

Unlocking potential through infrastructure readiness

Final Report

November 2015

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1. Executive summary

Our exclusive research explores the extent to which organisations are ready to fully realise the potential of mega-trend technologies. While many are already implementing solutions, there are still some barriers holding organisations back. Here are our key findings:

- 1 IT is worried about unrealistic business expectations around mega-trends – business decision-makers need to be more aware of practical barriers.**
Mega-trends can potentially give businesses a competitive edge and with this opportunity comes pressure for IT leaders to implement these technologies as quickly as possible. While IT leaders should accommodate where they can, it's important that barriers to faster technology implementation are overcome and not just ignored. Technologies that are implemented too quickly risk failing to deliver ROI.
- 2 IT's role in the wider organisation has come a long way, but there's still work to do.**
Mega-trends are pushing technology to the heart of organisational success. IT must adapt, contributing more to business strategy and engaging other business units to ensure the company benefits from new technology without taking unnecessary risks. While IT has made good progress on the strategy front, there's still a lot of work to be done to improve integration with other business units.
- 3 IT needs a more flexible infrastructure but isn't always taking the right steps to get there.**
IT infrastructure also needs to adapt to the world of mega-trends, moving from complex legacy structures to increasingly flexible and easy to use systems that help organisations make the most of new technologies. Moving from bespoke solutions to plug-and-play or quick-to-deploy options is one way of making this transition.
- 4 Security concerns are hindering, not helping, positive progress.**
IT leaders should take a proactive role in de-risking important technologies. Many infrastructure solutions – such as open-source software – enable significant competitive advantage, and IT should look to embrace them rather than waiting for others to overcome the risks.
- 5 IT leaders are being short-sighted when it comes to infrastructure – they need to look further ahead.**
Given how crucial IT infrastructure is to successful mega-trend technology adoption, IT leaders should ensure they aren't solely focused on existing solutions. Upcoming technologies, such as Software Defined Infrastructure, have just as much potential to be disruptive and must, therefore, be monitored carefully.



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2. Introduction

Every day there seems to be a new report looking at IT 'mega-trends' (Cloud, Big Data, Mobility, the Internet of Things, etc.). The hype is understandable – these new technologies offer businesses significant opportunities. But it's important that IT and business leaders don't focus so heavily on the potential of mega-trends that they lose sight of what underpins success in these technologies.

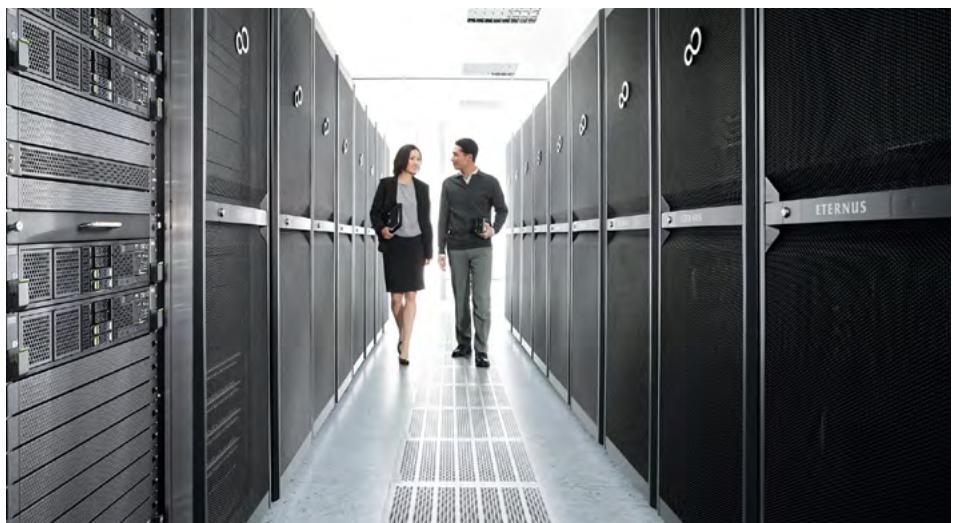
Informed by an exclusive survey of 150 senior IT decision-makers at large companies, this report explores whether organisations are 'ready' to take full advantage of the opportunities offered by mega-trends.

While this report will look at readiness for mega-trend technology adoption from several different angles, we've placed particular emphasis on organisations' underlying IT infrastructure. As McKinsey points out:

»Digital winners are creating the right scale of investment in their IT infrastructure. It's very hard to keep up with the pace of evolution in the digital world unless you have a flexible IT infrastructure and one that can plug and play products and services from other places.«

In many ways, good IT infrastructure is step one on the road to successful mega-trend optimisation.

