

Seizing the information advantage

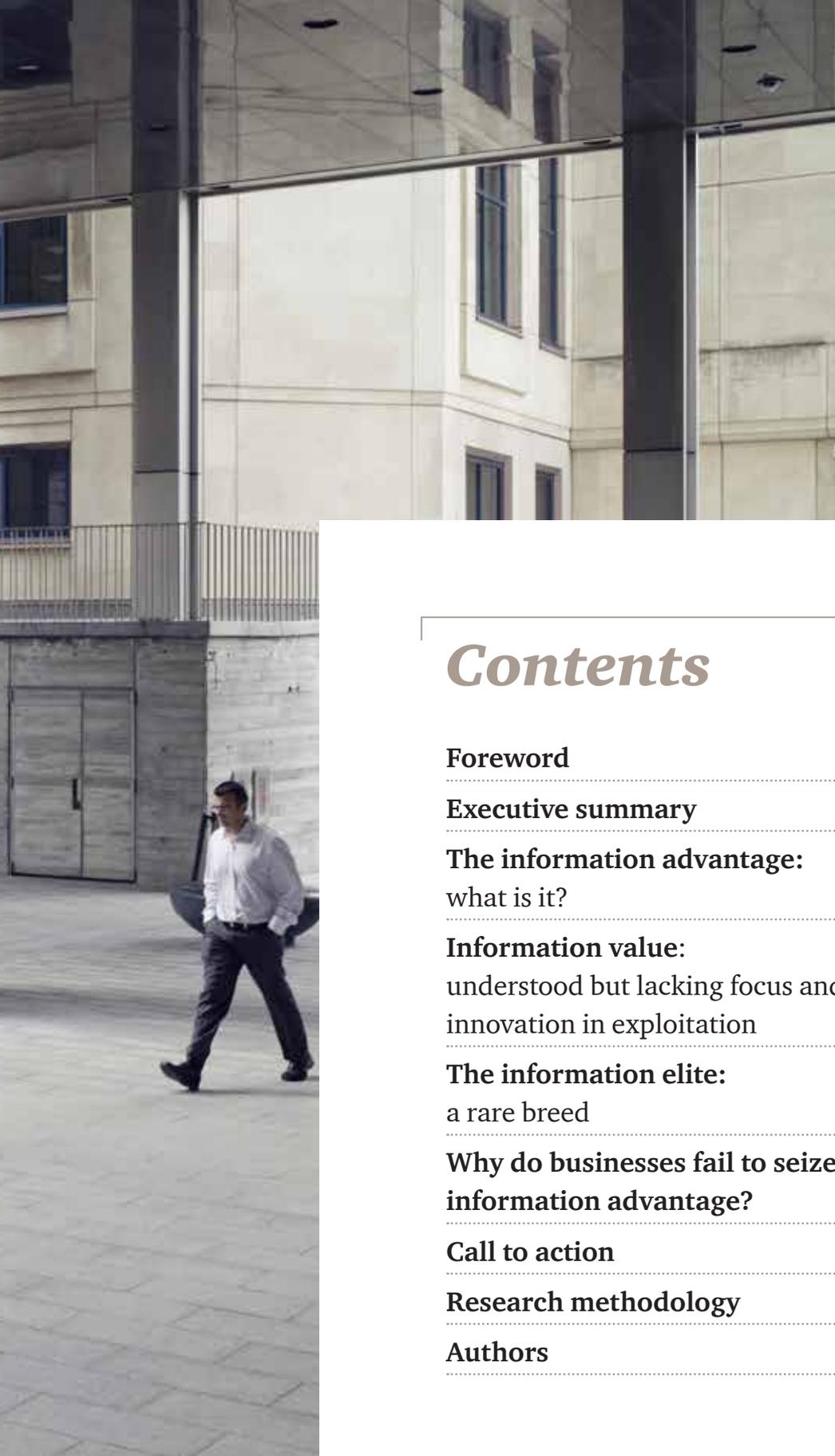
How organisations can unlock value and insight from the information they hold.

A PwC report in conjunction with Iron Mountain.

September 2015







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Foreword



Richard Petley

Director
PwC – Risk & Assurance

The new Information Value Index presented in this report, while being a first, reflects the change of attitude to data that is percolating through business and the wider global economy. Data is becoming more mainstream and in the public gaze.

Data is the lifeblood of the digital economy, it can give insight, inform decisions and deepen relationships. It can be bought, sold, shared and even stolen, all things that suggest that data has value. Yet when we conducted our research very few organisations can attribute a value and, more concerning, many do not yet have the capabilities we would expect to manage, protect and extract that value.

So why is it so hard? One challenge is that data is so all pervasive that it is taken for granted or is seen as a by-product. Often it is only when disaster strikes that this assumption is broken. Organisationally, data is all too often seen as a technology backwater – the domain of data architects within IT functions. Our survey supports these jaundiced views as we often

encountered organisations where data was not on the agenda of the board. If anything is to change it needs their leadership to drive it.

Despite this rather negative context, the opportunities for competitive advantage through data are very real. The better organisations have made the value of data tangible and are exploiting it and protecting it in equal measure. What makes these organisations distinctive? The survey demonstrates that this comes from a platform of strong senior leadership, investment in data governance and best use of analytics both in terms of technology and people.

The survey also points to some emerging geographic differences. Is the rest of the world lagging behind the US or are we going to see a wave of improvement that is starting there? As a data professional, I am hopeful that we are moving in the right direction. The emergence of the Chief Data Officer (CDO) role and the number of organisations I observe making steps to invest in data management to reflect the value of data is encouraging. However, there is a long

way to go.

Governance infrastructure is not enough. There needs to be an holistic approach where everyone in the organisation knows and takes responsibility and where systems and processes are designed to embed good practice. If governance sits outside normal business activity it is unlikely to be effective. This sound platform has given the leading organisations in our survey more opportunity to exploit data through analytics as trustworthy data leads to confident decision making.

So, my ask of you is to read the survey findings and consider two questions:

Has my organisation truly considered the value of data?

Are we managing this asset in way that reflects that value?



Sue Trombley

**Managing Director of Thought Leadership
Iron Mountain – North America**

This whitepaper launches a first-of-its-kind value index to measure how well businesses currently manage their information for competitive advantage. And its delivery is timely. Many businesses are challenged to come to terms with data analytics but are not yet clear on the next step they should take and many feel that they may be losing ground against their competitors. The Index benchmarks where businesses currently stand. This accompanying paper discusses our research findings and offers advice to help businesses move forward.

How successfully organisations manage their information has become a key business differentiator. Most have two potentially conflicting priorities: the first is security to protect against data breaches and loss; the second is value extraction. Last year's PwC Risk Index study showed that 83% of organisations now consider a return on information as a priority.

However, it is hard to get the balance right between managing information for risk and for potential reward. Get it wrong and your business could be the next data disaster to make the headlines, your brand's reputation damaged, your bottom line adversely impacted and the trust of your customers, suppliers, shareholders, citizens and employees severely compromised. Get it right and your business can minimise the serious threats present in the information environment, meet the complex legal requirements that govern the management of information throughout its lifecycle and use your business information to deliver insights that could ultimately lend the business an advantage over your competitors. It may

sound easy, but it's not. As you will see from the research described in this Value Index report, very few businesses have the right tools, talent and culture in place to join the ranks of the businesses we are calling the "information elite".

The difficulty involved in managing information for both risk and reward should not put anyone off trying – and doing. The risk of yielding the information advantage to your competitors is too high. The very survival of the business could be at stake. Failure to embrace the changes required to manage information for an advantage is no longer an option.

Getting the right risk-reward balance requires leadership, a strategy and support from the very top of the business to recruit the right talent, make the necessary investments and drive the changes that will ensure the business not only survives the disruption caused by the explosion in the volume and velocity of information but thrives in the shifting complexity of today's information landscape.

Who should read this report? In writing this paper we wanted to encourage businesses to think clearly about what they are doing now and what they can do next to embrace new opportunities. We wanted to stimulate and promote the conversation around whether and how businesses can seek to gain an information advantage and in so doing elevate the conversation where required from the back office to the boardroom. The themes discussed in this paper deserve the attention of the very top of the business: the C-suite and senior business leaders who drive or influence business strategy

and this paper is important for all those involved in managing information. It is also useful for information management professionals as they look to expand their position and influence in an organisation.

We have lived with twenty years of disruption and witnessed the birth of big data. Finding an appropriate response to this environment requires a radical change in business culture, governance, strategy and ways of working. And with change will come uncertainty as businesses try to come to terms with the shifting information environment.

Many have a long way to go. The research that informs this whitepaper shows that most organisations lack the required skills, technical capabilities and culture to fully exploit their information for an advantage, with one in five businesses ill-equipped to manage information for any advantage whatsoever.

In this paper, we draw on the behaviours of businesses who are successfully managing the risk-reward balance to offer advice to businesses hoping to improve upon their current practice. We will make the case for attracting employees skilled in the data analytics and for bringing together the right people together to take on today's information challenges. If they have not already done so, organisations would be well advised to put in place a governance body to oversee information management. Ideally, this body should comprise critical business unit leaders, IT, data analysts, records and information professionals, sales and marketing and a data privacy officer.

