THE IFS DIGITAL CHANGE SURVEY

GLOBAL VIEWPOINT

DIGITAL TRANSFORMATION MATURITY SPECTRUM

% OF RESPONDENTS

1% | **NASCENT** – Disconnection between business and digital IT initiatives and misalignment with company strategy

18% | **EXPLORATORY** – Recognition of need for digital transformation strategy but execution is on ad-hoc project basis, meaning it is neither repeatable nor predicatable

50% | **ENABLED** – Alignment between business and IT goals but not yet focused on the disruptive potential of digital initiatives

24% | **ENHANCED** – Integrated and synergistic business – IT management delivering digitally enabled product/ service experiences on a continuous basis

7% | **OPTIMIZED** – Digital transformation is a primary strategic focus at executive level and the company is unrelentingly disruptive in the use of new digital technologies and business models

DIGITAL ENTERPRISE

From oil firms to constructors, savvy operators know they must utilize the commercial potential of digital to thrive

Across sectors, businesses are fighting against the commoditization of their service. Globalized industries put developed markets at a disadvantage on cost, leaving firms fighting cheaper overseas rivals in a race to the bottom.

Breaking free of these chains requires qualitatively better models of service. Businesses have reimagined transport, accommodation, retail, auctions – even music consumption – using a range of digital technologies. Utilizing big data and the power of the cloud, companies can forgo commoditized products and build relationships that de-risk client investment and offer a uniquely valuable service.

Yet getting to grips with the potential of digital transformation can be challenging. The range, diversity and novelty of technology is considerable, stretching the capacity of businesses' internal expertise. However, with the right know-how, firms can build effective strategies that transform them from being digitally "enabled" to digitally "optimized".

The pressure to change is driven by street-level adoption of digital technologies. These enable the enhancement of day-to-day activities through online and near real-time access to tools, data or expertise. The demand for similar connectivity and access within the enterprise is driving firms towards new, more efficient ways of working.

The umbrella of digital transformation covers the deployment of digital solutions – from established applications of technology through to embryonic developments such as cognitive computing. Digitalization – the reworking of business processes around new technologies – can deliver enormous efficiencies. Digitization – the overlaying of new technologies on legacy processes – is a more limited step forward. To truly optimize, digitalization must occur.

Our research takes in the views of 750 professionals in the oil and energy; aviation; construction and contracting; manufacturing; and service provision industries. The results guide our understanding of business drivers and gaps in digital development. They also act as a benchmark for firms.

POSITIVE FOUNDATIONS

The study shows the sense of urgency in engaging with digital transformation. Most businesses are already positively engaged, with nearly a quarter having achieved business enhancement through the transformation process. In total, 80 per cent of businesses are either digitally enabled, enhanced or optimized.

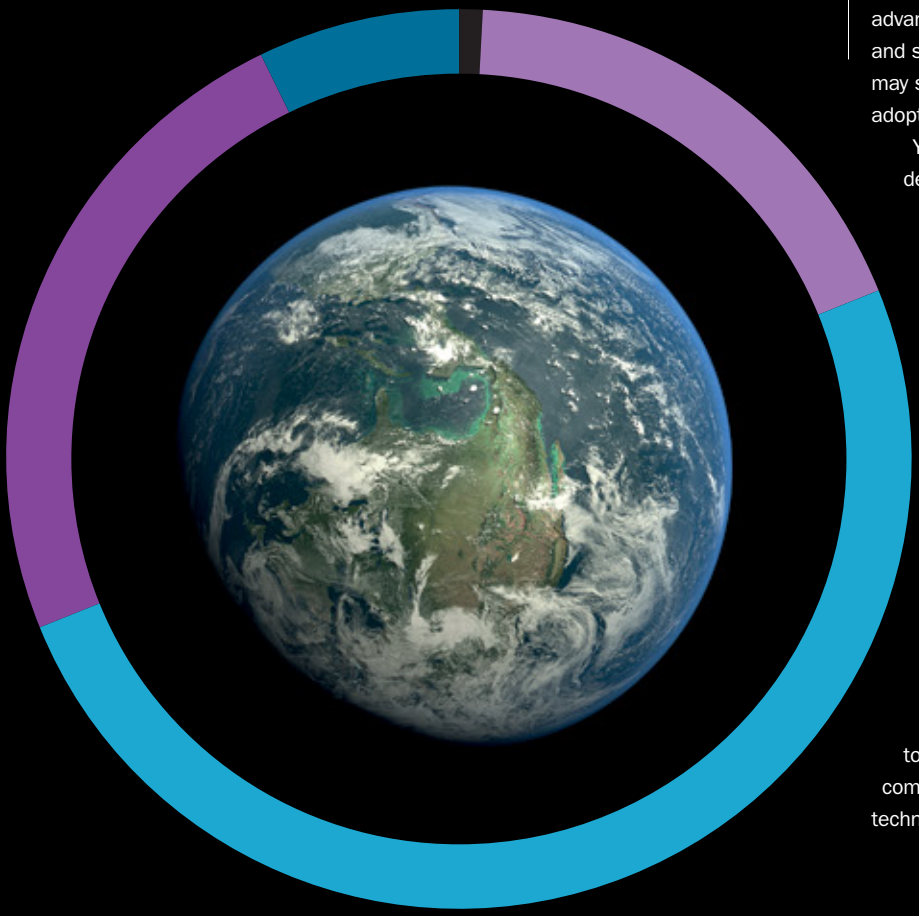
Furthermore, support for digital transformation is clear. Nearly 90 per cent of firms say they have adequate or advantageous funding. This is good news for the industries and shows the message has been sinking in, even if they may struggle to reap the same opportunities enjoyed by early adopters such as retail.