If an organisation's infrastructure isn't ready, they won't benefit from all that these exciting technologies have to offer – you can't (or at least shouldn't!) build a house on a shaky foundation.



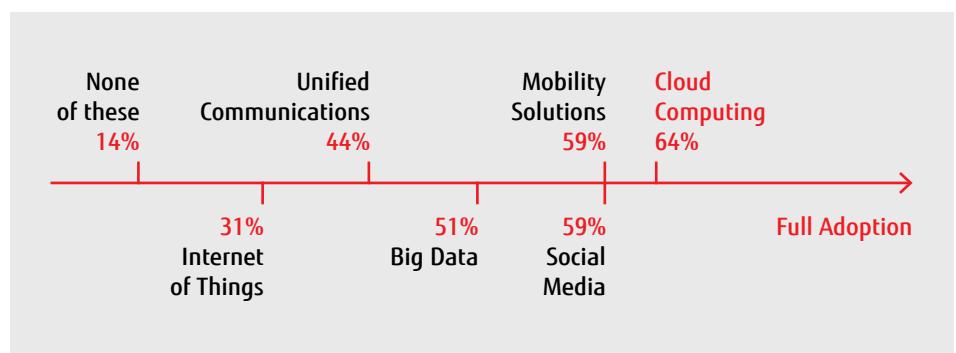
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3. The current state of mega-trends

Mega-trends are the subject of much discussion in the press. After all, who wouldn't want to read about exciting new technologies that have the potential to remould the business world? But the press also gets excited about hover cars¹ and that doesn't mean they're coming to a street corner near you any time soon... So which mega-trends are businesses currently grappling with?

To find out, we gave IT decision-makers a list of some of the major mega-trends and asked them if their organisations had implemented any technologies to capitalise on these.

Fig 1
Mega-trend solutions already implemented/currently implementing



As their answers show, many organisations are already putting mega-trend technologies in place, with 86% having adopted technologies relating to at least one of these trends. With that said, **it's clear that some mega-trends are much further along the adoption curve than others.**

For instance, 64% of respondents have already implemented cloud-related technology, with a further 23% saying that they will be implementing some in the next 12 months. By contrast, less than a third of IT decision-makers are implementing technologies related to the Internet of Things.

However, even those mega-trends that have the lowest adoption rates are seen as having a lot of potential in the future. Majorities expect that every mega-trend will have a "significant" or "notable" impact on their organisation in the next 3 years.

To summarise, while some mega-trends are already here and demand attention, those that are a little further off should not be neglected either, as they are expected to have a big impact in future. Businesses should therefore be preparing to adapt to all of these trends. The stakes are high – if they take too long to adapt, they risk becoming uncompetitive and ultimately going out of business.



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¹ See for instance: <http://www.theverge.com/2014/6/9/5793494/toyota-has-been-investigating-cars-that-hover-above-the-road> and <http://www.theguardian.com/technology/2014/oct/29/flying-car-liftoff-advanced-prototype-unveiled-aeromobil>

4. Navigating barriers

Given these high stakes, it's no surprise that businesses are pressuring their IT departments to move faster than they feel able.

Indeed **83%**

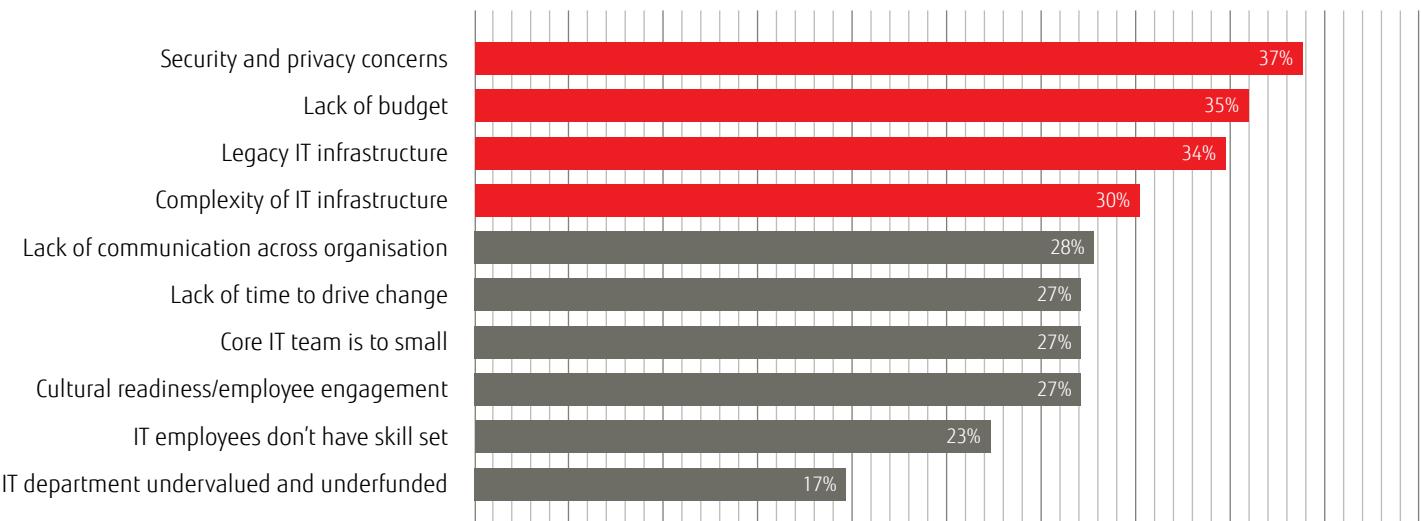
of IT decision-makers believe that "the wider organisation isn't always realistic about how quickly change can be achieved".

