias as CIO • David Giambruno is now CIO at cosmetics group **Revlon** • Insurer **Kaiser Permanente** has promoted Philip Fasano to CIO • The **US Postal Service** has named Ellis Burgoyne CIO • Retailer **Costco** has made Paul Moulton CIO • Michael Kirschner is now CIO at **Office Depot**.



By 2015, new revenue generated from IT initiatives will determine the incentive portion of CIOs' compensation.

Gartner 2011 CIO Survey

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New flight plans

● Airline **Virgin America**

has made Dean Cookson CIO.

● **Etihad Airways**, the United Arab Emirates' national carrier, has named Gordon Penfold, formerly of **British Airways**, as SVP of IT. He replaces outgoing CIO, Richard Dawson.

● Paul Coby has left **British Airways**, where he was CIO and head of shared services. His new role is IT director at UK retailer **John Lewis**.

● Australia's **Qantas** has appointed Paul Jones as its new CIO; he comes in from chocolate maker **Mars**.

● Patrick O'Keeffe has been promoted to VP of IT at **American Airlines**.

● **Boeing** has named Kim Hammonds as CIO.



SPECIAL REPORT



THE POWER OF OPEN INNOVATION

Innovation in large organizations has never been more important. And IT-driven collaboration models are enabling a new dynamism in the way products, services and processes are created.

Words: **James Lawrence** Photography: **Nato Welton**



In this 10-page report:

- 12 Analysis:** How wider collaboration fosters business value.
- 17 Case Study:** Creating an open innovation ecosystem at P&G.
- 18 Boardroom View:** Lead, don't manage, says Best Buy's Kal Patel.
- 19 Data Feed:** Key research on the new models for innovation.
- 20 Barometer:** Four global IT leaders outline their innovation priorities.

There's a fundamental change happening in the way organizations create value. A combination of increasingly open business networks, extreme time-to-market pressures, intense focus on efficiency and ongoing uncertainties within global economies has inspired many of the world's most forward-thinking organizations, from Fortune 500 giants to government departments, to reconfigure how they innovate. For them, the traditional R&D department — secretive, insular and siloed — is going the way of the dial-up modem. Instead, they're facing the fact that the intellectual resources most capable of creating game-changing new products and services, as well as cost-saving new business processes, do not necessarily reside within their own corporate firewalls.

With the aid of technologies ranging from Web 2.0-style social and collaboration tools to cloud computing — all of which can be deployed quickly, at increasingly low cost and with a high degree of flexibility — organizations are able to tap in to the ideas and capabilities of these vast networks of human capital. And because of the pivotal part played by ICT in facilitating this, the role of the CIO in innovation has never been more critical.

"Innovation is a key factor in the economic recovery [of western countries], and a lot of it will be driven by IT," affirms Bruno Ménard, VP of information systems at global healthcare giant Sanofi-Aventis and president of CIGREF, the French association for enterprise CIOs. But commentators agree that technology is just one small part of the equation, and ICT alone is never going to drive business innovation.

Asking the right questions

The concept of IT-enabled collaboration with everyone from employees to customers and suppliers is not new. Companies such as packaged goods manufacturer Procter & Gamble ►

IN THIS FEATURE

Bruno Ménard, VP of information systems, Sanofi-Aventis
Stephen Shapiro, chief innovation evangelist at InnoCentive
Professor Roberto Di Cosmo, director, IRILL
Stefan Lindegaard, author, *The Open Innovation Revolution*
Jean-Séverin Lair, CIO, French Ministry of Culture
Josh Bernoff, co-author, *Groundswell*
David Mann, head of innovation, Directgov
Peter Strickx, CTO, Fedict
Benno Zollner, SVP service operation and region support group, Fujitsu Technology Solutions
James Gardner, general manager of international operations, Spigit

have successfully been employing such techniques for nearly a decade — P&G claims more than half of its innovations now come from outside of the organization, through relationships with business partners, government labs, retirees, academic and research institutes, independent inventors, crowdsourcing agencies and consumers (see Case Study, page 17). But it's still uncharted territory for the vast majority of organizations; and getting the formula right presents some huge challenges.

Typically, the first step most organizations take when embarking on an open innovation project is to gather as many ideas as possible from as many different sources as possible. Such a broad scope, however, can be a mistake. The organization may well find itself inundated with thousands of suggestions, but not enough resource to sort the good from the bad — not to mention the huge numbers of disgruntled contributors who receive no feedback in return for their efforts. Such projects can quickly spiral out of control.

Stephen Shapiro, chief innovation evangelist at InnoCentive, an open innovation company that crowdsources solutions on behalf of clients such as Eli Lilly, P&G, SAP and NASA, believes that the answer lies in how the process is initiated. It's all about asking "better" questions, he claims. "Companies do not have a shortage of ideas; they have a shortage of good ideas that will actually create value for the organization." He argues that it's necessary to set specific challenges, rather than ask for vague suggestions along the lines of: "How can we become more profitable?"

"Which would you rather get: 100 suggestions of which two are really good; or just two really good ones?" he asks. The latter scenario, he believes, makes for the most efficient, streamlined process possible. "Most companies want lots of people participating, but that creates a lot of noise in the system," he says. "What we want is to use a challenge-driven approach, and define the challenge so that it becomes a self-vetting process. If we ask the right question, we know that the solution will create value for the organization, but at the same time we also know that people will stop submitting solutions that don't meet our criteria."

By working this way, Shapiro points out, organizations can cut out the trial-and-error process they may previously have had to use to find the best solution. "I like to think of it as a massive parallel process," he says. "Instead of all the failures happening in sequence, they happen in parallel. I can have thousands of people working on a problem at the same time. Maybe only one or two of the solutions will work [and be submitted], but those are the ones we actually want. And you only pay for the successes in terms of both time and money."

Open mindsets

Such open innovation mechanisms are frequently compared — especially in IT circles — to the way open source software has historically been developed: hundreds or thousands of

people from a wide range of organizations and backgrounds collaborating on new ideas (or problems), giving each project the best possible chance of success.

There is, however, a flaw in the comparison, according to Professor Roberto Di Cosmo, director of IRILL, an open source research initiative at INRIA, the French national institute for research in computer science. Contributors to open source ecosystems, he argues, stand to benefit by being able to use the software themselves — whether that is a bug fix, adding support for a new device or some other enhancement.

"We work on a particular problem because it fulfills our needs as a community," he says. "But in the field of open innovation, I don't see this. A big corporation might try to convince a large group of people to fulfill its R&D needs, but I don't really see the advantage for the person contributing. Why should people work for you for free? What's the point? It is entirely for the sake of the challenge, or some small kind of reward if they are successful, and then that's it."

Stefan Lindegaard, author of *The Open Innovation Revolution* and a leading consultant who has advised companies such as Bang & Olufsen, LEGO and Danfoss, the \$4.8 billion mechanical and electrical components maker, on strategy, agrees this is an issue. "Big corporations have to see how they can create better win-win situations" — for both contributors and themselves, he says. "That's where we have a lot to learn from the open source community."



However, Jean-Séverin Lair, CIO at the French Ministry of Culture, part of a national government that has for many years maintained a strong focus on the use of open source software wherever possible, sees several big advantages that stem from the open source mindset — including speed of development and the latitude to think outside of the box when searching for solutions.

"We're starting to use agile development methods to obtain faster solutions," he says. "And agility is one of the advantages you also find in the open source community. It allows you to implement solutions very rapidly. The technology allows you to start trying new things, new ideas, without too many constraints. There's a certain freedom to be creative."

This kind of shift in the corporate mindset — enabled by technology — is crucial. One of the biggest stumbling blocks to open innovation is creating the right kind of culture in which more open, collaborative practices can flourish.

"To succeed, companies will need to be flexible about the ways they innovate," says Bruno Ménard of Sanofi-Aventis. "They will need to realize that their partners and suppliers

often understand the [market] situation better than they do — and develop their corporate cultures accordingly.”

Stefan Lindegaard sums up the challenge as, quite simply, “finding a way to access the right people.” He points out that, although organizations have always collaborated with partners, the difference now is that such collaborations are becoming more systematized, and happening across the complete innovation process, not just at the beginning (idea-creation) and end (product launch) stages, which is where the focus was traditionally applied.

But to get to this state of “innovation in the DNA,” a huge cultural shift is required. “Open innovation is not a toolbox,” Lindegaard argues. “It’s much more about philosophy, a mindset.” He points to P&G, which replaced the traditional “research and development” label with “Connect+Develop.” “Different mindsets are needed in order to tackle open innovation and above all, we need to become much better networkers, to connect to partners. Managers need to ask: How can they give their people time to network? How can they set up a corporate networking strategy? Because you cannot have a strong innovation culture if you do not have a strong networking culture. And yet I meet executives all the time who tell me: ‘That networking thing, it’s going to take care of itself.’ Well, it’s not.”

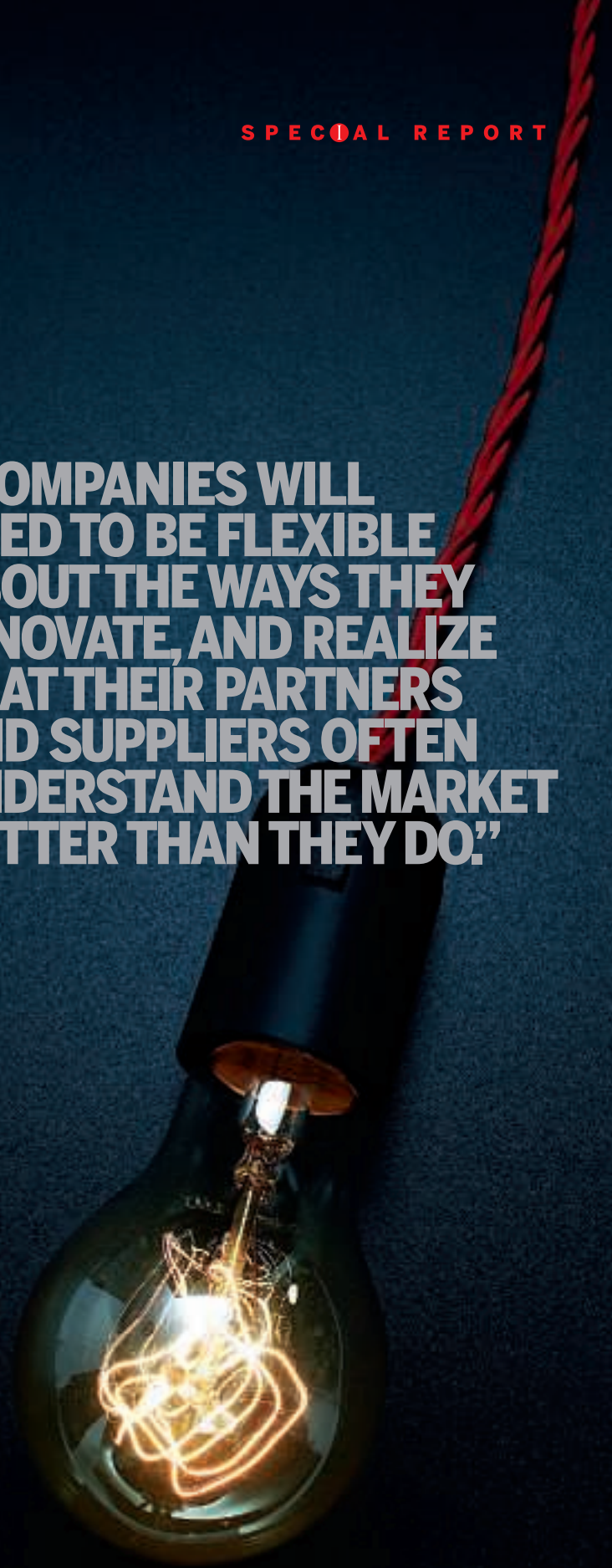
Another cultural shift required, according to Josh Bernoff, SVP at research group Forrester and co-author of the influential bestsellers *Groundswell* and *Empowered*, is to have the courage to empower employees to just go out there and try new things. When it comes to reacting to market demand, in a world where the pace of innovation is constantly accelerating, a top-down approach just isn’t fast enough. “You have to depend on your own employees to come up with solutions, whether it’s a quick, simple innovation that happens in the context of an interaction with a customer, or designing a new program using technology,” he says.

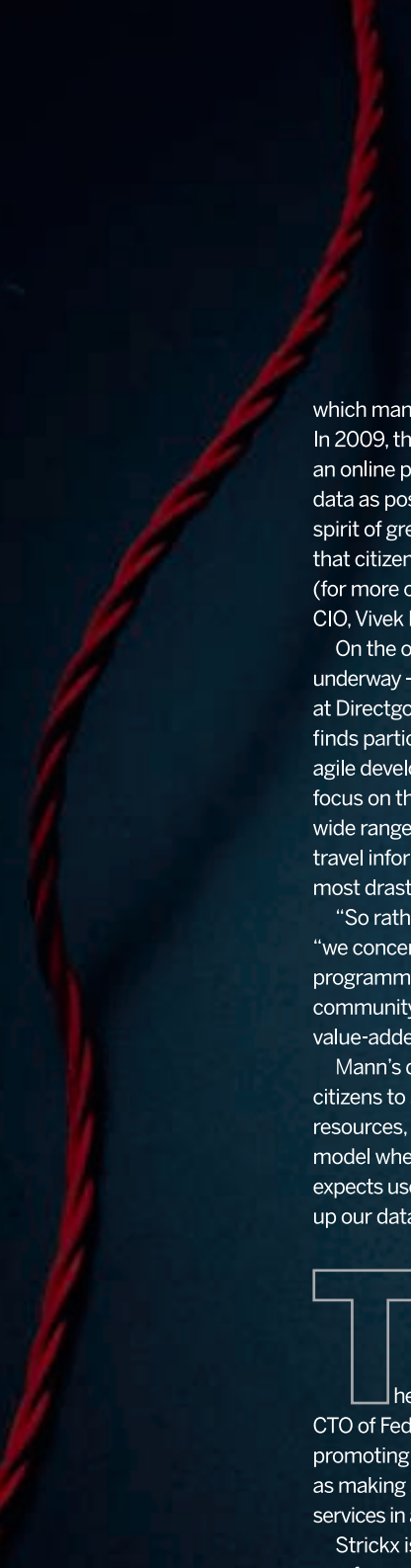
But a real spirit of openness is required to do this, not only from CIOs who have to break away from a mentality of technology lockdown that restricts much information access, but also from managers who have to share more information with employees so they have the best possible chance of aligning their ideas as closely as possible with corporate goals. “The more information you give your employees, the more likely they are to come up with useful solutions,” says Bernoff.