In the age of big, wide and dark data, how we think and talk about information has changed. Where once the key concern was risk, the discussion has now evolved to embrace the idea that businesses should make the most of their information to gain an advantage over their competitors as well as protect their brand.



Executive summary

Information is the driving force behind every business. Over the course of the last 20 years, the information landscape has transformed beyond all recognition. The type, format, velocity and volume of information have grown exponentially and continue to grow.

There is a clear business need to unlock the value tied up in information. To do so, businesses must foster a culture that supports the development of a long-term information strategy and embraces a comprehensive governance framework. The need becomes even more apparent as business units take direct ownership of assessing how to make information work for them by using innovative technologies.

Many organisations are confident that they have the capability to extract value from their information for commercial and operational advantage. Our analysis shows, however, that this confidence is largely misplaced. Close scrutiny of interviews conducted with 1,800 senior business leaders shows that very few are able to mine information to its full potential, and fewer still can make the most of the benefits that accumulate as a result.

Our research also found that most organisations lack the required skills, technical capabilities and culture to truly gain the greatest advantage from their information. In fact, three in four businesses extract little or no advantage whatsoever. We uncovered a consistent lack of focus when it comes to organisational investment in the right analytical talent, tools, innovative information-led solutions and value-driven information strategies.

In our view, it is imperative that a focus on information value goes hand in hand with a robust and continued emphasis on information risk. It should be seen as a business priority that risk and value work in tandem, striking a balance between the need to protect information and extract the value that resides within it. We found that the more forward-thinking, agile businesses already reap a multitude of benefits from placing as much emphasis on information exploitation as they do on avoiding data breaches and meeting compliance requirements.

Furthermore, in order to realise the information advantage, businesses must be prepared to share their information

across the organisation while being aware of privacy and intellectual property protection requirements. Our research shows that information is often caught up in departmental silos where its true value potential is not realised. There is a significant need for businesses to make information accessible to those with the necessary skills and tools to harness its value. Our respondents indicate that IT professionals are currently leading the way on this, most likely because they have the tools and access to the data. However, it is our view that the extraction of value should be led by a clear business need that is communicated to analysts with the appropriate technical skills and tools to investigate company data, interpret the findings and inform decision makers on the implications.

Very few organisations, as yet, understand how to exploit their information to its greatest advantage. Although it is relatively early days, and there is still time to catch up, it is our view that organisations that do not pay attention and do not seek to maximise the potential of their information, risk eroding their value in the future.



Most organisations lack the required skills, technical capabilities and culture to truly exploit their information for an advantage.

Sue Trombley
Managing Director of
Thought Leadership
Iron Mountain

Where information is concerned, the rate of growth in the opportunities appears to be outstripping the ability of organisations to capture them.

Claire Reid
Partner
PwC Risk & Assurance

Key findings of the study

- Our first Information Value Index, based on the attitudes and practices of 1,650 businesses, large and small, in Europe and North America, produced an overall score of 50.1 out of an ideal 100. The enterprise sector, scoring 52.6, performs only slightly better than the mid-market (48.8). This is a disappointing, though perhaps not unexpected result.
- Businesses across all sectors are falling short of realising the information advantage – from the best (financial services, scoring 52.5) to the worst performing (legal services 47.0).
- North America is ahead of Europe, with the USA out in front (56.7). The Netherlands is the best performing country in the European markets surveyed (48.3) and Spain the lowest scoring (46.6).
- Just 4% fall into the ‘information elite’ category scoring over 90.0 in the index. The information elite have well-established information governance insight bodies, strong value realisation cultures and allow secure access to those with the necessary skills. This minority of businesses are attaining a range of commercial and operational benefits as a direct result of their strong focus on information value.
- We have identified a large ‘misguided majority’ – three in four businesses

(76%) that are either constrained by legacy, culture, regulatory data issues or simply lack any understanding of the potential value held by their information. They have little comprehension of the commercial benefits to be gained and have therefore not made the investment required to obtain the information advantage.

Learn from the elite

Most businesses can learn from the good practices exhibited by the information elite, in particular:

- Get your governance right – set up an information governance oversight body supported by senior leadership. Involve all of the key functional areas, not just IT.
- Treat information as a valuable asset and develop a culture of evidence-based decision making.
- Protect sensitive and valuable information using robust controls, but make sure that those who need it can access the information securely.
- Don’t rely on the ubiquitous technology of spreadsheets – use fit-for-purpose data analysis, interpretation and visualisation tools to get the most from your data.
- Employ data analysts who understand business strategy, know what to look for in the data, know how to look for it and can link their findings to your KPIs.

The information advantage

What is it?

The recent global recession and the rise of global connectivity over the last 20 years have been two of the most important disruptors to businesses of all sizes. Many organisations have been agile and innovative in their response and the disruption, therefore, has been positive. These businesses have diversified their business strategies, explored innovative service offerings and created an environment in which business leaders can open up new markets and opportunities.

During this period of disruption, the type, format, velocity and volume of information – either archived or accessed by the business community – has grown exponentially. This growth has created risks and opportunities that require a significant change in business culture, governance, strategy and ways of working. The emergence of the “big data” phenomenon is an important driver behind some of these changes.

In the age of big data, the information conversation has shifted. Where once the key concern was information risk, discussions now embrace the idea that businesses must make the most of their information to gain an advantage over their competitors. The quest for the information advantage is influencing

business strategy. There is now a growing awareness at the very top of many businesses, that failure to embrace the changes required to manage information for its advantage is no longer an option.

The compulsion to unleash the value tied up in information of all formats from multiple sources is a modern-day disruptor. The ability to develop a long-term information strategy and a comprehensive supporting governance framework is critical to improve data transparency and the generation of business insights. This also comes at a time when social media, mobile, and data analytics technologies are exploding, further compelling businesses to reassess how they use information to do business.

Respondents to PwC’s 2015 Global CEO Survey¹ stressed the vital role that their information can play in gaining insight about customers and how to engage with them. Eighty percent cite mobile technologies for customer engagement along with data mining and analysis, as strategically important to them.

So what is the information advantage and what are the core capabilities required to capitalise upon it? In essence, this is about effectively managing information – in new or novel ways – that can change how businesses interact with their key

stakeholders, diversify business models, find opportunities to improve operating efficiencies and provide a basis upon which to identify and seize new market opportunities. This is about re-purposing information, whether it is born electronic, in original paper form or digitised, and applying innovative processes and tools to analyse the data and share it with those who have the interpretive skills to convert insights to meaningful business decisions.

However, this is not easy. It requires new strategies and changes to traditional business operations, investment in people, tools and technology and a vision with Board-level endorsement to drive acceptance and implementation.

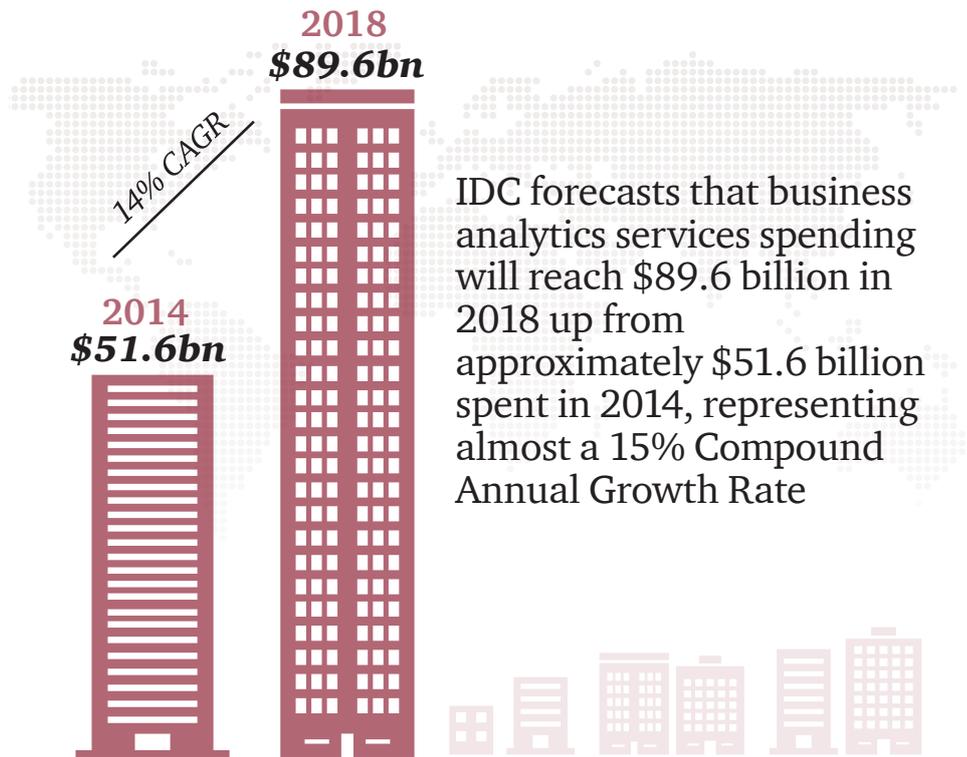
Having an effective governance process is a mandatory component in the overall approach required to respond to and ultimately capitalise upon the information advantage. Yet such governance arrangements must be business rather than purely technology focused.

