DISRUPT, COLLAPSE, TRANSFORM

The Role of Cloud Computing in Industry Transformation

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ABOUT THIS WHITE PAPER

We are living in an age of unprecedented industry change, as industries as diverse as retail, media and manufacturing are undergoing rapid, and often unpredictable, transformation. This accelerating rate of industry disruption is driving companies to adapt far more quickly to the changing business environment in order to survive. The "Kodak moment" has evolved from a marketing phrase used to describe taking a picture at a never-to-be-forgotten moment, to describing the failure of a company to adopt to changing industry conditions. Eastman Kodak, which once accounted for 85% of film sales and 90% of camera sales in the USA, filed for bankruptcy in 2013, a development largely attributable to its failure to adapt to the rapid changes in the photography industry, especially the advent of digital photography.

Whilst Kodak is perhaps one of the best known examples, organisations in virtually every industry are having to adapt to these unprecedented rates of change, driven by disruptive forces from digitalisation to globalisation to servitisation, and the entry of new, disruptive competitors into their industries. In many industries, the speed of change is also accompanied by an unpredictability that negates the ability to develop a long-term response. As a result, survival is increasingly reliant on flexibility and short-term adaptability, with those organisations that have the ability to quickly re-invent themselves in response to changing industry dynamics most likely to survive. A crucial factor in this adaptability is cloud computing, which has emerged not just as a cause of industry change, but increasingly as a necessary response.[1]

As cloud computing matures and becomes more established, not just as a technology but as a business concept, organisations are gaining a more nuanced view of its benefits. As with many new services or products, cloud was initially adopted on the basis of its ability to lower both capital and operating costs for businesses. With industry change accelerating, however, the flexibility, scalability and adaptability of cloud have become significantly important factors for adoption, as more organisations recognise the intrinsic agility it offers.

To understand the degree to which organisations are experiencing industry change and how they are responding, Frost & Sullivan surveyed 1,500 senior executives (CEOs, CFOs, CIOs and other senior managers) globally, including 200 in the UK. Respondents spanned all major industry sectors, ranging from manufacturing to retail. The research shows that most executives not only agree that their industry is undergoing transformation, but that flexibility and adaptability are increasingly becoming key factors for survival.

[1]In this white paper, cloud computing is defined as accessing and using IT resources over the internet

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RAPID RATE OF INDUSTRY CHANGE

Industry transformation is affecting organisations of all sizes. The average lifespan of a company in the US S&P 500 index has reduced from 61 years in 1958 to 18 years today, and is forecast to drop to 10 years by 2018. It is predicted that 75% of businesses in the current index will be replaced by 2027.[2] For UK companies, the survival rate can be even lower. The five-year business survival rate for companies in the UK is only 45%, which indicates that more than half of today's businesses will not be around in five year's time. The survival rate is lowest for companies in sectors such as hotels & catering, finance and transport (see Figure 1).

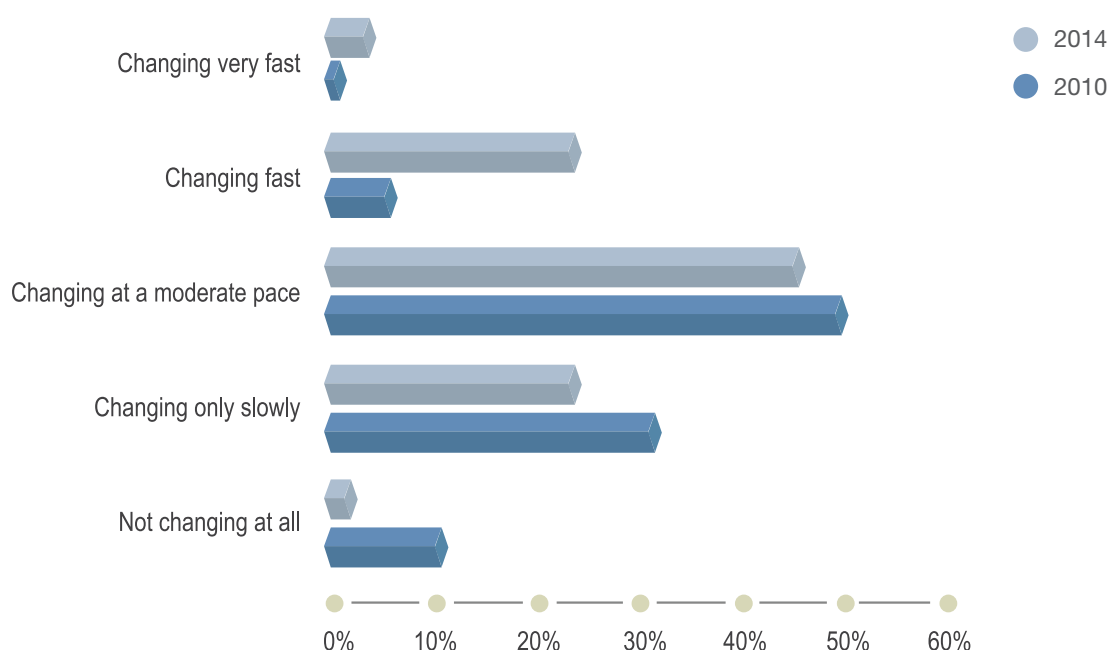*Figure 1: Five-year Business Survival Rate by Industry Sector*
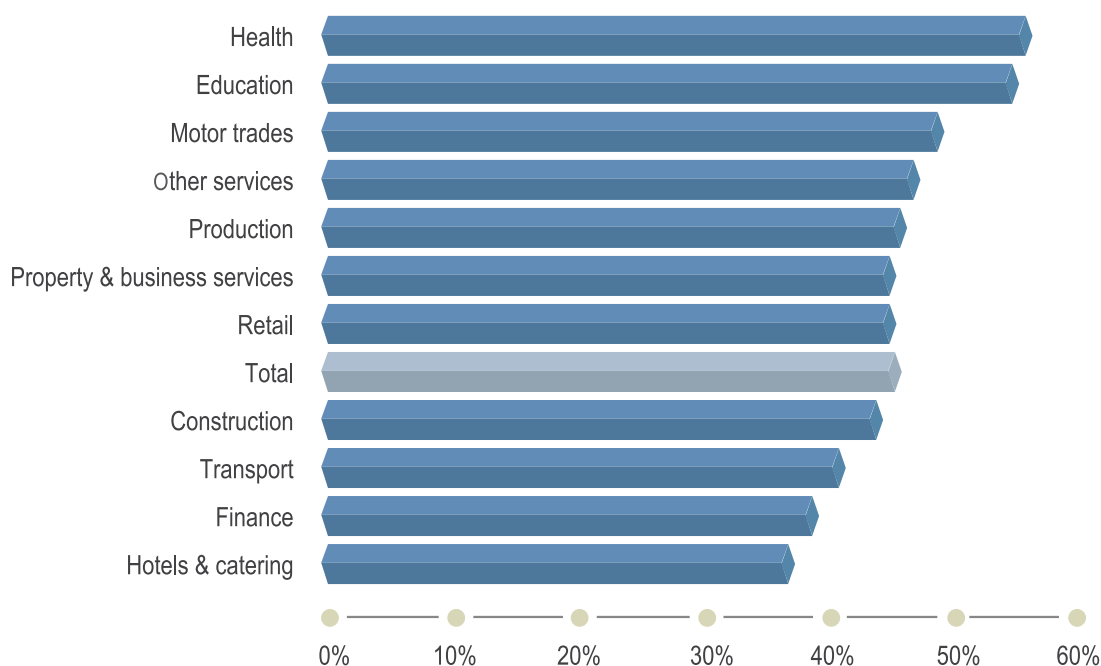
Source: ONS, Business Demography 2012