Open data, open collaboration

Releasing information and data outside of the organization is also a powerful technique that can help potential collaborators to provide value-creating innovations. Although still relatively rare in the business world — often through fear of giving away intellectual property without any guarantee of recompense — it is an area in ►

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which many public sector organizations are leading the way. In 2009, the US government famously launched Data.gov, an online portal through which as much government-held data as possible is released into the public domain, in the spirit of greater transparency but also with the knowledge that citizens will turn the data into useful public services (for more on this, see our profile of the US Government CIO, Vivek Kundra, page 22).

On the other side of the Atlantic, a similar process is underway — something that David Mann, head of innovation at Directgov, the UK government's public services website, finds particularly exciting. His mandate is to generate an agile development arm of the organization, with a particular focus on the creation of mobile applications that provide a wide range of public services, from health advice to foreign travel information — all against a backdrop of some of the most drastic UK public sector budget cuts in living memory.

"So rather than building apps ourselves," says Mann, "we concentrate on freeing data, creating APIs [application programming interfaces] and engaging with the developer community." And it is this community that is creating the value-added apps, not the UK government.

Mann's department has also created an online facility for citizens to suggest ideas that would make use of the data resources, from apps to widgets to mash-ups. "The old model where the government develops something and expects users to find it — that's over," he says. "We're opening up our data — and the market will do the rest for us."

The advantage of operating this way, says Peter Strickx, CTO of Fedict, the Belgian federal agency responsible for promoting e-government, is that the public sector — as well as making significant cost savings — is able to "provide richer services in a much more flexible way."

Strickx is also enthusiastically embracing the opening up of government data — not only to the public, but also between departments, which are learning to provide services to each other based on certain common building blocks. "It's the philosophy of Fedict that innovation happens elsewhere, and if you want those innovative ideas to be integrated, you have to be open," he says. "So open government is very much about embracing the fact that bright ideas and a lot of very clever people reside elsewhere — so how can you create a community so that they help you?"

One answer to this question, being adopted by technology giant Fujitsu, is to work closely with customers. "Evolving and integrating the customer's decision-making process into the innovation process is a very powerful technique,"

says Benno Zollner, SVP service operation and region support group at Fujitsu Technology Solutions.

The company achieves this in one of two ways. "There are unstructured workshops where we just brainstorm solutions," explains Zollner. "But we also have structured account workshops where we go to the customer and open our innovation roadmaps, and constantly check and cross-check that everything makes sense."

CIOs at the hub of innovation

Such structure — either in this kind of service-driven scenario, or in the kinds of open innovation forums employed by the likes of P&G and other product manufacturers — would be practically impossible without the use of IT. This means that the role of the CIO is becoming increasingly important when it comes to innovation. Very few organizations outside of the technology sector have gone so far as to put their CIO in charge of innovation — replacing the word "information" with "innovation" in the job title — but many are now ensuring the CIO is at the hub of the processes.

In the words of James Gardner, general manager of international operations at innovation management software vendor Spigit — and previously CTO at the UK government's Department of Work and Pensions and, before that, head of innovation and research at Lloyds Banking Group: "If you put IT in charge of innovation, the danger is that all you'll get is a lot of gadgets, rather than what is really required: outcomes that are actually meaningful in the overall context of the business. Instead, IT leaders need to provide ways of capturing ideas and deciding which ideas are useful, then ways to systematically work out which ideas ought to be progressed."

In short, thanks to their in-depth understanding of the technology involved — and their overview of business processes — CIOs are uniquely placed to empower the open-innovation agenda and ensure it delivers genuine value to their organizations.

**"IF YOU PUT IT
IN CHARGE OF
INNOVATION, THE
DANGER IS ALL
YOU'LL GET IS A
LOT OF GADGETS."**



CASE STUDY

Procter & Gamble saw its fortunes turn after creating an open innovation ecosystem that is now the source of more than half of its new products.

C

incinnati-based **Procter & Gamble** operates in more than 180 countries, and defines the multinational corporation. With dominant products in many consumer packaged goods categories, it is home to some of the world's most powerful brands, and as of 2008, 23 of these were billion-dollar sellers.

In the late 1990s, however, the company had stagnated. New product introductions were slow and often ineffectual. Competitors gained traction in key market segments, as when Colgate gained six points of market share over P&G's Crest toothpaste brand in only two years.

In June 2000, AG Lafley was named CEO – his predecessor had been in the position only 18 months – and the first decade of the 2000s represented a dramatic turnaround. Under Lafley's leadership, the company achieved a new level of brand and product introductions, such as the Spinbrush toothbrush, the Swiffer floor cleaning system and the Febreze odor eliminator.

The key concepts of P&G's new approach were collected under a banner called "Connect+Develop." Whereas in 2002 only 15% of the company's new products came from outside P&G, by 2008 more than half did so. At the same time, internal investment in R&D remained high, at \$2 billion annually, in part because of an increase in sales-per-employee productivity of more than 6% per year. A key factor in freeing cash for investment is a shared-services model in which common operations are centralized to deliver cost reductions through volume purchasing and lower administration expenses responsible for more than \$600 million in cumulative savings.

The innovation process is also regularized and managed, addressing the dimensions of rewarding talent, assessing new product fit within the brand, testing the concept and rolling out the innovation to the appropriate markets at the right price with the right timing. Innovations are themselves categorized as: *Disruptive* (addressing consumer needs no other brand or product has met); *Sustaining* (extending or improving existing products); or *Commercial* (giving consumers new reasons to be loyal to a P&G brand).

P&G actively courts partners in all phases of product development and launch, from basic chemistry to packaging. By aggressively attacking the

NIH (not-invented-here) syndrome, P&G has multiplied its potential sources of insight and solutions. It makes selected resources available to the community, but also listens intently for signals of emerging consumer needs using such online forums as Vocalpoint (for mothers) or its word-of-mouth tool Tremor (which targets teenagers). P&G instruments and measures those 350,000 mothers and 200,000 teenagers to provide marketing support to other companies targeting those same markets, turning an in-house capability into a revenue generator.

IT supports Connect+Develop in several ways:

- **An Internet-based coordination** mechanism enables outreach and partnering activities that would not be feasible in a paper-based process.
- **The complexity of relationships** requires sophisticated reporting and tracking capabilities.
- **The new product development** process is highly regularized and automated with an easy-to-use toolset.
- **Market intelligence** is widely sourced and available.

The financial results are impressive: annual earnings-per-share growth for 2001-2008 were targeted at 10% and averaged 13%. The retooled strategy drove seven consecutive years of organic sales growth ahead of targets, in the 6% range every year. From when Lafley took over until January 2009, P&G's share price appreciated 88% while the Standard & Poor's stockmarket index declined 32%.

● *Extracted with permission from IT-Driven Business Models: Global case studies in transformation by Henning Kagermann, Hubert Osterle and John M Jordan (John Wiley & Sons, 2011).*





BOARDROOM VIEW

Best Buy's Kal Patel says leaders must "expect and inspect" to promote a culture of

O

ne thing I am proud of is the fact that no one person at Best Buy could give a full picture of everything that's happening in the company in terms of innovation, as there is so much autonomous activity happening all around the business. All our employees, at every level, are empowered to take the initiative and try out new ideas that they believe will create value for the organization.

However, to avoid chaos and to ensure everything is moving in the right direction, this kind of corporate culture requires strong leadership.

If you're running a business where people don't open up to their employees, listen to their ideas or let them do more than they ever thought they were capable of, it is not leadership; it is just management, which anyone can learn by rote.

Leadership is a far tougher proposition: it's about inspiring people to go out there and try new things, and then ensuring they are delivering added value.

A successful approach to this is what I call "expect and inspect." Quite simply, if you expect more from people — all the time, every day — they do more. But then, more than ever, you have to hold them accountable afterwards and assess their progress. You must constantly



Kal Patel is president, Asia Region, and enterprise executive vice president at Best Buy, the world's largest consumer electronics retailer. Since joining the Minneapolis-based company in 2003, he has maintained a constant focus on innovation and the creation of new growth platforms, with a determination to instill the dynamic, "can-do" culture of a Silicon Valley start-up throughout the 155,000-strong business.

remind them of what added value they are supposed to be delivering — perhaps by bringing it up at the end of a meeting on a more mundane subject — otherwise they will remain on autopilot, and innovation doesn't happen when people are on autopilot.

It's important for everyone to learn that open innovation is more systemic than just deploying a tool here and there: it has to be a way of life. The best way to make this point to the entire organization is to role-model it yourself. Senior management has to take the lead, then constantly share their stories and expect similar behavior from everyone.

Building "relationship equity"

One of our main expectations is of increased collaboration — supervisors in stores cooperating with each other, store managers working together, and everyone collaborating with the outside world. If someone runs into a problem, among the first questions I ask are: "Who are you working with?" and "Who did you talk to about it?" And if the response is that they talked to four people who are all inside the company, I know that action is now required to remedy the situation.

The key to successful external collaboration, I believe, is the concept of "relationship equity." It's a *modus operandi* that has come into sharp focus for me since leading our expansion into China, as it's something that Asian cultures understand particularly well.

The basic idea is that you constantly build relationships with other people and organizations, even though you may not know at that point how you will monetize them. Transactions will come, but they don't come in the same cycle as forming the relationship. Your default thinking has to be: relationship first, transaction later.

Thus, for example, you might help another business to solve a problem without any obvious return for your own organization; or you might share an idea with a business that is better positioned to develop it than your own. Therefore, you're effectively building up "equity" in the relationship, which you can then cash in at the right point. Consequently, your value as a business — and, indeed, as a business leader — can be based on how much relationship equity you have accumulated with different types of organizations and people.

W

hen it comes to implementing innovation, the role of the CIO is absolutely crucial. If, as many believe, innovation is 1% idea and 99% execution, 90% of that execution can frequently involve trying to figure out how technology is going to help this idea along. For that reason, if you don't have IT working alongside the people who are driving that potential growth platform, right from the beginning, the project will get stuck

collaborative innovation.

“IF YOU EXPECT MORE FROM PEOPLE — ALL THE TIME, EVERY DAY — THEY DO MORE.”

at some point. And, by the time this happens, it may be too late.

A good example from within Best Buy was when we launched BBY Open, a project that has created open APIs so that independent entrepreneurs can build their own Best Buy stores online (which also ties in with our focus on external collaboration, of course).

This idea did not come from IT — it came from an employee in the merchandise function. She saw the value that could be created by opening up our data into the public domain, and without this innovation we would not now have a mobile ecommerce site or thousands of customized versions of Best Buy on the Internet.

At first, IT was reticent about supporting the project, and had serious concerns about security. But once our CIO in the US got behind it, it quickly moved from being a small skunkworks initiative to a major project that has delivered huge value to the business. Without his backing, however, it would have come to nothing and we would be two years behind the game online.



DATA FEED

The open innovation landscape...

\$3 billion

The contribution to annual sales growth that Procter & Gamble CEO Bob McDonald expects to come from the packaged goods giant's "Connect + Develop" open innovation program by 2015. The figure is currently \$1 billion.

\$2 billion

The global spend on collaborative IT applications by 2014, as predicted by analyst firm IDC. The 2009 figure was \$390 million.

120,000

The number of LEGO "fans" who help to create new products — free of charge. The Danish toy maker's internal design team numbers just 120.



“Now that the Internet has

put abundant information and powerful tools in everyone's hands, innovation is often driven from the bottom up. The ideas that power our next generation of growth are just as likely to originate in a coffee shop as in the laboratory of a big corporation.”

Eric Schmidt, outgoing CEO of Google, writing in the *Washington Post*, February 2010.

OPEN FOR BUSINESS

● **41% of companies worldwide believe customers are the origin of the best innovation ideas (this rises to 48% in the Asia-Pacific region). The next best source, according to a global survey of high-level executives, is heads of business units (35%), followed by general employees (33%) and the in-house R&D team (33%).**

(Grant Thornton/Economist Intelligence Unit)

● **69% of executives worldwide believe their companies are either “very” or “somewhat” effective at leveraging collaborative partnerships and open innovation.** (McKinsey)

● **Balancing good ideas with effective commercialization is tough: 39% of execs believe their businesses haven't got it right, while only 36% believe they have.** (McKinsey)

INNOVATION ROADBLOCKS

The most significant leadership and organizational challenges companies face when commercializing innovations and building new businesses: (McKinsey global survey of more than 2,000 executives)

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BAROMETER

Exclusive: Global IT leaders on the issues that matter

How are you leveraging external collaborations to drive innovation in your organization?

NAZARÉ LOPES BRETAS
**Director, Department of Integration
of IS, Ministry of Planning, Brazil**

Federal department responsible
for IT standards and special projects



Some of the Brazilian government's most important programs would not be possible without external collaborations. One example is the Bolsa Família, which makes small payments to the country's poorest families on the condition they send their children to school, and has so far lifted millions out of poverty. Here, the government works in partnership with two of Brazil's largest banks, Caixa and Banco do Brasil, which deliver the money to 20 million families around the country. In a project like this, the use of IT — for example, in managing the huge databases required to administer it effectively — is central.