While business leaders may feel justified in creating this pressure, if moving too slowly carries risks, so does moving too fast. New technologies that aren't successfully implemented can carry huge costs without providing the benefits that spur adoption in the first place. Business decision-makers should look to establish what limits their organisation may be facing to avoid taking shortcuts that end up being counterproductive.

While in some cases organisations may find that they face no barriers to moving ahead with new mega-trend technology, far more often there will be barriers slowing them down. Indeed, 85% of IT decision-makers we spoke to identified at least one barrier that their organisation was facing.

These barriers come in all shapes and sizes, with infrastructure problems, lack of budget and security and privacy concerns coming at the top of the list.

Fig 2
Barriers to adopting mega-trend technologies more quickly



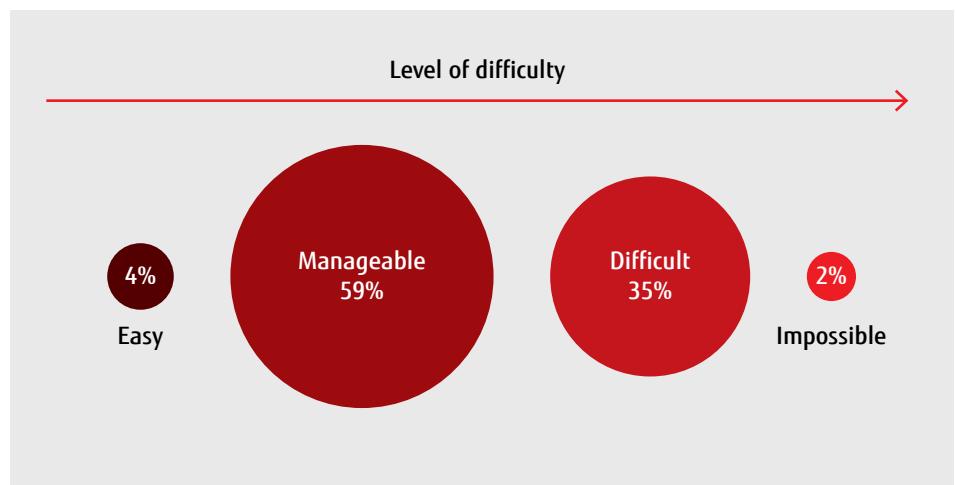
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1/3 of IT decision-makers are struggling with their infrastructure when thinking about implementing the right technology for mega-trends.

Clearly, these barriers must be overcome to speed up mega-trend technology adoption, but how significant are they?

Fig 3

Difficulty of overcoming barriers to faster mega-trend adoption



In short, when asked to classify the barriers they were facing, IT decision-makers split into two major factions:

- **Most decision-makers who see these barriers as manageable** – once resolved, mega-trend technology adoption should soon be able to proceed uninhibited.
- **A significant minority who expect to have difficulty overcoming barriers** – with significant work to be done, these organisations are particularly at risk of being pushed too fast by the broader business.

So what steps do IT leaders need to take to ensure that their organisations overcome these barriers and successfully roll out new mega-trend technologies?