¹ PwC 18th CEO Survey: <http://www.pwc.com/gx/en/ceo-survey/2015/key-findings/technology.jhtml>

On its own, a technology-focused strategy cannot generate the necessary linkages from information insight to business decision-making and strategic direction. Therefore, the information management strategy needs to reflect overarching business objectives, identify data commonalities and demonstrate the advantages that effective information governance can deliver. This requires people with the right skills and experience, along with domain knowledge, who are empowered by senior management to apply their talents appropriately, with the autonomy to access the information they need to drive the information advantage.

The role and importance of data analytics cannot be overstated. It is crucial to any business aspiring to seize and capitalise fully upon the information advantage. In its newly published worldwide business analytics services forecast, the International Data Corporation (IDC) forecasts that business analytics services spending will reach \$89.6 billion in 2018 up from the \$51.6 billion spent in 2014, representing a 14.7% compound annual growth rate.

Seizing the information advantage, however, must be approached from a continued understanding of, and robust approach to, managing information risk. Mitigating risk and responding to increasing regulatory challenges is in itself a way of extracting value from well managed information – which has been a core theme of our previous three years of research focusing on charting the maturity curve of mid-market and enterprise businesses from an information risk perspective. As businesses increase their focus on information value, they must acquire an in-depth understanding of the interdependencies between risk and value.



IDC forecasts that business analytics services spending will reach \$89.6 billion in 2018 up from approximately \$51.6 billion spent in 2014, representing almost a 15% Compound Annual Growth Rate

There is a balance between protection – from the damaging impacts of data losses or leakages and exploitation – and in being bolder and more confident in embracing the opportunities and advantages to be gained from utilising business information in different ways. Striking this balance will become an increasingly pressing priority for businesses of all sizes.

To build upon these themes, and with a core focus on understanding the extent to which the business community is currently seizing the information advantage, PwC – in conjunction with Iron Mountain – surveyed 1,800 enterprise and mid-market companies across Europe and North America.

Our research provides clear evidence that for most organisations, there is a long way to go to implement a range of changes that are required before the information advantage becomes a realistic opportunity. Further detail on this is described in the sections that follow.

Information value

Understood but lacking focus and innovation in exploitation

In January of this year, PwC conducted its fourth annual series of interviews with 1,800 senior business executives, 1,200 of which were with mid-market businesses (those with 250-2,500 employees) and 600 enterprise businesses (those with 2,500+ employees).

As Figure 2.1 illustrates, the interviews covered businesses based in Europe (the UK, France, Germany, the Netherlands and Spain) and North America (USA and Canada). To ensure a diverse perspective in responses, the interviews were spread across the Manufacturing and Engineering, Pharmaceuticals, Financial Services, Legal Services, Insurance, Energy and Healthcare industry sectors.

This research builds upon the three previous studies that PwC and Iron Mountain have collaborated on. Our earlier work focused on the maturity of mid-market and enterprise businesses in relation to how well equipped they are to deal with the risks posed to their

information. In response to the respondents' concern that a failure to harness sufficient value was an emerging risk to how businesses manage their information, the studies increasingly highlighted how businesses seek to gain value from their information.

It is our view that the core actions required to be both protected from information risk and innovative in realising information value are interdependent. This 2015 research has therefore focused primarily upon information exploitation, and has led to the development of an information value index – the first of its kind.

Figure 2.1: Profile of 2015 information value research



Figure 2.2: High level information value index scores

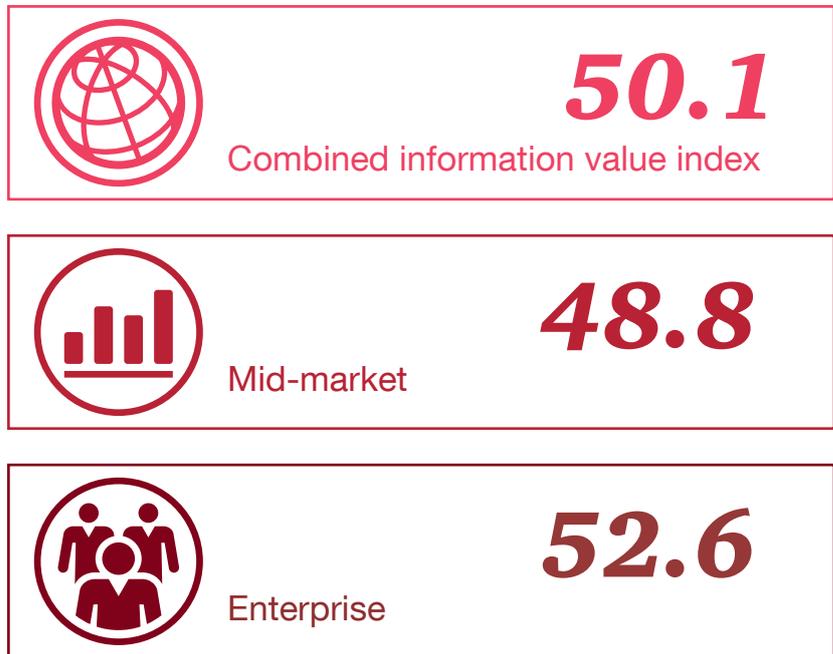
The 2015 information value index and methodology

As industry and C-suite focus turns to the exploitation of information as a business asset and the benefits that this can yield, the purpose behind the information value index is to investigate the:

- Level of awareness and priority that businesses currently assign to deriving value from the information that they hold;
- Extent to which organisational processes, governance arrangements and culture are sufficiently aligned to meeting this objective;
- Skills, tools and methods deployed to extract value; and
- Benefits achieved as a result.

The information value index is derived from a sample of 1,650 businesses responding to 36 survey questions. These questions align with core **organisational** (governance and culture) and **technical capabilities** (skills and tools) that we believe are required to capitalise on the information advantage. The list of questions can be found at page 28.

Our first combined information value index, at 50.1 (out of an ideal score of 100.0) illustrates that most of our survey respondents have a long way to go to seize the information advantage and its associated core benefits. Given the widespread industry and media attention on big data, the internet of things, and effectively cultivating business value from data and information in recent years, this is a somewhat surprisingly low index score.



However, this finding also highlights information exploitation as an emerging area with a new set of priorities that many businesses are only beginning to grapple with.

Enterprise businesses, with an index score of 52.6, fare marginally better than their mid-market counterparts (48.8) but the recurring trend of a lack of organisational focus, a failure to fully embrace more innovative practices and the continuation of previous practices – now outdated in the context of the opportunities available and developed in the marketplace – pervades the study findings.

2 For the US sample of interviews only and not included within the Information Value Index

3 Our first paper in 2012 entitled 'Beyond Cyber Threats', introduced Europe's first Information Risk Maturity Index and highlighted the market's need to be better equipped to manage information risk. The 2013 update, 'Beyond Awareness', stressed the problems caused by the growing volume of information or 'the data swamp'. This series culminated with our 2014 paper, 'Beyond Good Intentions', highlighting the urgent need to implement practical and organisation monitored actions to effectively meet the information risk challenge. All three papers can be downloaded via www.ironmountain.co.uk/riskmanagement

