

THE DIGITAL IMPERATIVE



Enabling the
Digital Enterprise

The Digital Imperative White Paper

November 2014

Adopting and implementing a digital transformation strategy is now an imperative for businesses. Enterprises and organisations of all sizes and types are seizing the initiative, as the brisk winds of digital change blow through international markets.

This white paper sets out the latest thinking on how companies and organisations can best harness the power of digital transformation, looking at the most recent trends, developments, risks and opportunities in this fast-moving sector.

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Cloud Computing

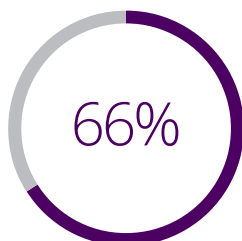
According to Frost & Sullivan, the global cloud computing market will reach more than US\$125 billion by the end of 2014. Around the world, all major economies and companies are adopting cloud technology for storage, analytics, data processing and as a key component in delivering digital transformation.¹



Global cloud computing market value by the end of 2014.

This exponential growth still has some years to run. International Data consultancy forecasts that cloud-based spending among global businesses will rise by 23 per cent each year until 2018, a figure five times that of general IT spending.²

So what are the key issues for businesses and organisations to address?



Two-thirds of European CIOs and CFOs fear their business will become uncompetitive because they do not have the best cloud applications.

It is vital to choose the most appropriate cloud infrastructure to suit a business's digital transformation, in order to meet users' expectations and deliver a great digital experience, whether in online retail, providing information or in attracting talent.

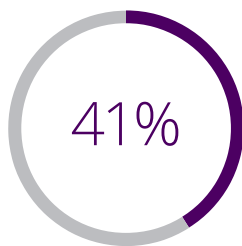
A recent survey conducted by Vanson Bourne and commissioned by Canopy (the cloud system owned by Atos) found that more than two-thirds of European CIOs and CFOs fear that their businesses will soon become uncompetitive because they do not have the best cloud applications to support digital transformation.³

In the survey of almost 1,000 senior decision makers across Europe, the majority felt that, with improved cloud capabilities, their companies could reach double-digit growth in 2015.

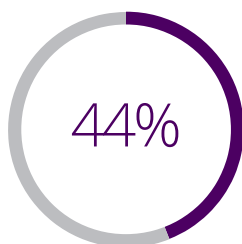
"As the survey highlights, digital must be in the DNA of every department to help the business take market share and maximise revenue," said Jacques Pommeraud, Canopy chief executive. "From hospitality and retail, through to manufacturing, we see that those emerging as winners are taking advantage of digital capabilities and innovation to build entirely new revenue streams."

This widening disconnect between the exceptional potential of cloud computing and the problematic reality of migrating

1. <http://www.saudigazette.com.sa/index.cfm?method=home.regcon&contentid=20140821215365>
2. <http://online.wsj.com/articles/sap-clearly-heading-for-the-cloud-heard-on-the-street-1411143361>
3. <http://www.computerweekly.com/news/2240232525/CIOs-fear-poor-cloud-investment-is-making-businesses-uncompetitive>



41 per cent of CIOs said legacy IT systems meant they could not get new customers on board quickly enough.



44 per cent of CIOs worry about security and data protection of having their data in the cloud.

systems onto a cloud platform is a growing issue for many businesses and organisations.

Almost half of CIOs surveyed by Canopy admitted that their businesses were missing out on revenue opportunities due to lack of cloud investment, because their IT departments were unable to develop applications at sufficient speed for the business. A total of 41 per cent of respondents said that they could not get customers 'on board' quickly enough, due to delays from internal legacy IT systems.

Persistent fears of the risks of cloud computing hinder uptake, the survey found. Half of the CIOs questioned have security concerns, 44 per cent worry about data protection and around a quarter are concerned about intellectual property protection and the risk of supplier lock-in.

Without effective cloud adoption, many CIOs (more than a third, in the Canopy survey) believe their IT departments will suffer reduced productivity, increased time to market, reduced ability to service customers in new ways and limits to the company's ability to launch new products and services. In the United States, at the highest levels of government, there are similar concerns and obstacles, according to a new report from the US Government Accountability Office (GAO). Seven federal agencies were surveyed for the report, which found that – despite putting more resources and effort into cloud adoption, the agencies still invested only a small fraction of their budgets in the technology.⁴

“This is due in part to the agencies' practice of not assessing these investments until they are to be replaced or modernised, which is inconsistent with the Office of Management and Budget's direction,” said the report.