Our research indicates that most UK executives agree that their industry is changing. 28% of executives now feel that the pace of change is fast or very fast, a much higher percentage than in 2010.[3] Only 2% feel that their industry is not changing at all, down from 11% in 2010 (see Figure 2).

[2]Innosight Executive Briefing, Creative Disruption Whips Through Corporate America
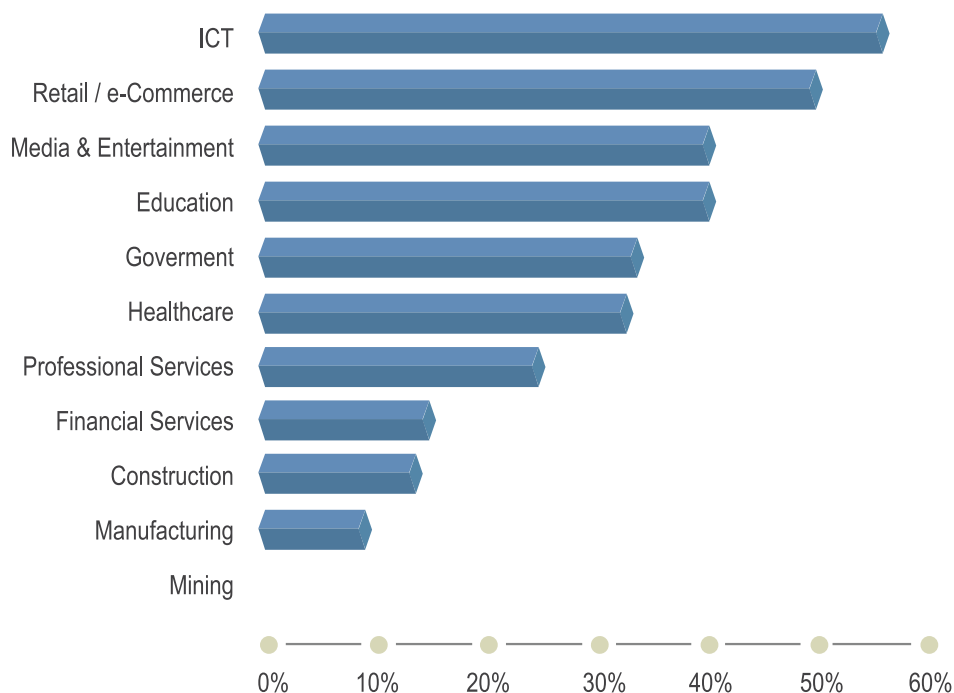[3]Based on Frost & Sullivan research conducted in 2010

Figure 2: UK Executives' Perceptions on Rate of Industry Change

Legend: 2014, 2010

- Changing very fast
- Changing fast
- Changing at a moderate pace
- Changing only slowly
- Not changing at all

Source: Frost & Sullivan, Survey of 200 UK executives

The rate of change is most noticeable for executives in the ICT and retail / e-Commerce sectors, where 56% and 50% respectively feel that their industry is changing fast or very fast, and least noticeable in industries such as financial services, construction, manufacturing and mining (see Figure 3).