The government also operates an online portal, which offers more than 50 public software applications to citizens. This is built on a rich framework of partnerships, not least because all the software is open source. We have more than 50,000 people interacting here and contributing solutions. Now that advances such as cloud computing have removed the challenges related to the IT itself, we are able to leverage the intelligence of the network to move such projects forwards in innovative new ways, rather than being sidetracked by technological issues. A big problem we face in Brazil is that a lot of our brightest human capital leaves the country, so the government is creating innovation networks of this kind to compensate for this and to ensure we gain maximum benefit from the human resources we do have in the country. This is one of the most important innovations we have achieved.

**“THE SPIRIT OF OPENNESS AND
INNOVATION, EMPOWERED BY IT,
IS REINFORCING DEMOCRACY.”**

We are also opening up our data to the public. There is so much of it that it's impossible for our government to make full use of it all, yet our citizens are finding many creative ways to turn it into valuable information. For example, one young developer has used the voting records of deputies in parliament to create an application that allows you to find out which politician's views are most closely aligned to your own.

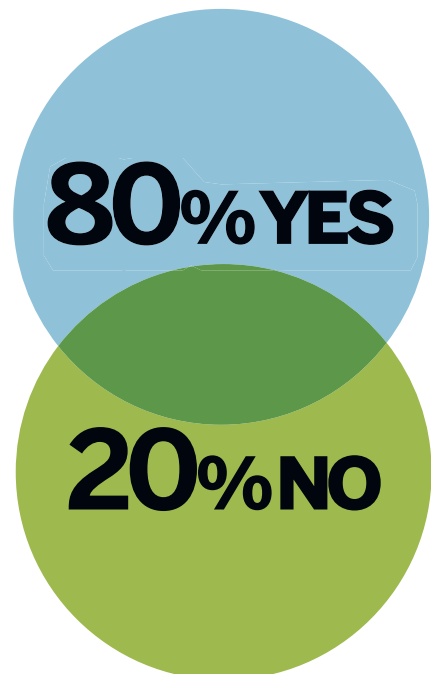
So perhaps most importantly of all, this spirit of openness and innovation, empowered by IT, is reinforcing democracy in Brazil.

THE VERDICT

**Is IT-enabled external
collaboration a key
component of your
innovation strategy?**

**The majority of CIOs
are actively supporting
open innovation.**

Poll of 25 CIOs and IT directors worldwide
conducted by I, February/March 2011



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www.i-cio.com/_CIO-Barometer

DAVID SMITH
CIO & CTO,
Fujitsu, UK
and Ireland

The world's third-largest IT services provider with sales of more than \$50 billion



At Fujitsu, our open innovation initiative is about collaborating with a community of clients and partners on ideas that would allow us either to create something new in the marketplace or to work with the community to create value for their existing customer base or market sector. This is one of our main focuses for 2011, having last year successfully initiated an internal project called IdeaFest, where we posed a number of high-level questions to the whole of the company using an online social media tool. People would then come in and either comment on a particular idea or vote for it. The highest ranking ideas won small prizes, and the top 10 were taken forward — including a couple I spotted myself that didn't receive many votes, but that I knew had a lot of potential value for the company.

Technologies such as cloud computing and social networking are making this kind of innovation project easier, as they allow people to be connected and engage in whatever way works best for them. What's more, the platforms and enabling infrastructure on which these innovations can run — and on which the very best ideas can emerge — are becoming increasingly flexible, scalable and affordable. Because of this key role that IT has to play, one part of the innovation obligation that falls upon the CIO, I believe, is as a facilitator. However, he or she also needs to act as a broker and a catalyst. One thing I made sure of when we ran IdeaFest, for example, was that at least some of the suggestions and solutions we developed were directly under my remit. That way, I became directly accountable for moving them forward.

FRANK DE SAER
ICT director,
Federal Dept
of the Economy,
Belgium

Department for economic growth and business development



Our challenge is, in a nutshell, to do more with less. To achieve this, we have to dare to give away some of our data, to collaborate with the wider world in order to create more and better services.

Our success as an ICT department can no longer be measured purely according to our technology. Everything, from email to websites to basic infrastructure, has to work 24/7 — that's just considered normal. I can't score points by delivering that any more. So when my board asks: "What is the return on our IT investments?" I have to be able to say we've delivered new applications, new projects, more and better services, which equate to value for our citizens, value for the businesses that use our services, and value for the government — while also reducing administrative burdens and cost.

However, we no longer have the resources to fulfill all our ideas for projects, for example in the creation of online and mobile apps. In this era of budget restrictions, the only way

“WE HAVE TO DARE TO OPEN UP SOME OF OUR DATA TO THE WIDER WORLD.”

forward is to open up our services and our data, not only to our internal business users but also in order to work closely with the private sector. In Belgium we will have to tackle some issues around privacy, as well as a highly regulated environment, but there has to be a shift towards greater openness and flexibility of this kind or we risk compromising our ability to innovate in the field of public service delivery.

JUSTIN ZIEGLER
CIO,
PriceMinister

France's most-visited ecommerce website



PriceMinister has open source in its DNA, and I believe that's extremely important for driving innovation throughout the business. Developers think more creatively and derive more satisfaction from their work when they're contributing to a global project as part of a community. And that kind of thinking is now being extrapolated to the rest of the company, so we are currently in the process of opening up PriceMinister in several ways. As a first step, we're making all the functionality of our web services publicly available. We then plan to animate a community of people who will develop tools to interact with PriceMinister. These will allow other sellers to integrate ecommerce solutions so their stock can appear on our site, or permit the creation of tools like iPhone and Android applications — maybe even mobile versions of the website — that would be used to interact with the main site.

I firmly believe that there is a real drive towards building ecosystems of this kind, by encouraging communities to develop a small tool and then make it publicly available. The big wins of operating this way are, as with open source software, greater flexibility, adaptability and reactivity — plus faster time to market. All of these things are absolutely crucial for us in our sector.

To manage projects like this, the CIO has to understand what's happening in his business, and learn to bend with the wind. Collaborating with external parties, whether in the case of open source or other innovation projects, is going to happen more and more. It's a question of understanding the pros and cons and, as with karate or judo, learning to leverage other people's weight to work to your own advantage. ●

Government ...upgraded

Since he was appointed as the US's first government CIO, Vivek Kundra has pursued a transformational agenda for the country's public sector; blazing a trail in cloud computing, IT transparency and open data.

Words: **Kenny MacIver**

It was the IT industry's most exclusive-ever dinner party. On February 17, a dozen of Silicon Valley's technology elite attended a hastily arranged get-together at venture capitalist John Doerr's mansion, set in the hills above the world's IT capital. The guest of honor they were there to meet: Barack Obama.

The CEOs sitting down with the US President were true IT industry royalty: Steve Jobs of Apple, Mark Zuckerberg of Facebook, Oracle's Larry Ellison, John Chambers of Cisco, Dick Costello of Twitter, Yahoo's Carol Bartz and Eric Schmidt of Google. There is no public record of the discussion that ensued over the three hour-long "private" dinner, but in assembling such an influential group, President Obama was clearly signaling one thing: that the Internet technology revolution that had



Transparent government:
Vivek Kundra speaking via
3D telepresence at an
EU conference in Brussels.



“We are shifting the mindset of the US government from



been instrumental in getting him elected was going to be critical in addressing some of the US government's biggest challenges — from education and the economy to healthcare and defense — and possibly vital for his chances of re-election.

One man is in charge of translating that trust in technology into a concrete set of results. When he was appointed by the President two years ago as the first-ever CIO of the United States Government, Vivek Kundra was given a clear mandate: to use “innovation and the power of technology to improve performance and lower the cost of government operations... making sure government is run in the most secure, open and efficient way possible.”

In pursuit of that, Kundra, still young for a CIO at 36, has set in motion a transformation agenda designed to disrupt the status quo within “the world's largest purchaser of information technology,” where \$80 billion will be spent on IT this year.

RADICAL AGENDA

That disruption has involved dramatically increasing accountability by exposing the business of IT through a series of public IT Dashboards, an approach that has highlighted both wasteful and highly effective practices. It has involved throwing open the vaults of government data to establish transparency and provide outsiders with the opportunity to create value from that vast raw resource. And it has spurred the adoption of new ways of purchasing and delivering IT, from app stores and shared services to cloud computing. It has even promoted the use of 3D telepresence as a substitute for international travel and live appearances at conferences (see main photograph, pages 22-23).

leapfrog — the private sector with the bold adoption he is championing, driven by a conviction that cloud has the potential to deliver a new era of cost-effective, responsive, innovative, efficient IT to government.

Under his leadership over the past two years, the US government has been building a comprehensive strategy designed to cover every core aspect of cloud computing, from security and interoperability standards to the inevitable consolidation and closure of data centers. Now, that strategy is ready for large-scale — and mandated — adoption.

CLOUD FIRST

We are “shifting the mindset of the US government from asset ownership to service provisioning,” Kundra said at the Cloud Security Alliance Summit in San Francisco in February. “We are looking to drive a fundamental shift in capital allocation.”

That shift will manifest itself in some pretty big numbers. Kundra says that \$20 billion of the total US Federal Government IT budget of \$80 billion has already been identified for the move to cloud. And to ensure that this 25% cloud migration commitment is not stillborn, Kundra and 27 main departmental CIOs have signed up to a “Cloud-First” policy that all must implement by the middle of 2011.

“Every agency must first evaluate a viable cloud solution before they go out and make investments or procure infrastructure,” Kundra outlined in February. “We are setting that as part of the budget process [so] cloud is at the heart of how we provision IT.”

The policy involves an immediate call to action and the setting of some fairly ambitious targets. By mid-year, each government CIO is obliged to “identify at least three ‘must move’ services that they’re

asset ownership to service provisioning.”

In shaking up the historical picture of government IT — and making a strong case for doing so — Kundra has become a source of inspiration for government CIOs around the world. Dozens are pursuing internal app store programs and opening up their country's data sources. And almost all, including the European Union, are launching strategies for cloud computing that draw on Kundra's pioneering vision.

That vision is born out of a set of core frustrations with public sector IT: systemic inefficiency, inflexibility, a lack of demonstrable ROI and a sense that both consumer and private sector IT have overtaken government IT in many key areas.

“Despite spending more than \$600 billion on information technology over the past decade, the federal government has achieved little of the productivity improvements that [the rest of] industry has realized from IT,” Kundra wrote in his White House blog in December. At the same time, “too often we hear stories about how the [US] government, for one reason or another, lacks technological capabilities that are commonplace in the private sector and our everyday lives.”

Many of the changes he is now enacting are long overdue, he argues. “We need to make sure that we are not relying on the same old ideas, and the same old approaches in terms of how we invest in IT.”

And for Kundra, the cloud computing model is the springboard for much of that new thinking. In that arena, he looks set to match — if not

going to move to the cloud, and create a project plan for migrating one of those services to the cloud solutions within 12 months and the remaining two within 18 months, retiring the associated legacy systems,” Kundra outlined. “And these are not just simple systems; these are going to be core to the workflow of these agencies' systems, and disruptive in terms of budget and savings.”

The ambition runs even further. By the end of this year, all CIOs must have created a strategy for shared services.

As the strategy has been taking shape, there have been plenty of tactical initiatives that have bolstered Kundra's confidence in cloud's ability to deliver both savings and improvements in services:

- **The General Service Administration**, the operational support services unit for all Federal agencies, is moving its 17,000 users to the Google Apps platform, replacing a fragmented infrastructure consisting of multiple email systems spread across 17 global locations that have struggled to interoperate. The shift to cloud email services will result in a 50% cost reduction over five years — a saving of about \$15 million.
- **The Recovery, Accountability & Transparency Board's** website was moved from an internally hosted platform to the Amazon EC2 cloud, saving \$750,000.
- **To coordinate the allocation of grant funding** to doctors and hospitals for the implementation of the US government's new

Electronic Health Records systems, the Department of Health & Human Services used a Salesforce.com-based CRM and project management solution. That reduced the time to go live from one year to three months.

● **The US Department of Agriculture** is in the process of migrating 120,000 users to the Microsoft Azure cloud service platform, a move that will consolidate 21 siloed systems at a saving of \$27 million.

What comes next in the Cloud-First program is the identification and prioritization of cloud-ready systems. Aside from collaboration and office productivity tools, areas earmarked include: workflow-based processes such as employee verification, grants management, claims processing and CRM; business intelligence; and select areas of information security such as identity management.

SHARED DATA CENTERS

But arguably the biggest shake-up is coming in IT infrastructure. As Kundra emphasizes: "Agencies don't want to be in the infrastructure business, they want to abstract their entire infrastructure [and] consume it very much like [they consume] electricity — as a utility. They want to move away from managing data centers to actually working on what really matters — serving their customers."

Data centers are, in fact, a particular target. In the last decade, the number of facilities operated by US federal agencies grew from 432 to 2,094, even as CIOs in other industries were starting to consolidate their estates. For Kundra, that translates into large-scale duplication in terms of spending, a fragmented infrastructure that has serious security implications, a lack of agility when the need arises to ramp up and scale back IT, and a decoupling of private sector innovation

projects] on the management watch-list, that are way over budget and years behind schedule.' There was one IT project, where a billion dollars had already been spent, that was 12 years behind schedule."

Reacting to such runaway projects, he launched a public dashboard "to shine a light on the performance of this portfolio."

"The way this portfolio was being managed was in a very secretive, very opaque, very closed way," said Kundra. "[With the IT Dashboard] we moved away from a culture of faceless responsibility, putting the picture of the [relevant agency] CIO next to the project they were responsible for, making sure everyone knew it was red, yellow or green."

The analytics portal tracks the progress of investments over time, displaying data on over 7,000 investments and detailed information on the status of over 800 "major" projects. Investments are ranked out of 10, and flagged as "normal," "needs attention" or "significant concerns."

But when introduced in June 2009, it was more than just a show-and-tell exercise. Bad dashboard results were followed by TechStat Accountability Sessions — face-to-face, evidence-based reviews that end with a decision to turn around, halt or terminate an IT investment.

DATA-DRIVEN INNOVATION

Another of Kundra's early initiatives that kicked off in mid-2009 was Data.gov, a facility providing third-party access to the masses of raw data generated by government — a move that has subsequently been copied in Canada, the UK and elsewhere.

