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Retailers grow e-commerce investment

BUSINESSES POUR IT INVESTMENT INTO CUSTOMER-FACING TECHNOLOGY TO REFLECT SHIFT IN CONSUMER SHOPPING HABITS **PAGE 5**

Hurd outlines future of IT

IN AN EXCLUSIVE INTERVIEW ORACLE PRESIDENT MARK HURD PREDICTS A SIMPLER FUTURE FOR IT DEPARTMENTS **PAGE 4**

Public sector champion

NEW GOVERNMENT CIO ANDY NELSON SETS SIGHTS ON WHITEHALL IT LEADERS AND SUPPLIERS IN IT TRANSFORMATION **PAGE 8**

the week online

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8 How the cloud found Mitchells & Butlers

9 HP losing grip of EDS's Ministry of Defence contract

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VIDEO

> **Eugene Kaspersky on why e-crime is going social**
Eugene Kaspersky, co-founder of Kaspersky Labs, discusses the threat of cyber attacks that target critical national infrastructure. Kaspersky fears social networks could be used to manipulate people and attack nations through disinformation.

VIDEO
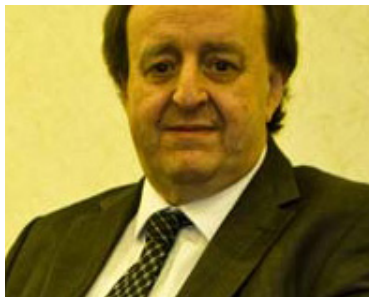
> **Tim Wilson on ISO 27000**
Compliance is very big, says Tim Wilson, deputy head of ICT at NHS City & Hackney, speaking prior to a panel session at Infosec Europe 2012. The trust has embarked on an ISO 27000 compliance programme.

GALLERY

> **Infosecurity Europe 2012**
With 300 exhibitors and hundreds of delegates crowding into the conference centre at Earls Court, information security is still hot on the IT agenda. Cliff Saran presents the highlights of infosecurity Europe.

PREMIUM CONTENT

> **Information security breaches survey 2012**
This is the latest of the series of *Information Security Breaches Surveys*, carried out every couple of years since the early 1990s. This year's results show that security breaches remain at historically high levels, costing UK plc billions of pounds every year. A big driver of this is the continuing escalation of cyberattacks. The number of significant hacking attacks on large organisations has doubled over the past two years.

> **Learning & development: Can it really help to motivate and engage staff?**
Salary increases are extremely rare in today's downturned economy. Because of this, it has become increasingly important to ensure satisfaction and motivation of employees so your staff feel appreciated and engaged within your company. Investing in training and development initiatives can be an effective way of driving employee engagement and morale while also securing future leaders for your organisation.

> **Delivering on high cloud expectations**
Business demands for easier, faster and more flexible IT services are driving cloud expectations and IT organisations can't afford to respond sluggishly, even while pursuing simplification and cost reduction objectives.

OPINION

> **Three key considerations to deliver benefits from big data**
There is a real commercial advantage in big data and organisations need to make sure they have the right elements in place to seize that advantage. Business leaders need to focus on: managing the volume of data; accessing the commercial insights; and securing the right skills.

> **Emerging markets: The future home of IT spend?**
Notwithstanding the economic volatility in some mature markets, emerging markets have continued to show positive and consistent IT momentum. Estimates around the IT market share of emerging economies have continued to surge on the back of their largely underpenetrated IT markets, thriving small and mid-size businesses and consumer markets

BLOGS

> **Ian Thain: Beautiful mobile applications, beautiful user experiences part 3**
There are a few mobile design guidelines that should never be far from your thoughts. To take a few as examples : The initial screen should be kept as clear as possible to act as a launch point, because first impressions count; keep the main/primary controls in the thumb "hot zones" at the edge of the screen and keep the most important content at the top, with controls at the bottom.

> **Adrian Bridgwater: Australian open source drag-and-drop GUI boosts DNA research**
While the particle physicist, computer science and computational physics communities are all comparatively adept when it comes to juggling command-line level code operation, the same skills do not typically translate over to the men in white coats tasked with looking after comparative genomics research.

> **David Lacey: Reflections on Infosecurity Europe week**
I always look forward to Infosecurity Europe week, which guarantees a great congregation of security luminaries and practitioners in London. I say "week" because there is so much going on around it. You run into many old friends, meet new colleagues and learn a lot about the latest products and services. This year's Infosecurity conference agenda was lacklustre, though the exhibition was first class.

> **Bill Goodwin: A few signs of optimism in the IT jobs market**
There appear some signs of optimism in the IT jobs market, the latest figures from Computer People suggest. Compared to the same time last year, permanent vacancies are up 6% in retail, 7% in telecoms and 12% in media. Vacancies in the public sector are up by a huge 30%, but that's from a very low base.

HACKERS & CYBER CRIME
UK prepared for Olympic cyber attack, says Francis Maude
The 2012 Olympics in London will not be immune to cyber attacks by those who would seek to disrupt the Games, says Cabinet Office minister Francis Maude. "The Beijing Olympics saw 12 million cyber security incidents during their Olympics," he said during a visit to the International Centre for Defence Studies in Estonia. "We have rightly been preparing for some time – a dedicated unit will help guard the London Olympics against cyber attack," he said.

GOVERNMENT & PUBLIC SECTOR
NAO: Government's £376bn project spend needs assurance
Government departments must produce transparent data if the £376bn cost of current major projects is to be spent effectively, the National Audit Office has said. In its report, Assurance for Major Projects, the National Audit Office (NAO) praised the work of the Major Project Authority (MPA), created in April 2011 to improve central government's poor track record in delivering large projects.

GOVERNMENT & PUBLIC SECTOR
London NHS trusts lack disaster recovery systems
Patients in London could be at risk if hospital IT fails, as 60% of London NHS trusts do not have disaster recovery systems, according to a report. Speaking at the BCS Health Informatics conference, Dionne Hilton, programme manager at London NHS Commercial Support Unit, presented the findings of the body's corporate services benchmarking report.

## PRIVACY & DATA PROTECTION
Virgin Media first ISP to block Pirate Bay after High Court ruling
Virgin Media has moved quickly to be the first UK internet service provider (ISP) to block access of millions of customers to The Pirate Bay. The move by the UK's second largest ISP comes within days of the High Court ruling that the Swedish file-sharing site contravenes copyright laws. The British Phonographic Industry (BPI), began legal proceedings in December after ISPs ignored a request to block access to The Pirate Bay voluntarily.

HACKERS & CYBER CRIME
Second DDoS attack on SOCA highlights need to be proactive
The UK's Serious Organised Crime Agency (SOCA) has confirmed that its website has suffered another distributed denial-of-service (DDoS) attack. This is the second time in less than a year that SOCA's website has been targeted by malicious attackers.
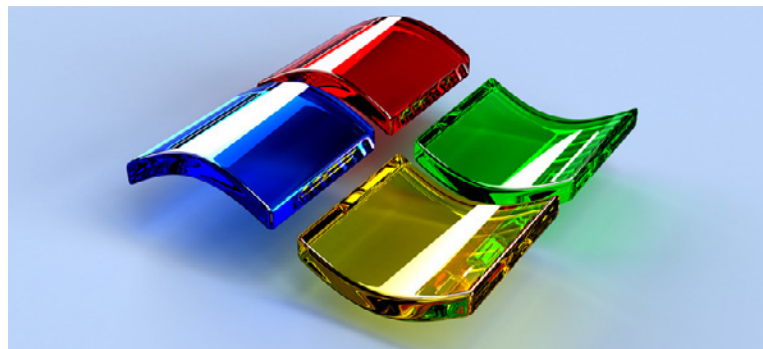
Microsoft hikes licence prices

UK organisations buying Microsoft volume licensing will see up to 33.5% price hikes from July as the software giant attempts to create price consistency across Europe.

The change, which only affects volume licensing programmes and doesn't apply to Windows, Office or other products sold to consumers through retailers or pre-installed on PCs, has been implemented because of differences between the pound and the euro.