Figure 3: UK Executives' Perception on Rate of Industry Change, by Industry Sector

- ICT
- Retail / e-Commerce
- Media & Entertainment
- Education
- Goverment
- Healthcare
- Professional Services
- Financial Services
- Construction
- Manufacturing
- Mining

Source: Frost & Sullivan, Survey of 200 UK executives

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FACTORS DRIVING TRANSFORMATION

A range of factors are driving industry change, but our research has identified four common trends that are impacting organisations in all sectors: the emergence of new, disruptive competitors; digitalisation; the need to embrace new business models; and the growing adoption of productisation and servitisation. In several cases, the advent of cloud computing has significantly contributed to the advancement of these trends, leading to it being seen as an enabler of industry transformation.

3.1 EMERGENCE OF NEW, DISRUPTIVE COMPETITORS

58% of UK executives believe that their industry has been significantly impacted by the entry of new, disruptive competitors in the past five years. This has been driven by new competitors emerging from other regions of the world, or UK-based organisations using new business models or digital technology to disrupt existing industries. Industries such as media and retail are amongst those where the entry of new competitors has had the most dramatic effect. It has also occurred in industries such as hotels, where Airbnb has radically transformed the process of booking accommodation through its peer-to-peer lodging network. Despite being established only six years ago, Airbnb now has 800,000 accommodation listings available in over 190 countries – a much more comprehensive network than any global hotel chain.

In many cases, disruptive competitors such as Airbnb are using cloud computing to quickly scale their businesses at low-cost. Airbnb runs its IT infrastructure on the cloud. Media company Netflix is another example of a disruptive competitor using cloud computing to rapidly scale its business. Netflix acted as a significant disruptor to the traditional DVD rental business when it launched its video streaming service in the UK in 2012, and now has an estimated 4.5 million UK subscribers. Netflix delivers its service over the cloud, and is widely credited for the demise of the previously dominant DVD rental business Blockbuster, which closed its last UK store in 2013, having once had over 520. Netflix is now posing a similar challenge to the pay-TV industry.

UK-based company Hailo offers a taxi-booking app that enables consumers to book the nearest available taxi. Despite being established only three years ago, Hailo now operates in over 20 cities worldwide. Hailo has leveraged cloud computing to expand its business globally in such a short timescale.

Cloud computing is therefore a significant enabler of new, disruptive competitors – allowing new entrants to quickly and cost-effectively roll-out new products and services and enter new markets, at a speed which can often blindside established market participants.

3.2 DIGITALISATION[4]

Digitalisation is the second major driver of transformation identified by executives, particularly the rapid onset of the internet as a sales and communication channel. Whilst the impact of digitalisation on industries such as recorded music is well known, it is now beginning to impact almost every business. Our research identified that 62% of UK executives believe that the impact of digitalisation is or will be very significant in their industry, and 30% believe that it will be quite significant. UK companies are increasingly using digital channels to sell. E-Commerce now accounts for about 25% of total UK turnover, up from 14% in 2008, placing the UK amongst the top countries in Europe for e-Commerce take-up.[5] Almost one-quarter of UK businesses are now selling online (see Figure 4).

Figure 4: Percentage of UK Businesses Selling Online
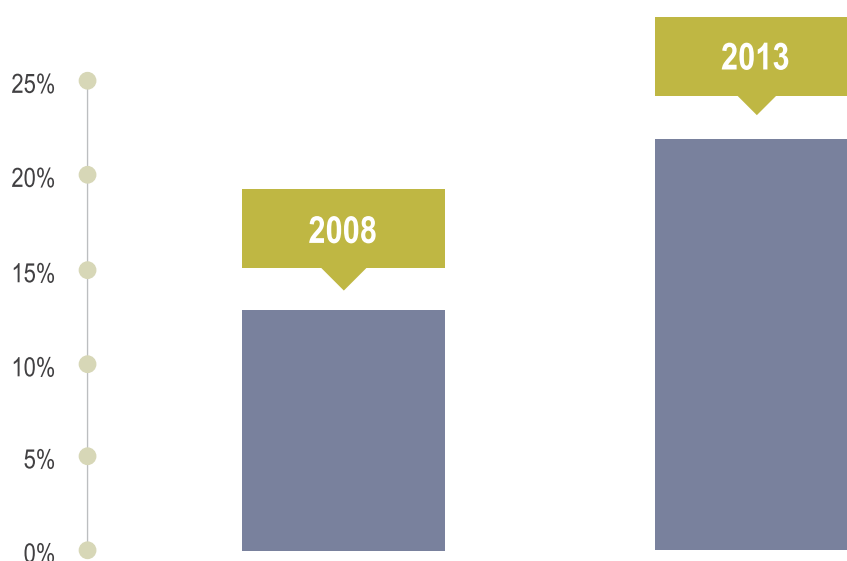
Source: Office of National Statistics

Digitalisation has already had a profound effect on several industries. Newspaper publishers, for example, have seen revenues from classified advertising decimated by the emergence of new, online publishers within the past decade. Traditional "bricks-and-mortar" retailers also have to respond to the dramatic rise in online shopping, which now accounts for 12% of all retail sales in the UK, and is rapidly growing in all other markets.

