THE ORGANISATIONAL RESILIENCE OF THE UK CONSTRUCTION INDUSTRY

MARCH 2018

A REPORT WRITTEN BY
PROJECT FIVE CONSULTING

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Are we built on a house of cards?

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FOREWORD

By the Co-Chairs of Constructing Excellence

The collapse of Carillion at the beginning of 2018 kick started a wide-ranging debate about the causes of the company's demise, the role of the government and the efficacy of public sector contracting arrangements, as well as the impacts on the wider supply chain.

The full effects will take some time to be felt across the industry, but it has shone the spotlight on the resilience of the UK's construction industry to withstand uncertainty and changes in the business environment. This research by Constructing Excellence member Project Five Consulting provides a timely evidence-based insight into one of the most pressing issues facing our industry. The report highlights that companies in our sector are more likely to fail than companies in other sectors of the economy. In the face of fundamental disruptions such as economic downturns or the failure of a major industry player, the impact on the sector is magnified. These findings provide additional impetus to pursue our agenda for sector transformation.

As this report says, resilience is the ability of organisations to respond to incremental change and sudden disruptions. We live in uncertain times, with the shape of our future outside the European Union unclear, weak economic growth and demand, as well as the ongoing skills crisis. The report highlights key issues which need to be addressed to embrace organisational resilience. Some of these are well understood structural weaknesses in the industry. Low levels of profitability, a fragmented supply chain, adversarial client/contractor/sub-contractor relationships, skills weaknesses, low digital maturity and low productivity combine to undermine the overall resilience of the industry. The UK faces a range of challenges and it relies on our industry as an enabling sector to address them, including the housing shortage and a c.£500 billion pipeline of infrastructure projects. The success of UK plc is reliant on having a responsive, productive and resilient construction sector to deliver.

We would like to congratulate Project Five Consulting in taking the initiative with this important topic. Their foresight and insight brings organisational resilience to the heart of the debate about the future of the industry. The report asks whether the industry is built on a house of cards. Our challenge is to build a more resilient industry upon which government and the rest of the economy can rely and to use this as a springboard to turn "words into action".

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delivered with bre

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THE AUTHORS

A word from the authors...

Project Five Consulting is a committed and active member of Constructing Excellence. We believe passionately in the improvement agenda that the movement has been championing for more than 25 years.

The UK construction sector is driven by a common goal to improve; mostly borne out of our societal aims to:

- reduce budget deficits and national debt,
- enable the economy, and
- deliver on our long-term commitment to achieving sustainable development goals.

Our mission has always been to support these strategic goals by helping our clients become more sustainable and resilient.

Part of our overall approach is to inform and encourage the debate within the industry to identify and address the key issues which we feel will shape the future.

This piece of work was carried out well before the extent of the Carillion crisis became apparent, and certainly without the foresight that the company would collapse. However, the collapse of such a large contractor makes our findings even more relevant.

The original inspiration for this research has come from several years of our working within the construction industry alongside the National Federation of Builders to implement change agenda and performance improvement. Together we have shaped knowledge and skills programmes in themes that are trending both nationally and internationally including lean, building information modelling, digital and corporate social responsibility. Our work within these areas has given us a unique insight into the vulnerabilities that this sector faces.

In early 2017, following a meeting of NFB's governing board, where there were raised concerns over economic uncertainty and the ongoing skills crisis, the question was simply put to us – *in light of these many challenges, how resilient is the UK construction industry?*

Tim Whitehill,
Managing Director

Dr. Andy Ainsworth,
Director

"Representing over 1,000 SME construction businesses, it is our vision to help our members build prosperous businesses and create optimal conditions for the construction industry. We have a growing concern that businesses in our sector are more susceptible to failure than in others, which the findings of this report have helped to validate. With such challenges ahead it is our duty to offer greater foresight and informed leadership to help shape a better future for our members. We are therefore delighted to have inspired this report".

Richard Beresford

Chief Executive Officer, National Federation of Builders

EXECUTIVE SUMMARY

The organisational resilience of the UK construction industry: Are we built on a house of cards?

The organisational resilience of the UK construction industry: Are we built on a house of cards? is a report written by Project Five Consulting. The purpose is to provide an overview of how resilient the industry is in relation to a range of internal and external factors. It explores the role of organisational resilience in enabling construction companies to adapt to changing conditions. It has been carried out in the context of BSI's recent work to develop a model for resilience and the associated British Standard, BS 65000.