In the UK, the government's Digital Inclusion strategy, with investment of £1 billion up to summer 2014, has expanded broadband access to the majority of UK businesses and homes.⁵

Inertia nevertheless afflicts many businesses and organisations, who are seemingly unaware that the pace of change has now increased and that adopting new technologies can no longer be postponed until it fits with longer-term investment patterns.

4. <http://www.fierceregovernmentit.com/story/federal-agencies-still-investing-too-much-legacy-systems-rather-cloud-compu/2014-09-29>
5. <https://www.gov.uk/government/publications/government-digital-inclusion-strategy/government-digital-inclusion-strategy>

Cloud solutions should be considered whenever a “secure, reliable and cost-effective option exists, regardless of where the investment is in its life cycle,” stated the GAO report. Although the seven agencies, including the Agriculture Department and the Small Business Administration, spent around \$529 million on cloud services in fiscal year 2014, this was just 2 per cent of their IT budget.

In the UK, the G-Cloud initiative, launched in 2012, has enjoyed sales of more than £300 million so far from public sector organisations.⁶

Several new initiatives may help business and organisations make the transition to cloud computing: Cisco announced at the end of September 2014 that it is investing \$1 billion in a massive, extended cloud network that will link hundreds of data centres around the world. To be known as the Intercloud, the systems will help to merge public and private cloud computing and ‘share cloud infrastructure in the same way that mobile telecommunications companies have roaming agreements,’ according to a Reuters report. The company also hopes the offering will address security and reliability concerns that have prevented businesses from accessing the cloud through public internet connections.⁷

The Intercloud, according to Cisco, allows companies and organisations to extend their data centre or private cloud to the public cloud, ‘allowing you to acquire the added capacity you need. You get the agility and capacity you need, as well as security and control.’

For some enterprises, adopting open source software can help them retain control over their software and data, take advantage of frequent updates, save costs and avoid excessive ‘lock-in’ to specific vendors or software suppliers.

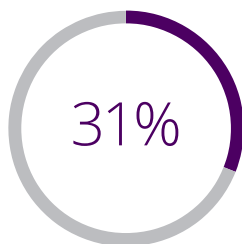
“A major advantage of using open source software such as OpenStack and CloudStack to build an open source cloud storage environment is that users can modify the source code to meet the needs of their individual business,” says IT consultant Margaret Rouse. “Open source also prevents the need to purchase expensive licensing models and tools, and the ability to use commodity, off-the-shelf hardware to build the cloud. Drawbacks include finding and paying for the technical expertise that’s necessary to modify the source code.”⁸

6. <https://www.toplev.com/news-item-marketmeter-gcloud-2014.html>
7. <http://uk.reuters.com/article/2014/09/29/uk-cisco-systems-investment-cloud-idUKKCN0HO13R20140929>
8. <http://searchcloudstorage.techtarget.com/definition/open-source-cloud-storage>

There are a number of other cloud-based open source PaaS tools, including Cloud Foundry, which is highly regarded in its field.

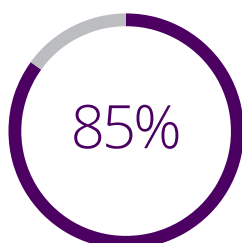
Bring Your Own Device

This movement, which has been gaining momentum for the past couple of years, is now poised to tip from minority to majority practice, as ever more enterprises not only permit BYOD but actively encourage it, or even insist upon it.



31 per cent of US organisations have implemented bring your own device.

A recent survey from the Information Security Group, looking at BYOD adoption and mobile security issues found that the practice has been fully implemented by 31 per cent of organisations, with a further 20 per cent actively considering it.⁹ Gartner, meanwhile, forecasts that by 2020, 85 per cent of organisations will have adopted BYOD in some form, with (Gartner anticipates) 45 per cent of organisations being 100 per cent BYOD, 40 per cent operating a mixed policy and 15 per cent sticking to corporate technology.¹⁰



Gartner forecasts that 85 per cent of organisations will have adopted BYOD in some form by 2020.

The roots of this shift are easy to spot: most people now own high-spec, fast, efficient mobile devices with giant memories that are more than capable of running enterprise software solutions and integrating with their employers' office-based technology.