In the UK, digital change is the most important factor that is driving industry change, ahead of factors such as globalisation, changing customer needs and increasing costs. Virtually all executives agree that they need to respond to digital change regardless of their industry. Digital leaders tend to be significantly more profitable than counterparts that are slower to adopt digital change, with one analyst estimating that digital leaders are 28% more profitable.[6]

Using digital channels to interact with customers, suppliers or other business partners is now widespread. 43% of businesses, for example, now use social media to market themselves, recruit employees, seek customer feedback or even seek innovation ideas from customers, 24% use a blog or microblog (such as Twitter) and 15% use multimedia content sharing websites such as YouTube. However, usage of digital channels to communicate is most widespread amongst larger businesses, with many small businesses yet to fully embrace the digital channel.[7]

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[4]Digitalisation is the use of digital channels, primarily the public internet, to conduct business
[5] ONS, e-Commerce in the UK. E-Commerce penetration in the UK is the fifth highest in the EU
[6] Capgemini Consulting, the Digital Advantage; how digital leaders outperform their peers in every industry
[7] ONS, e-Commerce in the UK

3.3 DEVELOPMENT OF NEW BUSINESS MODELS

Cloud and other technologies such as mobile broadband, 3D printing and low-cost sensors are enabling the emergence of new business models that often act as a significant disruptor to established industries, driving a shift in the way that businesses need to operate. Mass customisation in the manufacturing sector is a great example, which involves customising goods or services for individual clients in an economically viable manner. This has been enabled by improved manufacturing procedures, emerging technologies such as 3D printing, as well as digitalisation that provides customers the ability to "design" products over the internet and link directly into manufacturing systems. By giving customers the ability to transact directly with manufacturers, mass customisation threatens to rapidly transform industries by excluding distributors or retailers (see Figure 5).

Figure 5: From Mass Production to Mass Customisation
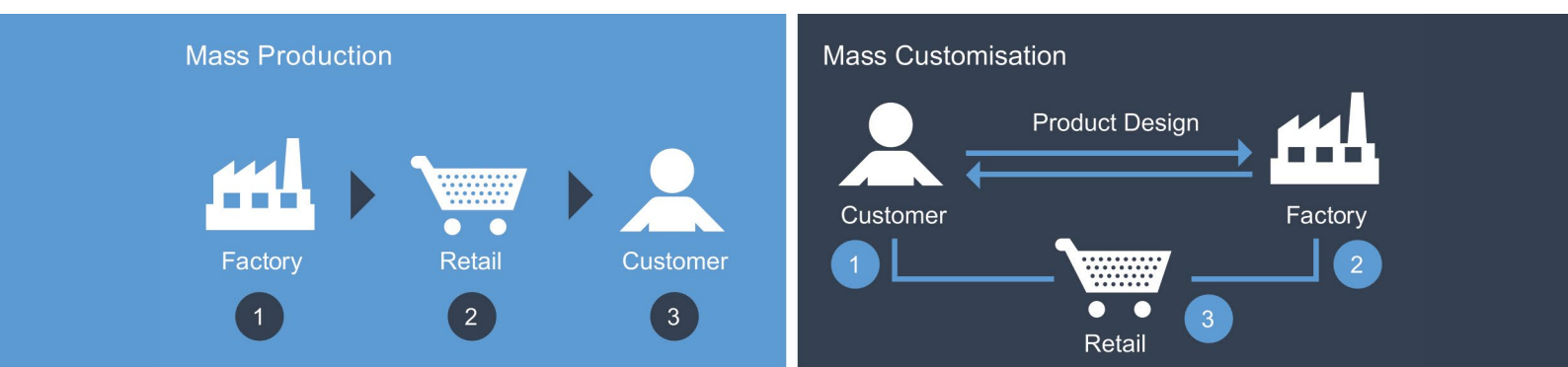
Source: Frost & Sullivan

Mass customisation is developing rapidly in industries such as apparel, where it accounts for an estimated 5% of clothing manufactured.[8] For example, fashion company Burberry enables its customers to design a trench coat online to their own specifications such as colour and trimmings, and have it individually crafted and shipped directly to them.

3.4 SERVITISATION AND PRODUCTISATION WAVES

The rapid increase in service productisation and manufacturing servitisation is the fourth major trend driving disruption. Productisation occurs when service companies package their services in a similar way that many products are marketed – for example, by outlining a standard set of steps to deliver the service, a fixed price and a nominated delivery team with appropriate credibility. Productisation offers a number of benefits for both service suppliers and their customers, including: allowing the production of standardised marketing material; introducing price consistency; making the offer more comprehensible to sales teams (and hence easier to sell); improving consistency and repeatability in service delivery (which can in turn improve customer satisfaction and profitability); and making it easier for customers to compare offers from alternative suppliers.
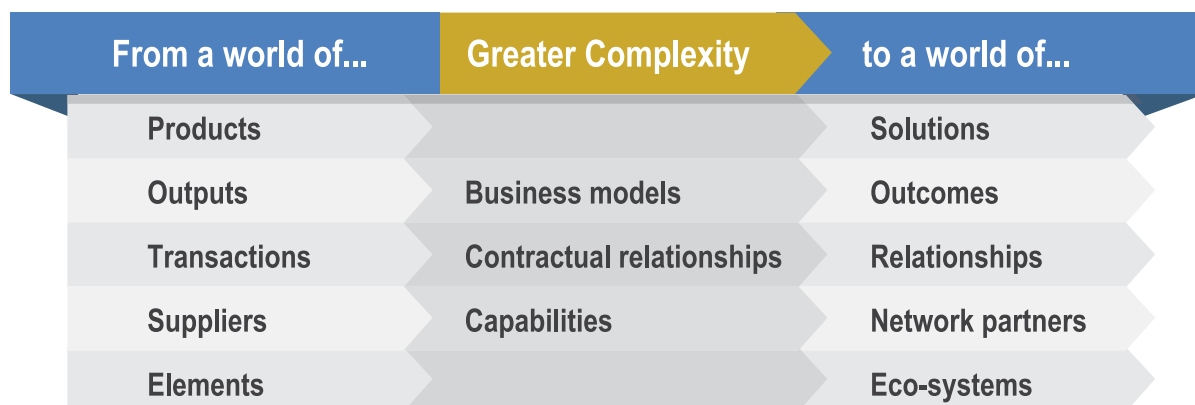
Servitisation occurs when product manufacturers add or integrate chargeable services into their core products, such as design and development, maintenance and technical support, installation and implementation or leasing. Revenues from services are becoming increasingly important for many product manufacturers, especially for more complex engineered products. For example, leading global aero engine and power generation equipment manufacturer Rolls-Royce now derives 50% of revenue from services, such as its TotalCare service for on gas turbines for airline customers which is based on a 'fixed dollar' per flying hour. Aerospace and defence company BAE Systems also derives around 50% of its revenue from services. Servitisation provides additional revenue growth for manufacturers, as well as cost savings of 25-30% for their customers.[9]