Yet selecting how and where to fund specific developments is no simple decision. Most digital technologies need some running in to build expertise, and can be applied in a range of capacities. If a firm wants to transform its business processes, specialist external support is clearly important. More than 40 per cent of respondents see third parties' value in helping to develop the digital organization and ongoing upgrades, as well as more specific performance analytics.

After the first courageous step to engage with digital transformation, business leaders must also be prepared to press on to find success. While there may be failures along the way, these should not paralyze progress.

Our research reveals what has been achieved and what still needs to be done to transform businesses from every sector into truly digital enterprises.

IFS has the clarity of vision and applied expertise to help companies navigate rapid change, especially in complex markets that are being transformed by new digital technologies and approaches. ◆



COMPLETING THE THIRD INDUSTRIAL REVOLUTION

As we segue from the third to the fourth industrial age, businesses seek digital innovations that promise truly revolutionary benefits

The positive achievements that businesses seek from digitalization reflect the enormous opportunity for growth that digital capabilities offer – and that industry clearly needs.

Broker Morgan Stanley, in its September 2016 research report 'Disruptions and productivity growth in the next decade of the digital revolution', reported US business could move from being 27 per cent digitalized to 43 per cent digitalized within five to ten years.

For businesses seeking to benefit directly from digitalization, the revolutionary nature of this transformation is apparent. In the research, companies across the board see a positive growth story stemming from innovation. They report the primary factor driving digital transformation as being internal process efficiency, with 43 per cent citing this in their top five factors. Along with the other most popular choices – accelerating innovation (29 per cent); growth opportunities in new markets (28 per cent); competitive differentiation (27 per cent); and productivity gains (26 per cent) – it shares a balance of top-line and bottom-line growth.

While these are not surprising goals, the method of achieving them has changed. The concept of providing a managed service on an ongoing basis – first championed by Rolls Royce 55 years ago as "power by the hour" – can now be applied through digital technology to every aspect of business. From Philips' "lighting as a service" employed at Schiphol airport, to streaming music, firms are engaging in one-stop-shop service models that are predicated on ongoing delivery to users.

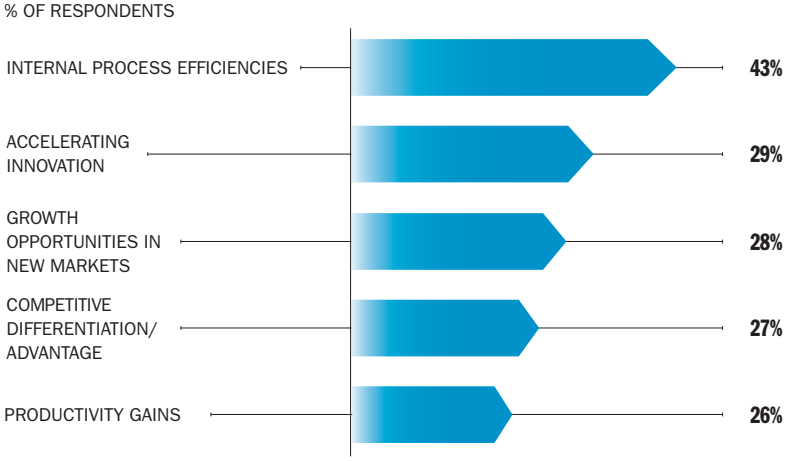
Productivity gains and increased levels of innovation support the potential seen by Morgan Stanley's analysts. However, the real key to competitive advantage is to provide what your rivals cannot. Firms need to offer a differentiated service rather than target scale or cost.

Key to this is openness. Half the companies surveyed report an increase in the number of customers who want remote access to mission-critical business systems or data. This reflects the growing comfort with digital business at a consumer level, and the ease with which digital service providers have gained popularity.

#1

barrier to change: **Aversion to change**

TOP 5 DRIVING FACTORS FOR DIGITAL CHANGE



CAPABILITIES IDENTIFIED FOR INVESTMENT

Firms that embrace this open approach can thrive as access is reciprocated with customers. Solving problems for clients, instead of cherry picking services to offer, builds better relationships. The specific technologies that are sought out also support the thesis that digital-first businesses are seeking to empower their staff and customers in new ways.

Moving from a capital expenditure base to operational expenditure makes it easier for the user to engage and realize value from its partners. De-risking expenditure in this way builds a stronger relationship with the supplier and customer.