It was launched with 47 machine readable data sets; it now provides over 270,000 data sets on every aspect of US Government operations from healthcare and education to energy and geology. As well as

"Cloud computing will not just be more innovative than we imagine; it will be more innovative than we *can* imagine."

from government IT because government IT is too often custom built.

"In 2010, approximately 30 cents of every dollar invested in Federal IT was spent on data center infrastructure," said Kundra. "Unfortunately, only a fraction of this investment delivers real, measurable impact for US citizens. By using the cloud computing model for IT services, we will be able to reduce our data center infrastructure expenditure by 30%."

The aim is to bring an end to the siloing of data centers to ensure spare capacity can be shared across different departments — in essence, to create an internal market for data center capacity. "Within the next 18 months, [we] will create a government-wide marketplace for data centers that will match agencies with extra capacity to agencies with increasing demand, thereby improving the utilization of existing facilities," he says. Utilization rates currently run at 10% to 27%. Ultimately the plan is for almost 800 (or 40%) of the federal government's current 2,094 data centers to be eliminated by 2015.

The broader cloud strategy has been in gestation since Kundra's early months as CIO. But a prerequisite for that was an early move to dramatically increase visibility into how the US government spends its \$80 billion IT budget. "I remember my first day on the job, when I was handed a static PDF doc that said 'here are \$27 billion [worth of

creating unprecedented levels of openness and fostering greater public participation in government, it has also encouraged innovative use of that data by the private sector.

"Part of what we have seen is the ability to unleash creativity and the ingenious ways that were structurally impossible before," he told an audience in Brussels recently. For example, when one company turned government agency data on consumer product recalls into an iPhone app, the agency "co-innovated" with the developer to extend the app so that citizens could take a picture of a product's bar code and see instantly if that product was the subject of a recall.

That is just part of a wider revolution. By the end of next year, as initiatives such as Cloud-First, data center markets, software-as-a-service, and other services move from pilot to adoption phases, the transformation will be much more pronounced.

This is a one-way street, says Kundra. "When you can save \$20 million on something as simple as email, imagine what happens when we go after that \$80 billion and the opportunity to crack down on wasteful spending [and], most importantly, unleash the innovative spirit.

"Cloud computing will not just be more innovative than we imagine; it will be more innovative than we *can* imagine." ●

INNOVATION

10 THINGS YOU NEED TO KNOW ABOUT NOW

1 MOBILE
MONEY WARS

2 INTERNET
PROTOCOL
MAKEOVER

3 BIODEGRADABLE
HARDWARE

4 ENSURING
CLOUD UPTIME

5 INSTANT
TRANSLATION
APP FOR VOICE

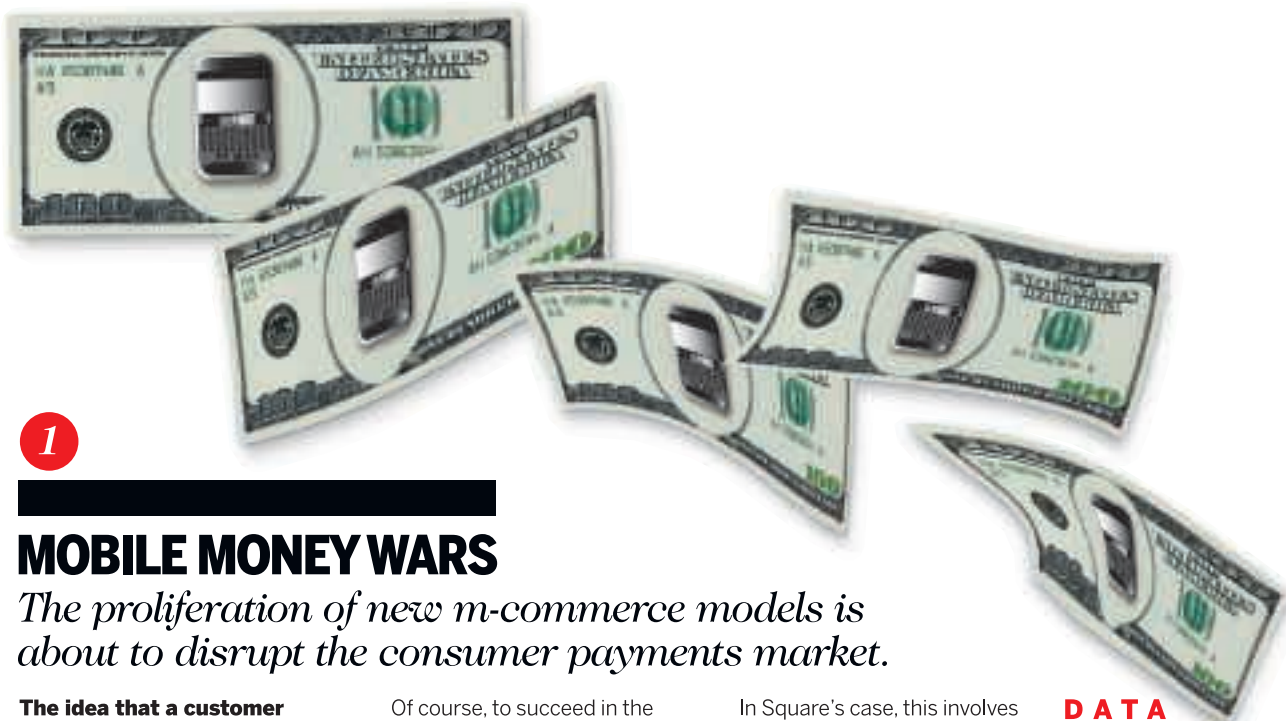
6 ADJUSTING
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EVANGELIST

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SMART GRID
REVOLUTION



1

MOBILE MONEY WARS

The proliferation of new m-commerce models is about to disrupt the consumer payments market.

The idea that a customer could pay for one of your company's products by using a mobile phone may have seemed far-fetched a few years ago — outside of a few Asian countries — but it's now becoming a reality that any consumer-facing business needs to factor into its strategy. According to analyst firm Juniper Research, the global mobile payment market is likely to double in value to \$200 billion by next year.

Google is already supporting the near-field communication (NFC) technology needed to turn mobile devices into e-wallets in the latest version of its mobile operating system (Android 2.3 Gingerbread), while Apple is rumored to be working on its own technology. It's true that many Apple rumors turn out to be no more than fevered speculation, but if it can do for mobile payments what it did for MP3 players, smartphones and tablet PCs, then the future could be bright for m-commerce.

Of course, to succeed in the market any mobile payments system requires many different organizations to cooperate, including mobile device manufacturers, network operators, financial institutions, retailers and app developers. The road to an agreed standard is rarely smooth and already we're seeing many competing approaches that are likely to stick around for some time to come (see Data Feed, right).

One contender is the Isis joint venture announced in the US last November by AT&T, T-Mobile and Verizon. This is based on NFC technology and is backed by the likes of Barclaycard US. But neither MasterCard nor Visa is currently supporting the initiative, with each working on its own contactless payment model.

PayPal is said to be exploring alternative avenues, while others — such as Twitter co-founder Jack Dorsey's mobile payments start-up Square — are taking a peer-to-peer approach.

In Square's case, this involves turning any smartphone into a device capable of receiving payments via a simple card-swipe dongle attached to the phone's headphone socket.

There is also a thriving market for SMS-based, peer-to-peer mobile payments in sub-Saharan Africa, where people are using far less sophisticated cellphone technology. For example, the M-PESA service on the Safaricom mobile network in Kenya won 6.5 million new customers by offering the ability to make money transfers on mobiles via text messaging.

But while there is certainly a market for peer-to-peer systems, contactless payments via smartphones are causing the most excitement in mainland Europe and the UK. And with Google backing NFC, the chances are it won't be long before e-wallet apps supporting the technology are in the hands of a lot more people on both sides of the Atlantic.

DATA FEED

The current approaches to mobile payments can be split into four types:

- 1. Collaborative model** Banks, mobile operators and other bodies work together on an agreed system — e.g. the Isis venture in the US.
- 2. Bank-led** A financial institution provides mobile payment applications to its customers and ensures sellers have the required point-of-sale systems. Mobile operators would simply be carriers, so quality of service guarantees could be a problem.
- 3. Mobile operator-led** A network operator initiates a service, such as giving users an independent "mobile wallet" account. This may cause problems due to lack of connection to existing payment networks.
- 4. Peer-to-peer** A mobile payment service provider offers a "democratized" mobile payment system, e.g. Square.



2

INTERNET PROTOCOL SWITCHOVER

'IPv6 Day' will expose flaws in migration plans.

Toward the end of the last century, the biggest threat to IT — and the organizations it supported — was the so-called millennium bug. In the event, planning, investment and hard work helped IT systems to remain stable throughout the switch from 1999 to 2000.

Today's CIOs and Internet service providers (ISPs) face a replay of that challenge: the migration from IPv4 to IPv6. The last of the 4,294,967,296 unique Internet addresses available under the 32-bit protocol IPv4 (in place since the 1980s) was allocated in February of this year. Its successor, the 128-bit IPv6, supports 340 trillion trillion trillion addresses. But there are significant compatibility issues which could result in organizations being cut off from part of the Internet, unable to reach, or be reached by, partners and customers.

Some of the back-end work needed to address the problem has already been completed. Windows 7, Mac OS X and Linux all support IPv6, as do Android and Apple's iOS. Meanwhile vendors and ISPs are working to ensure their products and services can handle the new protocol. And on June 8 major players such as Google, Facebook and Yahoo will participate in "World IPv6 Day" to thoroughly test their own, and other organizations', migration strategies.

During what is likely to be a lengthy transition period, IPv4 and IPv6 will, by necessity, co-exist. Most current Internet content will be on IPv4, but organizations coming online from now on will be on IPv6. To ensure these new customers can reach IPv4 content, broadband providers are commonly deploying centralized network address translators (NATs) or using a protocol translator that allows IPv6 devices to talk to IPv4 devices.

THERE ARE SIGNIFICANT COMPATABILITY ISSUES BETWEEN IPv4 AND IPv6.

Neither of these solutions is perfect, however. Both are stop-gaps that prevent some applications — such as VoIP and Universal Plug-and-Play — from working. They degrade performance and increase the likelihood of system failures. And applications that identify users by IP address will stop working if the user is behind a centralized NAT.

Organizations are having to address these problems, upgrade technology and look at security (still immature on IPv6), staff training, online strategy and budgetary implications. In terms of effort and investment, it's a challenge that bears more than a slight resemblance to the Y2K scenario — but it remains to be seen if a similar outcome will be achieved.



IPv6

Photos: Shutterstock



TURNING YOUR MICE GREEN

Eco peripherals steer clear of plastic.

Arsenic, mercury, PVC, brominated flame retardants: PC-making can be a dirty business. But in recent years, manufacturers have increasingly adopted processes and materials that minimize its environmental impact, even as legislation around the world has required that old PCs are sent for recycling.

Less attention, though, has been paid to peripherals. But now the creation of robust, high-grade plastic substitutes from renewable materials has given birth to the world's first biodegradable computer mouse. Fujitsu's M440 ECO mouse uses the environmentally friendly plastic alternatives BIOGRADE (a form of cellulose acetate) and ARBOFORM (based on lignin, a byproduct of the pulp industry mixed with natural fibers), making it 100% recyclable.

The mouse is the latest addition to the company's proGREEN product series and sits alongside the KBPC PX ECO recyclable keyboard where 45% of standard plastic keyboard components are replaced with materials made from renewable sources. Both use PVC-free cables.

"This kind of innovation shows that it is possible to eliminate the use of non-renewable sources from the IT lifecycle, to create durable, eco-friendly products without extra cost," says Garry Sales, product marketing manager for client products at Fujitsu UK and Ireland. The ECO mouse costs around €15.

4

VISIBILITY IN THE CLOUDS

Ensuring maximum uptime will be crucial to cloud adoption.

As information and systems increasingly move into virtualized environments — whether they are cloud data centers run by managed service providers, internal private clouds, the wider Internet, or a combination of all three — the problem of being able to guarantee high availability and service levels becomes ever more tricky.

Effective network management and monitoring tools that give adequate visibility and control of these increasingly complex environments are therefore vital.

A single point of failure, or bottleneck, could affect the performance of any number of applications and services, degrading users' experience and — critically in the case of cloud service providers, which are contractually committed to delivering certain levels of availability — denting a business's bottom line.

It's perhaps not surprising, then, that big vendors are at pains to persuade organizations that they have the tools for the job. Fujitsu's Proactnes II SM V01

software, announced last year and available in Japan since January this year, is described as "an industry first." The technology can detect system failures before they happen (see Data Feed, right), and the software offers a notably improved ability to "analyze cloud system data and gather information, thus narrowing down the causes of failures and resolving them successfully."

Fujitsu is now using the software at its Tatebayashi System Center, which offers customers cloud services, and says as a result it is possible to ensure service levels of 99.99%.

As CIOs weigh up the decision to move their IT into the cloud, such assurances from potential providers will be ever more key to their confidence in migrating mission-critical systems and services. But, as analysts point out, monitoring data supplied by cloud vendors is probably not enough. If CIOs truly want to know whether their SLAs are being met, they also need to maintain their own logs of what users are experiencing to ensure their provider is achieving what it claims.

DATA FEED

- By analyzing the response of communications across a network, the Fujitsu software locates where a failure has occurred, on both the data center's internal network and external networks connecting users to the cloud.
- By correlating the volume of a data packet traveling across a network and the CPU usage of each virtual machine, the system identifies unusual behavior at an early stage.
- Processes are simplified by using network device settings and other details to make the configuration of users' virtual systems visible.

5

INSTANT POLYGLOT

Voice translation app undergoing live trials.

In any multinational organization, one of the biggest barriers to cross-border collaboration is often language. However, this may soon be about to change thanks to a mobile application being trialled by the US Army in Afghanistan. Called Transtac, it is being developed by the American government as an Android app that runs on an ordinary smartphone and translates spoken phrases from Dari and Pashto to English, and vice versa.