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[8] European Commission Business Observatory, Advanced Manufacturing, Mass Customisation
[9] Aston Business School, Servitisation Impact Study, 2014

However, servitisation involves a complex shift for product manufacturers – from a world of products, outputs and transactions, to one of selling solutions and outcomes through a deeper relationship with customers and other network partners (see Figure 6).

Figure 6: The Shift to Services

From a world of...	Greater Complexity	to a world of...
Products		Solutions
Outputs	Business models	Outcomes
Transactions	Contractual relationships	Relationships
Suppliers	Capabilities	Network partners
Elements		Eco-systems

Source: Cambridge Service Alliance, the Servitisation of Manufacturing: Further Evidence

Servitisation involves fundamental changes to the way that a product manufacturer does business, with impacts on areas as diverse as resource requirements and mode of billing. It requires a much greater degree of flexibility as the solution offered to each client is likely to differ, unlike selling a standard product.

The growth of servitisation is reflected in our research, with 40% of UK manufacturers now at least partially servitised, an increase from 25% in 2007. This places the UK behind the US and Singapore, but well ahead of other developed economies such as Japan and Australia (see Figure 7).

Figure 7: Servitisation by Country
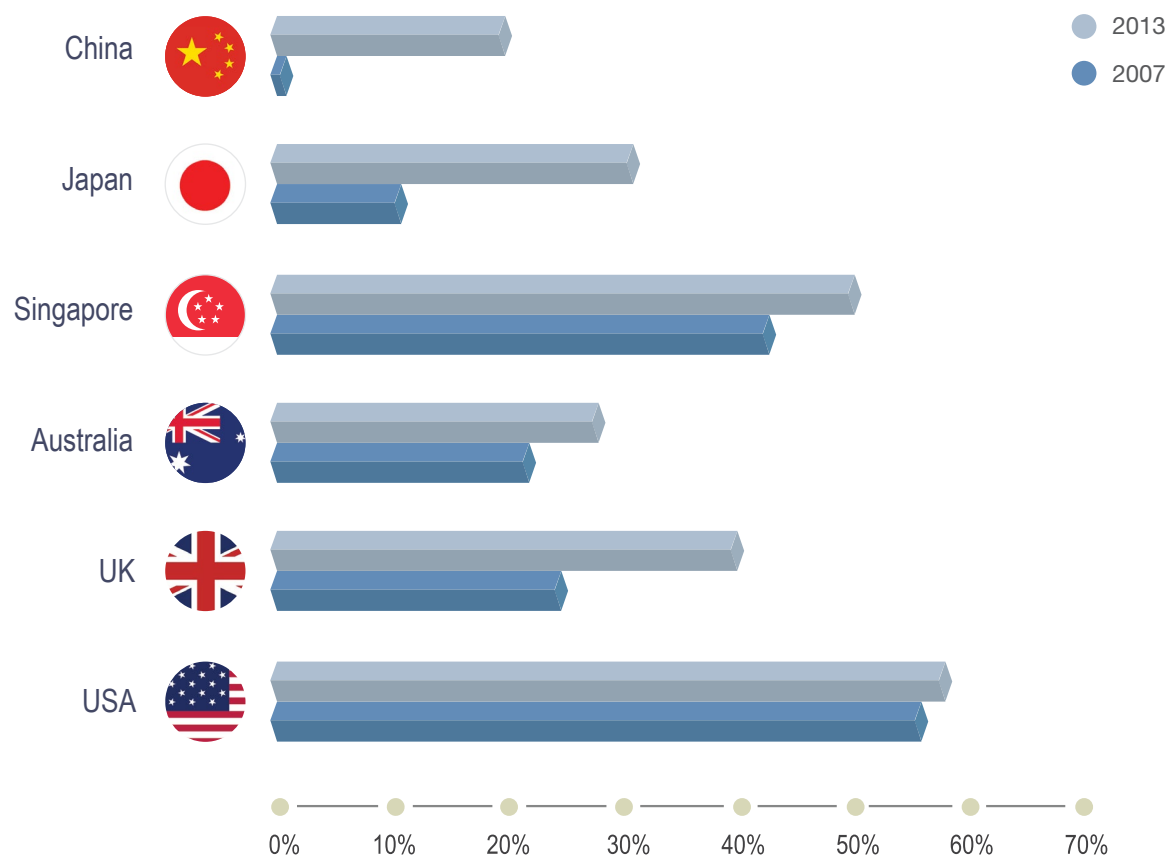
Sources: Cambridge Service Alliance, the Servitisation of Manufacturing: Further Evidence; Frost & Sullivan, Survey of 1500 executives