Previous work commissioned by BSI and carried out by the Economist Intelligence Unit has provided a pan-sector perspective of how companies view their progress in embedding resilience. However, this report focuses specifically on the construction sector to enhance this evidence base.

The report is based on a combination of survey work carried out with a sample of organisations across the UK construction industry, and desk-based research to review the wider evidence base relating to resilience in the sector.

The research and the analysis of the data we collected was carried out during the second half of 2017. This was prior to the collapse of Carillion in January 2018. The repercussions of Carillion's demise are yet to be fully realised, in particular the likely ripple effect on organisations in their supply chain. Whilst this report addresses resilience on an industry-wide basis, taking account of a broad spectrum of potential disruptive influences, recent events mean that the findings take on a new perspective.

The findings provide an overview of industry perceptions of organisational resilience as well as the opportunities and challenges organisations have identified in addressing resilience. In reviewing the wider evidence base, the work has also uncovered some concerning issues around the industry's resilience.

The key findings of this work include the following:

There is an appreciation of the importance of organisational resilience, although there is a lack of understanding and knowledge across the sector.

Some 76% of organisations agreed that organisational resilience is a pre-requisite for long-term growth and 66% said it is a source of competitive advantage. However, 63% said that organisational resilience is inconsistently understood in their organisation and just over half agreed that it is relatively unknown across the sector. This suggests that there is a knowledge gap to bridge between awareness and a more in-depth understanding.

Companies see resilience as essential across a wide range of business functions, but they need help to understand and implement solutions.

Therefore, 93% see resilience as essential to meeting customer needs, for long-term growth (84%) and competitive advantage (73%). At the same time, 70% of respondents stated a need for assistance to improve their understanding and implementation of organisational resilience. Again, the results point towards a need to support the industry in developing its understanding of and approach to resilience.

There is a disconnect between how resilient companies think they are and other evidence around the resilience of the industry.

Our results suggest that companies are addressing the challenge of resilience. Therefore, 77% of respondents describe their approach to organisational resilience as either ‘embedded’ or ‘embraced’. Wider research shows that industry accounts for a disproportionate number of insolvencies relative to its contribution to the economy and as a proportion of total company numbers.

The results of our survey suggest that the industry appears to understand the benefits of organisational resilience, but that it also sees barriers to progress.

Some 75% identified a strong link between resilience and investment and companies identified long-term viability, reputation, improved financial performance and improved competitiveness as the most important benefits. Conversely, several barriers have been identified, including immediate financial goals being more urgent and a lack of budget. Beyond the financial aspects, the main issues were a lack of skills and knowledge as well insufficient management focus.

Our report has identified the construction industry as a key enabling sector for the wider economy in the UK.

A resilient sector should be good for UK plc. However, it has a higher rate of failure than the average across all industry sectors. This fragility is underpinned by structural issues that characterise the weaknesses in the industry. These are borne out by the recent collapse into liquidation of the country’s second largest construction company, Carillion. There are also economic, political and market uncertainties facing the sector alongside the disruptive forces of technology and increased regulation.

Based on these findings we have identified a range of priority actions which we believe will help the industry understand and embrace approaches to organisational resilience. These include strategic actions to address the structural issues which undermine the industry’s resilience, the skills gaps at operational and leadership levels and the evidence base relating to the industry’s approach to resilience.

INTRODUCTION

What is organisational resilience and why does it matter for construction?

There has always been uncertainty in the business environment and the construction industry is no exception. Competitors continually disrupt the market, customers' changing requirements demand innovation and regulatory changes drive higher standards and working practices. Political and economic forces shape the marketplace and technology is forcing change at a pace never seen before in the industry.

The recent collapse of Carillion is an example of where disruptive forces introduce significant uncertainty into the market and test the resilience of organisations affected.

Companies have always had to adapt to changing environments to survive and sustain competitive advantage in the long term. This means companies must be dynamic and agile to respond and adapt to rapidly changing environments. In doing so organisations need to have a strategic approach which helps them to identify potential changes, and organisational competencies which enable them to respond and adapt quickly.