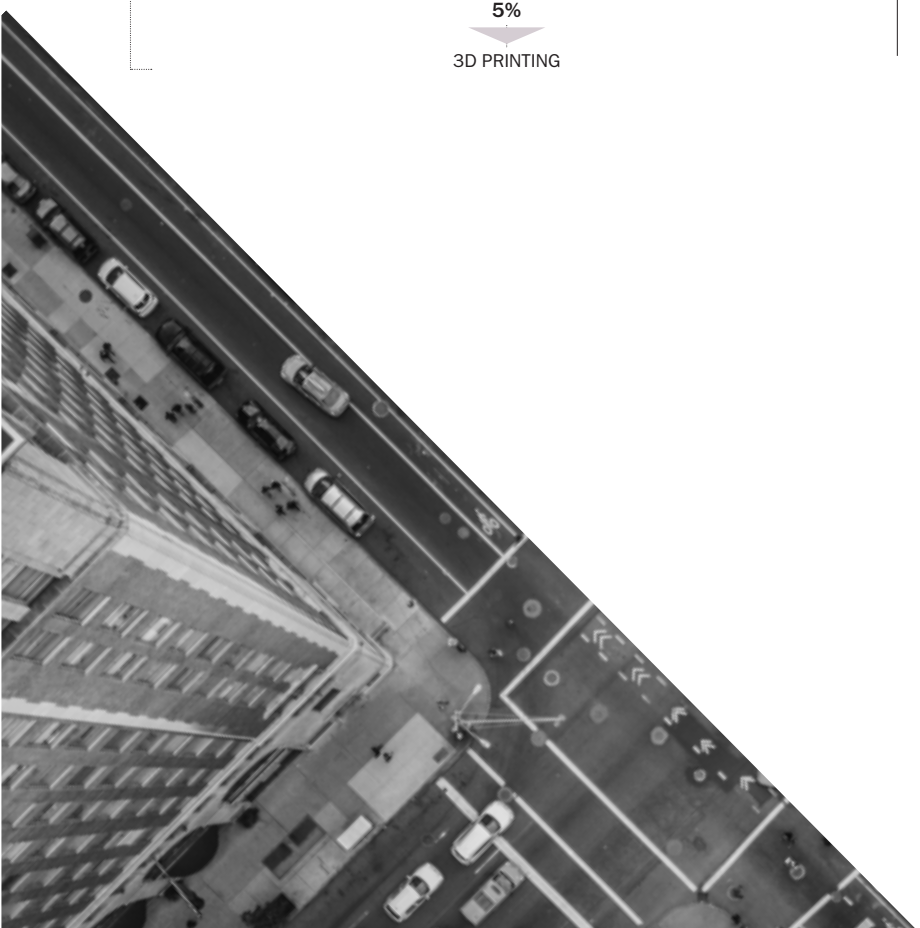
MOST DESIRABLE CAPABILITIES

Chief among the technologies sought out for investment is big data and analytics (47 per cent). This captures many types of data-focused systems but broadly reflects the need for flexibility around data that legacy technology is unable to provide.

Relational databases, for example, have historically required that data is structured as it is stored. If a new query is needed, the data must be stored again based on a new structure. Big data and analytics, by contrast, allow for much more freedom of storage and retrieval. The ability to analyze data sets in parallel also generates faster results and allows for deeper analyses. Realizing more granular insights at low levels of investment becomes a virtuous circle of understanding – creating leads for new activity and better knowledge of relationships and process.

Equally, enterprise resource planning (ERP), which 38 per cent of respondents rate as a top capability for investment, creates self-awareness within a business and sets up the capacity to change. It increases efficiencies and productivity that support the process of change, by boosting awareness of a firm's current capabilities and mapping its structure more effectively.

In contrast, hardware-based digital technologies are far lower down the list for investment. Drones, 3D printing and virtual or augmented reality are a priority for just 5 per cent of respondents. Connectivity with devices via the internet of things (IoT) continues to rank high (in third place with 36



> "Enterprise resource planning, which 38 per cent of respondents rate as a top capability for investment, creates self-awareness within a business and sets up the capacity to change

1 in 2

report an increasing customer demand for remote access to business-critical systems and information

per cent of respondents). This suggests that firms are still exploring how hardware can be brought into the process of digital transformation, rather than committing to task-specific tools like 3D printers, which would need to prove return on investment in a more defined way.

DELIVERY AND DIRECTION

Transforming an enterprise to benefit from these capabilities requires that a business carries forward its people and technology in the process of digitalization. The biggest barrier that respondents cite is a psychological rather than logistical one: namely, aversion to change, a concern for 42 per cent of respondents.

Overcoming this barrier can only be achieved if businesses are leading transformation from the top down: having a clear direction from the board of directors. But this must also be coupled with the grassroots growth of skills and understanding, so that the workforce is empowered by digitalization.

That will require strategic planning to move firms from the state of being enabled through to enhanced, as well as a cultural change to ensure that the business is remoulded around its digital capabilities.

Senior management must be explicit as to the goals of digital transformation and the wider context for the business. To fully engage the workforce in reskilling, leaders must share their vision for the digitalized enterprise to build trust in both projects and the end goal. ◆

> **Chief among the technologies sought out for investment is big data and analytics (47 per cent). This reflects the need for flexibility around data that legacy technology is unable to provide**

EXTERNAL STIMULUS

Utilizing trusted third-party expertise can be a vital shot in the arm for businesses seeking digital transformation

71%

of companies' third-party vendors are equipped for future digital needs

The pace at which digital transformation must take place is set by the twin drivers of competition and customer demand. Competitively, the risks for laggards are enormous. Stuck in a pack of firms offering similar services at ever lower costs, a business cannot thrive. The consumption of new digital services is driving the imagination of customers – everything from Pokémon Go to streaming music – and appetites for older models are waning.

The direction of this transformation is less certain, however. As a first step, a firm should consider its competition to ascertain where digital opportunities could add value. Companies should also audit their own resources to identify gaps, and look to available technologies that fit under the digital transformation umbrella. Given the pace of technological change, businesses should do this often.

To deploy resources with the greatest effect, businesses should take guidance from partners that have already tried and tested digital capabilities across a range of scenarios. Learning from others' experience removes cost and risk.

But this is not a case of rip and replace. The art of digital deployment is to find opportunities where small gains can be made and then expanded as they provide advantage. Taking positive steps toward digital transformation is an iterative process, building gradually to enterprise-wide transformation.

As a source of ignition, third-party providers can help start the process where aversion to change may hold back internal teams. By supplementing the understanding of in-house professionals, third parties can proffer clear guidance on how change will occur and what new roles may look like, overcoming the fear of the unknown.

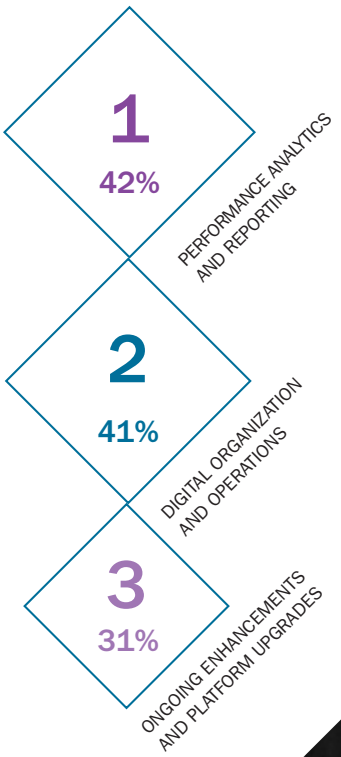
Just 8 per cent of respondents cite unsuitable third-party vendors as a barrier to change, suggesting the appetite for working with trusted partners is high, and that businesses understand the value they bring and the role they can play. That is further underlined by nearly three quarters of companies agreeing that their current third-party vendors are equipped to provide digital needs.