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# CLOUD IMPROVES ADAPTABILITY

Cloud computing is a key driver of industry transformation, enabling companies of all sizes to have access to IT systems and functionality that have in the past been in the realms of large global competitors, at a much lower cost. This is allowing smaller companies to rapidly expand their operations – giving them the ability to quickly and cost-effectively roll-out new products and services, and to service customers across the world. Effectively the cost of failure in innovation has been substantially reduced. Cloud is also seen as a necessary response to this rapid industry shift where change is not just faster, but also less predictable than ever before. Organisations increasingly appreciate how cloud can provide them with the agility to respond much more quickly and cost effectively.

Cloud has a number of aspects that give businesses much greater flexibility than that offered by on-premise IT resources - new products or services can be provisioned quickly and easily; new distribution channels added; new pricing models introduced and new customers acquired. IT resources can be quickly scaled up or down, allowing smaller companies to expand fast and larger companies to scale down quickly when required.

Organisations gain much greater flexibility to respond to industry change by using IT resources delivered over the cloud. It effectively helps an organisation to "future proof" its business.

Adoption of cloud computing, particularly software-as-a-service (SaaS), is now mainstream. Over 40% of UK organisations now use a SaaS model for at least one of their main business applications. This places the UK alongside Singapore in terms of SaaS adoption, behind only the USA (see Figure 8).

*Figure 8: Adoption of SaaS for Key Business Applications*
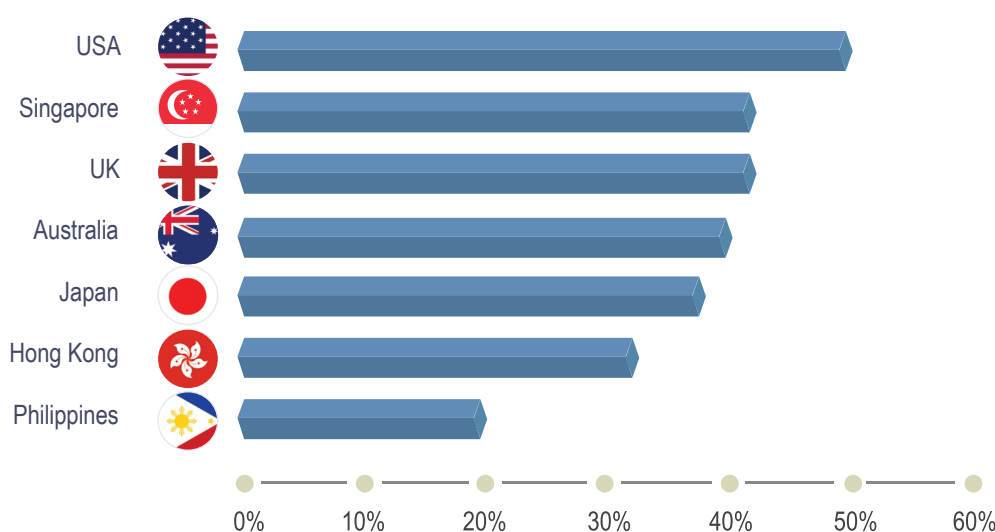
Source: Frost & Sullivan, Survey of 1500 executives

The Role of Cloud Computing in Industry Transformation

With 40% of all organisations in the UK now using a cloud solution, customer relationship management (CRM) and e-commerce are the most commonly accessed business applications. However, the cloud model is now increasingly used for many other core business applications that were traditionally hosted on-premise, such as Enterprise Resource Planning (ERP), financials/accounting and manufacturing management.

Cost saving through lower licence fees and reduced hardware requirements has been the main driver of cloud adoption. However, as the cloud computing market matures, organisations are increasingly appreciating its ability to provide enhanced flexibility. The capacity to improve business adaptability is an increasingly important driver of adoption, with 39% of UK executives rating faster response to industry change as a key factor, up from only 12% in 2010. Hence, adaptability is fast catching up with reduced hardware costs and lower software fees as a key reason for adoption (see Figure 9).