Worldwide IT spending forecast

Global IT spending by sector in 2011 and 2012 (US$bn)

Sector	2011	2012	% growth on previous year (2011)	% growth on previous year (2012)
Telecoms services	1,704	1,721	6.3%	1.0%
IT services	845	856	6.5%	1.3%
Telecoms equipment	442	472	7.2%	6.9%
Computing hardware	404	421	7.7%	4.3%
Enterprise software	267	280	9.2%	5.0%

Source: Gartner

GOVERNMENT & PUBLIC SECTOR

"I have a relationship with Microsoft purely on the basis of my neutral, pragmatic, end-user oriented and supplier-agnostic perspective"

Andrew Hopkirk,
Government open standards hearing facilitator

OPERATIONS MANAGEMENT
IT managers struggle with virtual back-ups
IT managers find backing up virtual infrastructure too difficult, according to a study from data back-up company Quantum. The survey found nearly 90% of IT managers admitted they struggle to backup data in virtualised environments. Despite the benefits of virtualisation, 41% reported that server virtualisation resulted in increased data growth and 24% said they were forced to re-engineer existing storage environments

MOBILE NETWORKS
Everything Everywhere rolls out 4G trial in Lake District
Education secretary Michael Gove has unveiled mobile network Everything Everywhere's new 4G trial in Cumbria, despite ongoing tensions between operators and Ofcom over the company's use of its existing spectrum. The first roll-out of its kind in the north of England, the 4G trial will focus on the Threlkeld area, but will only be available to 50 users until the end of July to test the network's performance capabilities.

IT TECHNICAL SKILLS
Employers compete for skills as IT staff seek career opportunities
The IT recruitment sector remains buoyant despite the economic climate, according to recruitment firm Hays IT. A survey of over 1,000 IT workers found employers facing competition for tech skills, with 73% of IT professionals currently considering moving jobs for the right role.

BROADBAND COMMUNICATIONS
LSE: UK will lose out from £1.1bn broadband underinvestment
The UK's global competitiveness is at risk due to an under investment of £1.1bn in its broadband infrastructure, according to a report from the London School of Economics. The paper commissioned by information management company Convergys identified a gap in funding of £1.1bn needed to support the government's deployment of 100% fast broadband coverage and 90% superfast broadband coverage across the UK by 2015.

SOCIAL MEDIA TECHNOLOGY
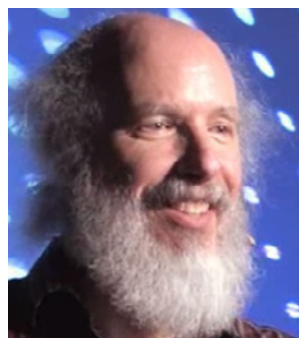### Facebook IPO could value social network company up to $95bn
Facebook has set the share price for its initial public offering (IPO) this month at $28 to $35 a share, which will value the company at up to $95bn. The listing on the open stock market is set to realise the highest value to date for an internet firm, far outstripping Google's IPO valuation of more than $23bn in 2004.
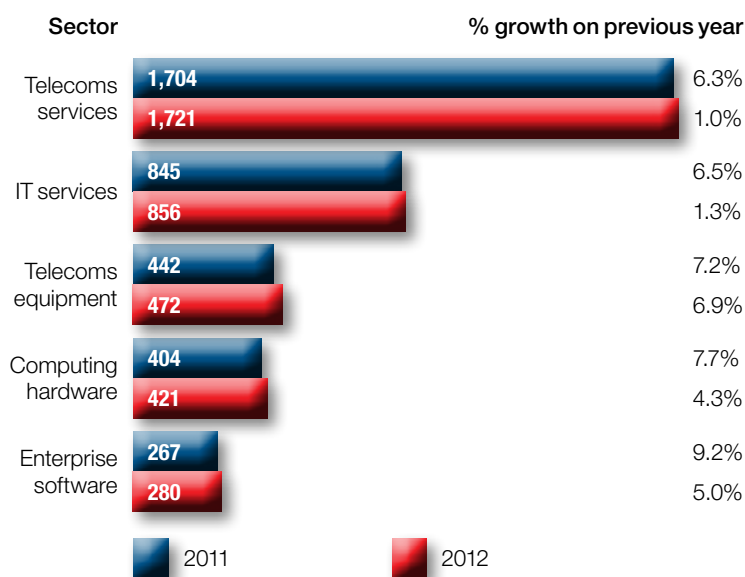
BUSINESS APPLICATIONS

Hurd: Standardised systems and cloud will simplify corporate IT

Oracle president tells **Bryan Glick** how cloud and software-integrated kit will take the complexity out of IT for the user

S ilicon Valley might be notoriously competitive, but it's still a place where it helps to have friends in high places.

When, in 2010, Mark Hurd was forced to resign as HP chief executive after allegations that amounted to conduct unbecoming of the role in the eyes of the HP board, Oracle chief executive Larry Ellison told the New York Times: "The HP board just made the worst personnel decision since the idiots on the Apple board fired Steve Jobs many years ago."

And to prove he meant it, one month later Ellison recruited Hurd as the new president of Oracle.

In the subsequent 18 months, Hurd stayed largely out of the limelight and got to grips with his new job. But last month, he was in London to meet Oracle customers, and gave his first interview to the UK technology press – although journalists were briefed not to discuss "Mark's time at HP".

There's no need, with so much going on at a supplier that has arguably been through more change – and certainly more acquisitions – than any other over the past five years. What was once a straightforward database and business software provider now has one of the largest application portfolios in the industry. It has also become a hardware player, with the 2009 purchase of Sun Microsystems, snatched from under the nose of rival bidder IBM.

Hurd is now pursuing a strategy focused on the three key trends that every major IT supplier will tell you it is an expert on: cloud, mobile and big data. He claims Oracle is now the number two software-as-a-service (SaaS) provider, with nearly $1bn annual revenues: "We're the second largest SaaS company in the world and it's a huge gap between second and third," he says.

Cloud computing

But many CIOs see big software providers as the main block to moving to the cloud, citing the need for expensive, up-front licence fees as a historic way of charging that goes against the pay-as-you-go nature of the cloud.

> "IT has got incredibly complicated where you have a solution built on six or seven different component technologies"
>
> **Mark Hurd, Oracle**

Hurd denies the reliance of old business models is a problem.

"We're moving as quick as we can move. We don't have any business model issues, we've been acquiring SaaS companies, building SaaS applications, with our Fusion cloud applications we've been working at for six years," he says.

"We're just getting started. You will see a steady stream of application software become available as SaaS over the next 18 months. Every couple of months you will see modules become available. We are ahead of everybody with a cloud suite of capabilities. I mean, who's ahead of us? Who's even close?"

The company's cloud portfolio is likely to be extended with the summer launch of Oracle Secure Cloud. The firm is not releasing any details of the offering, and its only previous mention in public was when Ellison announced the name to financial analysts in March. But Hurd says it will be a key part of the overall Oracle cloud portfolio.

"Oracle Secure Cloud will be one

choice customers have. If they want to go and take advantage of Oracle Secure Cloud they'll find the database and all sorts of tools available including our applications. You'll be available to leverage other clouds from our cloud, so if you wanted to go into the Amazon cloud to gain some infrastructure, you can do that and come back to our cloud. It's an open cloud, unlike Salesforce.com, which is proprietary," he says.

"We'll have customers that would prefer to build a private cloud. They might want to build a cloud architecture but behind their firewall and we'll do that with them. And there are customers who want to keep their on-premise applications. You'll see us scaling out all three capabilities so you can choose the optimal delivery architecture based on geographic location, function and process. That way you have mixing and matching, and you'll have that choice."

Eliminating IT complexity

Oracle customers will be familiar with the supplier's biggest marketing

push at the moment, what it calls "engineered systems" – pre-packaged combinations of Sun hardware and Oracle software, tightly integrated and tuned for optimal performance. IBM recently announced an equivalent range, dubbed PureSystems.

Oracle builds in a further incentive by bundling costs of all the components together – users of HP and IBM hardware may find their Oracle software 50% more expensive to license. Current offerings include Exadata, an Oracle 11g database appliance; Exalytics, for in-memory business intelligence and analytics; and the Oracle Big Data Appliance, which combines Oracle 11g with Hadoop and NoSQL unstructured data management tools.

Hurd says the aim is to overcome CIOs' biggest complaint – the complexity of legacy IT infrastructures.

"You hear the same message coming from customers – how do I get the complexity out, how do I simplify IT? You'll see a lot more of this standard configuration provision, with the work done by the IT company as opposed to the customer," he says.

"IT has got incredibly complicated and this federated thing where you have a solution built on six or seven different component technologies and it's your job to figure out which ones and put it together and integrate it and troubleshoot it – that's what gets you hiring hundreds of people.

"The opportunity is to say to your supplier, 'You do it, as part of your R&D.' That manifests itself in cloud and engineered systems. That's why these things are so hot right now." ∎

This is an edited excerpt. Click here to read the full interview online

more online

› Oracle Secure Cloud to launch in the summer, says Mark Hurd

› IBM PureSystems integration appliance to vie with Oracle

› HP seeks new CEO after harassment claim topples Hurd

RETAIL & LOGISTICS

Retail firms ramp up e-commerce investment as shopping habits shift

Changes in retailers' IT spending reflect the trend in consumer buying as mobile sales soar 300%, writes **Kathleen Hall**

Retailers are shifting their IT investment away from core systems towards customer-facing applications, in a move to capitalise on the growth of e-commerce.