Vendors' greatest value is seen in roles supporting the gathering and reporting of a firm's data via performance analytics, according to 42 per cent of respondents. Helping to establish and manage the process is also seen as a strength.

Engaging with trusted third parties who can provide support early on, and continue as the organization matures throughout the process, helps develop the right skills within the workforce and guides management as the strategy moves forward. ◆

GREATEST VALUE OFFERED BY THIRD-PARTY VENDORS

% OF RESPONDENTS



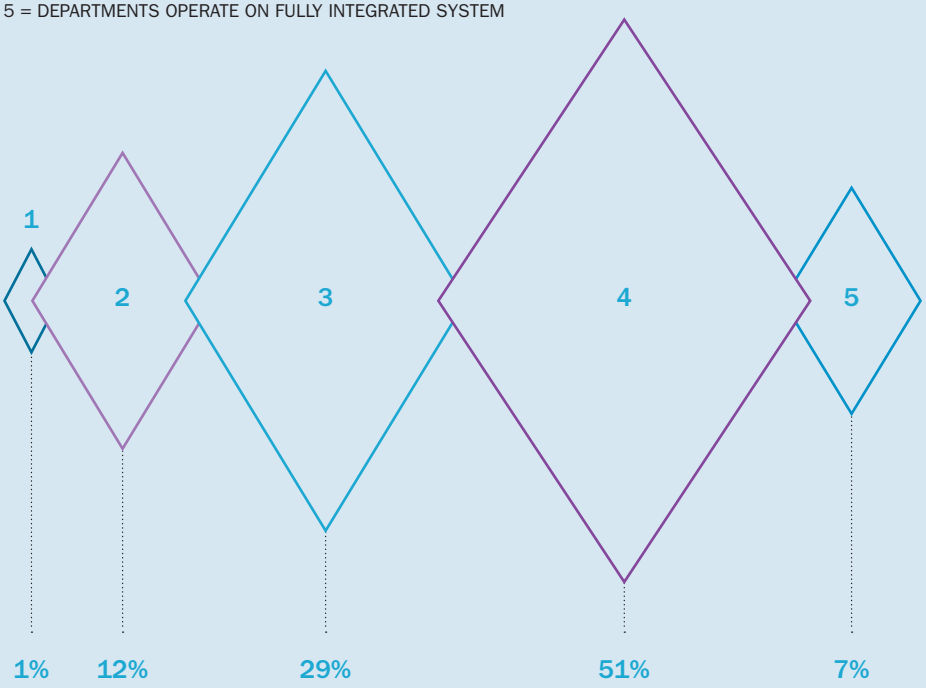
INTEGRATION & COLLABORATION

In an increasingly interdependent workplace, the integration of siloed legacy systems and collaboration are key to a harmonized cross-company approach and successful business outcomes

MANY COMPANIES ARE STILL RESTRICTED BY A LACK OF SYSTEM INTEGRATION

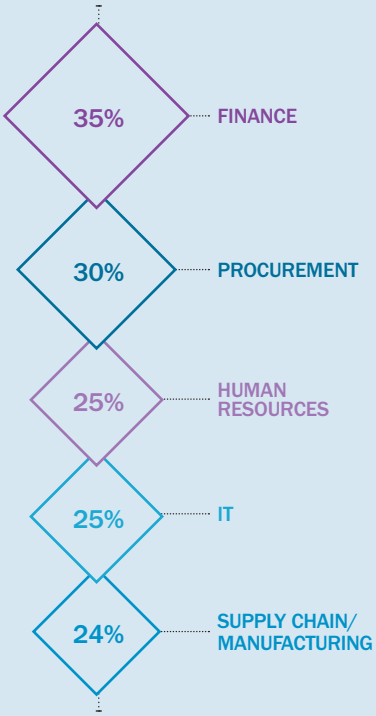
% OF RESPONDENTS

1 = DEPARTMENTS OPERATE IN SILOS WITH LIMITED VISIBILITY DUE TO A LACK OF SYSTEM INTEGRATION
5 = DEPARTMENTS OPERATE ON FULLY INTEGRATED SYSTEM