The emergence of cloud computing has only served to accelerate this shift, facilitating greater remote communication and collaboration between work colleagues and between partner organisations using their own devices. The Information Security Group's survey noted that the primary benefits of BYOD include improved employee mobility (57 per cent of respondents), greater employee satisfaction (56 per cent) and improved productivity (54 per cent). However, there were rising concerns over the potential loss of company or client data, noted by 67 per cent of respondents. Unauthorised access to company data and systems was a concern to 57 per cent and user-downloaded apps or content with embedded security exploits worried 47 per cent.¹¹

"A BYOD policy increases productivity and satisfaction, but creates critical new risks that are hard to mitigate when directly controlling the device is no longer possible," stated

9. http://scadahacker.com/library/Documents/Threat_Intelligence/InfoSec%20-%20BYOD%20and%20Mobile%20Security%202014.pdf
10. <https://11.osdimg.com/remote-support/dam/pdf/en/bring-your-own-device-the-facts-and-the-future.pdf>
11. http://scadahacker.com/library/Documents/Threat_Intelligence/InfoSec%20-%20BYOD%20and%20Mobile%20Security%202014.pdf

the report.

Gartner, meanwhile, looks ahead to the growing practice of adopting Mobile Device Management (MDM) programmes. These potentially provide the IT departments of organisations with access to personal information such as emails, photos and social media posts, leading to employee concerns over privacy and excessive intrusion. Gartner argues that “by 2016, 20 per cent of enterprise BYOD programs will fail due to enterprise deployment of MDM measures that are too restrictive.”¹²

This seems a pessimistic viewpoint, given that BYOD is supposed to be about employee freedom and choice, so it would be foolish of any organisation to mess things up by insisting on a draconian and intrusive monitoring system. “Employees are demanding solutions that isolate personal content from business content and restrict the ability of the organisation to access or change personal content and applications,” reports Gartner. This shouldn’t be too difficult to achieve.

One further recent survey, by Good Technology, showed that the majority of US mid-market industries already have more than 50 per cent BYOD penetration, with the legal industry coming in top place at 72 per cent. Only manufacturing, wholesale, energy and government had sub-50 per cent adoption figures.¹³

Questioning 459 IT decision makers from firms turning over between \$200 million and \$999 million a year, the survey found that almost half of respondents were concerned about the privacy issues surrounding MDM, while 54 per cent said their companies had not implemented any MDM programme.

The respondents agreed that ‘mobile app management and building an enterprise app store’ were the highest priorities, once the issue of MDM had been resolved. Network access control and app containerisation were similarly important. Among the apps themselves, secure email (enjoyed by 36 per cent of respondents), instant messaging (32 per cent) and intranet browsers (29 per cent) were the most popular.

A recent UK study conducted by Trends in Enterprise Mobility and IT trade association CompTIA found that a

12. <https://11.osdim.com/remote-support/dam/pdf/en/bring-your-own-device-the-facts-and-the-future.pdf>
13. <http://uk.good.com/about/press-releases/187792551.html>

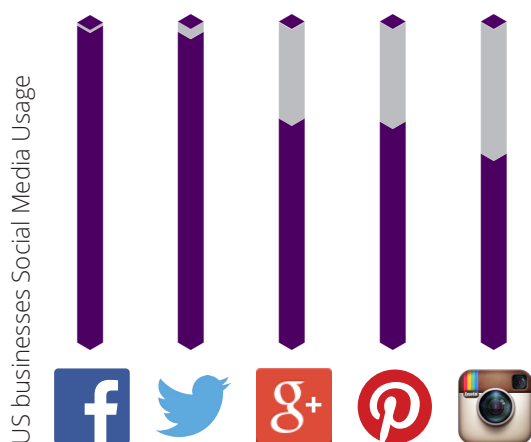
small percentage of UK firms are implementing BYOD. They discovered that just 4 per cent of companies have a full BYOD strategy, while 55 per cent have introduced a partial BYOD adoption.¹⁴

We are heading relentlessly towards a future where employees use multiple apps, multiple devices and multiple operating systems. Integrating all of these into an enterprise will certainly involve MDM, tactfully and sensitively applied, along with secure and reliable messaging solutions, in order to harvest the maximum gains from digital transformation.

Changing the enterprise workflow to adapt to these new practical realities will take time, but will be key to gaining further advantages, to deliver business improvements and to serve customers more effectively.