Speaking at the IDC Retail Insights conference, delegates described how they were ramping up their online investment to exploit the retail trend.

Pete Mitchley-Hughes, IT head at Marks & Spencer, said: "A lot of focus is going into building our own website, which has previously been hosted by Amazon. We're keen to increase the flexibility and independence we have in that area."

He said: "Mobile technology for M&S is a massive growth area and trying to keep up with that demand will be a massive challenge."

Mitchley-Hughes had previously spent four years consolidating the company's ERP systems, in a move to enable it to develop a customer-facing operation on top of that.

"There's lots of consolidation happening in many different organisations in getting rid of the spaghetti of systems," he said.

Christine Bardwell, research manager at IDC Retail Insights, said: "In the past a lot of infrastructure spend went on ERP, but today the focus is on customer-facing technology."

Ivano Ortis, research director at IDC Retail Insights, said the proportion of spending on infrastructure has reduced from up to 80% of IT expenditure to 60%, as retailers invest in customer-facing technology.

Tesco recently announced that it will invest £150m across all its dotcom businesses, in anticipation of a further migration of customer shopping habits towards online.

Matt Jeffers, international development manager of Tesco.com, said: "We are seeing investment across the board, not in any one particular type of technology.

"But it's also got to support offline operations and we must look at how we build multichannel."

He said investments in technology in-store, for customers to browse products, would also prove essential.

"Not just in the big stores, but in the local express ones too," he said.

Jeffers said skills in agile development – where application releases are carried out iteratively – are in high demand.

"There has been a move from the large project approach to regular releases on a monthly basis, that's been a huge shift," said Jeffers.

David Hogg, commerce director at IBM, said retailers were re-evaluating technologies, such as CRM systems bought five years ago, in the light of changing customer behaviour.

But Peter McCartney, development manager at construction company Travis Perkins, disagreed that organisations were seeing a shift in IT investment costs.

"Customer-facing IT costs are an additional investment that needs to be made on top of existing ones," said McCartney.

"We still need to maintain three large ERP systems, one of which will soon need an upgrade, the cost of which will be significant. Those costs aren't going away." ■

> "Today the focus is on customer-facing technology"
>
> **Christine Bardwell, IDC Retail Insights**

Mobile e-commerce soars

The number of customers using smartphones to make purchases has soared by 254% since March 2011, according to research for the IMRG Capgemini e-Retail Sales index.

Mobile retail has so far averaged 300% year-on-year growth for the first quarter of 2012. However, the conversion rates for shoppers that visit a retailer's site via a mobile device and make a purchase remain low, at 0.7%.

Chris Webster, head of retail and technology at Capgemini, said the figures should encourage retailers to develop mobile commerce strategies. "The growth rate is important, but so too is the conversion rate. Mobile customer experience must be improved to harness its potential," he said.

Adam Plummer, head of e-commerce at The Body Shop, said one in five visits to the store's website are from mobile devices. "Mobile really is a game-changer. The shift to becoming the primary device of choice is well under way," he said.

"While our sales growth through mobile has been phenomenal, it has been the general level of interaction that has seen exponential growth. We are starting to capitalise on the way that mobile 'glues' all our channels seamlessly together."

Sean McKee, head of e-commerce at Schuh, said: "We are seeing a truly dynamic performance from smartphones and tablets and consider all things mobile fundamental to our efforts to broaden customer choice."

The news follows reports that the internet contributes 8.3% to the UK economy, the biggest share of all G20 countries.

> "Customer-facing IT costs are an additional investment that needs to be made on top of existing ones"

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IT SUPPLIERS

History repeats itself as IBM rejoins the pre-integrated IT systems party

IBM unveils its software-integrated kit as suppliers try to increase market share of shrinking budgets, writes **Cliff Saran**

IBM is the latest supplier to jump on the pre-integrated hardware and software system bandwagon. IBM has introduced a category of server appliances, dubbed Pure-Systems, which provide pre-integrated hardware and software to simplify IT deployments and management.

With PureSystems, IBM appears to be heading back to old-school computing. The idea of pre-configured systems went out of fashion with open systems and Windows.

But with IT spending in decline, suppliers are struggling to get a bigger share of diminishing IT budgets. Hardware and software manufacturers are increasingly opting for a more proprietary approach to selling their products as vertically integrated systems, in a bid to win larger systems contract.

The results of $2bn and four years' research, PureSystems is designed to provide businesses with an alternative to the enterprise computing model, according to IBM. Rather than integrate multiple and disparate systems that require significant resources to set up and maintain, IBM claims PureSystems integrates the server, storage and networking with automated self-management.

PureSystems is cloud-enabled, supporting self-service private cloud infrastructures that scales up and down automatically, IBM said.

Steve Mills, senior vice-president and group executive of software and systems at IBM, said: "By tightening the connections between hardware and software, PureSystems is designed to help clients free-up time and money to focus on innovation that many businesses cannot address, due to ever-rising costs and staffing needs in the traditional datacentre."

Pierre Audoin Consultants said PureSystems aims to deliver pre-integrated IT infrastructure out of the

Vendors are packaging systems together and integrating the technology stack

Adrian O'Connell, Gartner

box. "This speeds up and simplifies installation and maintenance."

The consultancy said it believes the automated management, tied in with application-specific management capabilities from application software developers, could speed up the implementation of new business applications on the system.

Single source pre-integration
The large suppliers – HP, IBM, Oracle, Cisco and increasingly Dell – are all at it. Oracle – now a hardware supplier following its acquisition of Sun Microsystems – offers a database appliance through Exadata, which is optimised to accelerate database queries. SAP is coming in at the application level with its in-memory database, HANA. Cisco, HP and Dell are also selling pre-integrated private cloud servers, storage and network infrastructure.

Adrian O'Connell, research direc-

tor at Gartner, said these more integrated IT systems offer the suppliers a way to sell more to their customers.

"All the vendors are packaging the systems together and integrating more parts of the technology stack together," said O'Connell.

However, he said there is a clear trade-off between supplier lock-in and business benefits. "These integrated systems may offer some performance improvements or simpler IT management. They break down silos between computing, storage and networking. This is all well and good, but users do not want to move from technology silos to vendor-based silos with IBM and Oracle stacks."

He said IBM had arrived late with PureSystems, while acknowledging the mainframe-based private cloud product in its zEnterprise System with BladeCenter Extension configuration, capable of running zOS, Windows and Unix workloads.

Oracle offers Exalogic and Exadata; HP sells Cloudsystems, integrated private cloud infrastructure and App-Systems for applications. Dell has vStart, an integrated infrastructure for deploying virtual machines; Cisco sells Unified Computing and Servers.

Gartner categorises these integrated systems as "compute fabric",

which include:
● Integrated infrastructure, for example PureSystems and vStart from Dell
● Integrated platforms such as Oracle Exalogic, IBM SmartCloud and HP CloudSystems with built-in management for private clouds
● Integrated applications integration from hardware to application, such as Oracle Exadata, HP AppSystem and SAP HANA

While there are many differences in how each supplier's approach delivers computing and efficient IT provisioning, O'Connell said the large suppliers have set their sights on winning strategic customer accounts.

IT management challenges
Neil Eke, datacentre solutions director at IT services supplier Computacenter, said there was significant interest from customers looking at the opportunities of deploying pre-integrated systems.

Rather than relying solely on the supplier, he said IT departments have worked closely with Computacenter, due to the complexity of the product they plan to purchase.

This was because pre-integrated IT systems represent a departure from the discrete datacentre equipment purchases IT departments would previously have been accustomed to.

"The choices companies have to make are more complex. IT departments also need to assess how the pre-integrated IT fits in with their infrastructure," said Eke.

For example, IT departments may be organised around specialists for network, storage and servers. "With pre-integrated IT systems you need multi-skilled managers," he said. ■

> "Users do not want to move from technology silos to vendor-based silos with IBM and Oracle stacks"

IT LEADERSHIP

Government CIO sets out to translate ICT strategic agenda into reality

Andy Nelson has set his sights on Whitehall CIOs and suppliers to revolutionise public sector IT, writes **Kathleen Hall**

CW500 INTERVIEW

Recently appointed government CIO Andy Nelson has his work cut out, tasked with transforming an ambitious 19-point ICT agenda from strategy to reality across Whitehall, along with his day job working as Ministry of Justice (MoJ) CIO.

Nelson will spend two days a week as government CIO and three as MoJ CIO, which will see him move between various Whitehall buildings. But he says there is much commonality between the two roles.

"If the government IT strategy didn't exist and you just looked at the MoJ strategy, you would find phrases like single network, rationalised datacentres and standardised desktop environments."