Google is reported to be working on a similar mobile project designed to leverage its Google Translate technology, which currently covers 52 languages.

Although rumors of such translation devices have abounded for many years, it's likely that some genuinely valuable software may now be about to surface.

This is thanks to advances being made simultaneously in machine translation and voice-recognition technology. The latter is notoriously complex, largely due to the problem of individual accents — which is why a cellphone is the perfect device on which to run such apps, as it can be programmed to learn to recognize the user's voice.



Photo: Shutterstock



6

THE MASTER SWITCH

Always-on, ubiquitous digital technology is changing consumer behavior — with huge consequences for CIOs, says Peter Hinssen.



Peter Hinssen

is an author, lecturer and entrepreneur. He runs the consulting firm Across Technology and is the author of *Business/IT Fusion* and *The New Normal*. Find out more at: peterhinssen.com

We are only halfway into the digital revolution. Our society is becoming increasingly reliant on information technology, but there are still plenty more changes to come. To adapt, organizations will have to alter their ways of working and how they do business. And the IT department as we know it will disappear.

The impact of the digital revolution for the individual and society will lead to what I call the “new normal” — an era in which we will expect everything to be digital. I like to compare this revolution to a swimming pool: for the past 30 years, we have been wading in the shallow end, with our feet firmly on the bottom. There is no indication that we will be comfortable swimming in the deep end. Getting to the other end of the pool will be difficult and, if we make it, we will enter a world with new rules. Organizations and professionals must decide if they are up to the challenge and can adapt.

A new set of rules now governs our lives. Consumers have developed zero

tolerance for digital failure. They demand access to the Internet wherever they go, and instant access to their information from any device imaginable. However, they do not ask for perfection: MP3 delivers good enough audio; Skype offers good enough communications. So, we live in an era of “good enough” technology.

These changes in consumer behavior are disruptive for companies. They must understand that they are working in a 24-hour economy (for instance, publishing a catalog twice a year is not enough anymore) where consumers expect interaction at all times and on their terms. And they expect this digital experience to be interesting and easy. As a result, every interaction with a consumer is a chance to win or lose a customer.

Build tents, not pyramids

This new consumer attitude will bring dramatic changes for IT departments, which have traditionally brought together large groups of technical

people to make intricate constructions to support complex procedures. These constructions took many years to build, just like pyramids. However, many a pharaoh did not live to see his pyramid finished; and sometimes CIOs do not last long enough in an organization to witness the completion of their IT master plan.

We no longer get the time to build pyramids. IT needs to adapt so quickly to the changing market environment that we're better off setting up tents rather than pyramids. Tents are cheap, and easy to erect and replace.

In the “old normal,” IT needed technical experts. The new normal demands professionals who think like business leaders, driving innovation through the deployment of technology.

Building innovative projects is the new task of the department that we used to call IT. The big question for you as a CIO: Are you ready for this?

● For more on IT-enabled innovation, see Special Report, page 12.

7

THE YEAR OF THE ENTERPRISE TABLET

Employees are proving eager to adopt the fashionable form factor.

Anyone who thought the tablet computer was going to be a consumer-only phenomenon was wrong. Indeed, accountancy firm Deloitte estimates that 25% of the 50 million tablet sales forecast for 2011 will be for enterprise usage. And analyst group Gartner is predicting that, by 2013, 80% of businesses will support tablets in their workforce.

While demand will still be dwarfed by the 390 million PC shipments forecast for 2011, it is nonetheless clear that CIOs are having to bend to employees' demands for the newly fashionable form factor.

Although the advantages of equipping mobile employees with such devices are clear — their business uses range from go-anywhere sales terminals to easily portable videoconferencing equipment — there are still downsides to consider. For example: the fact that, for most users, tablets are unlikely to replace either laptops or smartphones will lead to inflated hardware and support costs; many employees who do not get their hands on an enterprise-managed device will end up connecting their own to their organization's network, thus increasing security worries; and productivity issues may arise as most tablets on the market — such as Apple's iPad — are primarily geared up as consumption, rather than creation, devices.

Such concerns, combined with strong demand, has cleared the way for a new kind of market entrant: the "enterprise-ready" tablet, such as RIM's BlackBerry PlayBook and Fujitsu's STYLISTIC Q550 (on which this text is displayed). The latter, for example, sidesteps many PC-compatibility issues by running Windows 7, and facilitates data-entry by combining a multiple-touch interface with pressure-sensitive pen input.

8

ACCELERATED SELF-CHECKOUT

A 'revolutionary' retail experience.

Supermarket self-checkout is not everyone's idea of fun shopping. Consumer surveys regularly show that most people still prefer to use standard checkouts. And even retail managers seem lukewarm about the benefits: last year's "State of the Store Manager" report highlighted how only 53% actually regarded self-checkout as "valuable." The explanation is simple: speed (or the lack of it).

Kroger, the \$82 billion US grocery retailer, thinks it may have cracked that. Working with ICT giant Fujitsu, it is trialling a retail system that allows shoppers to check out by passing items through what looks like a fast-moving airport hand baggage scanner.

That similarity is no coincidence: the underlying technology comes from security and defense contractor Northrop Grumman. Unlike conventional systems, Advantage Checkout doesn't require item barcodes to be pointed at a fixed scanner; rather, it scans items across 360 degrees as they flow through a tunnel containing 12 optical cameras. The trials have shown product identification rates of over 98%, even when items are stacked. The system also has the ability to recognize exceptions and restricted items, and to sideline these for manual processing.

According to Chris Hjelm, CIO of The Kroger Co: "The system has the potential to revolutionize the front-end experience in stores."

● See video: tinyurl.com/6d7dpcx



ON THE GRID

The opportunity is emerging for IT executives to leverage smart grids to optimize their organizations' energy use.

Two of the world's most pervasive networks — the Internet and the electricity grid — are about to collide, with significant consequences for IT organizations everywhere.

With governments across the globe making large-scale commitments to the adoption of "smart grids," IT organizations will be increasingly drawn into efforts to integrate these intelligent energy components and networks into existing infrastructures — with real gains to be had in energy efficiency.

The scope of that convergence is evident in how the US's Institute of Electrical and Electronics Engineers defines the smart grid: "An automated, widely distributed energy delivery network characterized by a two-way flow of electricity and information, capable of monitoring and responding to changes in everything from power plants to customer preferences to individual appliances."

From an IT industry perspective, it's about "when energy meets the Internet of things," to borrow from Hitoshi

Matsumoto, CEO of Fujitsu Laboratories of America. Fujitsu, along with the likes of Cisco, Intel and Google, is an active player in the Internet Protocol for Smart Objects (IPSO) Alliance, the primary advocate for IP networked sensors, actuators and other embedded devices for use in energy, consumer, healthcare and industrial applications.

When deployed in smart grids, such devices stream information over networks in near-real time to report on how much energy a large machine or process is consuming, providing opportunities to optimize their usage.

The prediction is that managing such devices will fall within the CIO's duties, as will handling the analyses of the streams of data they generate.

According to IPSO Alliance's Geoff Mulligan, the US's adoption of IP within smart grids to interconnect energy components such as smart meters and microcontrollers will involve the deployment of between 300 million and 500 million tiny devices. All of these will need IP addresses, which is one of the

main reasons for the upcoming shift from IPv4 to IPv6 (see page 29).

That translates into some pretty big spending predictions. Estimates for the IT element of world smart grid expenditure range widely, from \$30 billion to \$300 billion, according to analysts at The 451 Group.

But some of the challenges will be familiar to IT executives, say Andrew Lawrence and Adam Page, authors of The 451 report, "The Smart Grid: A major opportunity for the IT industry." They highlight: the immature state of standards; the security threats to these new networks; and the daunting prospect of continuous upgrades in an environment used to low-tech kit.

"Those involved in smart-grid deployment face challenges that enterprise IT will instantly recognize," says the report. "However, the balance of forces that have given the smart grid momentum to date — technological, political, environmental, economic and operational — are likely to strengthen, not weaken."

DATA FEED

● In 2009, the US government set aside \$3.9 billion to kick-start the modernization of the US grid, to be matched by private funding. "Smartening" European grids is estimated to cost in excess of €200bn (\$276bn).

● Sensor and response products represent the largest part of the smart grid-enabling products market, accounting for 53% or \$47bn of the \$90bn market in 2010. (SBI Energy)



THE CONSUMERIZATION OF CLOUD

“The cloud is the now and the future. I can create in it and have thousands of people collaborating with me in the cloud in real-time.”

**WILL.I.AM OF THE BLACK EYED PEAS, INTEL'S
NEW DIRECTOR OF CREATIVE INNOVATION,
ON THE POWER OF CLOUD COMPUTING**

The consumerization of IT moved up a gear in the last few months as two of the world's largest IT companies drafted in some music industry glitz to carry the flag for cloud computing. In the front row at Salesforce.com's recent user conference in San Francisco was singer, songwriter and producer Will.i.am of the Black Eyed Peas, who addressed the 14,500-strong "cloud nation" at Dreamforce on the dynamic potential of the cloud model: "It takes my mind to a totally different place imagining what can happen. I am not a Fortune 500 company but with cloud I can collaborate with people around the world who can hear my songs as they are being made, and influence them as I am making them." And reinforcing his IT credentials, Will.i.am (or Cloud.i.am to his new friends) has also started wearing an Intel employee ID badge. As the company's new director of creative innovation, he says he's going to be "teaming up with the scientists, researchers and computer programmers at Intel to collaborate and co-develop new ways to communicate, create, inform and entertain." As consumerization continues to change the ground rules, could it be that the IT industry is dangerously close to being cool?

FURTHER INFORMATION:

- Will.i.am explains his passion for microprocessor cores: tinyurl.com/4llaogg
- Vivek Kundra, US Government CIO, on the impact of the consumerization of IT: see page 22

The art of leak prevention

Data theft by employees is a growing problem, so CIOs need to be in the front line of defense against the leaking of sensitive information.

The WikiLeaks affair continues to rumble on. In early March, US military authorities announced that Bradley Manning, the low-level intelligence analyst and Army private charged with supplying WikiLeaks with thousands of documents relating to the Iraq and Afghanistan wars, was to face 22 additional criminal charges, including one punishable by the death penalty.

This may be an extreme case, but the threat of the authorized insider is not unique to the military: all organizations are susceptible. Most corporate data systems host unique intellectual property, documents on deal negotiations or emails that could be taken out of context, all of which are not intended for public consumption but are regularly accessed by employees.

In addressing the threat of leaks, it's vital to make a distinction between whistleblowing and theft, says Edward Phillips, senior legal adviser for UK and Ireland at Fujitsu. Whistleblowing, he says, is typically defined as a situation where someone raises genuine concerns about malpractice. Most jurisdictions offer individuals protection from victimization if they do so.

But a vital element of laws such as the UK's Public Interest Disclosure Act 1998 is that a whistleblower should not take any evidence outside of the organization until they have exhausted all internal reporting routes.

"Whistleblowing isn't in itself a disaster," says Phillips. "It can be extremely useful to organizations to have unsafe or corrupt practice brought to their attention. This is why many large companies have a well-publicized internal procedure in place."

Security measures

But data theft is a different matter, he says, and is a big concern for organizations. "The WikiLeaks affair should ring alarm bells because Manning was a relatively junior member of staff who apparently had access to a lot of sensitive material. There are parallels here for companies that are centralizing data and creating search technologies to make it more accessible."

This often leaves CIOs having to balance the desire to open up data to encourage innovation (see Special Report, page 12), with the need to prevent employees leaking confidential information to outside parties.

The first priority, then, must be to ensure that sensitive data cannot be viewed by unauthorized employees, and that log-ins and views made by those who are authorized to access confidential data are tracked meticulously.

"If you increase the likelihood that you'll catch an employee who has leaked corporate information, and employees are made aware of this, you'll decrease the chances they'll try it," says Phillips. "Also, all employees should sign confidentiality agreements that will remain in force after the end of their employment contract."

In terms of seeking legal recourse if data has already been leaked, Phillips says: "In many cases, providing sufficient evidence is a question of establishing that the data is yours and that the accused has had access to it."

"THE CHANCES OF FINDING LEAKED DATA AND GETTING IT BACK ARE REMOTE."

The first part of that equation can be covered by deliberately introducing anomalies into datasets that can be tied to the rightful owner of the data or being able to identify the naturally occurring ones; the second can be covered by monitoring access to systems.

"You need to identify the person and have the evidence to prove what they did to proceed with breach of employment contract and damages claims against an individual," says Phillips. But once data is "out there," he warns, an organization typically has very little control over where it is, how it gets adapted or how it is used. "The chances of tracking it down and successfully getting it back are infinitesimal — so keeping a tight hold over it in the first place has to be the priority." ●

Integrating IT with the global business

Michelin's CIO Agnès Mauffrey has re-cast the tire company's IT organization as a tightly aligned service partner to the business.



NAME: Agnès Mauffrey

POSITION: CIO of Michelin

CHALLENGE: Driving business performance through business/IT alignment

Michelin is the world's leading tire manufacturer, with net sales for 2010 of €17.9 billion. As well as producing 150 million tires per year, the group also prints 10 million maps and guides — and, famously, awards top restaurants its much-coveted stars. Headquartered in Clermont-Ferrand in central France, it has 72 plants in 19 countries and marketing operations in 170 countries.

Recently, one of its major objectives has been to align global, integrated IT activities more tightly with business priorities by promoting stages terrain (field courses) for the IT teams and applying such approaches as agile methods, a centralized enterprise architecture and “master applications.” The result: an IT organization that is more responsive to the needs of Michelin's 50,000 users.

How has Michelin structured its IT operations for maximum global IT integration?