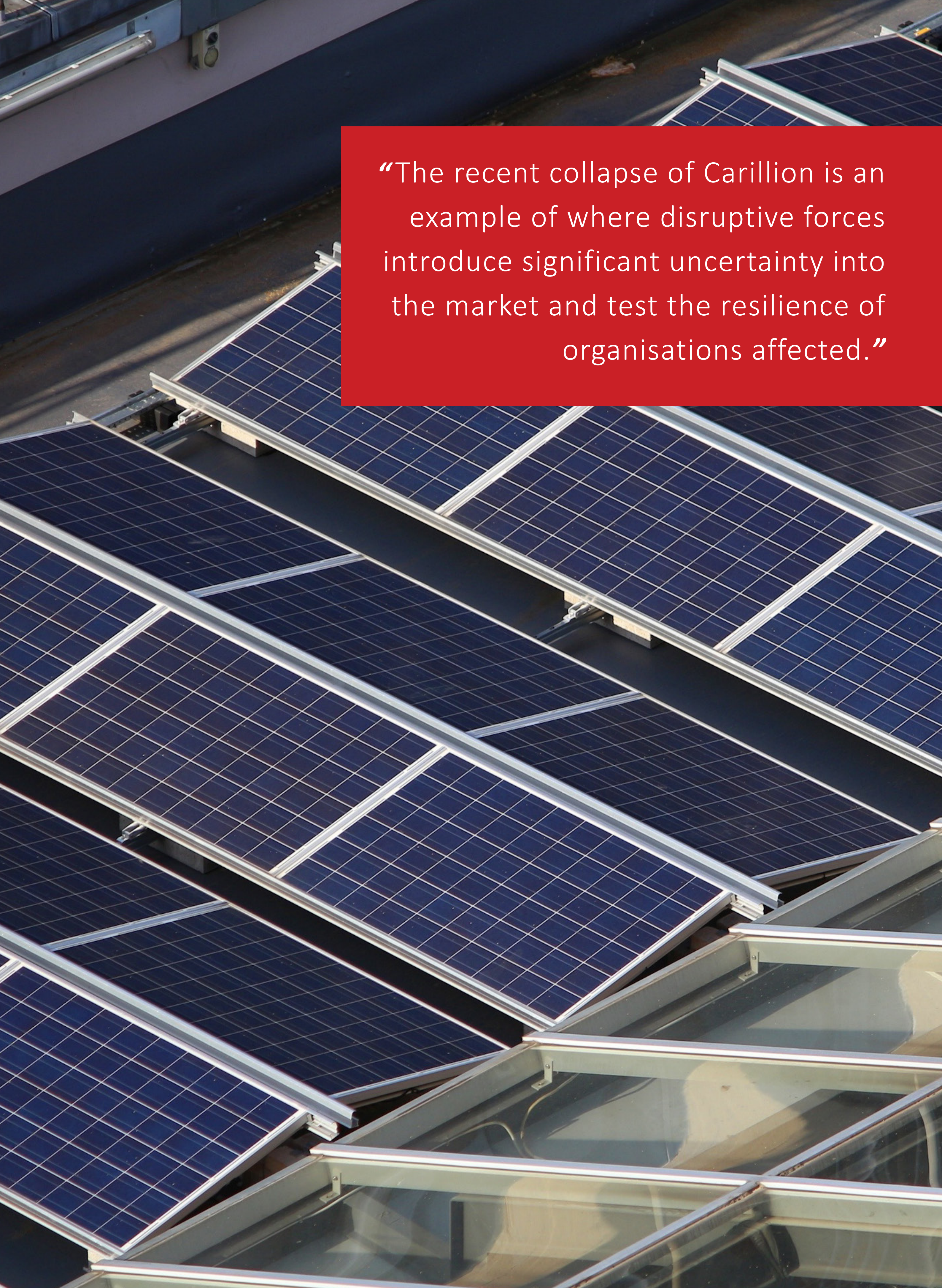
This is more widely known as organisational resilience- "the ability of an organisation to anticipate, prepare for, respond and adapt to incremental change and sudden disruptions in order to survive and prosper." It means organisations must be adaptable, competitive, agile and robust. And in doing so, they need strategic adaptability to handle changing circumstances; agile leadership to take measured risks with confidence and be responsive to opportunities and threats; and robust governance demonstrating accountability based on trust, transparency and innovation.

Whilst resilience is not a new management concept, there is a renewed focus and new approaches emerging to provide organisations with frameworks to embrace it. BSI has developed a model for organisational resilience and published a British Standard- BS 65000 – which gives guidance on achieving enhanced organisational resilience.