The MoJ is disaggregating its large IT projects by moving to a service tower model through its Future ICT Sourcing (Fits) strategy. "Our procurement approach with Fits aligns with central ICT strategy. There's a lot of good synergy there, so it's not as if I'm fighting different agenda."

Key priorities for cross-government IT will be implementing a set of core infrastructure strands. These are the cloud, Public Services Network (PSN) and datacentre consolidation. Nelson believes these will drive the cost benefits.

But that doesn't mean the strategy will remain a static document. "These things don't stay still forever. So I would be looking to refresh it as necessary. A good example of that would be our integration work with that and the digital strategy. As Mike Bracken [director of digital at the Government Digital Service] and his team put more transactions through the single domain Gov.uk, we need to ensure the IT strategy is aligned and supporting that," he says.

Strong governance will also be crucial. "We can't ignore all the standards-related areas. We have to avoid producing nice pretty standards and

Nelson: "We can't ignore all the standards-related areas"

then letting them gather dust on the shelf." Areas such as open standards are something that can partially be mandated through central control mechanisms, he says.

The same approach will be applied to cloud uptake, particularly as all IT spend above £5m requires Cabinet Office approval. "It's still early days with the CloudStore, but as it gets refreshed and more services become available on the cloud, when departments are spending money we'll be able to say, 'Why are you putting in something unique here when there's a perfectly sensible provision on the cloud over there?'"

Leadership strategy
His predecessor, Joe Harley, was praised for his collaborative style of leadership – in moving IT strategy from being centrally led to having pan-government ownership through the CIO delivery board. But as a public champion of change, he remained a largely absent voice. Nelson says his position will involve more public-facing engagements.

"My role is to continue the work Joe has already done, you might see a bit more external engagement from me than Joe, but a lot less than John Suffolk [former government CIO be-

fore Harley] because he was doing the job five days a week."

Social media will play a part in that: "I will set up a blog as an engagement mechanism and write one post perhaps once a month, although I'm not a natural blogger." Other engagement activities will include connecting to more SMEs through targeted roundtable events.

But for implementation to work, the CIO council – which represents the wider government IT community – needs to be brought on board.

"There's been a real strength around the CIO delivery board, that has helped drive the strategy forward and create traction. But you've got to be careful to take the broader CIO community with you. I want to engage them in that conversation, it's not for me to stand there and say I need you to do this."

Although Whitehall CIOs have come under fire for being unwilling to push through transformational IT, Nelson does not believe there is strong resistance to change.

Matching IT transformation with departments' individual legislative agenda is not always easy, he says. "Many of us still have a ton of legacy out there. We spend a lot of our time managing that legacy and putting en-

hancements through and the reality is that still takes a lot of attention."

Routes to some IT procurement have been unavailable until recently. "Think how long PSN has been running, it's something like four to five years and only now have we started to get a procurement vehicle."

He says a pragmatic approach is required to getting government buy-in, with members of the CIO community needing their own route maps that take into account contract renewals.

Breaking the stranglehold
Government is currently operating under an IT supplier oligopoly, which has created an anti-competitive and expensive technology market in Whitehall, according to the National Audit Office. It's an issue Nelson says he will tackle by working directly with the top three suppliers to government.

"I will spend time personally with those suppliers – they are the biggest suppliers to government and will be for some time. The government isn't suddenly going to stop using BT overnight. HP is still a major supplier to government departments."

But the IT supplier landscape is set to change: "We will definitely see a significant shift. Already the PSN frameworks have more suppliers than we would have expected in the past. The cloud is still early days, but we are already seeing credible medium-sized players to provide good infrastructure services to government, which would have traditionally only been provided by big players." ∎

This is an edited excerpt. Click here to read the full interview online

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❯ IT SME suppliers could exceed 25% target, says Maude

❯ Microsoft conflict forces Cabinet Office to extend consultation

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BRYAN GLICK **LEADER**

Is Microsoft numbering its own days?

Timing, they say, is everything. Microsoft's could not be worse.

There is huge scrutiny and debate going on about the effects of supplier lock-in and the relative merits of proprietary and open software standards, prompted by the government's increasingly heated open standards consultation.

Microsoft, in particular, is often quoted as an example of the perils of lock-in. Look, for example, at the European Commission, which has purchased Microsoft software for 20 years without open competition, because of its dependence on the firm's products.

Look also at the experiences of Bristol City Council, which found it had little choice but to stick with Windows and Office, instead of its preferred open source strategy.

Microsoft's aggressive lobbying of the Cabinet Office over open standards is taken by critics as an example of trying to maintain a monopolistic grip, established by proprietary products at its largest UK customer.

So what does the supplier do? It raises its volume licensing fees by up to 33%.

The unilateral corporate decision will mean well above inflation increases in the price of the most popular forms of licensing agreement for organisations buying Microsoft software. It's happening under the auspices of introducing a harmonised pricing structure across Europe and, because of the weakness of the euro relative to the pound, UK customers are taking the biggest hit.

But it's OK, because if you don't like it, you can easily swap out your Microsoft products for something else, can't you?

Can't you? Oh...

The days of lock-in to suppliers and their products are surely nearing an end. "But there will always be a form of lock-in, even in the cloud," say big suppliers. If so, it's interesting to listen to CIOs advise each other that the first question to ask of a prospective cloud provider is, what is the exit clause?

If Microsoft wants to convince IT leaders it is no longer a company stuck in the past and hanging on to old business models, huge price rises are neither the way, nor is now the time, to go about it. ∎

Editor's blog
computerweekly.com/editor

STEPHEN GALLAGHER **OPINION**

Three key considerations to benefit from big data

As organisations accumulate increasing volumes and diverse types of information, they are being presented with a major commercial opportunity to gain insight into customers and identify patterns that will help them predict future consumer behaviour.

To make the most of big data opportunities, business leaders need to focus on three key areas: managing the volume of data; accessing the commercial insights; and securing the right skills.

Data volumes are increasing dramatically. Just over a decade ago, few organisations had data warehouses of a terabyte or more in size. Today, companies such as internet businesses Netflix and Facebook have data warehouses that exceed a petabyte of data and are continuing to grow fast.

The types of data stored have increased in complexity. We have moved from the simple transactional data of the 1990s to far more diverse datasets, such as video, text, voice and e-mail that rests inside, outside and between the organisation and public domain. As this data increases in scale, organisations need to turn more to cloud-based technologies to handle not only the space required to store the data, but to access more powerful analytical capabilities.

Providers are responding. For ex-

Finding the right people could prove the biggest barrier to benefiting from big data

ample, Google is building a service to analyse big data in the cloud. The service, called BigQuery, could help organisations analyse data without building new IT infrastructure.

Earlier this century, most organisations' data analysis would have been limited to the simple historical reporting of what was sold, by whom, how often and where. Organisations now need to perform far greater and faster data analytics. The goal is not only to gain insight into how people use products but also to predict what happens next. However, to realise this commercial advantage, organisations need to make sure they access

data in an efficient way with their limited IT assets.

The approach varies by organisation. For example, there are data warehousing appliances, which are purpose-built, hardware-software solutions; massively parallel processing databases running on commodity servers; columnar databases; and distributed file systems running non-SQL types of data processing languages. Many companies are rethinking traditional approaches to performing analytics. Instead of downloading data to local desktops or servers, they are running complex analytics in the database management system itself. In-database analytics minimise or eliminate data movement, improve query performance and optimise model accuracy by enabling analytics to run against all data at a detailed level, instead of against samples or summaries.

Research has highlighted the shortage of workers with the deep analytical skills to handle big data. Finding the right people to undertake analysis in the commercial context of an organisation, at the right price, could prove the biggest barrier to organisations benefiting from their big data.

This is a challenge due to the jump in demand for these skills and because the skill set needed to exploit big data comprises several components that need to be applied in a balanced way. First, individuals require the technical skills to find patterns and draw conclusions from the data. Second, they need to use the conclusions to draw a set of hypotheses that are linked to the commercial drivers. Last, they need to be able to present these to senior executives in a compelling and realistic way.

Executives should be thinking about critical appointments now so they have the people to jump-start or improve the success of their planned big-data initiatives. They also need to recognise that individuals will require investment, nurture and some patience, to get results.

There is a real commercial advantage to be gained from big data and organisations now need to make sure they have the right elements to seize that advantage. ∎

Stephen Gallagher is an expert in big data at PA Consulting Group

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Smart cities thinking out of the box

The more local government releases data without strings attached, in open formats, the more likely it is that developers and businesses will use it to build the applications and services that world-class cities need. **Cliff Saran** reports

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In May 2009, Irving Wladawsky-Berger, visiting lecturer at MIT's Sloan School of Management and Engineering Systems Division, wrote a blog that discussed the opportunities of smart cities. Wladawsky-Berger, who previously worked on IBM's smart cities programme, noted: "Given our ability to now embed computational power into just about any physical object we want to measure and control, the digital and physical infrastructures of cities are converging. We can now better manage critical urban infrastructures, including traffic congestion, energy usage, public transportation, and water distribution."