The first step was to create a small enterprise architecture team, of just six to eight architects. These architects work closely with the *Direction de Performance*, which is in charge of defining the business processes and the related best practices in their respective domains. They are centrally located in Clermont-Ferrand and cover all the functional domains — marketing, sales, manufacturing, R&D, supply chain and logistics, and so on — and they define the IT solutions and the associated worldwide roadmaps in their respective fields. These global best practices and the corresponding IT solutions are then used and deployed wherever we have operations. So it's all about building roadmaps and proposing potential solutions that fit with the global structure of the Michelin business.

How does this work on a local level?

To cover our worldwide presence, we have five IT organizations that are in charge of deploying global solutions locally — not rewriting them, but integrating them within their own legacy environment. Local teams have a platform architect, who is more focused on operational architecture, while

global architects work much more upstream with colleagues from the business functions. Their job is to be aware of market conditions, the general business environment, and which kind of new solutions and technologies could be of interest to Michelin. This structure was established by my predecessor, who created this consolidated organization from what was previously a very disparate IT operation.

How have you built on this since you took over as CIO?

Our main objective as an IT team is to contribute to the company's overall performance. The globally integrated structure and principles were already in place — what I added, when I joined as CIO in 2008, was building greater proximity to the businesses and introducing some flexibility in the IT processes. IT is not outside of the company — it's inside the business.

How did you achieve that?

I insisted that my team shouldn't consider themselves service providers for "clients" within Michelin. We do not have *clients*. We have *colleagues* who need information systems and technologies to meet their objectives and, if we want to provide the right solutions, our contribution and their contribution are equally essential. So, from the enterprise architects downwards, everyone works very closely with their business

colleagues. I want IT managers to have personal objectives that are measured against business performance — not just IT performance.

Can you give an example of how this works in practice?

Something that has helped recently in this area is the use of agile methodologies, which requires teams to work very closely together. I insist that my IT people spend time in the field with sales people, industrial teams in our plants, supply chain managers, and anyone who is a big user of IT. The objective is to deliver a solution — or at least something that clearly demonstrates what the solution could be — through successive interactions, within three to four weeks. Working like this, the IT team's business colleagues fully acknowledge that asking for the smartest solutions is absolutely useless if they're unable to state their requirements clearly enough. But the proximity of the teams, and the fact that they're sharing day-to-day experiences with their colleagues, can help with that situation.

What kind of business value has this approach delivered?

We're quicker at delivering solutions and have a much better understanding of the business needs. The result is that IT is a major contributor to the performance of Michelin.

"I WANT IT MANAGERS TO HAVE PERSONAL OBJECTIVES THAT ARE MEASURED AGAINST BUSINESS PERFORMANCE."



And what kind of solutions have been deployed this way?

Michelin is very innovative in its core business, which is about making great tires. We aren't necessarily as innovative in IT — by that, I mean we aren't always looking for the latest technologies. Rather, we're looking for proven technologies that will provide the expected service. An example is our collaboration initiatives: we've put a strong emphasis on very simple tools that everyone can use easily. We have a simple tool that allows us to share documents relating to a project, a management team, or whatever. We're a global company with teams spread all over the world, so we've installed audio and videoconferencing tools, which have saved time, money and carbon emissions. But we're also able to ensure these tools take into account our security and confidentiality requirements, because the IT people understand clearly what these needs are.

How do you ensure your global IT solutions are adapted to different market requirements?

We have globally deployed "master applications," and in order to protect the core solution created by this master application, we're currently adjusting our delivery model. This means that localization — for example, adapting solutions for local fiscal requirements — will now be taken into account very early in the process and not during the deployment phase. Last year, we also started a huge ERP-based project. In each stage of the project, we're ensuring that local requirements, based on specifications and regulatory issues, are taken into account. Locally, we're focusing the integration work only around the interfaces with the legacy pieces that remain after the deployment of the solution. But it's also about discipline — everyone needs a strong desire to protect the concept of the core solution as far as possible. ●

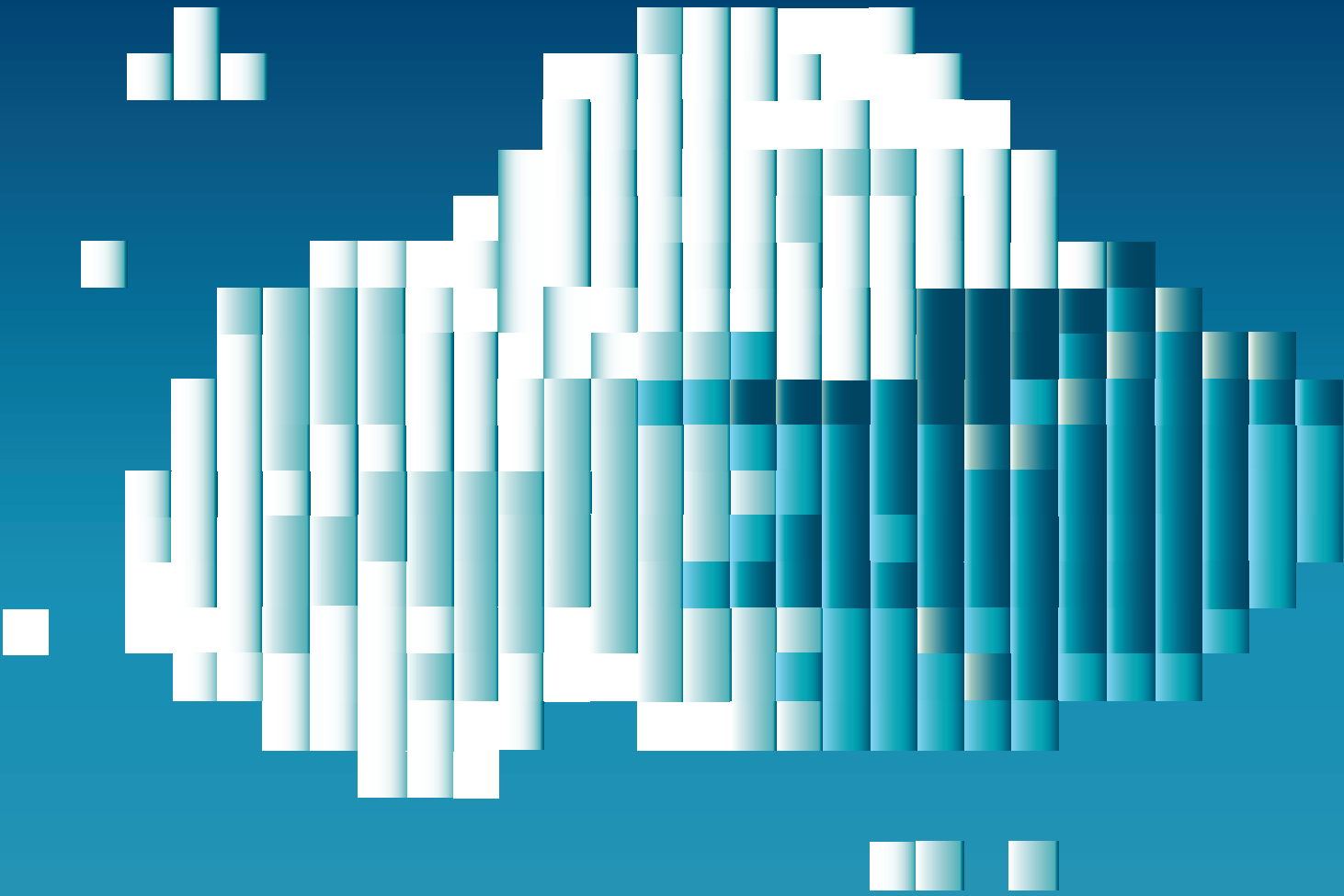
Lessons from cloud's early adopters

As organizations prepare for the large-scale adoption of cloud services, they're examining the results of their early experiences with the model. What have they learned?

Words: **Jessica Twentyman**

When it comes to cloud deployments, it's time for CIOs to start a process of "creative destruction," according to analysts at IT market research company Gartner. This may be an alarming turn of phrase, but it's one way of encouraging IT leaders to look at their infrastructure and applications, and "re-imagine" them to take account of a whole new world of cloud-based services.

And that's exactly what they're doing. CIOs — almost without exception — are planning for a strategic shift, but in the build-up to that they have been targeting tactical areas of IT for early migration to cloud. Across industry sectors, with the public sector no exception, commitments have been made to projects that are deemed "early wins," as a means of proving



the business case for cloud, but also as a way to expose some of the pitfalls. These have manifested themselves in projects both large and small, across all hues of the cloud model, from private and community clouds to public or hybrid combinations. Examples include the shift of desktop apps and email to the cloud and the transfer of number-crunching workloads (such as data analysis) to cloud providers' infrastructure, to the well-proven model of swapping in-house CRM for cloud-hosted customer applications.

It's early days, of course. Gartner's mid-2010 survey of 2,014 CIOs, in 38 industries across 50 countries, showed that a mere 3% had moved more than half of their infrastructure and applications to the cloud. But conversations with those same CIOs suggest that, by 2015, that number will have risen close to 50%.

As early-stage developments turn to deployments, IT leaders are becoming more vocal about their cloud success stories, as well as the issues they've encountered. Most of

the results show cloud delivering on many of its promises: lower costs, as a result of aggregated demand and improved asset utilization; agility, through the opportunity to rapidly scale IT to reflect business needs; and innovation, derived from the wider expertise that results from the use of common infrastructure. Of course these results also highlight challenges, including continuing issues around security, lack of interoperability, the immature standards landscape and a shortage of cloud skills.

What's clear from talking to early adopters is that there are a lot of lessons to be shared. Do your due diligence. Implement in increments. Select areas where existing contracts don't undermine the business case. Define service-level agreements clearly and monitor them closely. Be prepared to customize. Draw on outside expertise where needed. Above all, learn from those who have been there before, and make "creative destruction" a rewarding experience, rather than a nail-biting one — as the four case studies on the next pages demonstrate. ►

US Army

Innovating in personnel recruitment with cloud services support.

Just over two years ago, the US Army introduced the experience of warfare to the mall shoppers of Philadelphia. With its Army Experience Center (AEC), a 14,500 square foot retail display featuring full-scale virtual reality simulators for Apache and Black Hawk helicopters and an armed Humvee, it set out to engage with — and ultimately recruit — a generation of tech-savvy young people.

Creating virtual warfare was arguably the easy bit. But existing systems for tracking face-to-face and online engagements with would-be military personnel, and helping staff manage the recruitment lifecycle, were woefully outmoded. ARISS, the Army Recruiting Information Support System, was more than a decade old, and both inflexible and costly to adapt. So to ensure the project could be launched on time and within tight budget constraints, the Army adopted a cloud-based customer relationship management (CRM) service for the AEC.

However, before making that commitment, the AEC team carefully compared the costs of upgrading ARISS and configuring the new software-as-a-service option. Initial bids to upgrade ARISS, which relied on traditional in-house infrastructure, ranged from \$500,000 to over \$1 million, just for that one project. Pilots of the SaaS solution, by contrast, cost as little as \$54,000. As well as coming in at a twentieth of the cost, the new cloud service also meant significantly fewer recruitment staff were required to handle existing workloads.

Moreover, the customized SaaS solution was able to integrate with touch-screen kiosks and recruiters' handheld data-capture devices, as well as linking directly with email and Facebook to allow closer interaction with targets after they had visited the AEC.

The AEC pilot ended in mid-2010 and the results were impressive. With the cloud-based solution, the AEC was able to handle the workload of five traditional recruitment centers and dramatically reduce hardware and IT staffing costs. It was able to decommission or repurpose all hardware relating to the ARISS system, and staff spent less time filing reports and more on engaging with potential recruits. The projected costs associated with the new recruitment system, for full licensing, fell to \$8 million from \$83 million.

\$8

Per-user cost of cloud email at **USDA**.

33%

US Army's productivity gain when using a cloud-based recruitment platform.

CERN

Embracing cloud to ease changes to IT service management.

"There are going to be lots of cloud services available soon, so let's get some experience now."

That's the let's-get-this-party-started attitude to cloud computing that has been fermenting for some time within the 200-strong IT team at European nuclear research center, CERN, according to deputy head of IT David Foster. It wasn't until last year, however, that an opportunity to turn those words into action presented itself. An overhaul of the agency's IT service management (ITSM) strategy was on the agenda, since guests to the CERN campus — visiting academics, researchers and postdoctoral students — now outnumber permanent staff by around three to one.

"We're a highly dynamic community," says Foster of the place where the World Wide Web was invented. "Temporary visitors are constantly arriving with all sorts of equipment and expectations of connecting to the network, accessing infrastructure and collaborating with colleagues. We need to be responsive to that."

It wasn't CERN's stated strategy to find a hosted product for ITSM, "but by happy coincidence, a supplier with high credibility and excellent customer references happened to be a software-as-a-service provider, Service-now," says Foster. "That meant that we could overhaul our ITSM strategy, reap the efficiencies of a hosted approach and get some useful cloud experience at the same time."

CERN went live with the cloud ITSM service in February — but a great deal of groundwork was done first, Foster stresses. Process change was a major part of the upfront effort, with the IT team embarking on a painstaking journey of identifying and cataloging the agency's complete portfolio of customer-facing services and their underlying technology components.

Extensive efforts also went into achieving widespread buy-in for the service. "We involved a large number of senior internal people — both inside and outside the IT department — in assessing the service in terms of function, security and availability of data. We asked difficult questions and expected good answers: What if Service-now goes bankrupt, or is bought by another supplier that offers different terms and conditions? We made sure we had widespread consensus among staff that the risks involved were ones that we could tolerate and mitigate against."

US Department of Agriculture

Unifying fragmented email systems with a move to cloud.

The US Department of Agriculture (USDA) had a communications problem: its 120,000 employees were spread across 21 fragmented, siloed email systems, a hard-to-manage estate that undermined productivity and meant seemingly simple tasks, such as sending an organization-wide email, were a real challenge.

Conventional approaches for consolidating that sprawling infrastructure were never going to be easy, inexpensive or quick, so after taking stock, the USDA chose instead to shift to cloud-based email and collaboration in the form of Microsoft Online Services.