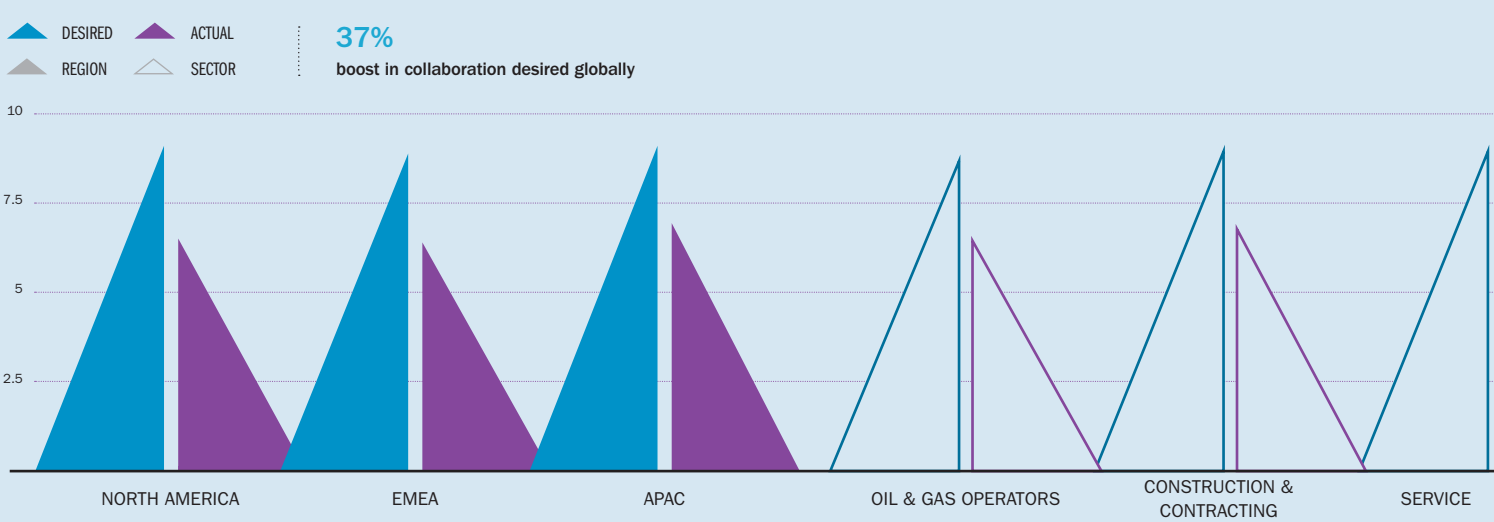


DEPARTMENTS MOST AFFECTED BY LACK OF INTEGRATION

% OF RESPONDENTS



COLLABORATION DELTA

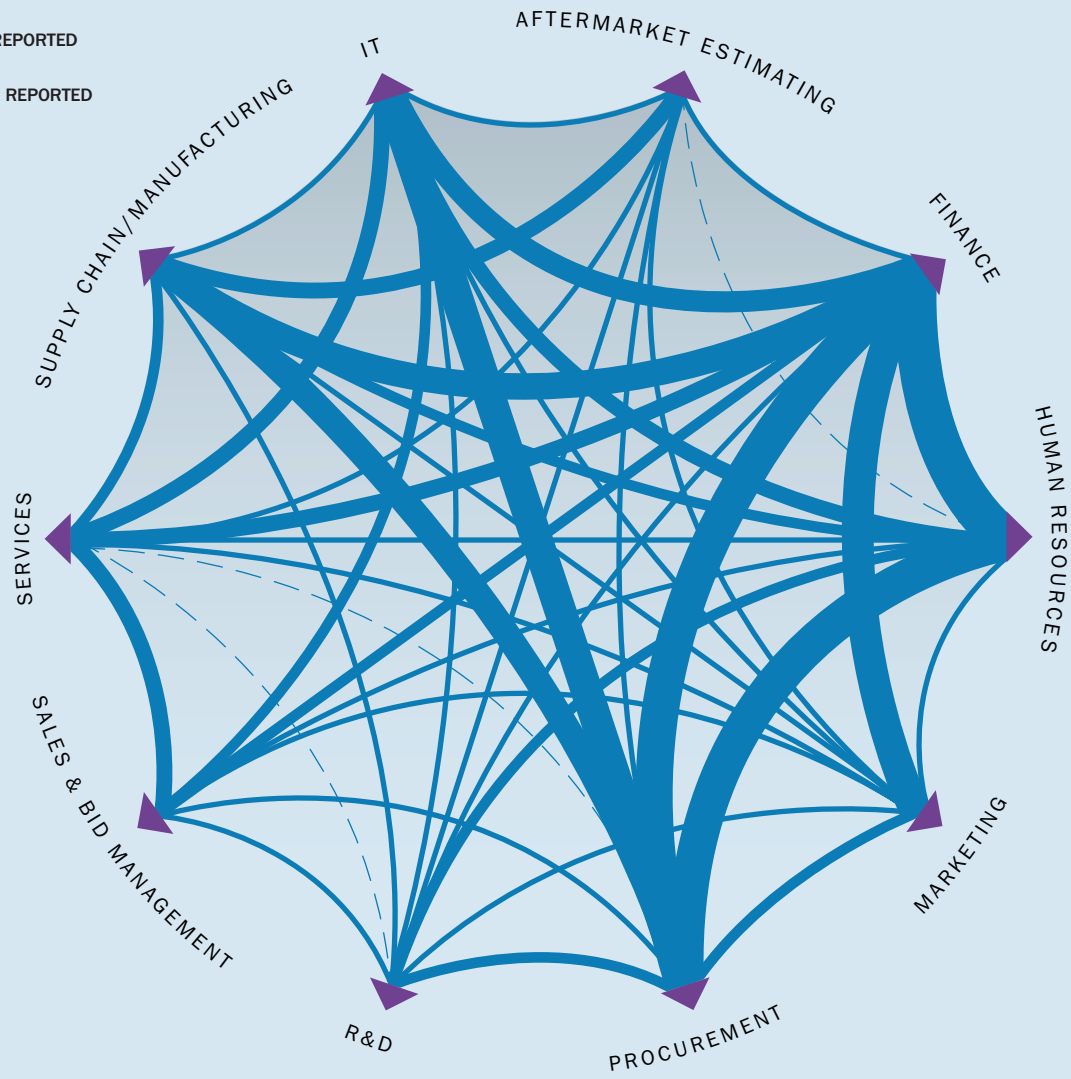


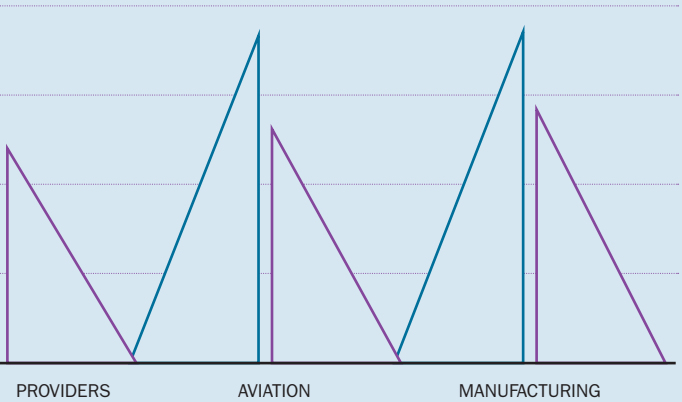
1 = EMPLOYEES WORK INDEPENDENTLY AND AVOID COLLABORATION FOR BUSINESS DECISION-MAKING