Wladawsky-Berger posted the blog after a conference on smart cities held at Imperial College in London. "Just about anything we care about can be sensed and measured – any person, any object, any process or any service, can become digitally aware and networked," he said.

The idea of smart cities relies on data and data collection to simplify and improve the lives of individuals and to manage public services more efficiently. The data can be used at a city level, a regional level or country-wide. It can be organised into so-called data stores, to enable officials and interested third parties to create new and innovative applications.

Low cost of entry
"If the state makes the data it collects available royalty-free, then a developer does not have a cost to bear at the point of entry," says Emer Coleman, deputy director of digital engagement at the Government Digital Service. Coleman, who previously worked at the London Datastore, says: "One of the first Barclays Bike apps was built by someone who was 19 or 20." There is a very low cost of entry and it does not matter whether it is an individual developer or the likes of Google or Microsoft. "The nature of the apps market is that the best ones will rise to the top," she says. As the apps developer starts making money it will begin paying taxes, providing a revenue stream for government, she explains.

Coleman was one of the speakers at the Open-data Cities Conference held in Brighton on 20 April.

Writing on the Computer Weekly Enterprise blog, Greg Hadfield, a former Fleet Street journalist and internet entrepreneur, organiser of the event, said: "The more data released – without strings attached, in machine-readable and non-proprietary 'open' formats – the more businesses and developers will use it to build the applications and services that world-class cities need."

Tying local information
Ordnance Survey runs open data master classes around the country. "Bournemouth abandoned vehicles" is one of the applications in local government using its data. Ordnance Survey provides various tools for developers, such as the Open Space »

« web service and Web Map, a wizard-like tool to create maps in Javascript.

Ian Holt, developer programme manager at Ordnance Survey, is also encouraging people to use open data. He says, "What is really interesting is that before open data it was quite a process for people to work with Ordnance Survey."

Tying geographical data with locale-specific information can lead to innovative applications that make it easier for managers to visualise trends. "We are seeing people take data in charts and look at patterns in other data sets. People can style data and modify it in ways we would have never envisaged," says Holt.

One example is iCoast, a map of the Dorset coast that uses Ordnance Survey charts in a way that Ordnance Survey would not have done itself. Holt adds, "We are also seeing our data in Facebook."

Local data groups

Mayor Boris Johnson launched London's open data project, called the London Datastore, in January 2010. It was created by the Greater London Authority (GLA) as a way to release London's data. "We want citizens to be able to access the data that the GLA and other public sector organisations hold, and to use that data however they see fit – free of charge," the London Datastore states on its website.

The project aims to make large amounts of London's public data freely available through the London Datastore website. It comes after the government announced it would make national data sets available via the internet, following the Data.gov project in the US.

Victoria Borwick, chair of the London Assembly Health and Public Services Committee, recently wrote on her blog about how open data could be used to track fuel poverty: "Existing open public data sets can be used to identify wards that are likely to contain high proportions of
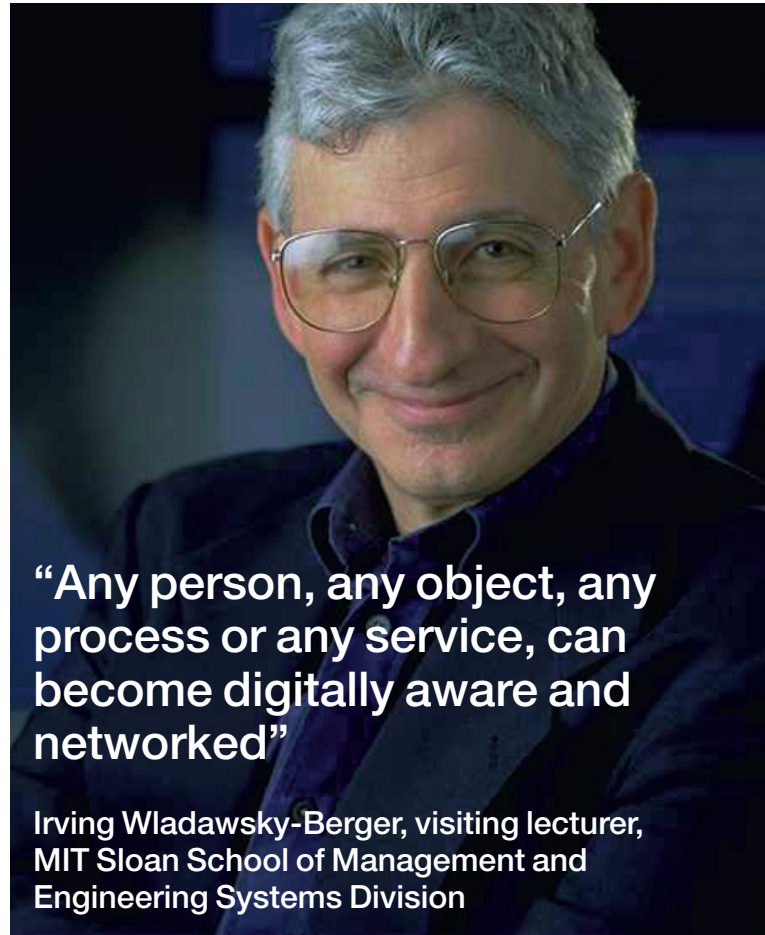
> "Any person, any object, any process or any service, can become digitally aware and networked"
>
> Irving Wladawsky-Berger, visiting lecturer, MIT Sloan School of Management and Engineering Systems Division

households at risk of fuel poverty, and programmes could be targeted to provide support to households in those areas. This provides information at a sufficient level of detail to help area-based schemes like the RE:NEW programme to prioritise their time and resources to help those most in need."

Borwick's team worked with the GLA's Intelligence Unit to develop a prototype mapping tool to identify areas in London containing large proportions of households at risk of fuel poverty, using a combination of publicly available data sets. She

added: "We want the GLA to further develop and refine this tool so it can be used by the GLA, local authorities and energy companies to identify priority areas for support to tackle fuel poverty."

Engaging the public

The Local Public Data Panel is another group championing the release of local public data and information sharing. The panel is looking at the role data transparency may play in increasing efficiency, extending accountability and engaging the public across the local government

sector.

Roger Hampson, chief executive of Redbridge Council, has served as one of the Local Public Data Panel's experts since its inception in January 2010.

Redbridge began working on open data in late 2010 when it established a small in-house team to develop its own open data application called DataShare.

Hampson says: "Our core aim is to tap into the sea-change in the approach of governments worldwide to public data." The council's aims for open data include meeting government expectations to publish data and increasing openness and clarity, which may help to increase public trust. Other benefits include saving time and money by streamlining/replacing multiple internal data publishing systems.

According to Hampson, very little work was required to make data public. "We have a long-standing strategic commitment to publishing all (legally permissible) data with a view to extending accountability and public engagement. We also believe that making public data very visible is, paradoxically perhaps, very useful to bureaucrats and politicians." The application has now been populated with data sets covering all service areas, including:

- Staffing and salary information;
- Service expenditure over £500;
- Aggregated returns to government departments (200+);
- Previous freedom of information (FOI) requests and de-personalised answers;
- Information in respect of frequently asked FOI requests;
- The data sets, extracts and reports from some council back-end systems;
- Geospatial information drawn from existing applications such as planning and "report it";
- Requests for data sets from members of the public;
- Innovative visualisations/apps produced from the raw data by external developers.

Hampson adds: "We designed DataShare as a 'plug and play' application with a schema flexible enough to host most, if not all, of the data publishable by local authorities. We have recently entered into a partnership arrangement with CIPFA to promote the DataShare tool and extend take-up across the sector."

As well as working with CIPFA, Redbridge has participated in a "hack" morning, during which developers downloaded data from the site to create accessible visualisations on FOI and the geographical spread of expenditure over £500.

'Government could do more for open by default data'

"We believe that there should be a public presumption (or formal duty on public sector organisations) in favour of open publication by default, with restrictions limited to personal data sets. However, we are concerned that while the publication of multiple CSV/Excel files may be welcomed by the technically adept, the format, without contextual information, may prove inaccessible to a lay user. Therefore, we believe the government could do more to develop open by default data standards that reference the importance of context.