"This is really about increasing collaboration and communications across 120,000 users in 5,000 offices across 100 countries around the globe," outlined USDA CIO, Chris Smith, in his December 2010 announcement. "For us, a move to the cloud was a question of service, performance and cost."

Financially, the move was compelling: eliminating the different email systems would drastically reduce duplication, not only with software and hardware, but also by cutting the number of system interfaces that needed to be maintained on a regular basis. USDA estimates that the resulting savings will amount to some \$6 million a year, at a cost per mailbox of \$8. Vivek Kundra, Federal CIO, puts the overall saving at \$27 million.

This solution also allows USDA to make the latest Microsoft communications and collaboration tools immediately available to its workforce — these include SharePoint Online document collaboration, Office Communications Online for instant messaging and Live Meeting for web conferencing.

In making its decision, USDA took comfort from the fact that Microsoft Online Services has been deployed for other very large email systems, including one on behalf of a private sector client with 300,000 users. Care was taken, however, to get the best contract: the department benchmarked Microsoft against other providers to ensure competitive rates and embedded explicit SLAs into the deal. These include security issues, such as domestic storage of data, and performance metrics, such as minimum uptime, recovery speed and bandwidth latency. The department has built up its in-house contract and performance management capabilities in order to better support the new environment — as well as future cloud deployments that are part of a broad initiative to modernize and streamline the USDA's infrastructure.

Eversheds

Using cloud services to manage sensitive legal documents cost-effectively.

At international law firm Eversheds, CIO Paul Caris's approach to the cloud has to date been built on short, tactical deployments, where a proven need is apparent and value can be rapidly and easily delivered.

As one of the largest full-service legal partnerships in the world, with 4,500 employees in 46 offices in Europe, the Middle East, Asia and Africa, Eversheds has heavy-duty email requirements when it comes to continuity, security and archiving. And Caris was quick to seize the opportunity to use cloud services to satisfy those, last year selecting Mimecast Unified Email Management.

As well as ensuring continuity, Caris sees the move as cutting costs by eliminating the growing burden of email storage. And Mimecast is not the only cloud service implemented or planned at Eversheds. The firm already has a cloud-based extranet, which encompasses "deal rooms," where fee-earning staff can share legal documents (such as due diligence reports in M&A transactions) with their corporate clients.

On Caris's "watch list" is storage-as-a-service, the option of renting storage space from a cloud-service provider for archiving documents. "Why should we make significant investments in storage systems, when we could rent a portion of storage resources on a pay-per-use basis?" he asks. He also has his eye on desktop-as-a-service — in the next few years, he predicts that Eversheds staff will be able to access all the desktop applications they use in their day-to-day work from the cloud. This, he says, would free up a lot of the cost and time associated with running an estate of desktop PCs.

"I don't spend a lot of time explaining the cloud to the firm's management or getting bogged down in debates about it," he says. "They ask for a service and we provision it in the way that best fits the need, whether that's via the cloud or through an internal deployment. Sometimes cloud is the right solution, sometimes it's not."

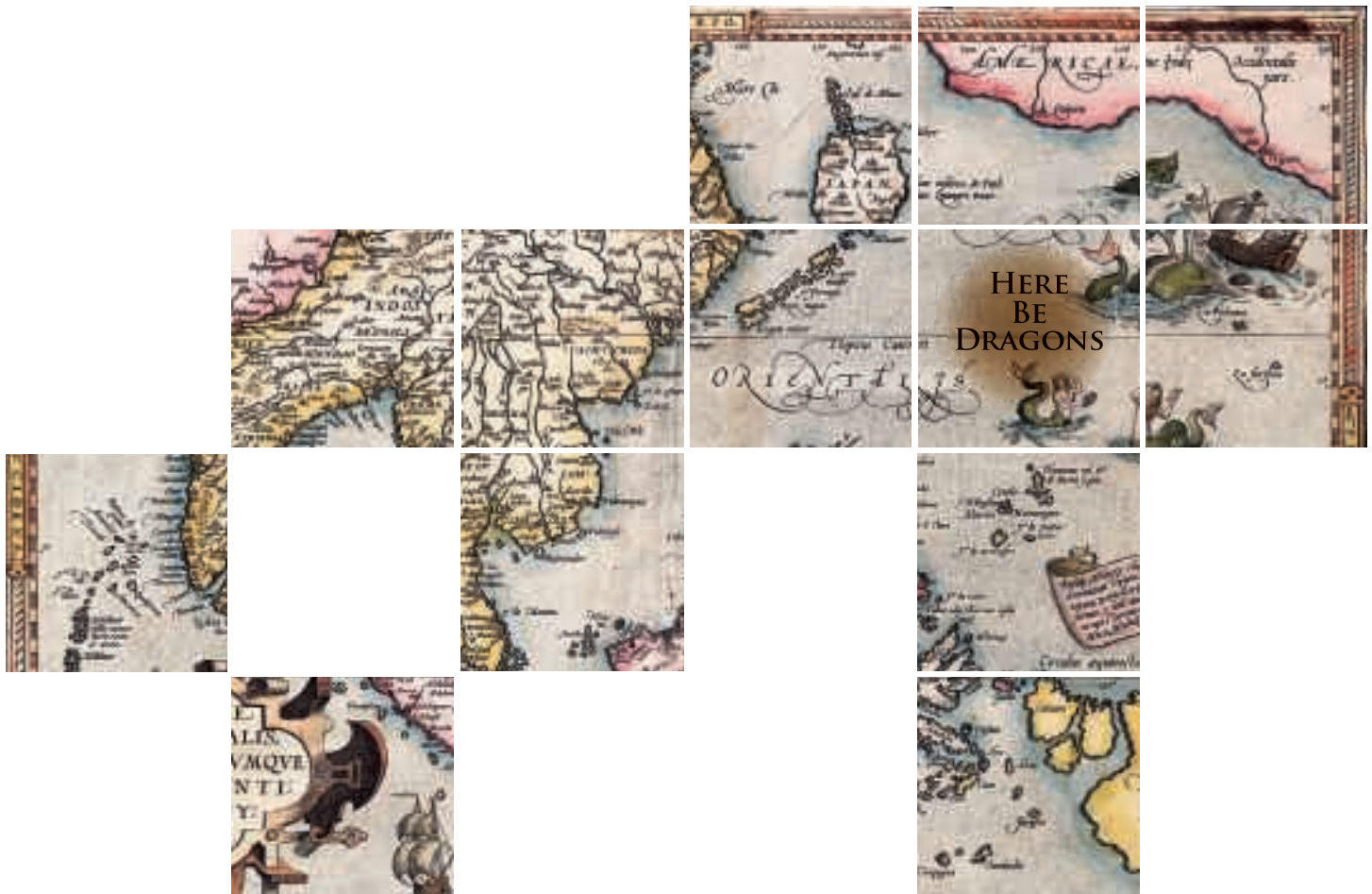
As CIOs increasingly embrace cloud services, says Caris, one of the biggest challenges is coming to grips with new approaches to managing providers, services and contracts, instead of making one-off capital expenditure decisions. Luckily for him, legal advice on the subtleties of cloud contracts is in plentiful supply.

"For us, a move to the cloud was a question of service, performance and cost."

Chris Smith,
CIO, US Department
of Agriculture

"In assessing the cloud service, we involved a large number of senior people both inside and outside of IT."

David Foster,
deputy head of IT, CERN



Into new territory...

Organizations adopting cloud services face an exciting set of challenges, says Fujitsu CTO Dr. Joseph Reger.

The perception that cloud computing is a hugely important shift in both business and consumer IT is growing fast, with many people predicting that the next 10 years will turn out to be the “decade of cloud.”

The evidence for that is everywhere. A recent study by the Pew Research Center in the US, “The Future of Cloud Computing,” asked both IT and non-IT people how they saw cloud evolving. Most of the respondents said they believe that, by 2020, the majority of the software they use will be delivered as a service over the Internet.

Most also think they are going to store very little information locally, on their client device; rather, devices will simply be the means of accessing information that is held somewhere in the cloud. Moreover, they feel that business processes, not just IT, are going to move to the cloud as well.

But while there is clearly a lot of excitement surrounding cloud, we don't hear — at least in these kinds of studies — many skeptical voices. Two recent surveys commissioned by Fujitsu added more perspective by trying to understand what end users think about one hotly debated area of cloud: data privacy. The research asked 6,000 people across 12 countries how they felt about their private data being stored in the cloud, and discovered that users had a lot of reservations.

In some countries, concern about private data is prompting users to look to their governments to create a framework in which their data privacy is somehow guaranteed — but, of course, without the government itself being able to make use of that data. This encourages a temptation to establish “national clouds,” with many people thinking their particular national cloud is going to be better engineered — and therefore more secure — than those in other countries. The problem with such ideas is that they go against the original notion of the cloud as a set of utility-type infrastructures deployed on a global scale and available to everybody in any country.

Legal implications

This potential for geographical fragmentation is seen in Europe, where the often-antiquated legal systems of different countries will struggle to deal with the cloud model.

With different legal jurisdictions treating data privacy and compliance in very diverse ways, it's going to be a tough task to put up any kind of pan-European cloud that will serve everybody's needs equally well.

Access by authorities is also a critical area. Some want direct access to information, such as corporate or individual tax records, without having to wait for a neighboring country's bureaucracy to decide whether a request is valid or not.

As history shows, the IT service industry has not developed as broadly in Europe as it has in the US, and that relates to the separate regulations governing the way different European societies are organized. This might mean a cloud computing service will simply be forced to stop at the borders of one country because of legislative issues.

There are some initiatives underway that are trying to resolve that. At Fujitsu, we are researching technologies such as encryption and key management that could be used in such instances. If a country insists that certain types of data should not leave the country, then it may be possible to re-interpret or re-write the relevant laws to say that while the “information” should not leave the country, the encrypted bits can. Without the key to that data, those bits are certainly not the information.

It is clear we need change — this or next year, not in 10 years' time — or cloud service vendors and customers will find themselves at a disadvantage.

Of course, Europe is not the only place where regulations might get in the way of cloud. In America, companies are governed by laws such as the Patriot Act and HIPAA (The Health Insurance Portability and Accountability Act), which can



Dr. Joseph Reger is chief technology officer of Fujitsu Technology Solutions and Fujitsu Continental Europe, Middle East, Africa and India. As CTO, he is responsible for understanding and predicting the IT trends that will benefit customers most, and for implementing them as part of the company's strategy.

have an impact on whether you can guarantee the absolute security of data held in the US.

Potential models

So alongside the excitement are some unanswered questions. Leaving aside the fact that there is no industry-wide definition of cloud computing, questions remain about what kind of consumption models for cloud will be most popular. Observers can't even decide whether public clouds are the best idea, with their enormous scale and a backbone that can deliver very high levels of efficiency, albeit with potential security problems; or whether private clouds are the best approach, where we apply the technologies developed for a public cloud in hosted or customer data centers to ensure total operational control but without the economies of scale.

Cloud computing represents an enormous business opportunity. Even though estimates of the size of the market in coming years vary widely — contradicting each other by a factor of three to four — analysts have reached a consensus on one thing: that demand for cloud products and services will see a compound annual growth rate of around 35%.

Given that the average annual growth rate of the IT industry over the last couple of decades has been running at 4% to 5%, that is a huge opportunity, and one that vendors are bound to get excited about.

“With different legal jurisdictions treating data privacy in very diverse ways, it will be tough to make a pan-European cloud that will serve everyone.”

We're entering new territory, but from where I stand there is no doubt: cloud computing will become a key part of our lives. ●

● Pew Research Center's report, “The Future of Cloud Computing”: tinyurl.com/2bur8g6

● Fujitsu surveys on Personal Data in the Cloud: tinyurl.com/263xguz

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THIS WAY UP

A strong business management background and a breadth of international experience have enabled Telefónica's CIO, Fernanda Torquati, to lead a global transformation of its IT.

Words: **Andy McCue** Portrait: **Masao Yamazaki**




Fernanda Torquati is global CIO of Spanish telecommunications giant Telefónica. A former McKinsey consultant and business operations director, she now oversees IT for a company with a presence in 25 countries, 2010 sales of €61 billion and more than 260,000 employees.

After just two years as CIO of Telefónica in Spain, Fernanda Torquati was approached by the management board of the telecommunications giant and offered the role of global CIO. It was a tough decision, she admits, but the opportunity proved compelling, especially as it involved spearheading the company's vision of a truly uniform global IT organization.

As with any multinational company with a large legacy of local IT operations built up over decades of growth, this was not a challenge for the faint-hearted: three years on from accepting the top IT job, the transformation is still at the top of her priority list.

Headquartered in Madrid, Telefónica is one of the largest telcos in the world. More than 60% of its business now lies outside of its home market and it serves some 281 million customers across its fixed-line and mobile portfolios in 25 countries — mainly in Spanish and Portuguese-speaking Europe and South America. Behind that is a 5,000-strong global IT organization with an annual budget that, prior to Telefónica's recent acquisition of Brazilian mobile operator Vivo, stood at around €1.3 billion.

Torquati — who is now also head of Telefónica Global Technology (TGT), a new, wholly-owned subsidiary created to unify the company's technology operations — says the IT transformation is a key part of Telefónica's move towards being a fully-integrated global company. But she warns: "This really is a long journey, at least in business terms, when we're used to ending projects in less than 3 to 4 years." But, she ►



▲ **2010-present** *Global CIO & Head of Telefónica Global Technology*
Telefónica Group

▲ **2008-2010** *Global CIO*
Telefónica Group

▲ **2007-2008** *CIO*
Telefónica de España (Telefónica Móviles & Telefónica de España)

▲ **2006-2010** *CIO*
Telefónica Spain

▲ **2005-2006** *CIO*
Telefónica Argentina

▲ **2000-2005** *Business operations director*
Telefónica Argentina

▲ **1998-2000** *Business operations manager*
Banco Hipotecario Nacional (Argentina)

▲ **1992-1998** *Senior engagement manager*
McKinsey & Co (Argentina)

adds, the benefits of success are potentially enormous. "IT should become an enabler to the business, instead of the burden it seems to have been perceived as historically."