10 = EMPLOYEES COLLABORATE WITH CO-WORKERS AS THEY DO WITH THEIR FRIENDS AND USE COLLABORATION FOR EFFECTIVE BUSINESS DECISION-MAKING

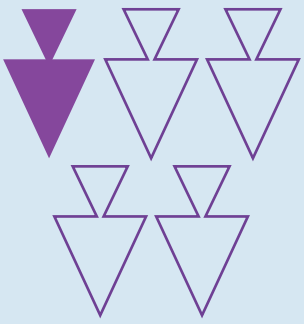
LEAST INTEGRATED DEPARTMENT DYNAMICS

- NEGLIGIBLE LACK OF INTEGRATION REPORTED
- SOME LACK OF INTEGRATION REPORTED
- SEVERE LACK OF INTEGRATION REPORTED





believe the necessity for manual reconciliation between management information systems (MIS) has a negative impact on business



1 in 5 feel there is *not* a consistent and informed understanding of the strategic direction and business performance of the company throughout the organization

THE TALENT IN TECHNOLOGY

Far from diminishing the role of humans, smart firms know digital transformation can only happen with a workforce steeped in the right digital skills

Successful digital transformation hinges upon the people within an enterprise who will enable and transform the company. While digitalization is about increasing customer-focused business, the transformation itself is about building skills and putting employees before the customer. Getting this part right will, in turn, drive better customer service and satisfaction.

To achieve it, senior management must change the status of transformation in the minds of their employees from threat to opportunity. To do that, they must build two bridges. The first spans from the vision of the company in its current state to how it will appear in the end state. The second bridges the gap in skills, guiding the workforce through the transformation of talent and knowledge needed.

The gap businesses perceive between their existing skill set and the necessary skill set is very real. Over one in three (34 per cent) feel either slightly or totally unprepared to deal with this talent deficit. Similarly, 20 per cent of firms do not feel that there is a consistent and informed understanding of the strategic direction and business performance of the company throughout the organization.

This points to a need for strong leadership and informed strategy, and a collaborative approach to working within a firm. A key focus for companies looking to achieve integration is to boost collaboration. At a cross-industry level, the delta between desired levels of collaboration and actual levels is 2.3 points on a ten-point scale – meaning that businesses want to increase levels of collaboration by 37 per cent.

Firms are already engaging in this way. In May 2017, engineering company Polypipe – based in Doncaster in the UK – became the 100th firm to join the University of Sheffield Advanced Manufacturing Research Centre (AMRC) with Boeing, a major training and research facility. A big draw was the development of the AMRC's Factory 2050 – a facility dedicated to collaborative research into "reconfigurable digital assembly and flexible component manufacturing".

The pressure to take advantage of digital transformation – particularly as competitors seize upon opportunities – is growing. Finding these partnerships will confer major advantages.

GREATEST GAPS AND GAINS

Within the audit process, a business can assess where the gaps are, map out the processes and identify duplication. It can then address these gaps and overlaps through partnerships, skills development and application of technology to support teams.

The greatest concern around the talent shortfall is around business intelligence (BI). This is particularly felt in the service providers sector, where 52 per cent highlight it. Beyond BI, gaps are notably found in cybersecurity and artificial intelligence/robotics, with respondents from construction and aviation businesses showing conspicuous concern with the former and those from manufacturing with the latter.

Taking expert guidance from partners in these areas can build up the skill sets and technological capabilities that are needed to increase collaboration, facilitating the strategic transformation of the business.

In the context of coping with a more fluid and transient workforce, 23 per cent of firms feel they do not have the culture and structures in place to adapt quickly and effectively to new processes and applications. Third parties

AREAS WITH GREATEST SKILLS GAP

% OF RESPONDENTS

1/3

are unprepared to deal with the skills gap

can supplement any areas where there are deficits in either process or structure, to move firms forwards.

Not every project will be successful. Senior management downwards must enter into the process with a mindset not afraid of failure, but instead willing to learn from it and take those learnings into the next project.

And yet there is great awareness of the need to bring people through the transformation process. Respondents cite both the upskilling of existing talent and the external recruitment of digital talent in the top three responses to the impact of digital disruption. Some 62 per cent of firms identify the upskilling of existing talent as the best way of dealing with the disruption.

This suggests that very positive lessons have been learned from the digitalization process that firms have already engaged with. However, 38 per cent of businesses still need to realize the importance of this to existing talent.

Having seen one client acquire a training business specifically to develop talent, IFS expects that the appetite for apprenticeships and skills development programs will grow as the urgency to embrace digital transformation gathers pace. ◆

Respondents cite both the upskilling of existing talent and external recruitment in the top three responses to the impact of digital disruption

THE POWER OF DATA

Today's businesses generate untold amounts of data. Unlocking its secrets through smart data analysis will sort the industry winners from the also rans

1 in 5

do not have access to the right data to make successful business decisions today and plan effectively for the future

Data is the language of business. Every enterprise speaks data and listens to data. Firms that hear the output and control the input are digital leaders, including the likes of Amazon, Facebook, Google and Apple.