"The government could provide additional incentives and lead by example. As a local authority we produce over 200 separate data sets in prescriptive, sometimes

exclusive, formats for government departments annually. If the government were to commit to downloading the performance data they require direct, it would improve efficiency and enable us to manage our resources more effectively.

"An independent body (such as the Information Commissioner) with enhanced powers to challenge decisions not to publish data may assist in increasing the amount and range of data that is openly published. We believe such a body should also have a role in supporting/enforcing accessible standards, including formats and presentation in the publication of data."

Roger Hampson, chief executive, Redbridge Council

« Opening up data

Lambeth is another example of a local authority taking major strides with its use of open data. The process for opening up data at Lambeth begins with the council's data team, which is responsible for releasing data openly and generally takes the lead in deciding which data to release. The council has conducted a benchmarking exercise against other local authorities and mapped out a range of data that it could potentially publish. This was reviewed by the data team, which drew up an open data schedule.

Members of the public can also request data for release by contacting the council by email.

The council's data team then works with service managers to identify data owners and processes the data into the relevant open format (such as CSV or KML). Identified data owners are then responsible for ensuring the data team is aware of any updates or additions to the data. The data team will aggregate the data if necessary to ensure data protection; the communications team will also advise the service manager with responsibility for the data if needed.

"We are not really aware of the extent to which software developers are engaging with the council's expenditure data, although we anticipate this being low," reveals Matthew Skinner, policy, equalities and performance officer at Lambeth. However, he says the expenditure data has been reused by Openly Local, which developed a "spending dashboard", to demonstrate the money that has been spent to date by local authorities such as Lambeth.

The Openly Local site pulls a range of open data from across local government. It can be accessed in XML, JSON or RDF formats via an application programming interface.

The Great British Toilet map project also made use of the toilet location data that Lambeth released to its open data pages.

Meeting data requests

Tom Steinberg, founder and director of mySociety – a charitable project involved in open data – was one of the speakers at the Open-data Cities Conference. He says: "While government has always produced information, the value that can be realised using data with the internet is far more valuable, such as postcodes that were invented to help deliver letters. Now postcodes help run businesses."

Steinberg believes that while there has been a lot of talk about open data as a commodity, this view misses the focus. "People need certain data to do their job, or hold the government to account," he adds.

For Steinberg, hacking days and data stores miss the point, because these rely on the council being organised around which data it publishes. Generally, he says, councils do not publish the data people want, which leads to a lack of adoption. Councils have to get used to responding to data requests. This means each council's helpdesk must be able to identify a call as a request for data. There needs to be someone in the council who takes responsibility for the data request. The problem for Steinberg is that back-office systems used in local government are not very good at making data available externally.

Leigh Dodds, chief technology officer at Kasabi, takes the concept of openness of public data a step further. Speaking at the Open-data Cities Conference, he said: "Any data needs to engage with a wider community. It helps if everything in the council can be identified as a URL. People can then tweet it and discuss it online."

And while it is not local government, the BBC digital archive is organised this way. Bill Thompson, head of partnership development, archive development at the BBC, says: "Opening up our data makes it possible to complement other open data initiatives and create a digital public space." This could lead to new services such as being able to find out what programme was being broadcast when an individual was born, find buildings from the archive that do not exist any more, even compare how politicians change their perspective over time. ∎

> "We can now better manage critical urban infrastructures such as traffic congestion and public transportation"
>
> Irving Wladawsky-Berger, MIT

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'Open-data cities can be a reality'

"For open-data cities to become reality, we don't have to wait until connectivity – and the 'connectedness' it engenders. Nor do we have to wait for the 'internet of things', of which all kinds of objects – not just computers, tablets and phones – will be a part. Emerging technologies associated with a semantic web of data are already sufficient to power innovative applications, services and enterprises that will compete and combine to meet the needs of communities in the 21st century.

"It is lack of data that will limit our ambitions. It is a dearth of data that risks keeping our cities in the slow lane to the future. In a post-digital era – when the differentiation between analogue and digital, between 'real' and 'virtual', will finally be blurred beyond relevance – we will live in the age of data.

"Even now, data is everywhere, all the time. It defines, describes and determines the world we live in.

"The more data that is released – without strings attached, in machine-readable and non-proprietary 'open' formats – the more likely it is that businesses and developers will use it to build the applications and services that world-class cities need."
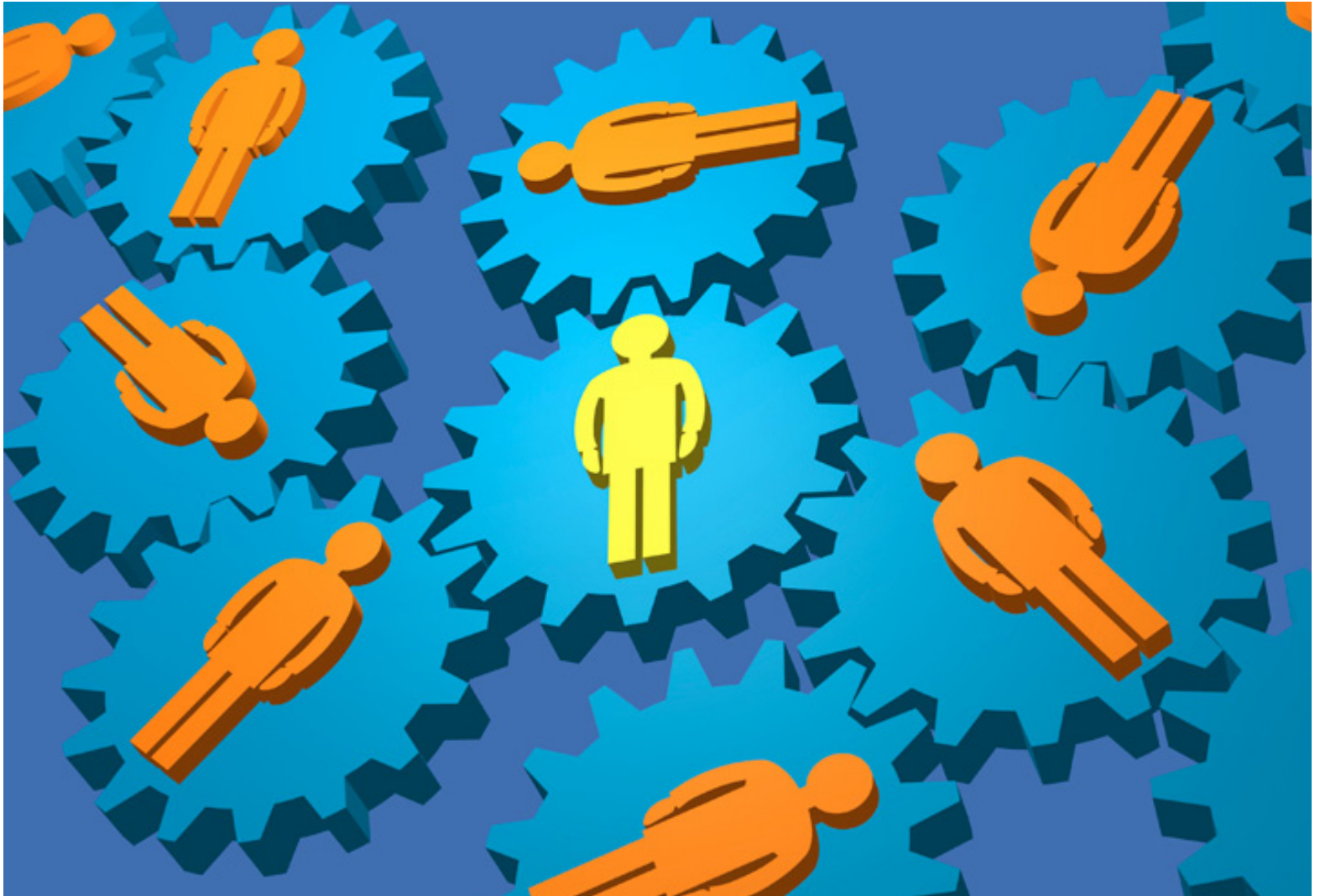
Greg Hadfield, former Fleet Street journalist and internet entrepreneur

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> Government's Data Strategy Board a "fig leaf" to open data

> Interview: Cabinet Office minister Francis Maude on open data

Automate testing for agile quality

As agile methodology piles pressure on quality assurance, automation could ease resources, writes **Jenny Williams**

The mainstream adoption of agile development methods is driving an increased emphasis on test automation. But will test automation allow businesses to more successfully implement agile methodologies, or erode in-house quality assurance (QA)?

As more companies move from a traditional waterfall software development approach to an agile one, suppliers are offering more test automation tools and services.

When IBM acquired cloud-based software testing company Green Hat at the start of the year, analysts said the move signalled pressure on suppliers to provide automation tools for agile environments.