There are two distinct phases to the global IT transformation project. The first focuses on infrastructure, workplace and ERP: "People often don't pay a lot of attention to the cost of these services, but they represent almost 50% of the total group IT budget," says Torquati. "Also, there are huge opportunities for efficiency by consolidating and homogenizing infrastructure."

In the second phase of the project, she explains, the focus will move to business processes and more critical business applications. "But this will happen only once we are capable of demonstrating that we're evolving to the global IT model in order to add business value but not business risks," she says.

The project is huge, not least in terms of infrastructure and architecture. In the case of data centers, for example, the plan is to consolidate more than 100 facilities around the world to just five large data centers — two in Europe and three in Latin America. "We've already defined our target architecture and, although it will take a huge effort from everyone involved, we'll do our best to ensure the entire Telefónica group works towards that same target," explains Torquati.

A similar approach will be extended to Telefónica's IT suppliers. The company intends to work with fewer partners but have a much more strategic relationship with those that remain. And a further challenge, which will be more than familiar to any global CIO, is tackling the complex cross-border issues that arise around budgets, taxation and regulation.

Latin lessons

To succeed with such an ambitious global IT transformation program, says Torquati, you must have the buy-in of the entire organization — so that it is seen as a company project and not just an IT one. This means involving key business leaders, ensuring strong project management, and generating excitement around a bold vision with clear targets. The challenge, however, does not daunt

“TELECOMS AND IT ARE THE MOST DYNAMIC INDUSTRIES IN THE WORLD, AND OFFER THE BIGGEST CHALLENGES.”

Torquati, who is something of a Telefónica veteran with plenty of international experience and a strong track record in business as well as IT.

She began her career in her home country, Argentina, in the 1990s. Armed with a degree in accountancy and an MBA, she joined management consultancy McKinsey & Co as a business analyst working on projects in the financial and retail sectors across Latin America. It was an exciting time to be working in business in Argentina as many state-owned companies were being privatized and merger and acquisition activity was rife.

Against this background, the “problem-solving” approach of McKinsey provided an excellent base for the rest of her career, says Torquati. “McKinsey gives you the methodology needed to solve any situation: how to analyze the problem, bring up potential solutions and construct a recommendation. And all this takes place in a high-performance, high-output professional environment.”

One of Torquati’s clients during her six years at the consultancy was with Banco Hipotecario Nacional. In 1998, the Argentinian bank offered her the role of business operations manager. She stayed there for two years before being appointed as business operations director for Telefónica in Argentina in 2000.

There, her interest in the business application of IT took hold. “Nowadays, you can say that every position in any industry is somehow exposed to the IT world,” she points out. But in that first role at Telefónica she actually became the local sponsor for a large-scale, core IT application project. “It was the first time that Telefónica’s Latin American fixed telecommunication companies had built a regional application,” she says. “It gave me the opportunity to learn a lot from a very complex project. It took a lot of time and effort, but I can proudly say that this application is still running in Brazil, Argentina, Peru, Colombia and Chile.”

After five years in her business operations role Torquati made the switch to IT, becoming CIO of Telefónica in Argentina in 2005. And the following year, she was asked to take on the

CIO’s position at the parent company in Spain. It was a huge decision to make the 10,000km move from Buenos Aires to Madrid, but one she doesn’t regret. “I knew an overseas role would open new paths and opportunities for me, as well as giving me the chance to enrich my personal and professional development. And, after five years of experience in Spain, I can say with complete confidence that it was more than worth it.”

Once in Spain, she undertook a huge local IT transformation project based around the opportunities she’d seen for improvements in IT performance and the need for the IT organization to be ready to support Telefónica’s fixed-mobile convergence.

The strategic role of IT

Although she relishes her current role, she says her career path (as is the case for many top CIOs) wasn’t part of any grand plan — more a combination of taking advantage of opportunities along the way and a lot of hard work. However, she sees IT as currently being one of the most exciting functions for anyone who wants to play a key role in their organization’s strategic direction.

“I’ve always been attracted by IT and its strategic way of seeing global business,” she says. “But, I have to admit that the IT world found me, rather than vice versa. I think that happened because I’ve always been inspired by new challenges — almost every opportunity I’ve taken in my professional career came with high levels of uncertainty. On top of that, I believe the telecommunications and IT industries are the most dynamic industries in the world, and the ones that offer the biggest challenges and opportunities.”

Torquati’s consultancy and operations background, plus experience in a broad range of roles in billing, collections and sales back office, means she brings a lot more to the table than someone with a pure IT background. This is absolutely vital for creating a closer alignment between business goals and IT, she believes.

“My experience as a consultant at McKinsey, plus those roles in business operations at Banco Hipotecario Nacional and Telefónica Argentina, gave me a deep knowledge of business processes,” she says. “I learned to speak the language of business, to understand the needs of other functions, and had the opportunity to work with them to review their needs to make the most efficient use of IT budgets.”

Although Telefónica’s global IT transformation project is an enormous undertaking, Torquati is quick to point out that every IT organization must still deliver on its basic responsibilities — with 24/7 uptime as the most essential element. “Availability is the main condition that should be fulfilled if we expect the rest of the organization to function effectively,” she says. “If there is any problem that interrupts the service IT is providing, then no new IT initiative is worthy of anyone’s time or consideration.”

That said, Torquati firmly believes in the two-sided nature of the business-IT relationship. The business needs to recognize the value of what IT delivers to the organization. And support for this kind of 21st-century vision is something Torquati says is changing for the better in many organizations.

“Business management views are gradually changing,” she says with a wry smile. “Historically, it wasn’t easy to get IT issues on the strategic agenda, but these days IT organizations are definitely seen as more critical in the pursuit of strategic goals.” ●



DOES EARLY CIO INTERVENTION DETERMINE THE SUCCESS OF AN M&A?

With M&A activity rising fast, management teams are looking to improve their ability to assess and integrate target organizations — but the CIO's place at the negotiating table is often far from certain.



“THE FURTHER UPSTREAM THE CIO IS INVOLVED, THE MORE VALUE CAN BE ADDED.”

Hugo Sarrazin

is a director in the Silicon Valley office of management consultancy McKinsey and an operating committee member of its Business Technology Office.

We've all heard about M&A deals where the stars seemed aligned but synergies remained elusive.

In these cases, the acquirer and target may have had complementary strategies and finances, but the integration of technology often proved difficult, usually because it didn't receive adequate consideration during due diligence.

One reason is that IT executives often aren't included in the due diligence process, preventing them from offering valuable input on the costs and practical realities of integration. In our work on post-merger management, we have found that between 50% and 60% of the initiatives intended to capture synergies are strongly related to IT, but most IT issues are not fully addressed during due diligence or the early stages of post-merger planning.

If a haphazard approach to technology issues can drain an acquisition's value, the opposite is also true. A company with flexible, streamlined IT — one where executives rationalize systems and make disciplined decisions about integration — can wield this knowledge as a powerful tool in choosing which

deals are most attractive. Conceivably, acquirers might even be able to bid higher, since they are better prepared to capture the 10% to 15% cost savings that successful IT integrations deliver.

As companies begin to plan an acquisition, IT must have a seat at the due diligence table. The technology team can spot potential obstacles to integration in the acquisition target or identify potential liabilities. This is particularly important as companies review cost and revenue synergies. All too often, forecasts are driven by financial formulas or rules of thumb provided by the merger's advisers. In practice, however, many of these calculations depend on companies' ability to integrate IT operations — not just IT itself, but the wide range of functions that it enables, which include finance, HR, logistics and customer relationship management.

Companies that take a strategic approach to M&A build an information architecture well suited to acquisitions. They get their own IT house in the best possible order before initiating any deals. Many have already adopted service-oriented architectures that are generally more flexible and adaptive. These companies have also reduced the number of systems and developed a model that considers new data that may be gained in acquisitions.

With this capability in place, the CIO can be a strategic partner in identifying acquisition opportunities. The further upstream the CIO is involved, the more value can be added. Leaders who demonstrate IT's value in the integration effort to their colleagues in the C-suite can become key figures. CIOs who take on this role understand an acquisition's business goals as well as the steps necessary to achieve them.

● *Extracted with permission from "Understanding the strategic value of IT in M&A" by Hugo Sarrazin and Andy West, McKinsey Quarterly, January 2011. See the full article at tinyurl.com/39wseer*



"THE CIO IS OFTEN ONE LEVEL REMOVED FROM THE MAIN ACTION, AND THE SECRECY THAT SURROUNDS DEALS."

Jack Noble

is EVP and head of global services at Fujitsu's Global Business Group.

Ideally, the CIO would be involved in any M&A deal right from the get-go. Unfortunately, in my experience, that's rarely the case. It's amazing how quickly after a deal is struck that perceived problems shift from purely financial issues (such as revenue growth and cost-cutting opportunities) to practical concerns. This is typically when the spotlight turns on IT — and often, that's far too late.

Plenty of M&A deals fail to deliver on the promised productivity gains and cost savings because no one bothered to look early enough at systems compatibility. Over time, this will undermine the expected value of a deal.

Once the honeymoon is over, plenty of organizations find that they face an arduous journey integrating and rationalizing IT infrastructure. Too many, meanwhile, find that the process is likely to cost them a great deal of money.

So why is the CIO not invited to the negotiations earlier? To my mind, it's because M&A deals are typically driven by the CEO, and in many organizations, the CIO reports to another C-level executive. In a sense, the CIO is often one level removed from the main action and the

secrecy that surrounds deals, which excludes anyone from that "second tier" of management.

Also, because an acquisition is seen as an external activity, and the CIO is viewed by senior management as having an internally focused role, their contribution is not seen as particularly relevant.

In some cases, to be fair, the CIO does have a seat on the board — but even then, he or she may only be called upon for some core numbers and information. It's still a peripheral role in the deal-making.

In some ways, however, that may work in the CIO's favor. It can be to the CIO's advantage that they weren't adequately consulted beforehand, because it affords them the opportunity to "save the day." A great CIO who has a solid plan for systems integration could go from "zero to hero" in an instant.

But it can be a poisoned chalice. You've got to be able to make that plan work and deliver the projected savings, or you'll go from hero to zero just as quickly.

Smart CIOs often use the prospect of a post-merger systems integration project to get their budgets expanded. It may even be an opportunity for some of them to get long-awaited improvements signed off by the executive team. But they need to get the integration work done at the same time as running day-to-day and ongoing projects. It's a lot to take on.

In global deals involving very large organizations, we often see companies bringing in third-party, outsourcing services in order to standardize tools and processes across the two businesses that are coming together. That, of course, places extra pressure on the CIO to negotiate good deals for such services — but it's also another opportunity for them to take center stage and shine.

In general, the level of involvement a CIO enjoys in an M&A deal will vary according to their role within the company. But if a CIO is responsible not just for running internal systems, but also for providing strategic information and data to the wider executive base, then the earlier they get involved, the better. ●

ACTIVE HIGH



Joe Seibert
SVP & CIO,
The New York Times Co
\$2.4 billion media group
Champion drag racer

When you travel from a standing start, in a straight line, over a quarter-mile in just under seven seconds, the acceleration is outrageous. You leave the start line at 3 or 4Gs, which is enough to knock you out, and by the time you reach the finish line you're hitting nearly 200mph. When you go down the track this fast for the first few times, you might not even be able to see. But then, as you get more experienced, time slows down and you start to register every detail. Everything is measured in fractions, and a thousandth of a second becomes a long time.

The rear-engine 235-inch dragster I race is highly technical — computer systems measure and analyze almost everything happening in the vehicle. But that technology is only there

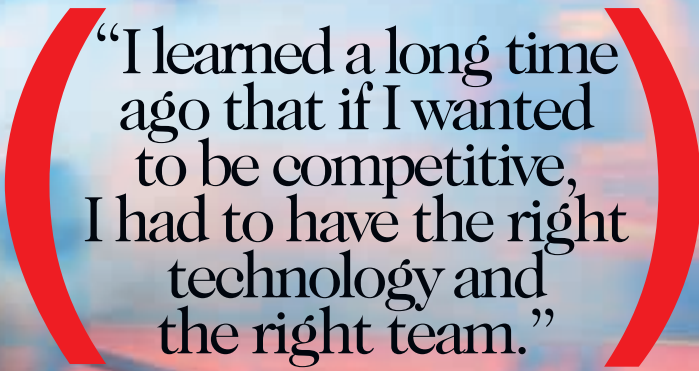
to help me be the best driver I can. When a light comes on telling me to do something, such as apply more gas, if I react more than 10 or 20 thousandths of a second later than I should, I'll lose the race.

This ability to be precise, consistent and focused under pressure is extremely important — and not only for winning races. Failure to do so can result in death. Once, I went through a finish line and lifted my foot off the gas, but the car just kept accelerating: my throttle had jammed. I only had three seconds to make the correct decision and avoid crashing. The instinctive reaction is to hit the brakes or pull the parachute, but actually you must turn the engine off first. I made the right call and lived to tell the tale, but I've seen others in that situation die because they made the wrong decision.

I also race a highly modified 1968 Chevrolet Camaro. It doesn't have a lot of technology and is a lot more fun to drive — you have to do everything without computers

— but the rear-engine dragster is the ultimate race car. In the 2010 Sunoco Series, I came first in both classes, and that was largely down to two things I learned a long time ago: if I wanted to be competitive, I had to have the right technology and I had to have the right team. I had to recognize what I was good at and what other people were better at than me, and then I had to surround myself with those people.

That philosophy has some clear parallels with being a successful CIO. Both disciplines are all about how we combine technologies with the best thinking from around the organization, as well as the best use of information and the best innovation. So it's about so much more than the technology. What matters is how you steer that technology, how you integrate it, how you provide leadership and how you make decisions under pressure. Then it's up to you, as the driver and team leader, to do the best you can every time you show up.



“I learned a long time ago that if I wanted to be competitive, I had to have the right technology and the right team.”



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