Figure 2.3: Combined information value index and by company size

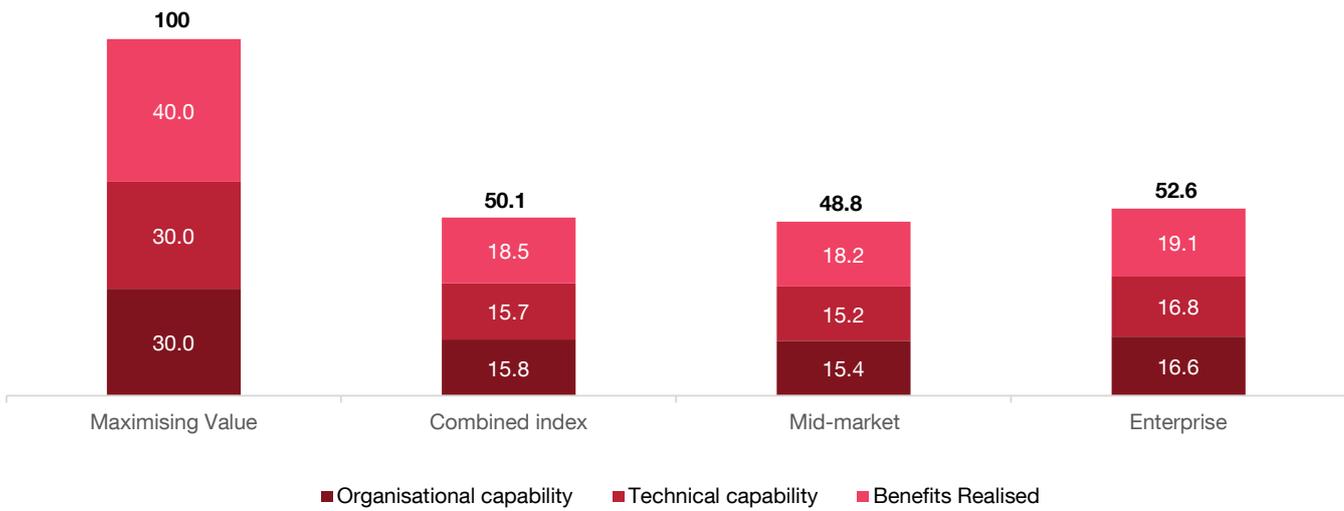


Figure 2.4: Information value index by country

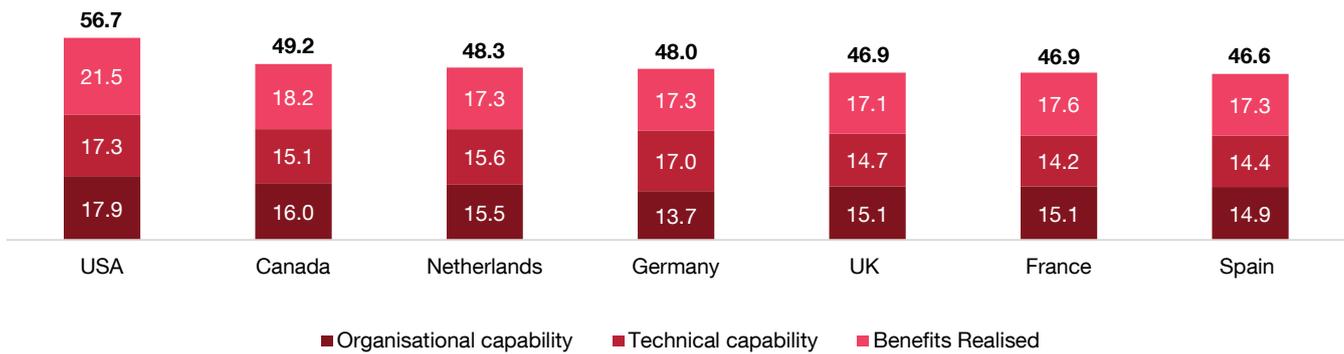
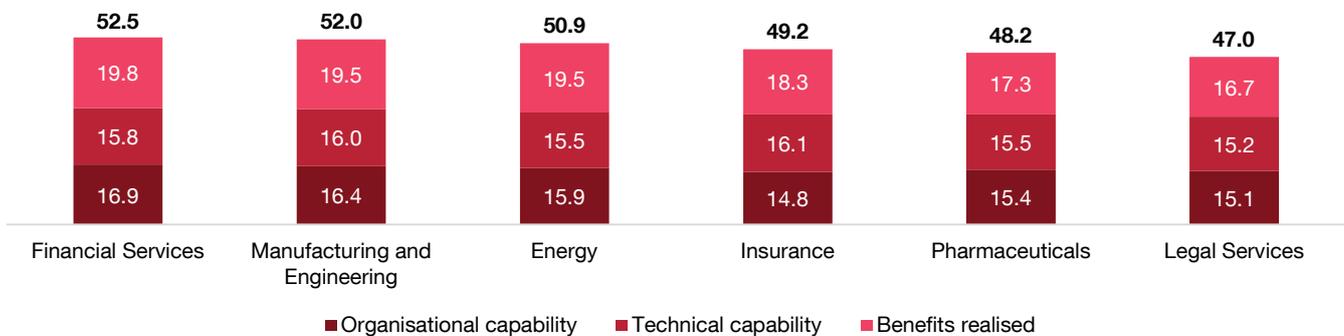


Figure 2.5: Information value index by sector



The index suggests that with only approximately half of the required capabilities in place, only half of the benefits are currently being seized. In PwC and Iron Mountain's view, this is an urgent reminder to the market – at both ends of the size spectrum – that to seize the information advantage, key changes to governance, capabilities and culture are a necessity, not an option.

From a country perspective, the USA stands out from the others represented in our information value index and, comparatively, is further along the required spectrum of change. However, most USA based respondents are not on

the leading edge. The theme of a lack of focus and creativity applies across our sample, but on a comparative basis USA organisations were more likely to apply the required core features.

From an industry sector perspective, the trends were also reasonably consistent with Financial Services and combined Manufacturing and Engineering sectors marginally out-performing the remainder. The drivers within a Financial Services context are well documented, particularly in terms of the importance of using data-driven insights to understand customer preferences and behaviours linked to spending patterns, but this issue

is also gaining traction in the Manufacturing sector.

A Forbes publication⁴ highlights that manufacturers are increasingly focusing investments to achieve improvements in margin recovery, product quality and safety, reducing duplication, investing in new reporting processes with a focus on efficiencies, and monetising assets based on the insights derived from data analytics.

Further analysis, in terms of segmenting the survey data that underpins the information value index against key business profile characteristics, is outlined in the section that follows. This highlights those areas of good practice together with where and what improvements are of most pressing attention for the majority.



Case study

Applying operational analytics for a maritime manufacturer

Business challenge

- The business had recently completed a migration to a new SAP system. Due to historical data remaining on legacy systems and project budgets being managed in various Excel spreadsheets, the business had very low spend visibility across their supply base and projects
- The business was also struggling with data availability and reporting to ensure compliance with controls and identify any mismanagement in their source to pay processes and procurement
- In order to identify the benefits and opportunities for spend reduction in their manufacturing projects they required analytical reports that combined data from all sources
- The business also required integration of their supplier performance data and a survey of their procurement maturity and capability

Data analytics solution

- The initial focus was to extract and combine data from the new SAP system with the legacy ERP
- Applying rapid spend visibility to highlighted improvements required for data quality before delivering fully categorised and cleansed data via a purchasing insight solution
- A survey was initiated to review the procurement maturity and contract management capability of their purchasing organisation, combining their results with the spend data and buyer profiles on SAP
- Thereafter, the business focused in upon payment terms, working capital benefits, potential duplicate payments and detailed supplier performance reporting integrating historical supplier performance reports and transactional spend data

Impact on client's business

- This approach delivered an integrated spend management platform that delivered for the first time a consolidated view of spend to date, total project costs and total cost of project completion
- The procurement maturity survey was used to deliver improved purchasing behaviours across the buying community based on weaknesses identified from the analytic output
- Capability benchmarks were used to highlight key areas for development
- The tool is currently being used to identify procurement savings across the global lead buyers for their key commodity material groups creating long term, substantial business benefits

⁴ Kerschberg, Ben: 'How big data and business intelligence are changing the Manufacturing Industry'. December 2014.

The information elite

A rare breed

Best in class

Clearly, very few organisations, as yet, understand how to exploit their information to its greatest advantage. Fewer still appreciate the extent of the commercial or operational benefits that will accrue as a result of getting this right. Although it is relatively early days, and there is still time to catch up, it is our view that organisations that do not pay attention, and do not seek to maximise the potential of their information, risk eroding their value in the future.

In order to gain a deeper insight into the extent to which the business community is seizing the information advantage, we have segmented businesses into five distinct groupings and identified the typical profile and characteristics of each, underpinned by evidence from our survey. The **graphic overleaf** provides an illustration of this analysis.

In our survey of 1,800 organisations, just 4% achieved an index score of 90 or above. This 4% are the leaders in the field, the **information elite**. These businesses have quickly worked out what it takes to exploit and deliver value from the information they hold. They have developed the right culture, created the governance and invested in