The answer is up for debate, but a good starting point is to consider the following four areas as 'readiness' touchpoints on the path to making the most of the mega-trends. In each area, we'll be exploring how far most organisations are along the path and what challenges they may be facing:

1	Moving IT out of the back office
2	Developing a flexible infrastructure
3	Overcoming the uncertainties of new technologies
4	Preparing for the future



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5. Moving IT out of the back office

Mega-trends are transforming the business world and increasingly having an impact well beyond IT. Given these changes, the IT department can no longer afford to serve as a back office, simply enabling the rest of the business to operate.

To successfully optimise mega-trend technologies, organisations need IT to be more than just functional. Industry analysts² say that IT should increasingly play a role in forming and implementing business strategy, while in future the most successful organisations will be those who develop flexible and agile IT departments that are closely integrated into the wider business, thus ensuring every department can gain from technological innovation.

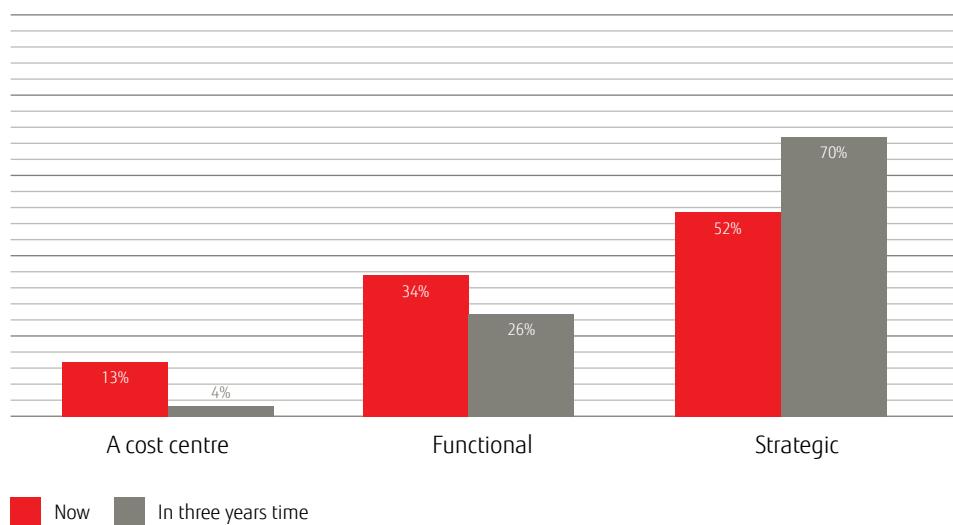
So how are large organisations responding to these twin challenges?

IT as a strategic centrepiece

IT decision-makers have recognised the need for close integration with business strategy, with an encouraging 82% saying that IT strategy is "fully" or "mostly" embedded in the overall business strategy. These numbers suggest that IT departments are ready to embrace their businesses' broader strategy, rather than operating as their own unit dealing with separate priorities. This is likely to be critical to long-term success in the age of mega-trends.

However, it seems IT decision-makers don't think their organisations' perceptions have shifted at quite the same pace, with almost half (47%) saying that IT is perceived within their organisation as "functional", or just a "cost centre". Clearly, work is still needed to close this perception gap, although most IT decision-makers are optimistic for the future, with 70% expecting that the organisation will perceive IT as a strategic part of the business in three years' time.

Fig 4
Organisational perceptions of IT



In short, there's still room for growth, but IT is making significant headway in its journey to the centre of organisational strategy.



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² See for instance: http://www.mckinsey.com/insights/business_technology/why_cios_should_be_business-strategy_partners

Agile, integrated IT

Perhaps unsurprisingly, given the wholesale changes this requires, IT seems to be moving a bit more slowly when it comes to full on integration with the rest of the business. One helpful way to think about this is to use Gartner's 2014 model of two types of IT.

Are you type 1 or type 2?

Gartner defines two types of IT departments and says that success is reliant on being able to offer both of these (Gartner, 2014):