Social Media

The vital contribution of social media to digital transformation continues to change the virtual commercial landscape in surprising ways. From its roots as a student information sharing platform, Facebook has now been adopted by 99 per cent of US businesses, according to social media commentator Anthony Carranza, while 97 per cent are on Twitter, 70 per cent on Google Plus, 69 per cent on Pinterest and 59 per cent on Instagram.¹⁵



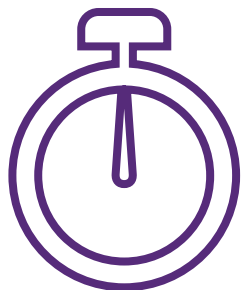
It is likely that UK figures are similar across these categories, but it appears that these statistics haven't been made public so far.

"Looking at these numbers It is obvious that businesses are creating accounts to target their customers," notes Carranza. "Small to medium sized businesses said they have attracted new customers by using B2C social networks."¹⁶

The effectiveness of social media is no longer in question, but its omnipresence and the speed of its impact on commerce is consistently surprising.

Many companies have found that their websites, upon which they have laid so much stress and in which they have placed so much investment over the past 20 years, are becoming obsolete and disregarded.

14. <http://www.comptia.org/resources/3rd-annual-trends-in-enterprise-mobility>
15, 16 <http://www.theepochtimes.com/n3/blog/social-media-trends-insights-and-stats-for-business/>
17. <http://www.slideshare.net/PersonalizedCommunications/improving-customer-experience-with-call-center-and-answering-services>



Social Media is speeding up customer service expectations. 2.25 per cent of complaining customers expecting a response within the hour.

Social media offers so much more interaction, a more democratic platform and an environment less infected by marketing messages, that it has attracted a huge weight of public support and interest, bringing corporate investment with it.

In a report from RightNow, on customer experience, 50 per cent of respondents 'give a company only a week to respond [to a complaint] before they stop doing business with them.' A small (2.25 per cent) number of customers who complain to a company on Twitter or Facebook expect a response within one hour.¹⁷

These high expectations are accompanied by proportionately high advantages to responsive companies. Where businesses engage and respond to customer service requests via social media, these customers end up spending up to 40 per cent more with the company, according to a survey from Bain & Company.¹⁸

Social media sites now play an increasingly important role in customer service interactions, with more 18 to 29-year-olds using a brand's social media site for this, rather than spending time looking at their marketing material. In parallel, brands have improved their social customer service response rate on Facebook from 5 per cent in 2011 to 62 per cent in 2013, according to the consultancy Social Bakers, which measured global figures.¹⁹

The upshot is that companies can no longer afford to ignore customers' direct messages or complaints, because these messages are there for all to see. Delays in responding, or inadequate, or patronising responses, are just as bad (or worse). Digital transformation means engaging with your customers in an honest, open and detailed way, or running the risk of reputational damage.

The speed of such damage is lightning quick – for example the Tesco employee who told a blind customer with a guide dog to 'get out' of the store, or the remark from Microsoft's new chief executive Satya Nadella that women should rely on 'karma' rather than asking for a pay rise. Such pieces of news no longer rely on the news gathering value systems of The Wall Street Journal, the New York Times or the BBC to decide whether they should reach a broader public. They 'go viral' through public sharing and posting.

17. <http://www.slideshare.net/PersonalizedCommunications/improving-customer-experience-with-call-center-and-answering-services>

18. <http://www.bain.com/publications/articles/putting-social-media-to-work.aspx>

19. <http://www.cognitionagency.co.uk/articles/60-second-summary-social-media-customer-service/#.VG3QsvmsWQN>



Charity donations rocket thanks to viral nature of ice bucket challenge across social media platforms.

On the positive side, philanthropic campaigns such as the 2014 ALS ice bucket challenge, which became the YouTube and Facebook viral hit of the summer, have proved how powerful social media can be as a force for good. More than a billion views of ice bucket challenges have been registered on YouTube, versus 10 billion on Facebook between June and September, according to Steve Thomas Hatch, Facebook's regional director for UK and Ireland. "During that period [June to September 2014], global charity donations went up from \$2.4 billion to more than \$100 billion. I think it has enabled people to truly recognise the strength of video on Facebook."²⁰

These figures endorse the view that social media is increasingly the platform where the much-touted multimedia integration will take place. The old silos of TV, radio, print and online media are being absorbed and incorporated into these new all-sharing, all-remembering sites.

And the value of the data that they hold is putting conventional market research companies in the shade, if not out of business. Citing Facebook's 26 million daily users in the UK alone, Hatch states: "Frankly, if you want to compare our ability to measure effectiveness at an individual user level versus Barb's [Broadcasters Audience Research Board] ability at a sample size of 25,000, I'd be more than happy."