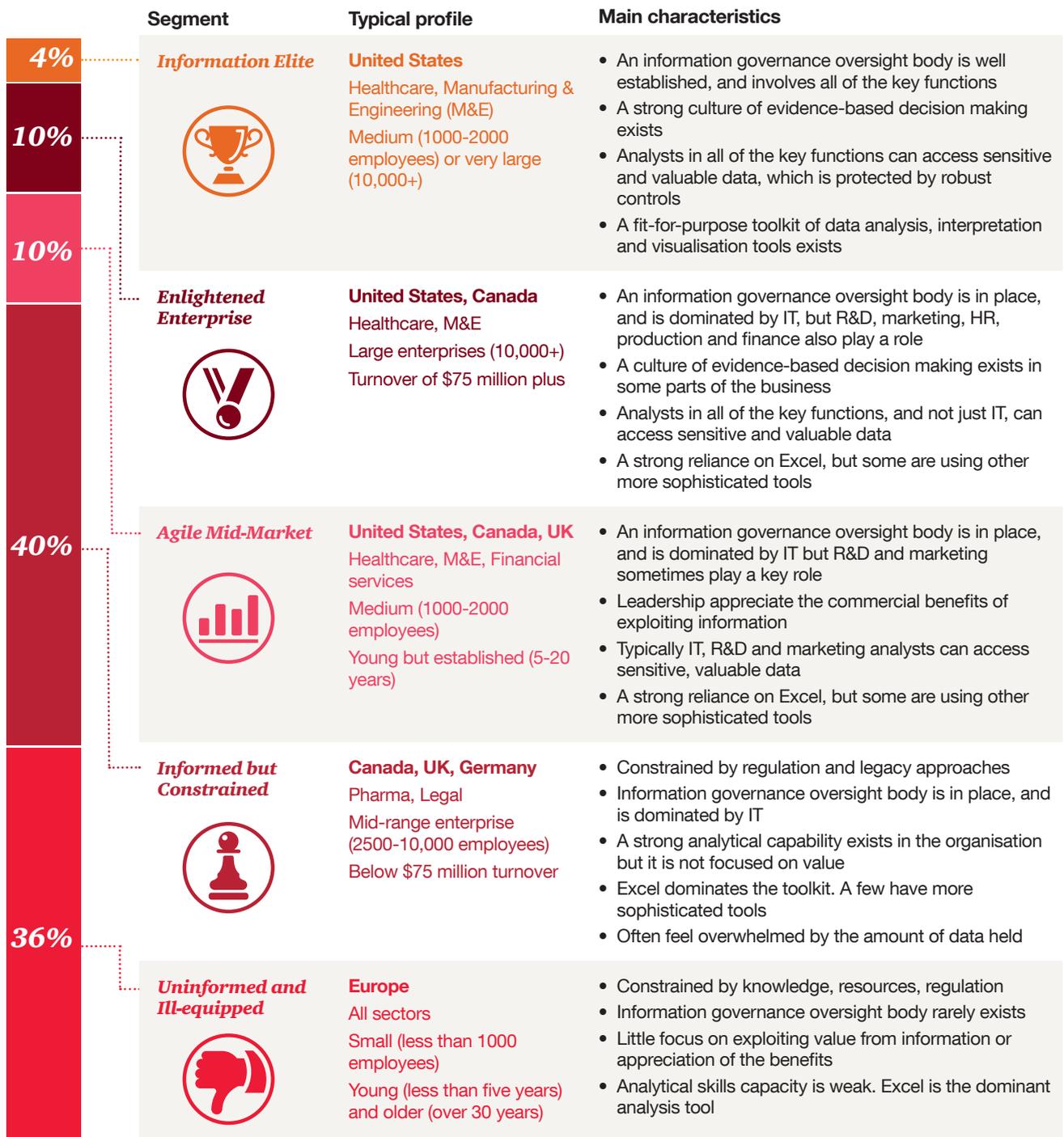
the analytical skills and tools required to deliver value and support business decisions.

Interestingly, there are just as many mid-market businesses in the elite as there are enterprise. Our research suggests that the agility often demonstrated by recently established, mid-sized, well-informed and forward-thinking businesses can be the key to success in obtaining the information advantage. Such businesses are not held back by legacy and tend to reside in sectors and territories that are less constrained by regulation.

Whilst the enterprise elite may be less agile, these large organisations benefit from having strong leadership and good global information governance arrangements in place involving all of the key functions – marketing, finance, research and development, risk, records and information management, human resources and data analysts – not just IT.

This progressive and informed mind-set, in conjunction with the resources to invest in the right analytical skills and tools, and the foresight to share these technical capabilities across the business, have been the key drivers of success for the enterprise elite.

The information elite is mostly, although not exclusively, found in the United States. The practice associated with information elite most commonly resides in the healthcare, financial services, and manufacturing & engineering sectors.



What does the information elite do differently?

- An information governance oversight body is in place involving all of the key functional areas, not just IT and is supported by senior leadership
- Information is treated as an asset, and is retained and used to exploit its value
- Sensitive and valuable information is protected by robust protocols, but those who need it can securely access it
- Data analysts who understand the business strategy and who have the skills to optimise the value, interpret and communicate their findings, exist across the business
- Fit for purpose data analysis, interpretation and visualisation tools are used extensively (e.g. Tableau, Hadoop, Qlikview) with Excel used to complement them

Close behind this small information elite group are two types of organisations that we classify as the **Enlightened Enterprise** and **Informed and Agile Mid-Market**; each makes up about 10% of businesses in Europe and North America. Similar in attitude and outlook to the information elite, these groups are not quite as mature in terms of the level of involvement of the business functions in information governance (IT still dominates) and the availability and use of analytical skills and tools. The impact of new analytics tools such as visualisation has not yet been maximised.

The Informed and Agile Mid-Market tend to be mid-sized (1000-2000 employees), young (five to twenty years old) and are largely based in the US, Canada and the UK are also starting to see the emergence of this group. Enlightened Enterprise are typically large Canadian or US based businesses, with over 10,000 employees and a turnover of over \$75 million.

The mis-guided majority

So what about the rest: the majority, the other 76%. Our analysis has uncovered that this group of businesses exhibits two sets of characteristics – Informed but Constrained and Uninformed and Ill-equipped.

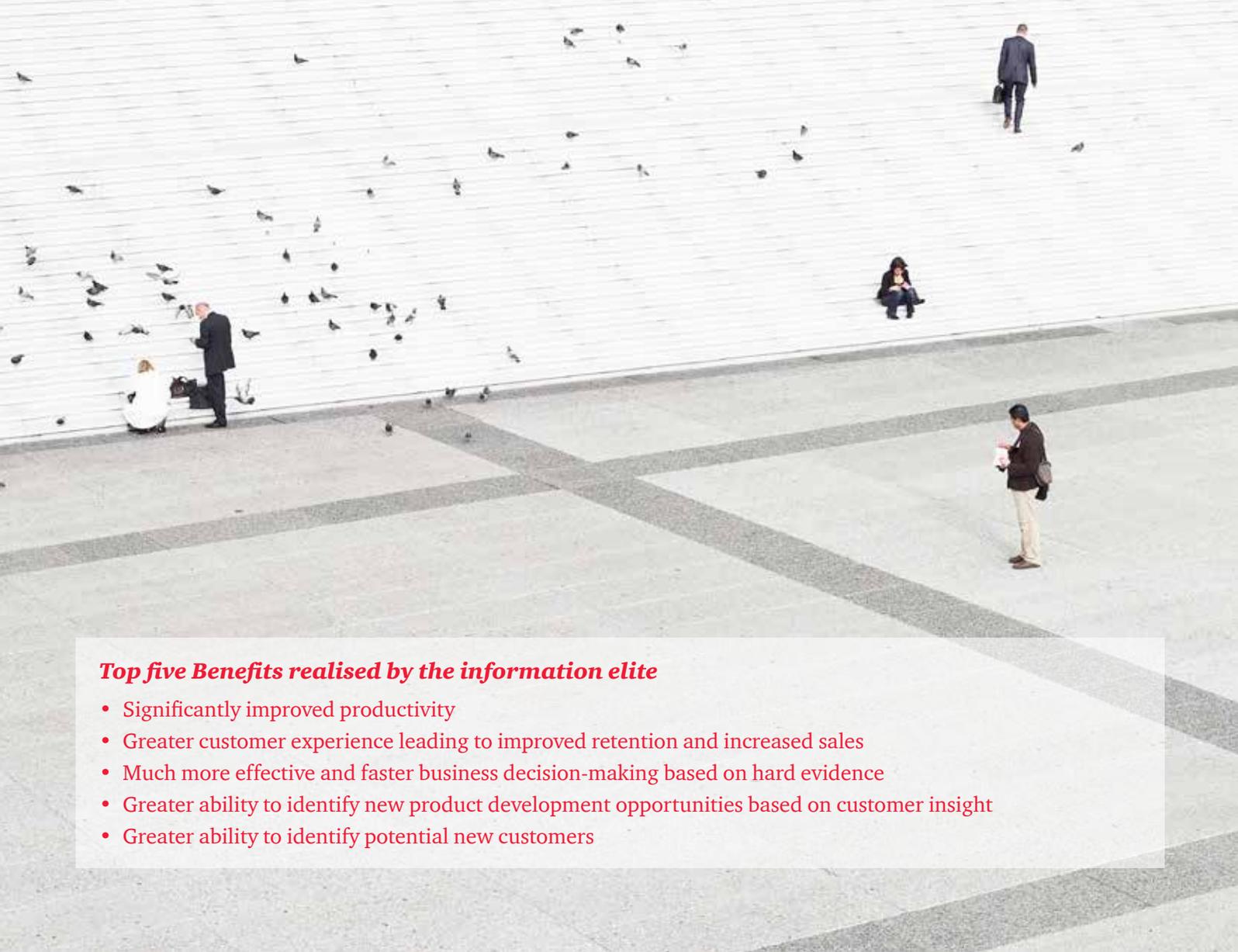
The Informed but Constrained group constitutes approximately 40% of businesses and represents those which are starting to make headway in optimising information value, but are constrained by a number of factors that include legacy behaviours and business culture with efforts and resources often focused on regulation rather than extracting value. We could say that efforts and resources are often focused on regulation rather than extracting value. Often the leadership is informed and aware of the potential value that their information holds, but the exploitation of this value has not yet become a high enough priority for the business. The business constraints are being allowed to get in the way. Organisations with this type of outlook are found in all sectors and territories

but tend to be particularly prevalent in Pharmaceuticals and Legal, are typically large in size (2500-10,000 employees), and have been established for twenty years or more. Canada, Germany and the UK have a higher than average number of Informed but Constrained organisations.