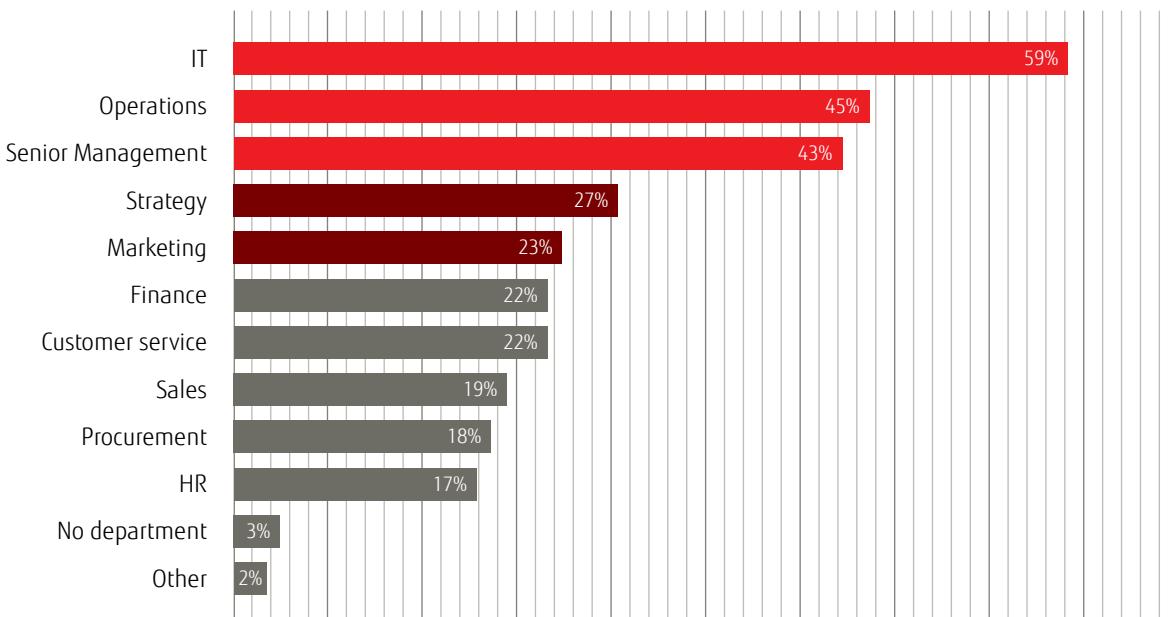
- **Type 1: Traditional IT, focused on stability and reliability**
- **Type 2: Agile, experimental, flexible IT, closely integrated with business units**

More than **1/4**
of respondents
are not thinking bi-modally.

As Gartner points out, successful adaption to this new business world requires IT to increasingly develop the type 2 model and to move to a 'bi-modal' combination. Yet more than a quarter (28%) of respondents to our survey still define themselves as traditional type 1 IT departments that are focused on reliability and stability, rather than type 2 departments (25%) or a combination of the two (47%).

Additionally, when quizzed about which departments drive new technology adoption, IT comes out at the top of the pack, with only the operations department and senior management also frequently involved. **Given that on average only two non-IT departments are involved in driving new technologies, there is clearly scope for greater integration with business units.**

Fig 5
Departments driving new technologies



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57%

of organisations think that their business is looking elsewhere for IT resource because they do not believe IT can provide what they need.

IT decision-makers therefore need to ensure this organisational shift isn't neglected and that the business as a whole is able to benefit from new mega-trend technology adoption. After all, it's likely that new technology will be able to provide these departments with a lot of support and many may be tempted to pursue it anyway in the form of shadow IT.

For instance, just 23% of organisations list their marketing departments as driving new technology adoption, but with the range of solutions available for this department, it seems likely that many may be opting to pursue technologies independently from IT. This does indeed seem to be the case in many organisations with 57% of IT leaders agreeing with the statement that "the wider organisation adopts new technology without IT being aware of it".

Given these statistics, the IT department may want to further broaden its remit, supporting individual business units in their technological ambitions, while still commanding overall control of new technologies for security and compliance purposes. IT departments who do this will be well positioned to optimise mega-trend technologies.