The findings of this report are based on a survey of 100 organisations in the UK construction sector undertaken in September and October 2017. The survey questions were based on a survey commissioned by BSI and delivered by the Economist Intelligence Unit (EIU) in 2015. The objectives of the survey were to provide a better understanding of the construction industry's awareness of, and approach to, organisational resilience in comparison to the pan-sector EIU report. This included an assessment of the key risks identified by companies and the benefits they perceive of addressing organisational resilience.

In addition to the survey, our team has carried out additional research into the factors which influence the resilience of the industry. This research has drawn on official government statistics, published academic research and wider industry publications. In combination, the survey and this wider research provide an overview of the way in which organisational resilience can be approached by the sector in the context of the challenges it faces.

In the light of the collapse of Carillion, we have also considered the potential fallout from the most seismic events the industry has seen since the recession following the financial crisis of 2008.



"The recent collapse of Carillion is an example of where disruptive forces introduce significant uncertainty into the market and test the resilience of organisations affected."

RESEARCH FINDINGS

Weathering the storm

A recent survey by global consultancy McKinsey[1] found that across industries and regions, most respondents agree that the world around them is changing, and quickly. Business environments are increasingly complex and volatile, with two-thirds of respondents saying their sectors are characterised by rapid change.

Whilst construction is a sector characterised by a resistance to change and a slow rate of evolution (in comparison to other sectors), there are a range of disruptive factors (both internal and external) which combine to cause incremental changes or sudden disruptions. These include the effects of Brexit and the wider economic uncertainty, poor industry procurement practices, increasingly complex client requirements, increasing regulation, BIM and digital disruption, skills shortages and skills gaps, and low rates of productivity. Since we originally compiled this report, we can add to this list the demise of Carillion. And these issues are by no means exhaustive.

[1] The keys to organisational agility. McKinsey, 2017
https://www.mckinsey.com/business-functions/organization/our-insights/the-keys-to-organisational-agility

A resilient industry is good for the UK economy

Construction is one of the largest sectors in the UK economy – with a turnover of £370 billion, contributing £138 billion in value added to the UK economy and employing 3.1 million people (9% of the total UK workforce). It is also an enabling sector. The industry provides the buildings and infrastructure upon which the rest of the economy and the public sector relies. A resilient industry, made up of resilient organisations, which is responsive and adaptable to the country's evolving needs is vital to support the growth of the economy and the delivery of public services.

A resilient industry and resilient organisations should, by definition, have strategic adaptability, agile leadership, and robust governance and leadership. Resilient organisations in turn should be more productive, more profitable, more innovative and able to provide greater value and efficiency for their customers. They should be focused on product (and service) excellence, a systematic approach to quality and reliable processes, as well as behaviours among their staff which support the delivery of the first two. These are the three essential elements of organisational resilience according to BSI's organisational resilience model.

Shaky foundations?

If a resilient construction industry is so important to economic growth, then why does it have such shaky foundations? As part of our research we found evidence which suggests that in comparison to other sectors of the economy, the construction industry isn't quite as resilient as it would like to think.

We asked a range of questions around companies' understanding of, and approach to, organisational resilience. Encouragingly, 76% of organisations agreed that organisational resilience is a prerequisite for long-term growth and 66% said it is a source of competitive advantage.

The results also superficially suggest that the companies responding to the survey understand and have a robust approach to organisational resilience. 32% of respondents described their approach to organisational resilience as 'embedded' and 77% indicated that it is either 'embedded' or 'embraced'.

However, 63% said that organisational resilience is inconsistently understood in their organisation. When asked to think about the sector as a whole, just over half agreed that organisational resilience is relatively 'unknown' across the sector, although they acknowledged it is becoming more important.

And in becoming more important for the industry, survey respondents identified organisational resilience as essential for meeting customer needs (93%), long-term growth (84%), information security (75%), competitive advantage (73%) and reputation (48%).

However, there is a disconnect between the survey results and the evidence around the resilience of the industry. Delve a little into official statistics and there are several sources of independent evidence which show that the construction industry accounts for a disproportionate number

	Strongly agree	Somewhat agree
Organisational resilience is a prerequisite for my organisation's long-term growth	31%	45%
Organisational resilience is currently a source of competitive advantage for my organisation	18%	48%
Organisational resilience is particularly important in my sector	20%	43%
Organisational resilience is relatively "unknown" in my sector but is becoming more important	19%	30%
Organisational resilience is inconsistently understood across my organisation	22%	41%