Over a third of the businesses in our study are Uninformed and Ill-Equipped to exploit their information value. These are businesses that ‘don’t yet know what they don’t know’. They are often constrained by regulation and resources, however the main issue holding them back is knowledge of what to do and a lack of understanding of the potential benefits. This is particularly a European mid-market phenomenon, although we have identified organisations in the North American enterprise sector that also exhibit these characteristics. The typical Uninformed and Ill-equipped organisation is small in size (less than 1,000 employees) and either a start-up (in operation less than five years) or well established (over 30 years old). Such companies are prevalent in all sectors.

Typical attributes and behaviours of the mis-guided majority

- Information and exploitation of value from information is not a priority for senior leadership
- An information governance oversight body, if it exists, is dominated by IT
- Limited appreciation of how to exploit their information or the business benefits of doing so
- Progress is allowed to be held back by legacy issues, regulatory issues and resources
- Where resources are deployed to exploit information, this is often IT led, and is not linked to the overall business strategy
- Limited ability to identify, manage and merge large amount of data sources
- Analytical capability may exist in the business but is not focused on information value
- Excessive use of Excel spreadsheets with limited capacity to extract insight



Top five Benefits realised by the information elite

- Significantly improved productivity
- Greater customer experience leading to improved retention and increased sales
- Much more effective and faster business decision-making based on hard evidence
- Greater ability to identify new product development opportunities based on customer insight
- Greater ability to identify potential new customers

This analysis points to a clearly emerging divide, with the enlightened and agile businesses forging ahead and leaving the others behind. The former are reaping the multitude of benefits that go hand in hand with a well-executed information management strategy that places emphasis on exploiting information value in concert with avoiding data breaches and meeting compliance requirements. The information elite already report a significant competitive advantage as a direct result of harnessing the value of their information assets. It is our view that organisations that fail to take notice will struggle to compete and risk obscurity in the future.

Each of the five groups that we have described in this section, from the Information Elite to the Uninformed and Ill-Equipped, will face different

challenges and business requirements going forward and will need to adopt a strategy tailored to meet their specific challenges. In section 6 we have set out a “call to action” for each group with our recommendations on what they need to do next.

According to a study undertaken by IBM⁵ – the most innovative businesses, albeit a very small sub-set of our sample, embrace an approach to data that seeks to minimise the time it takes to convert raw data into actions that positively impact their service delivery or the quality of overall decision-making.

These businesses implemented technologies and business models to acquire, analyse and act on data with speed and agility. They honed their data management and analysis processes, enabled employees to access and act on

insights at every opportunity, and have begun to transform their organisations through end-to-end actions that combine digital interactions with business process re-invention. They engage and empower their people and equip them with the knowledge to understand what and how their data can be used in different, more forward-looking ways.

5 The Institute for Business Value (“IBM”): ‘Analytics: The speed advantage’. Why data-driven organisations are winning the race in today’s marketplace’, 2014.

The following case studies highlight how an innovative, flexible approach to information analytics can have sustained positive impacts upon stakeholders, employees, customers and investors.

We should also not overlook the power of data analytics to uncover relationships between big data sets that point to

detection of bad behaviours and prevent loss or damage. The value in detecting, predicting and reducing non-compliance or criminal activity should not be underestimated in preserving or improving brand reputation.



Case study

Rexel UK Ltd. – Uses dashboard to act on data insights

- Rexel UK Ltd. has adopted a new strategy known as “Energy in Motion,” which aims to put the customer at the centre of its operations and create greater value for all stakeholders: customers, suppliers, employees and investors.
- To support this strategy by providing decision makers with deep, accurate and timely operational insight, the company needed to transform its approach to business analytics. Rexel rebuilt its business intelligence platform from the ground up, developing an agile environment that is closely aligned with user needs.
- Previously, many employees were overwhelmed by the sheer volume of reports on the system and didn’t have time to utilise all the information. Rexel transformed its reporting processes, trimming the number of reports by 90% through the use of techniques such as dashboards.
- Decision makers can now access highly meaningful, on-time information in a format that is easy to understand. “Now it’s quick and easy for users to drill down to the relevant areas and get the information they need. Instead of spending hours in front of a screen, they’re in and out in minutes, and spending more time doing what they’re paid to, which is selling products and interacting with customers on the shop floor,” says Simon Short, Head of Business Intelligence for Rexel.
- “We are in business intelligence heaven right now,” he said. “It has taken a lot of time and effort to get to where we are today, but it’s important to recognise that business intelligence isn’t just a one-off project, it’s a journey. We will continue to fine-tune and develop our environment so that Rexel can extract even better value out of business intelligence in the years to come.”



- Cloudera is a Californian enterprise software company. In 2014 it completed a new financing round worth US\$900m, attracting investment from Intel and T. Rowe Price, among others.
- Knowing that the company would soon be receiving fresh capital, senior leadership instigated a process to establish where the company could most benefit from an acquisition. For this, they turned to the customer data the company collects.
- Analysis of this data revealed that data security and data privacy were the two standout concerns holding customers back from greater use of his company's products.
- This information formed the basis of a report presented to the Board. Supporting data did not preclude the Board from testing the decision, but it narrowed the focus of their questions and made them more direct.
- Six weeks later, the day after receiving the funds, and with everyone in agreement, the company completed the acquisition of Gazzang, a data security company.
- The announcement was made knowing that it would be welcomed by customers – knowledge that was gained through a analysing and interrogating existing information in a different way that, in this case, directly informed a fundamental business decision.

Case study

Cloudera – California-based enterprise software company

- Having discovered by chance a false invoicing scheme within this company's Purchase-to-Pay (P2P) process, they sought support to undertake a more pro-active exercise to search for other potential incidences of false invoicing fraud.
- The company, with support from advisers, conducted a systematic review of their P2P data covering a two-year period. Rather than apply a series of "red flag" tests to transactions, this included statistically modelling vendor purchase activity using cluster analysis to detect behaviours that differed significantly from the typical vendor.
- They derived a number of clusters within their P2P data. Each cluster represented a group of vendors with similar patterns of behaviour based on their activity. The analysis uncovered a small number of clusters, where vendor behaviours were subtly different from the wider vendor population. Fraudulent behaviour was confirmed within these outlying clusters.
- The company also undertook a series of hypothesis-based tests to search for common fraud and abuse characteristics within expense claims such as mileage, air travel, hotel, food and drink, and transport. Using text mining, this identified a number of expense claims where the details differed, but were clearly related to the same expense. Analysis uncovered 33 individuals whose behaviour required investigation.



Case study

Media company – the proactive detection of fraud



Why do businesses fail to seize the information advantage?

A lack of clarity on roles, responsibilities and harnessing the appropriate skills and tools

As outlined earlier in this paper, whilst acknowledging that technology and making the best use of IT skills and tools is important – in isolation this will not generate the level of insight and value that businesses increasingly need.

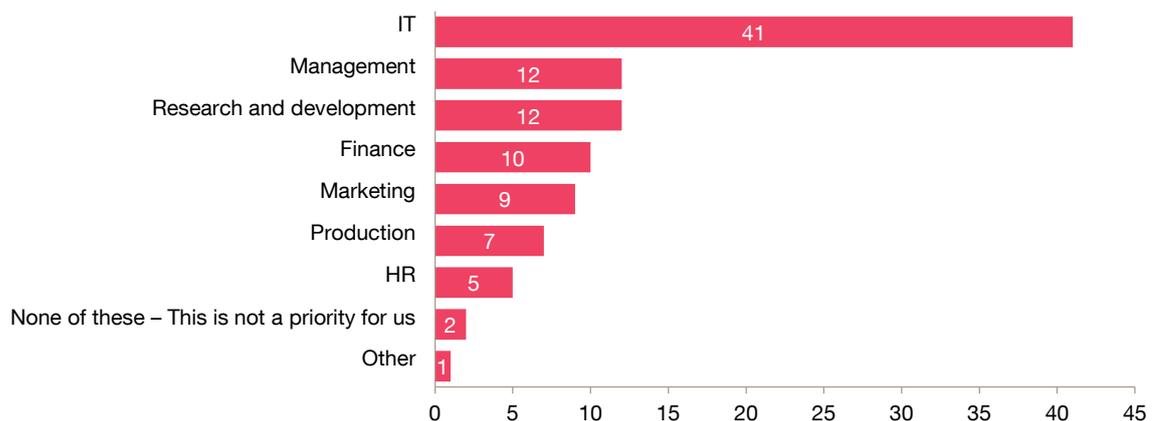
As Figure 4.1 illustrates, 41% of our sample (and 46% of enterprise respondents) indicate that their respective IT professionals are taking the **lead** in the extraction of value from their information.

IT professionals have a vital role to execute in the overall process of unearthing value from data and information. However, in our view – this should largely be focused on storing and protecting valuable data and information together with managing access controls and information security.

The extraction of value should be led by business unit leaders who define the purpose of the analysis, whether it is for internal efficiency or external customer-related needs. The request is then executed by skilled analysts with the

necessary technical expertise and tools to extract value under the direction of the business unit leaders. Collectively, these people, along with input from IT, have the knowledge and understanding of the business to know what data is relevant for analysis and how to best ‘connect the dots’ among applications.

Figure 4.1: Which area of the business is taking the lead in the extraction of value from the information that you hold?