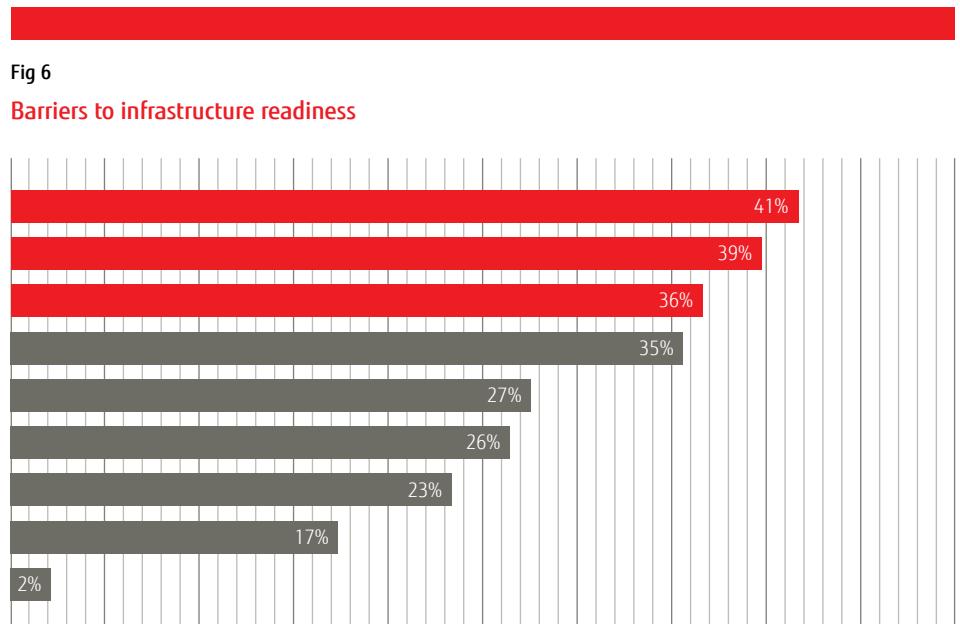


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6. Developing a flexible infrastructure

Of course, being ready for mega-trends involves more than closer integration with other business units. While this may be a long-term goal, for many organisations the most immediate barrier to progress on mega-trends is their IT infrastructure.

To take full advantage of mega-trend technologies, IT infrastructure needs to be agile and flexible, enabling change rather than getting in the way of it. But, all too often, IT infrastructure is instead a roadblock – bloated and complex in a way that can hinder successful mega-trend adoption, with legacy infrastructure (named by 34% of respondents) and complexity of infrastructure (named by 30%) coming out as top barriers to faster mega-trend technology adoption in our research. To explore this subject in more detail, we asked respondents to identify barriers to infrastructure readiness specifically.



So what can IT leaders do to overcome these barriers?

Well one option – that helps with three out of the top four barriers – is to make greater use of plug-and-play technology solutions. As of now, only 19% of the IT decision-makers we spoke with tend to use plug-and-play consistently for new technologies, while 57% use a mixture of plug-and-play and bespoke and 23% primarily use bespoke technologies.



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While a combination of bespoke and plug-and-play solutions certainly holds advantages – with many saying it gives them the best of both worlds – unnecessary use of complex, bespoke technologies further increases the complexity of IT infrastructure.

While some IT leaders may be reluctant to move away from bespoke options, plug-and-play or quick-to-deploy solutions are often the right answer. They tend to be cheaper and easier to implement, giving much needed agility to the IT department, allowing for optimisation of mega-trend technologies, while in many instances also resulting in cost savings.

Fig 7
Top reasons given for plug-and-play or bespoke technologies

Plug-and-play	Bespoke	Combination
<ul style="list-style-type: none">1. Easier to implement and use2. Cheaper/better value for money3. Reduces risk	<ul style="list-style-type: none">1. More flexible and customisable2. Works better with our systems	<ul style="list-style-type: none">1. Allows best of both worlds2. Legacy systems require it



»The beauty of vShape is its simplicity – it took me longer to unbox the kit than it did to get it up and running. Within two hours the system was fully operational and we then migrated everything to the new virtual platform in a matter of hours«

Matt Shore
Technical Director, AAG Systems

» Read the AAG case study



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7. Overcoming the uncertainties of new technologies

Opening the door to Open Source



» Read the thought leadership article

Understandably, IT leaders are extremely risk averse where security is concerned, which is proving to be a significant drag on the speed of mega-trend technology adoption. Security was the top barrier to faster adoption of mega-trend technologies both at an overall level and when considering infrastructure readiness specifically.

While security has to remain a top concern for any responsible IT department, IT leaders should ensure excessive caution isn't holding back progress and delaying business critical technological innovation.

Increasingly businesses have a huge range of software options for their infrastructure. IT departments need to be able to take advantage of these. In particular, one of the options that is proving more and more popular is use of open-source software for IT infrastructure.

The potential advantages of this technology are significant, with 59% saying one of the key advantages of open-source is cost reduction, while half (49%) list improved flexibility. A cheaper, more flexible infrastructure is a key goal for IT departments everywhere, especially those looking to optimise mega-trend technologies. But many are holding back for now, as they see this type of software as presenting a substantial security risk.

Fig 8

Top benefits and drawbacks of open-source infrastructure software

Benefits	Drawbacks
Cost reduction (59%)	Security issues (48%)
Increased flexibility (49%)	Compliance issues (34%)
Avoids vendor lock-in (33%)	Reliability and stability issues (33%)
Improves innovation (32%)	Level of employee skills required (29%)
Encourages employee collaboration (29%)	Enterprise-grade solutions not always available (28%)

While this pragmatism is understandable, it seems a shame to miss out on all the advantages open-source can bring, especially as this type of infrastructure software is likely to become more prevalent in future.