Michael Azoff, principal analyst at Ovum, says: "The drive towards agile development with higher frequency of testing and testing earlier in the lifecycle is producing huge pressures on quality assurance."

Green Hat, with customers such as BP, British Airways and Scottish Power, allows IBM's Rational Suite development products to support agile development.

One of Green Hat's customers, T-Mobile, used its testing tool, GH Tester, to solve production issues caused by its service-oriented architecture (SOA) after finding Tibco's BusinessWorks platform lacked consistency across individual teams.

Jeroen van der Sman, manager of in-house software at T-Mobile, says the standard *ad hoc* test-as-you-go approach adopted by developers for new functionality was inadequate and left the SOA open to faults. The company decided to build a test case library, creating automated tests for all its processes.

As a result, development productivity increased 30% while the company reduced errors by 40%, he says.

Research firm Forrester expects testing-as-a-service (TaaS) to emerge as a managed test service from an increase in test automation, as large suppliers such as HP seek to support customers with test automation tools and outsourcing options, including security testing and services for SAP.

Experts say better test automation is intrinsic to agile development.

Dorothy Graham, a software testing consultant and co-author of *Experiences of Test Automation*, says: "You can have automation without being agile, but you can't do agile development without automation. As people get better at doing good automation in agile development, we will see increased velocity and consistency."

However, Graham says automation has its limitations: "A repeated test is much less likely to find a new bug than a new test." Hence, manual testers are still needed.

Shift in test ownership

But James Whittaker, development manager at Microsoft and former engineering director at Google, believes test automation will eventually shift test ownership out of the IT department and into the hands of the users.

Whittaker's co-authored new book, *How Google Tests Software*, was released in March 2012. He says: "The biggest difference between Google and Microsoft is test ownership is distributed differently. At Microsoft, testers own test. At Google, developers and test teams share ownership."

But this will change in the future. According to Whittaker, while repetitive and precise tasks should be auto- **»**

« mated, details and intuition in testing requires too many manual testers.

"Testing by using your own product and getting users involved in test is very important," says Whittaker.

"I think that once all the automation is written and the crowd engaged, there is very little left for testers to do," he adds.

Companies such as Google, Microsoft, BBC and NHS are making use of crowd-sourcing platforms for testing.

The usability testing for NHS Direct's symptom-checker application for Apple iPhone and Google Android devices was conducted via uTest , an online community of over 50,000 QA professionals.

Faced with a lack of in-house resource, Charlie Young, the lead consultant for NHS Direct, says: "People use smartphones in different ways, so we needed to make sure the user experience lived up to expectations."

But beyond usability testing, uTest is also used by businesses to conduct functional testing, traditionally conducted by in-house QA professionals.

Bob Doubell, The Met Office's senior tester, received around 150 reported defects in 24 hours and says crowd-sourcing in this way allows valuable defects to be sent to developers in a short amount of time.

Crowd-sourced testing

Despite the benefits of automation and crowd-sourcing, Amy Phillips, QA lead at silicon roundabout start-up Songkick, says, ultimately, tests can only be used to carry out testing.

"Tests are a retrospective view of the code you have written so you still need to have the communication channels and processes in place to build quality into the code in the first place," says Phillips.

Greater automation and increased crowd-sourcing look set to change agile development and quality assurance processes. While experts continue to debate the extent to which test automation and user crowd-sourcing may eliminate the need for in-house test expertise, the need to continuously ensure code quality and the need for fast and reliable reporting remain obstacles. ∎

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Top three tips to agile testing

1. Continually evolve
Agree on the simplest possible process and then evolve it to add complexity as you need to.

Robust processes and automated tests are essential. Nothing slows an agile development cycle down as much as finding 100 bugs to fix. Testers need to do everything they can to test early and make sure developers know the risks and code to deal with them.

2. Build your own methodology
More companies are using home-grown agile approaches to build and release software. Agile relies on individual team members, using previous experience to create the best possible process, whether that's the best parts from scrum, lean, extreme programming and even waterfall being mixed together to form an agile approach.

3. Communication is key
Unlike more traditional methodologies agile testing is all about culture and communication, so successful agile teams are those who work together to continually evolve their process.

Source: Amy Phillips, QA lead at Songkick

What future for Google's software test engineers?

"Simply put, we don't believe there is a future software engineer in test (SET). The SET is a developer. Period. Google pays them as developers, calibrates their performance reviews against developers, and calls both roles software engineers. So many similarities can only lead to one conclusion: They are the exact same role.

"As doomed as we believe the role is, the work itself cannot go away. The magic in the Google formula is the work the SET performs. SETs provide features such as testability, reliability, debugging capability and so on. If we treat these things as features in the same sense that we treat the user interface and other functional components as features, then SETs are nothing more than developers who own these features. This is the evolution of the role we think will happen at Google and other mature software shops in the near future and what better way to make test development a first-class citizen than treating it just like any other feature?

"Indeed, this is the part of the process that is flawed in its current state. Every user-facing feature is managed by product managers (PMs) and built by software engineers. Code for these features is tracked, managed, and maintained by a well-defined automated workflow. However, test code is managed by test engineers and built by SETs. Why? This is a relic of the history of how the roles evolved. But the evolution has peaked and it's time to treat test code as a first-class citizen: that it be managed by PMs and built by software engineers. Instead, ownership of testing features should fall to new team members, particularly the more junior ones.

"Here's our reasoning. Testing features cut across the entire footprint of a product. As such, the developers involved in building testing features are forced to learn the product from interfaces to APIs. What better way is there to take a deep dive into a product and learn its design and architecture quickly?

"Owning the test feature (either building it from scratch, modifying, or maintaining it) is the perfect starter project for any developer on any team. Arguably it is even the best starter project. As new members are on board, existing test developers move to feature development to make way for the new engineers. Everyone is fresh and engaged and over time, all developers are test savvy and take quality seriously."
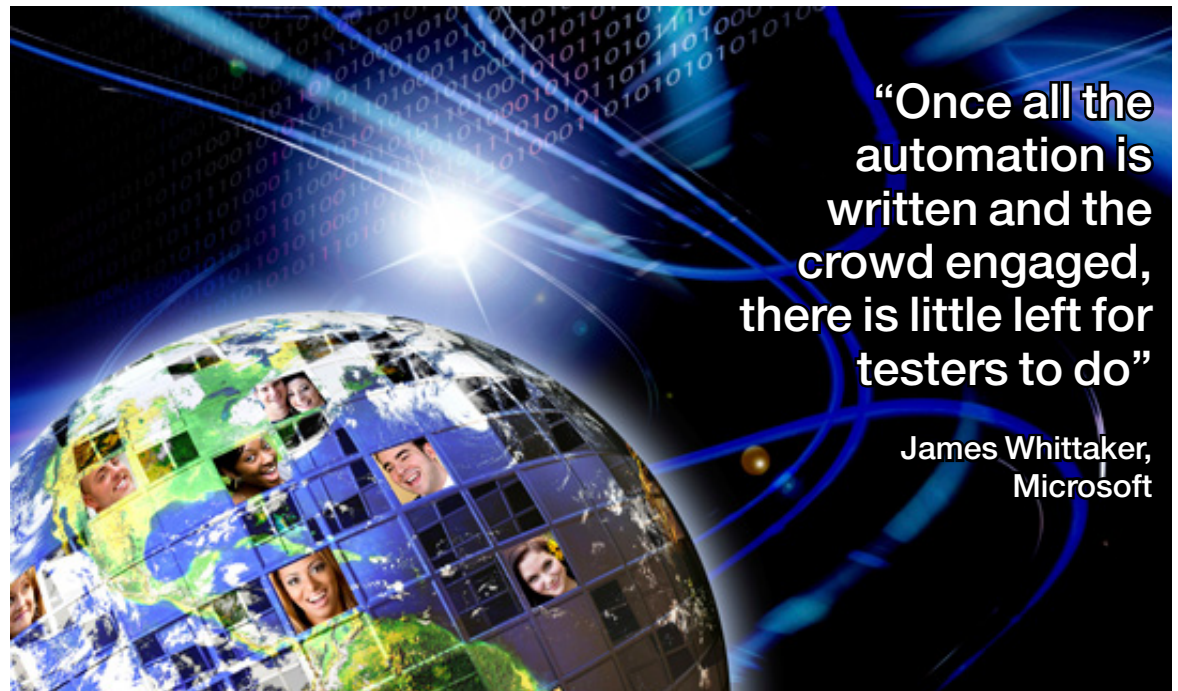
This is an excerpt from chapter 5 of *How Google Tests Software*, by James Whittaker, Jason Arbon and Jeff Carollo, published by Pearson/Addison-Wesley Professional, ISBN 0321803027

> "Once all the automation is written and the crowd engaged, there is little left for testers to do"
>
> James Whittaker, Microsoft

IT STRATEGY

What CIOs can learn from Web 2.0

Look at today's Web 2.0 leaders to find the best new IT management activities and practices, says **Simon Wardley**

In just about every business, organisational activities and practices continually evolve. Most of these changes are small and incremental, but occasionally things must change dramatically in response to new technologies, new players or the disruption of existing business models. Understanding how your key activities and practices are evolving is essential for sound organisational planning.