*Base 1,650

Our survey suggests that IT professionals continue to operate within departmental silos rather than under the clear direction of their respective business leaders. It is vital, therefore, that the technical role and functions of IT professionals are supported and suitably enhanced with the important analytical and interpretation skills of specific analysts that either directly involves – or is at least under the supervision of – business decision makers.

Without the latter, businesses will fail to understand the practical implications of any analysis undertaken and therefore be unable to make the critical linkages to overall strategy.

Big data and analytics are often the domain of a dedicated function – usually part of IT – that has built up skills and resources around centres of excellence. However, this siloed approach is sometimes out of step with the business. Even better is to assemble a cross-functional team at the start, which can explore the issue from a variety of angles and quickly iterate.

Scott Likens.
Data and Analytics Leader,
PwC China.

Furthermore, just 36% of our respondents indicate that the drive to manage information for competitive advantage extends throughout the business. In order to understand the potential value and insights within data and information that businesses hold, this must be shared and opened up to those with the necessary skills and tools that can harness its value. A whole business approach to identifying what is valuable, important and useful along with its risk profile provides clearer insight into how it should be managed.

Figure 4.2 highlights overall survey responses to a question that assesses the types of skills and tools that businesses

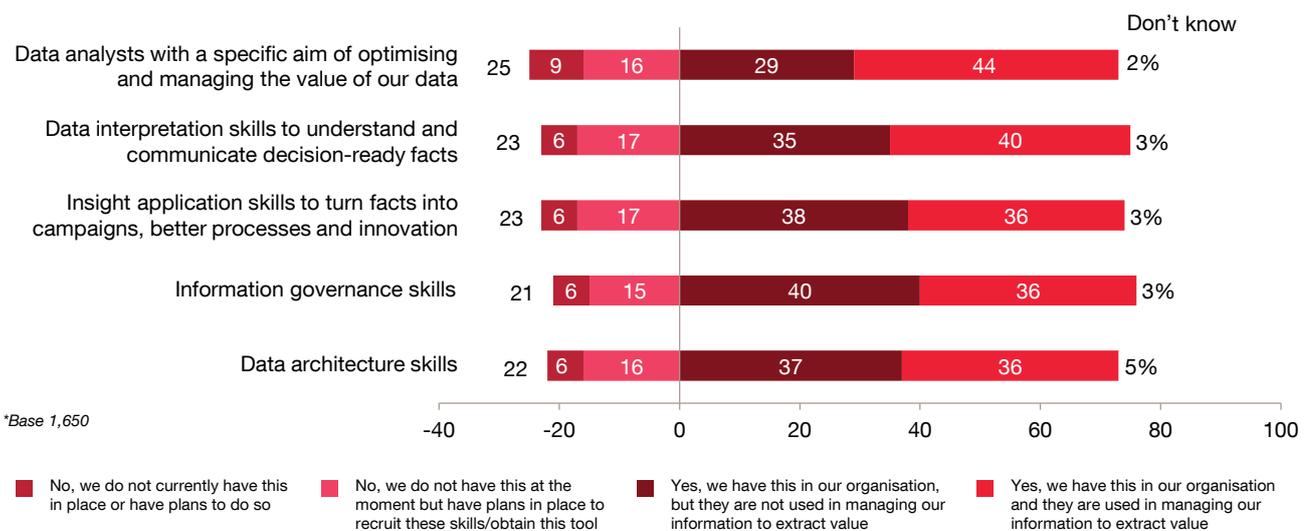
have in place together with how they are deployed. This includes data analysts with the specific aim of optimising value, insight application and data architecture skills. The recurring trend is that approximately one quarter do not have these skills whatsoever and a further third have such skills but do not deploy them in managing information to extract value.

Both of these survey data points are symptomatic of the overall lack of focus and understanding of how to maximise value and demonstrate examples of where many businesses are failing to seize the opportunities that their information could present.

Your data does not always have to be squeaky clean – nor must it belong to you – to provide the insights necessary to drive good decisions. As important as data accuracy and proprietary algorithms, is a data model that can accommodate unknowns or data that does not look exactly the same

Paul Blase.
Advisory Data and Analytics Leader,
PwC US.

Figure 4.2: Which of the following skills and tools does your business have in place?



These themes are not about a lack of awareness of the information opportunity. This is not about complacency or an unwillingness to embrace and respond to these new challenges. This is about a lack of awareness of who has the necessary skills, this is about a misplaced confidence in the skills, tools and knowledge being deployed which, for the majority, are not capable of providing a basis to truly seize the information advantage.

Businesses don't know what they don't know

There is a striking paradox evident from our research that suggests most businesses are aware of and broadly understand the importance of the information they possess and how it can be used to extract value, insight and competitive advantage. For example, the majority of respondents have adopted new processes – including setting up an information governance oversight body and have put in place various methods for recording how information moves throughout their business, including identifying where this is both most valuable and vulnerable.

Approximately 70% of those surveyed also indicate that they have implemented new methods for prioritising information based on its overall value to the business together with methods for calculating its value and for measuring return on investment.

The evidence that we have gathered suggests that the business community has woken up to and is now more conscious of the competitive advantage that can be gained through utilising their information more innovatively. However, many deploy unsophisticated skills and tools that fail to deliver the maximum value.

Most businesses in our survey are failing to adapt to the new information dynamic, particularly in terms of the more sophisticated data analytics tools, software and reporting mechanisms – with Excel the dominant tool to extract value from information deployed by the majority.

In those isolated examples of businesses that did indicate they use some of the core innovative tools – including SAP, Tableau and Hadoop – these are rarely assigned to experienced data analysts nor appropriately interpreted, or effectively linked to those with decision making responsibilities.

But this does not need to be the case. A report by the Economist Intelligence Unit (“EIU”)⁶ reiterated a core theme of this paper in terms of a stronger alignment among technology, big data and the widening of access through businesses more widely:

“Thanks to cheap servers for storing data and affordable supercomputers, algorithms and visualisation tools for mining it, companies around the world are better able to spot and act on new trends and intelligence. This expansion of corporate access to big data is now being met by a democratisation. Employees are able to tap data, draw lessons and make business decisions. The tyranny of technology and data specialists is breaking down. Now, players from many departments are harnessing data to make better tactical decisions about how to respond to emerging trends, find new business opportunities, retain more customers—and goose their company's bottom lines.”

Successful organisations do not just hire a small group of data analysts – they find smarter ways to connect their analytic fire-power to the front line. They find ways to rapidly predict the likely impact of their decisions at all levels.

Seizing the information advantage is possible and eminently achievable. But without a relentless focus on identifying and understanding the interdependencies between risk and value together with assessing how business governance, organisational capabilities, technology and the evolving role of data analytics can be effective enablers, this advantage will be much more difficult to achieve and the associated benefits further from realisation.

⁶ The Economist Intelligence Unit: 'Big data and the democratisation of decisions' (2012)

Call to action

“Information Governance is so much more than managing the risk in data, it is about developing an environment where the full potential of data is realised”

Richard Petley
Director
PwC UK Risk Assurance

Advancing along the maturity curve involves a journey that requires a change in how information and data is perceived. A change that moves it from liability to asset, along with a recognition of its importance within the execution of corporate strategy. We’ve set out below some stepping stones for the groups we’ve identified within this study as they embark or continue on that journey as well as some broader considerations that apply to all businesses.

The misguided majority:

Right sizing governance to fit your business – joining the strategic goal of the business to a strategy for governing and exploiting data. For example a strategic driver of “do more for less” may be in part well served by looking at the data you hold, determining what is valuable and could provide insight into operational efficiency.

Don’t treat information compliance and information value as separate initiatives. At its most basic, there is value in getting compliance right, plus exploitation requires an understanding of compliance risks.

Understand who in the organisation knows the data – at a corporate level, is there visibility of what’s kept and at the operational level, who understands its overall utility? Involving the right stakeholders in your information governance programme (beyond IT) will help to identify the tactical information “value” projects. Don’t undervalue the information management professionals in your organisation – they are the most likely to have a holistic view of your corporate data.

Agile mid-market:

Capitalise on your agility and dynamism – this will allow you to attract data scientists who can guide the investment and tools required to help develop your tactical deployments into a strategic advantage.

Enlightened enterprise:

Be more nimble with your data – this may require a change to what you retain and how. Look for opportunities to unburden legacy low-value data and bring more business insight to the governance board. Look to IT for the business case from these data efficiencies that will allow you to invest in more sophisticated analytical tools and resources.

The information elite:

Embrace the opportunity to do things smarter but be prepared to monitor and adapt – regulatory change such as the European General Data Protection Regulation may have an impact on what you’re trying to do, regardless of your geography. In the long run, improved brand reputation and trust carry their own value.

More generally all organisations should consider the following:

- **Don’t sweat the small stuff** – Every organisation’s priorities are likely to change from time to time. Your information and analytics priorities will reflect this. For example, at the moment we see many data governance initiatives focussing on the impact of privacy regulation. You will need to determine the key issues that your governance is going to address and the strategic direction that will drive the need for data and analytics to support. These should

articulate very succinctly what you are trying to do and should be understood by everyone in the organisation.