*Figure 9: Main Reasons for Adopting SaaS*
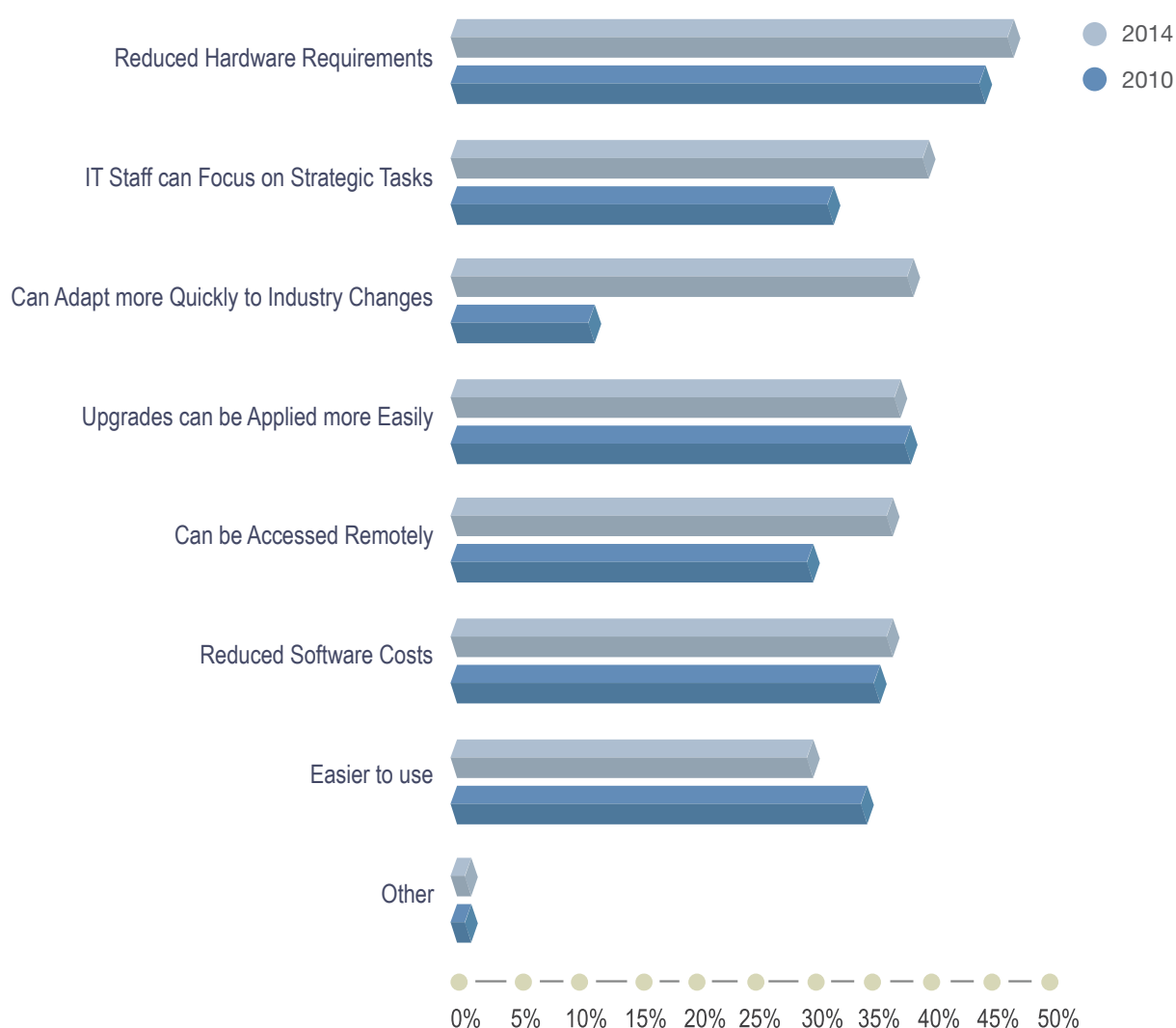
Source: Frost & Sullivan, Survey of 200 UK executives

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CLOUD AS A SOURCE OF BUSINESS ADVANTAGE

Whilst adaptability is an increasingly important reason for adopting cloud, organisations that have done so are recognising that it can give them a source of competitive advantage. Overall, 72% of UK organisations that have now adopted SaaS for at least one of their main business applications feel that it has given them a competitive advantage, particularly in lowering hardware costs, an improved ability to serve customers and the ability to better respond to industry changes (see Figure 10).

Figure 10: Main Area of Competitive Advantage Obtained Through SaaS
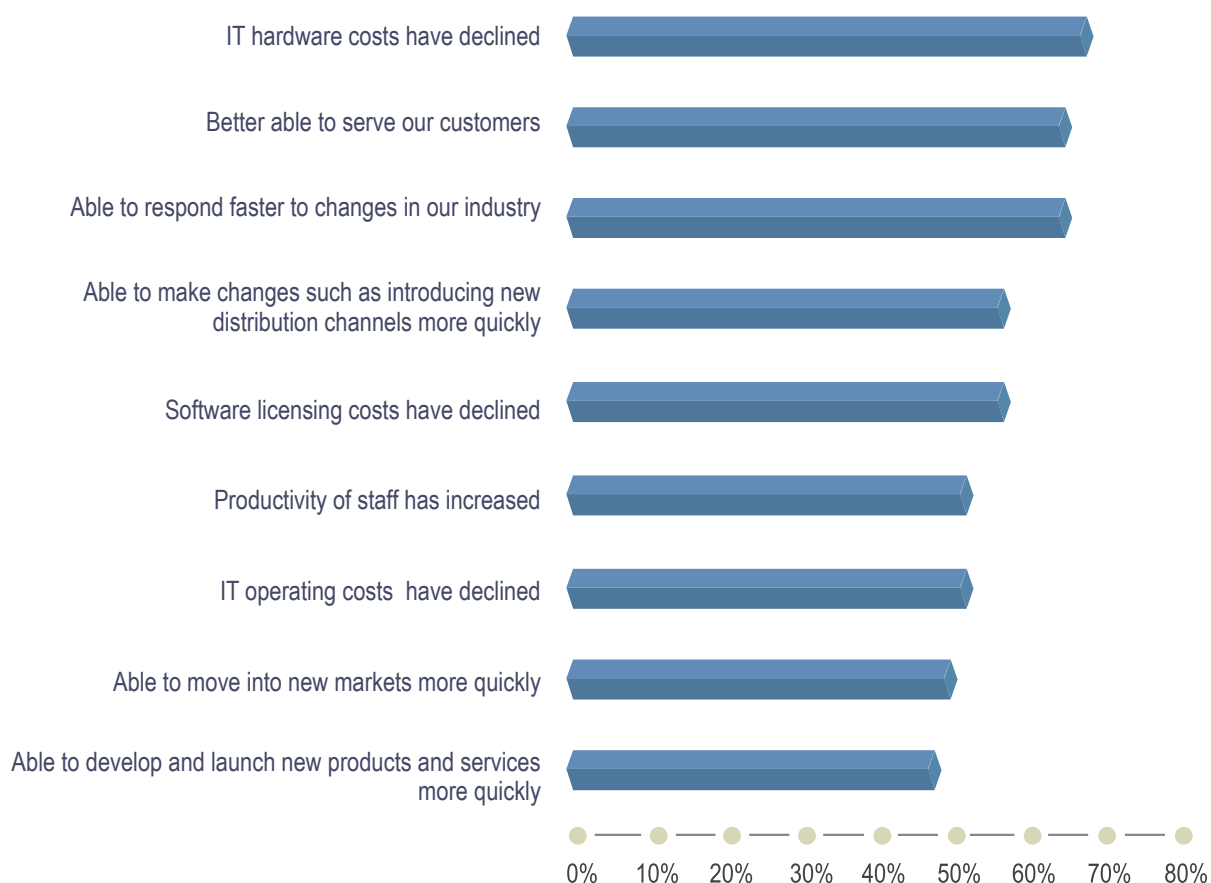
Source: Frost & Sullivan, Survey of 200 UK executives