Our respondents show a great understanding of this. Big data/analytics is the most frequently voted for (47 per cent) as a top five capability for investment. Not only that, but 58 per cent of respondents say they are beginning to utilize data-driven insight, which is starting to have a positive impact on time to innovation, but it is not yet a competitive advantage.

Moving to the next step has massive benefits. As a contributor to, and a by-product of, every decision the management of a firm makes, it is vital that data can be understood and retained. There are many potential missteps that firms can make in their efforts to achieve this.

For example, creating a "data lake" (in which a firm stores all data to create a unified picture across the business) risks becoming a "data swamp" if it is not managed effectively. Identifying which data can add value to a business allows the right prioritization of resource allocation. Here, judicious use of the cloud can offer a flexible approach to both storage and cost.

DEFINING DISRUPTIVE

Our study reveals that companies are moving in the right direction in their transition to data-driven business models. Overall, over half of all organizations have begun the journey, reporting that data-driven insight is starting to have a positive impact on time to innovation. The next step will be developing this capability further and harnessing the power of data to achieve competitive advantage. While the general trend is positive, there are clear differences between industries in their adoption and maturity of big data and analytics.

At present, one in four manufacturing and aviation companies consider themselves to be achieving this advantage by successfully harnessing data-driven insight to deliver faster time to innovation. At the other end of the spectrum, 31 per cent of oil and gas firms are still in the planning stage, without the capability to utilize data-driven insight for innovation effectively.

However, the overall picture of progress is supported by 81 per cent having access to the right data to make successful business decisions today and plan effectively for the future.

The expectation of big data/analytics is also telling. It is seen as the most disruptive of digital capabilities – rated 7.2/10 by survey respondents – closely followed by automation, which is rated 7/10. However, the concentration of voting for automation is higher, with over 40 per cent rating it as 8/10 or greater. Broken down by industry, construction (48 per cent), aviation (48 per cent) and manufacturing (50 per cent) specifically rate automation as 8/10 or more in terms of its disruptive impact. On average, across industries, 32 per cent of respondents rate big data/analytics as 8/10 or more.

Not only is the existing level of data high, but the increased volume that is predicted as IoT rolls out will make big data/analytics an imperative for any digitally enabled firm.

The strength of technologies like big data and analytics is that they can wrap a product in a service, capability or offering, so that it cannot be compared on a purely commoditized basis with rival offerings. Providing capabilities by exploiting cloud services or analytics, rather than selling products, fundamentally changes the business model.

MANAGING DISRUPTION

Not only are companies investing in the most disruptive capabilities, they are building the capability to handle digital disruption. Some 62 per cent of respondents see upskilling existing talent as the best way of doing this.

Maintaining alignment between a firm's skills and technological capabilities should be a priority for senior management. Cultivating skills may not always be possible in-house. Firms should also consider working with commercial partners, universities and research bodies, or industry consortia. Third-party vendors – with experience across sectors – can also accelerate digital transformation, taking firms from digitally enhanced to optimized with minimal risk. ◆

> "the increased volume that is predicted as IoT rolls out will make big data/analytics an imperative for any digitally enabled firm