- **Use what you've got** – Each organisation has its own structures in terms of management groups, process and operational responsibilities. Wherever possible, you should embed information management responsibilities within these existing structures rather than building new ones. You will of course need some additional skills and resources to design, operate and monitor data governance. These resources are best drawn from your business and will comprise IT, business knowledge and data skills.
- **Don't create unnecessary bureaucracy** – Far too many organisations invest excessive time in the 'theory' of governance, creating policy material that will sit on the shelf and only be relevant and referred to by the data cognoscenti. Data governance needs to be understood and made relevant to everyone in the organisation. It needs to be something that is easy to work with.
- **Not all data is equal** – You will need to prioritise particular data sets in respect of your guiding principles. Work on what matters. It can often be helpful to use risk and impact assessments that reach across the organisation to help you agree on the priorities. It is also important to clearly define how robust data needs to be. You will need to think the same way when you build your analytics too – focus on analytics that will drive decision making.
- **Create the right behaviours** – Cultural and behavioural changes are crucial to improve both the underlying quality of data and to pro-actively manage data issues. Data “producers” need to know what is expected of them and this needs to be set by data “consumers”. Where required, these expectations should be agreed, formalised and performance monitored as part of a formal personal performance management process.
- **Make it stick** – The demands for real-time and broader, non-financial data will only continue to increase. If you design and improve your business processes to recognise the data that they create and the analytics that they consume, you are far more likely to succeed in improving the quality of the end product, the information that you use to manage the business. Similarly, you should consider how data, process and control interact. Clearly a defect in a process or control can undermine quality, while poor quality data can hamper attempts to understand and improve process.
- **Make sure someone is on the hook** – Everybody in the organisation has a responsibility for data. However, governance has some essential features: i) clear sponsorship from the leadership and with this we are seeing an emergence of the role of the Chief Data Officer; ii) ownership and accountability for data which reflects the responsibilities for process; iii) integration of activity with related disciplines of security and iv) records management and information privacy.

Research methodology

Introduction

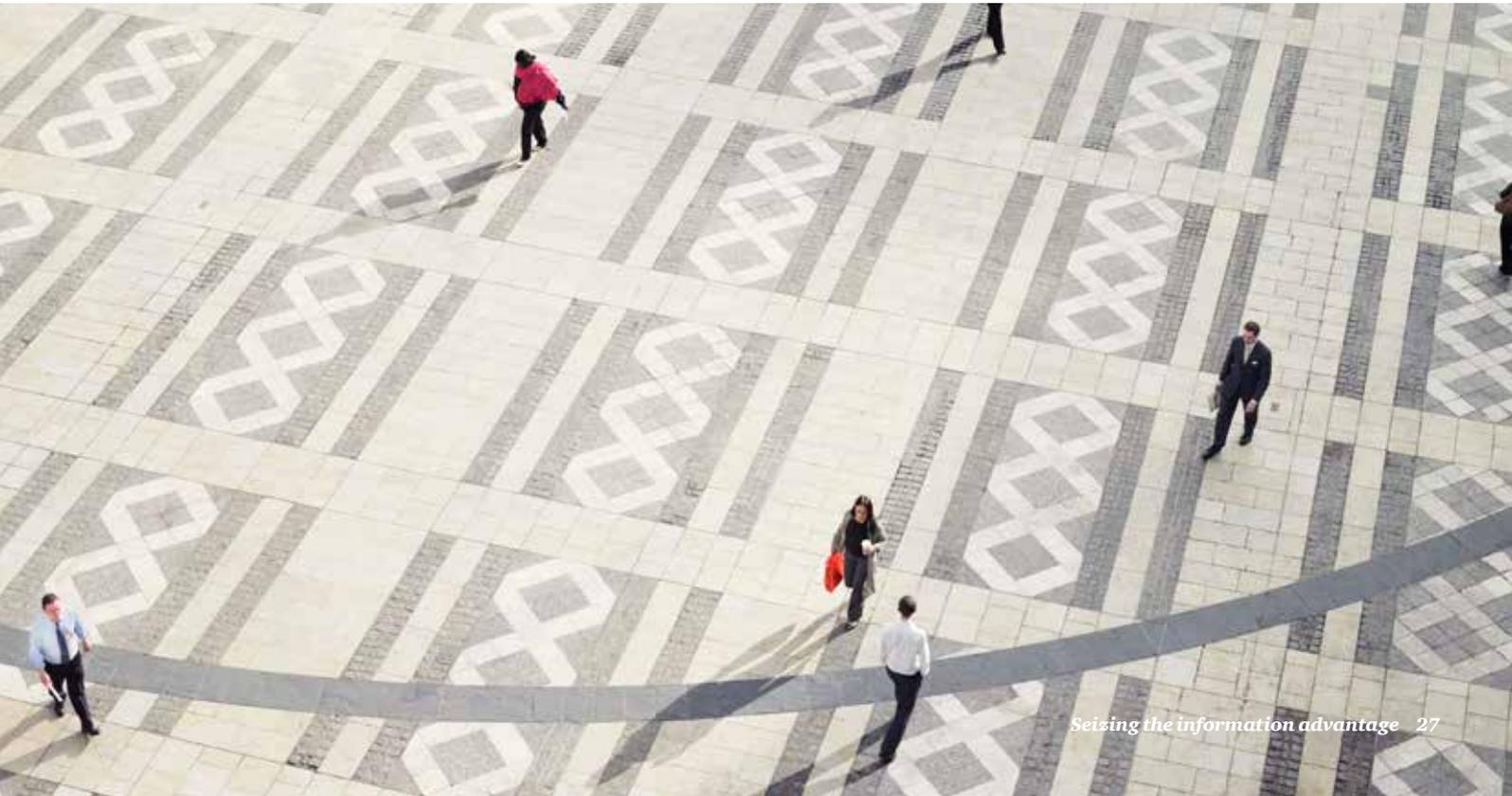
In order to support this paper, PwC and Iron Mountain developed a robust research methodology to validate the conclusions presented. This methodology has built upon the insights and lessons learned as part of the 2012, 2013 and 2014 studies. In the first instance, we worked closely with Iron Mountain to assess the themes which emerged from the previous studies, and using these insights developed a comprehensive questionnaire largely based on the key themes of the paper, in terms of the extent and effectiveness of businesses maximising, extracting and creating value from an organisational, technical and benefits perspective. This was supplemented with a series of additional sections to form a deeper understanding of why such practices pertained at both an overall and at the sector and country levels. The questionnaire was designed by PwC's in-house team of research specialists with expert insight and contributions from the PwC Risk Assurance team.

Who did we speak to?

In order to provide senior business perspectives and insights into the nature of maximising information value and the benefits that follow; respondents to the online/telephone survey were exclusively C-level Executives, VP's, Directors and Senior Managers. The online survey and telephone interviews were conducted proportionally with respondents from the key markets and sectors in order to allow for a detailed level of comparative analysis.

To develop as much insight from this study, we embarked upon a comprehensive 'mine' of the data by supplementing the top line findings with specific cuts, particularly in terms of market and sector specific trends. We also sought specific input from our PwC network subject matter experts from each of the European and North American countries represented in the research.

Building upon the approach undertaken in the previous years, we devised an information value index. This index was populated through applying a weighted average of each individual company response to 36 statements which were included in our study. The statements were grouped under three defined business areas of 'organisational capability', 'technical capability' and 'benefits realised' and categorised as shown overleaf.



Survey questions used as a basis to develop the information value index

Organisational capability

1. An information governance oversight body to discuss and agree on information value, strategy and execution
2. A detailed inventory showing what information is held, and where it is held
3. A method of recording how information moves through the business, identifying where information is most valuable
4. A way of digitising appropriate information assets
5. Controls and architecture in place to facilitate internal sharing of valuable information by those people who need it
6. A method of prioritising information based on its value to the business
7. A method of calculating the value of information to the business
8. A method of calculating the return on investment for your information
9. A data repository where valuable information is stored after it has fulfilled its original purpose
10. Accountability for information governance in your organisation sits with senior leadership
11. Awareness of information governance extends across the business
12. Sensitive and valuable information can be easily and securely accessed by those who need it
13. Those who need to access sensitive valuable information need to go via IT
14. Your organisation has a culture of using information to support decision making
15. Information is retained with the aim of extracting value in the future
16. Information is retained mainly to meet your compliance requirements
17. Avoiding data breaches and seeking value from information are both treated as priorities
18. You have ambitions to manage the value of your information assets, but currently do not have the resources

Technical capability

19. Data analysts with a specific aim of optimising and managing the value of our data
20. Data interpretation skills to understand and communicate decision-ready facts
21. Insight application skills to turn facts into campaigns, better processes and innovation
22. Data architecture skills
23. Records management skills
24. Data visualisation tools
25. Enterprise data management tools
26. Data quality tools

Benefits realised

27. Increased speed and confidence in decision making
28. Cost savings
29. Process improvement i.e. introducing efficiencies to existing processes
30. Improved productivity
31. Improved customer retention
32. Attraction of new customers
33. Improved sales to existing customers
34. Reduction in customer complaints
35. Ability to identify or predict internal 'bad' behaviours amongst employees
36. Improved employee engagement

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