Facebook anticipates revenue more than doubling from £405 million in 2013 to £868 million in 2016, as the evidence of its reach and impact continues to grow. Twitter, Instagram, Pinterest, LinkedIn and others have similar growth forecasts. They are at the heart of digital transformation.

Mobile Solutions

Advances in mobile technology will create fundamental changes to the world of work in the coming decade. Vast numbers of people in emerging economies, who currently have restricted access to desktop or laptop computers, already own mobile phones, which they will upgrade in the next 18 months to smartphones and thereby gain entry to the entire online ecosystem.

Facebook itself has 400 million users who only access the site or app from mobile devices worldwide, according to Jay

20. <http://www.campaignlive.co.uk/news/1317135/>



Use of apps is predicted to explode from 2.8bn in 2014 to 7.5bn in five years time.

Parikh, Facebook's vice president of engineering. The social media giant is working with partners including Qualcomm on technology such as LTE (Long Term Evolution – a successor mobile technology to 3G) Multicast and LTE Direct, a peer-to-peer technology which supports localisation services, effective within 500 meters of a user. This cuts out the use of base stations and may transform the mobile experience for many millions of people. A similar technology was used in the recent Hong Kong democracy protests, allowing protestors to circumvent official restrictions on social media and mobile phone communication.²¹

In Western markets, important developments in mobile technology include new ways to access and categorise apps – an increasingly necessary function given the astonishing rate of app development and adoption. Juniper Research reported in September 2014 that there are already 2.8 billion apps in use globally (not different apps, but overall apps being used), a figure that will rise to 7.5 billion by 2019. App-based digital maps, free or virtually free, are leading this expansion, along with context-awareness.²²

“Context-awareness signals a paradigm shift in the definition of what search means on mobile,” said Steffen Sorrell, author of the Juniper Research report. “Combined with deep linking, this shift will transform the manner by which we discover and access apps: the days of flicking through the app tray are numbered.”

The current most popular apps include WhatsApp, Snapchat, Instagram, YouTube, Facebook, music streaming service Spotify, eBay, Pinterest, dating app Tinder and Twitter. So the general trend is towards apps which enable people to communicate and make contact with one another, rather than those which enable people to buy items. Game apps such as Clash of Clans are also very popular and likely to increase their appeal in the coming years.

From a business perspective, employees now want to link their mobile devices to customer and supplier data, HR offices, finance departments and other back office systems, to save them time and effort, according to a new report by Source for Consulting and software provider Advanced Business Solutions. While 53 per cent of respondents said they would like to submit holiday requests via smartphone, only 23 per cent are currently able to. “Staff are keen to extend their use of mobile technology, but many mid-market

21. <http://www.technologyreview.com/news/530996/future-smartphones-wont-need-cell-towers-to-connect/>

22. <http://www.juniperresearch.com/viewpressrelease.php?pr=478>

23. <http://www.advancedcomputersoftware.com/abs/news/employees-demand-greater-investment-in-mobile-technology-to-boost-workplace-productivity.php>

employers are not keeping up with their demands.”²³

Given the increasingly mobile nature of the global workforce, in both a literal and technological sense, those employers who ignore such demands may soon find themselves suffering from a talent drain as higher calibre employees move on. Investment in upgrading mobile technology has become a top priority.

In Indonesia for example, with its 253 million population (the fourth highest on Earth), a major connectivity project is underway co-sponsored by Ericsson, Facebook and local mobile operator XL Axiata.²⁴

Combining Ericsson’s network monitoring tools and Facebook’s application test cases, the project managed to increase the social media site’s coverage by 70 per cent.

This is just one element of the boundlessly expanding web of possibilities in mobile technology, as the potential of high level computing power in a small device begins to emerge.

Conclusion

As this paper has demonstrated, the digital transformation agenda is already far advanced, with many businesses and organisations wholeheartedly embracing cloud technology, BYOD, social media activity and mobile technology.

Yet for all its drama, this is just the start of the journey...


24. <http://www.ericsson.com/news/1862382>

About Arrk Group

Arrk Group delivers high quality, award-winning software engineering solutions via a collaborative, win-win partnership model.

Founded in 1998, we use leading software engineering practices, distributed teams and lean consulting services to deliver industrial strength digital and mobile solutions.


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