RESPONSE TO IMPACT OF DIGITAL DISRUPTION

% OF RESPONDENTS

UPSKILLING OF EXISTING TALENT

INVESTING IN DIGITAL RESOURCES, TECHNOLOGIES AND ASSETS

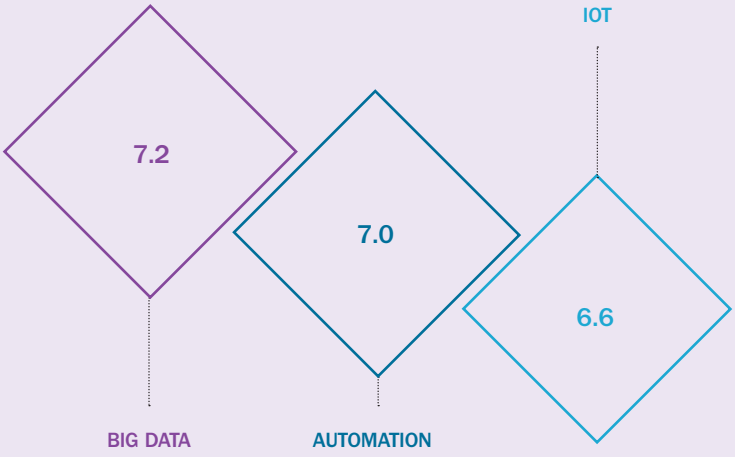
EXTERNAL RECRUITMENT OF DIGITAL TALENT

NARROW AND HONE SERVICE/PRODUCT OFFERING

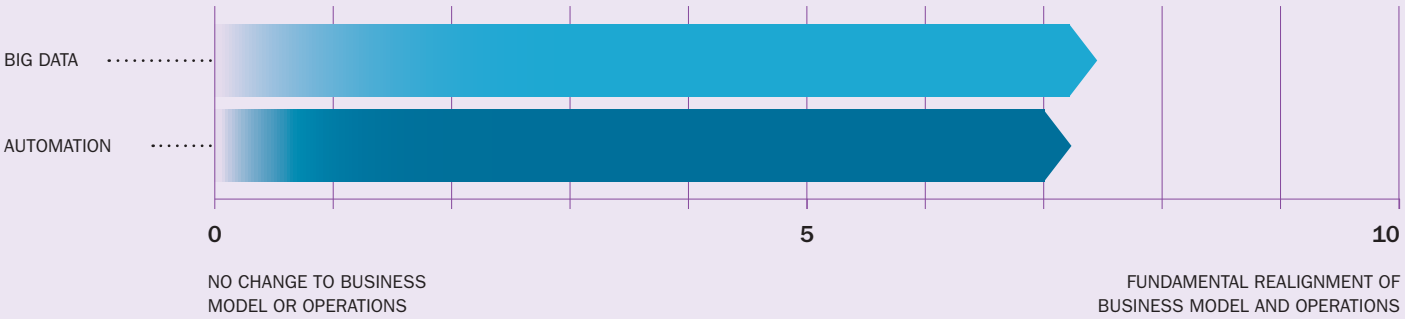
DIVERSIFY SERVICE/PRODUCT OFFERING

LEVEL OF DISRUPTION BY TECHNOLOGY

1 = NO CHANGE TO BUSINESS MODEL OR OPERATIONS
10 = FUNDAMENTAL REALIGNMENT TO BUSINESS MODEL AND OPERATIONS



TOP TWO MOST DISRUPTIVE TECHNOLOGIES

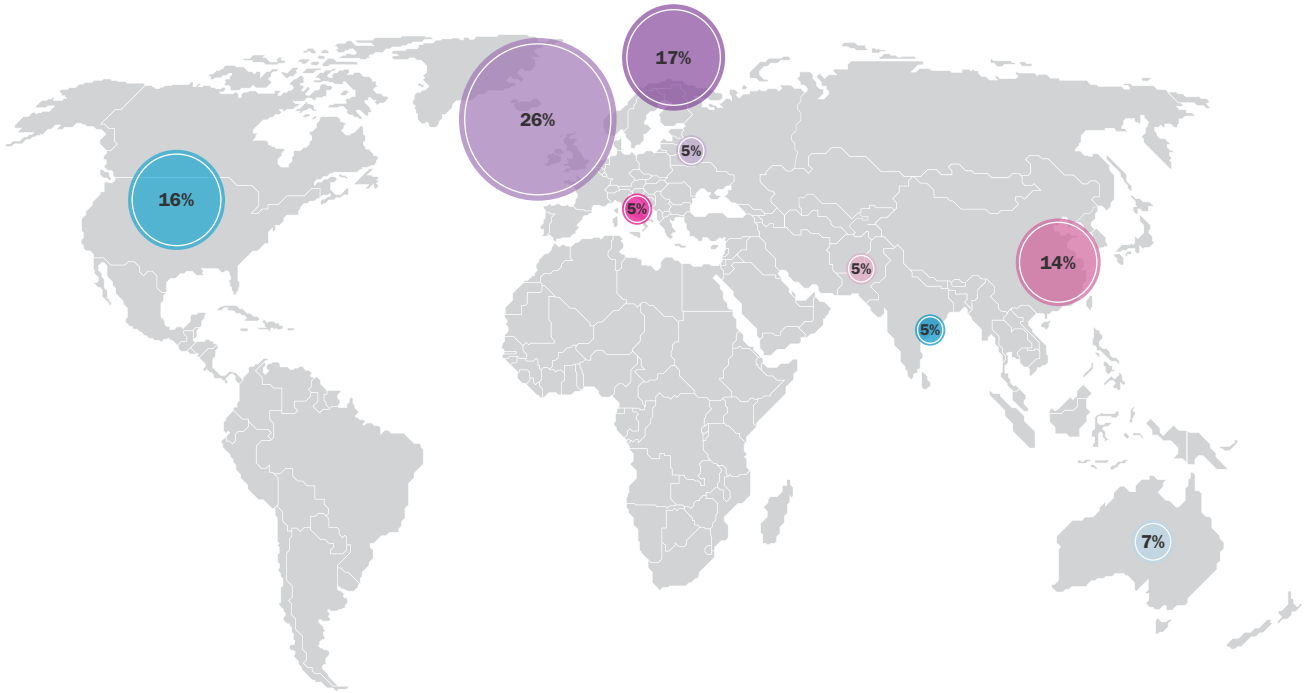


RESPONDENT DEMOGRAPHICS

This research was commissioned to capture the current position, challenges and goals of companies in key global industries. The insight will be used to inform and steer companies through their transformative changes, as well as guide IFS in refining their expertise and solutions.

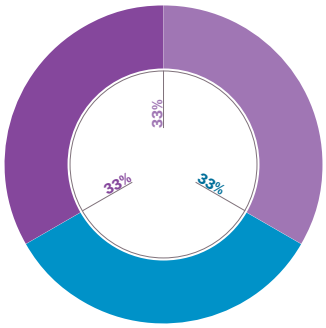
COUNTRY OF PRINCIPAL OPERATIONS

SCANDINAVIA · WESTERN EUROPE · EASTERN EUROPE · SOUTHERN EUROPE · EAST ASIA
MIDDLE EAST · SOUTH ASIA · NORTH AMERICA · AUSTRALIA



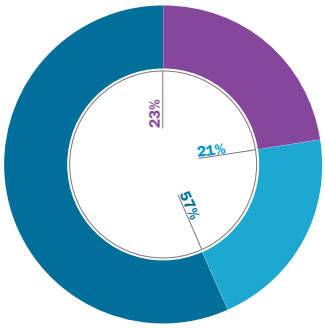
COMPANY SIZE – TURNOVER

- $1BN – $4.99BN
- $5BN – $24.99BN
- $25BN+



COMPANY SIZE – NUMBER OF EMPLOYEES

- 1,000 – 4,999
- 5,000 – 9,999
- 10,000+



INDUSTRY

OIL & GAS OPERATORS	CONSTRUCTION & CONTRACTING	MANUFACTURING	AVIATION	SERVICE PROVIDER
20%	20%	20%	20%	20%

ABOUT IFS

IFS develops and delivers enterprise software for customers around the world who manufacture and distribute goods, maintain assets, and manage service-focused operations. The industry expertise of our people and solutions, together with commitment to our customers, has made us a recognised leader and the most recommended supplier in our sector. Our team of 3,300 employees supports more than one million users worldwide from a network of local offices and through our growing ecosystem of partners.

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