Just under a third (30%) currently say the benefits of open-source outweigh the drawbacks, but a majority (54%) estimate these benefits will outweigh the disadvantages in three years' time.

Rather than waiting for the problem to be solved on its own, organisations may want to think about finding integrated solutions that de-risk open-source infrastructure software, while allowing them to take advantage of all the benefits this technology can bring.



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8. Preparing for the future

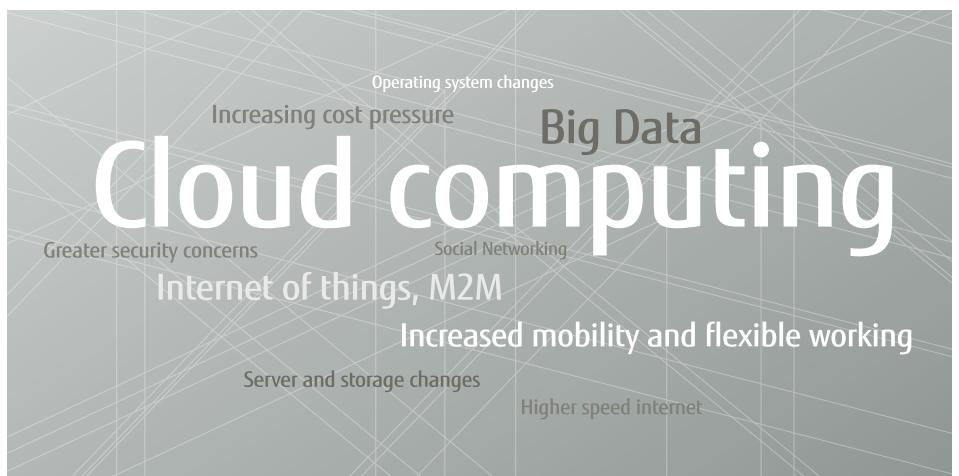
True readiness for mega-trend technology optimisation should also involve future-proofing IT infrastructure, thus ensuring when the next big trend comes along, the organisation is ready to pounce.

The good news here is that a majority (61%) of organisations think their infrastructure is already "future-proofed" to allow them to keep up with the pace of innovation. But there's some evidence that they may be overconfident.

When asked about the developments and technologies they think are likely to have the biggest impact on IT infrastructure in the wider market over the next few years, almost all respondents gave answers very much rooted in the present (such as Cloud, Big Data and flexible working).

Fig 9

Developments they expect to impact IT infrastructure in next few years



While this makes sense, as there's still a lot more some of these trends can do, it's possible that new technologies could have just as much impact. IT leaders seem to be thinking about the short-term rather than the long-term. This casts doubt on the assertion that their infrastructure is truly 'future-proof'.

For instance, it was interesting to see that not a single respondent mentioned Software Defined Infrastructure (SDI), which could be a ground-breaker in IT infrastructure, as many are already starting to observe.³



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³ See for instance <http://www.computerweekly.com/news/2240230956/Software-defined-infrastructures-challenge-legacy-IT-culture-warns-Gartner>, <http://dupress.com/articles/tech-trends-2015-software-defined-everything/?id=us:2el:3dc:dup1008:eng:cons:tt15:dcpromo> and <http://www.idc.com/getdoc.jsp?containerId=258005>

When quizzed about this technology, IT decision-makers expected it to produce increased flexibility and efficiency – key goals for successful infrastructural readiness – but also expect security and compliance risks to accompany the new technology.

Fig 10

Top benefits and drawbacks of Software Defined Infrastructure

Benefits	Drawbacks
Increased flexibility (41%)	Security issues (33%)
Improved efficiency (35%)	Compliance issues (28%)
Cost reduction (33%)	Reliability and stability issues (27%)
Better integration with cloud and other storage (30%)	Loss of control (26%)
Reduces time required (25%)	Cost (25%)

IT leaders are seeing nothing but the mega-trends when it comes to infrastructure development. They may want to broaden their outlook to ensure that the next big technologies are also at the forefront of their thinking. After all, being an early adopter can bring significant rewards.



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9. Fujitsu's view

Here at Fujitsu, we've seen these trends play out time and time again with our clients. Key business decision makers are inundated with news that suggests businesses are being transformed by mega-trends and – not wanting to be left behind – they tell IT to 'make it happen'.