As with many emerging technologies, the initial focus on cost savings is therefore being replaced by a more nuanced understanding by UK businesses of the business agility that cloud enables – an aspect that is becoming more fundamental as industry change accelerates.
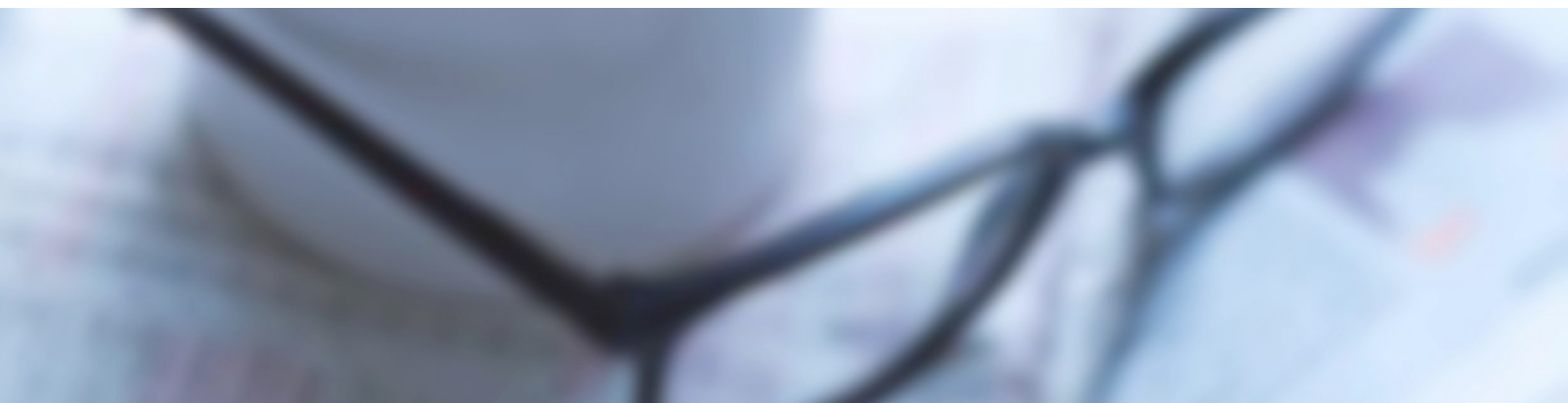
THE LAST WORD

There is no doubt that industry transformation is occurring at a rapidly increasing rate, and is affecting every industry in the UK. This is being driven by a range of disruptive forces including globalisation, digitalisation and the impact of new technologies, which are facilitating new challenges to established players and opening opportunities for more agile, innovative companies in every industry sector. New, disruptive competitors are emerging, new business models being introduced, digitalisation is affecting every industry and product companies are increasingly offering services, and vice versa.

In response, UK organisations are being forced to change faster than ever before if they want to survive, which unfortunately will not happen for many businesses. The average business survival rate in the UK, for example, is less than five years. Businesses that will survive are not likely to be those with the best products or services today, but those with the best ability to adapt to changing industry dynamics.

Much of this industry change is being enabled by cloud computing. The low cost and rapid scalability that cloud offers is allowing companies of all sizes to quickly and easily expand their footprint globally, often through rolling out new and innovative business models that challenge industry leaders. In industries from manufacturing to retail, cloud is an enabler of industry change.

Whilst industry transformation is occurring at a faster pace, it is also less predictable. The ability to quickly respond to change is becoming more and more important – and this flexibility is likely to be the key determinant of business survival, and has to be built into the corporate DNA. Adoption of cloud computing is one way that organisations can gain this flexibility. It offers large organisations the flexibility to more rapidly respond to industry change than their competitors stuck with on-premise solutions. It also gives smaller organisations the ability to access IT resources that could only be afforded by larger organisations with greater resources in the past, enabling them grow and future proof their business.

As cloud computing matures, its ability to provide business flexibility is becoming recognised as a key reason for adoption; whereas cost saving was traditionally the main driver in its early stage. Cloud is not just an enabler of industry transformation; it is now a necessary response.

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