Forecasting changes in activities and practices is particularly important in enterprise IT today. The simultaneous emergence of consumerisation, cloud computing, mobility, specialised third-party services and the whole "as-a-service" world strongly suggests that many current IT practices and organisations will fundamentally change. But in what way?

Our hypothesis was that today's Web 2.0 leaders – Google, Amazon, Salesforce.com *et al* – would be the best place to look for important new IT management activities and practices. While these companies are, understandably, often secretive about their operational innovations, we sought to get as close an inside look as possible.

Next-generation companies

This research revealed an entire process of organisational evolution. We observed that as the IT industry is experiencing a powerful cycle of change and transformation, within the Web 2.0 community there appears to be a subset of organisations that are fully aligned with these trends. These "next generation" companies rely on practices, tactics and structures that are often radically different from those of most enterprises in a number of important ways:

- Structure. These organisations use small, cell-like IT development teams of typically no more than 12 people. These teams are built around the concept of service provision – each team consumes the services of others and provides services to others. Each cell operates as an autonomous unit and is empowered to manage its particular domain.
- Culture. These firms actively plan their culture, believing that culture is a malleable resource that can be transformed.
- Focus. The primary focus of many next-generation companies is disrupting existing and proven markets, as opposed to short-term profitabil-

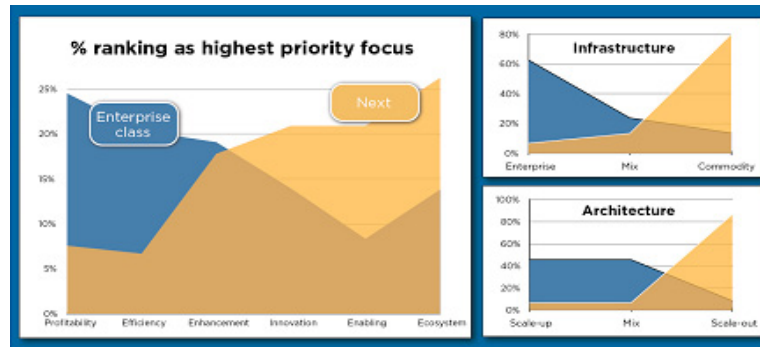Figure 1: How the next generation of enterprise IT is different

Figure 2: Different approaches of enterprise and next-generation IT organisations

ity, conquering emerging geographic markets, or creating new industries.
- Open source. This is viewed as a tactical weapon to be used against competitors.
- Infrastructure and capacity planning. Commodity IT components and services are used to build the core computing infrastructure to enable "scale-out" capabilities.
- Deployment. Continuous deployment mechanisms are replacing traditional planning and change control processes. The early stages of projects tend to focus on the minimal viable product (or service) necessary to engage quickly with the market. These companies develop and assemble services, rather than buy and build large applications.
- Resilience. Distributed systems are used to create highly resilient environments through combinations of low-cost hardware and highly reliable, distributed software.
- Failure. "Chaos engines" are used to deliberately introduce failure into production to (counter-intuitively) ensure high levels of resilience.

- Ecosystems. A heavy reliance upon ecosystems enables these firms to increase both innovation and efficiency simultaneously. They see themselves as platforms upon which other companies build services, and as a result they are both effectively larger and more responsive to change than more vertically integrated organisations.
- Big data. Large-scale unstructured ("big") data systems and associated analytics are used in all facets of the organisation, from product planning to human resources.

As shown in Figure 1, these practices point toward very different ways of managing enterprise IT. Many of them are already applicable to the traditional modern enterprise and can increase efficiency, agility and innovation.

Different approach strategies

To assess the extent of these changes today, we surveyed and interviewed more than 100 firms about their IT management practices. While individual strategies vary greatly by firm

and sector, the overall patterns such as those shown in Figure 2 provide a good sense of the directional changes that we expect. The differences are often stark.

While we tend to think of the major dot com companies as new organisations, many of them are now facing challenges familiar to traditional firms: multiple overlapping product lines, ageing cash cows, diverse geographic demands, maturing cultures, slower growth and so on. These similarities suggest that in the not-too-distant future, the management of IT in traditional enterprise, Web 2.0 and next-generation firms will be more similar than distinct. However, while the gaps in the graphs of Figure 2 will surely narrow, we believe the overall balance will move steadily towards the next-generation model, as these practices diffuse and become the new norms.

But of course, change never stops and today's "next generation" practices are always destined to be tomorrow's legacy constraints. For example, while the shift to cloud computing and the commoditisation of IT dominates today's thinking, in the future we expect that it will be the means of manufacturing that will become much more of a commodity, driven by 3D printing and printed electronics. This is likely to disrupt many manufacturing industries, and will almost certainly be led by new entrants whose practices will be radically different from those of existing players.

However, these further generational practices – the "next next" – are still years away. But it is clear that very different IT management practices are developing inside today's internet leaders. How quickly these practices will spread into more traditional firms is difficult to quantify. ∎

Simon Wardley is a researcher at CSC's Leading Edge Forum

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How to put bomb into bondage

Around one year ago, police interviewed Austrian Maqsood Lodin after he entered Germany following his return from Pakistan. During "questioning", also known as "interrogation", aka "torture", memory cards and a digital storage device were found in Maqsood's clothing, including in his Y-fronts.

Among other things, they contained two pornographic films. One had the lively title of "Kick Ass" (one can only imagine it to be a bondage-style video where women beat the behinds of elderly men in a gruelling yet provocative encounter) while the other was "Sexy Tanja" (Downtime imagines it to be a video of a young nubile girl called Tanja, who is exploring her sexuality on video).

After several weeks of "analysis", German investigators discovered that more than 100 al Qaeda documents had been encoded within the videos. They included information on some of the terror group's future operations and PDF terrorist training manuals in German, English and Arabic.

Possible operations detailed in the documents included seizing cruise ships, and carrying out Mumbai-style gun attacks in Europe. Lodin is now on trial in Berlin, where he's pleading not guilty to terrorism charges.

It's certainly something to bear in mind when security asks if anyone's tampered with your luggage…

A sniff of the Mac Factor

Apple Mac owners tend to take their status as custodians of the coolest gadgets very seriously indeed. One only has to watch the reverence that accompanies a Mac "unboxing" on

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YouTube to understand that.

Such "unboxings" usually have a soundtrack of "oohs" and "aahs" praising the smell of a brand-new Apple product even before it has been released from the packaging.

Now, thanks to the entrepreneurial efforts of three artists in Australia, Apple fan-boys may soon be able to make themselves smell just like a spanking new Mac too.

Apparently, the trio, in collaboration with "scent solutions" firm Air Aroma, dispatched a MacBook Pro to a French fragrance lab, where it was analysed until the perfect formula had been found.

The result was "Stink Different", although Apple groupies may have to wait a while before they can get their hands on some.

Personally, Downtime is in no hurry to go about evoking the smell of the plastic wrap, printed ink on the cardboard, and a factory-fresh aluminum laptop.

Suited with silicon

John Lewis has invested in technology that will negate the need for being dragged around shops by people who will insist on trying clothes on before they buy them.

The retail giant has introduced "augmented reality" to allow people to try clothes on digitally. A virtual mirror allows people to stand in front of a mirror, press a few buttons and, hey presto! "My bum looks big in this."

Downtime might think that this is really a bit of a multichannel gimmick but who couldn't be impressed with John Lewis offering clothes off the Jpeg?

No flogging off the family wellies

With all sorts of stuff ending up on eBay that really should not be sold at all, including singer Cher's symbolic key to the city of Adelaide in Australia – a snip at $95,900 for the auction winner – the case for an eBay police grows ever stronger.

Tired of resisting eBay's sheer market stall magnetism, Lord Brabazon, the head of administration at the House of Lords, has taken matters into his own hands by rejecting calls to buy waders for the honourable members to use in the spring deluge that has left footpaths around the building under water.

Why? His lordship based his reasoning on the unfortunate experience with branded House of Lords umbrellas, which kept getting put up for sale on eBay.

Members of the house, said Lord Brabazon, would just have to cope with the puddles as best they could until the drought was over.

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Andy Nelson, Chief Information Officer for HM Government and the Ministry of Justice

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