Of course, as we see in this report, it's a case of much easier said than done. IT doesn't usually get a massive cash injection to go with this commandment and is often also contending with large 'technical debt' – infrastructure renewal and modernisation costs that have been repeatedly deferred. Additionally, IT leaders know that an enthusiasm to move quickly doesn't mean that they can take shortcuts on security (the top barrier in this report), which, if jeopardised, can pose an existential threat. So what's the best way to approach this seemingly unachievable mission?

Is there a perfect answer?



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» Discover more about PRIMEFLEX here

While it may be tempting for IT leaders to turn back and say it's not possible, this isn't the wisest career move... And in any case it would probably be counterproductive – if IT say they can't adopt new technologies, other departments are only one credit card purchase away from being able to adopt technology solutions themselves. As this report highlights, an astounding 57% of IT decision makers believe that "the wider organisation adopts new technology without IT being aware of it". Of course, this poses a huge risk to the business as insufficient attention will be paid to terms & conditions and technical specifications that could easily be putting the organisation at risk. Standing still is clearly not an option.

We encounter clients facing these same challenges every day and our advice is to rebalance IT infrastructure away from complex legacy systems to a scalable, quick-to-deploy, open, secure and future-proof solution. This has two key benefits:

- Scalable and quick-to-deploy systems enable organisations to quickly scale their infrastructure to meet business needs without incurring a prohibitively large cost, while still allowing room for bespoke customisation if necessary
- Open systems mean that organisations aren't tied to specific infrastructure software and can easily adapt to any software they may want to use in the future, including open-source, without compromising on security

While setting up such a solution may seem daunting, the beauty of these integrated systems is that they simplify processes and eliminate 'technical debt', thus delivering ROI and freeing up the IT department's time. Crucially, this allows IT leaders to focus on integration with the broader business and adoption of new technologies, keeping key business decision makers happy.

Thank you,

David Histon,
Head of Enterprise,
PRIMERGY Servers and Converged Systems,
Fujitsu UK&I

Colin Smith
Head of Product Marketing
for Storage Offerings,
Fujitsu UK&I



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10. Methodology

This report is based on the findings from 150 online surveys completed by senior IT decision-makers in UK companies with over 500 employees. In order to take part in the survey, the IT decision-maker had to have responsibility for their organisation's IT infrastructure.

For the purpose of this research we have defined the IT mega-trends as follows:

■ The Internet of Things

New technology is allowing machines to communicate with one another. For example, a SIM inserted into a production machine may allow it to communicate with the organisation's backroom IT system. One machine communicating with another is called M2M; lots of machines all communicating with each other over an internet connection is called 'The Internet of Things'.

■ Cloud Computing

Cloud computing involves a network of servers and storage, often hosted on the Internet. This network provides an organisation with flexible data storage and processing capacity, and can allow applications and data to be accessed from any internet-connected location.

■ Big Data

Big Data refers to extremely large data sets that may be analysed for use by an organisation. The data sets may come from a wide variety of sources from both within and outside an organisation and are too big to be analysed by conventional software (e.g. Microsoft Excel); instead they require specialist technologies and knowledge. For example combining data from web browsing patterns, social media, industry forecasts, existing customer records, etc. and using it to predict trends, prepare for demand, pinpoint customers, optimise pricing and promotions, and conduct real-time analytics.

■ Unified Communications

– Unified communications provides the flexibility to juggle communications between multiple devices regardless of whether they are 'fixed' (e.g. landlines) or 'mobile' (e.g. smartphones). Using Unified Communications you can access all of your communications (e.g. voice calls, SMS, videos, emails) via any device, wherever you are.

■ Social Media

Social media refers to online networks including LinkedIn, Twitter, Facebook, Google+ and many more. Amongst a range of features, these networks enable people and organisations to create profiles, 'follow' and 'be followed' by others, 'post' updates and articles, and make comments.

■ Mobility solutions

Mobility solutions are hand-held pieces of internet-enabled equipment such as smartphones, tablets, and wearable technology that are used in a work environment. These devices may be owned by the organisation or by the employee (e.g. Bring Your Own Device).

The research was conducted by B2B research specialists, **Circle Research**.



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11. Credentials



Circle was founded in 2006 as a B2B alternative to traditional consumer-focused research agencies. Our mission is to uncover hidden truths about our customers' target market.

Through primary research, we provide insights, which enable organisations to:

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- Invest in the right marketing channels and messages
- Build a resonant and differentiated brand
- Create great thought leadership content
- Create happier, more loyal customers
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