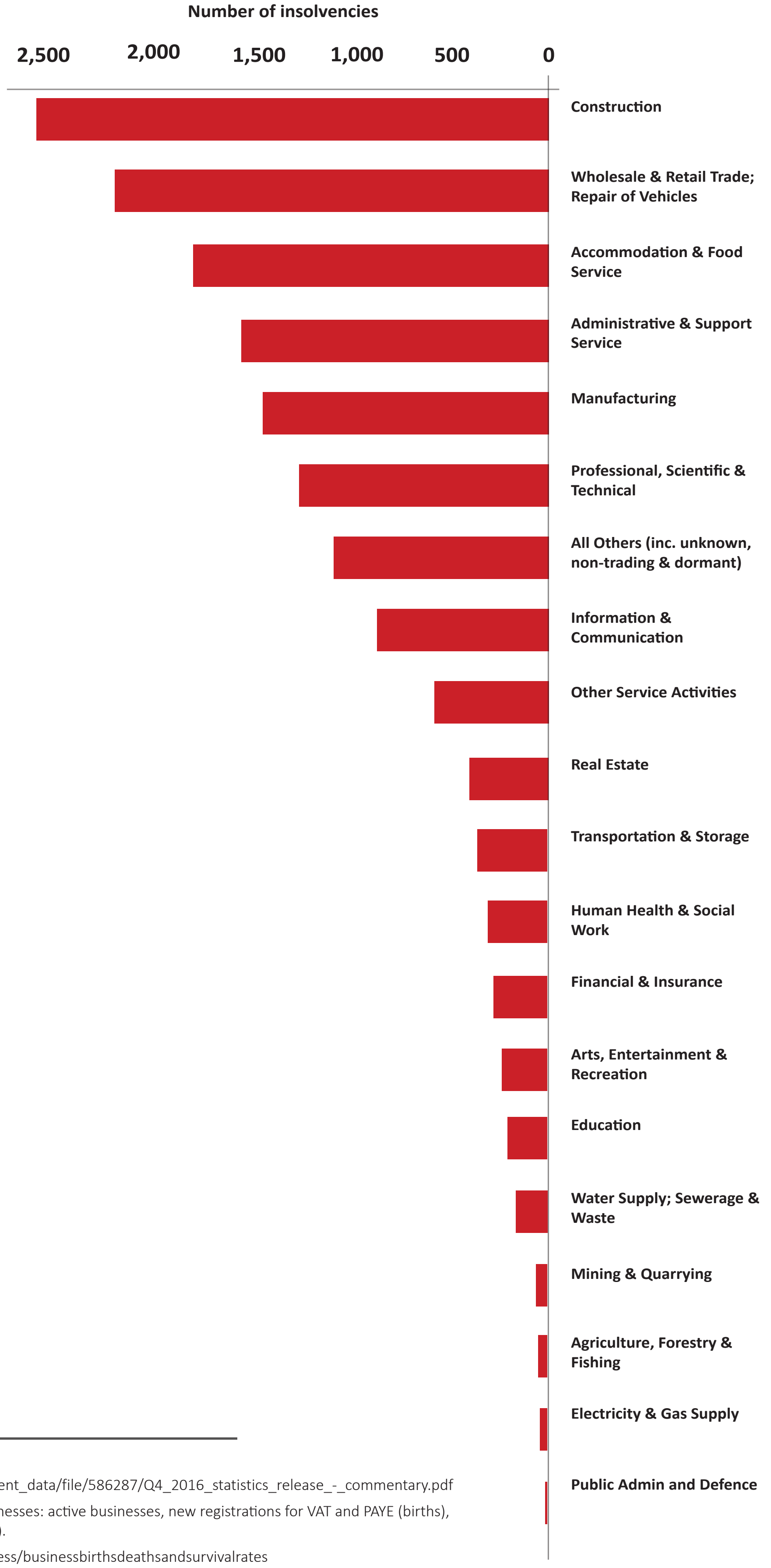
of insolvencies relative to its contribution to the economy and as a proportion of total company numbers. In essence, the evidence shows that construction companies are more likely to fail than companies in other sectors (Exhibit 1).

Exhibit 1

The most recent figures from the Insolvency Service[2] (which has taken over the collection of data from the Office for National Statistics) on the total new company insolvencies in England and Wales for the year ending Q3 2016, show that there were more insolvencies in construction than in any other sector. The total was nearly 2,500. When the data are aggregated by the ONS, they show that construction accounts for 16.5% of all insolvencies, but only 7% of economic output (by GDP) and 7.5% of total company numbers.

The ONS figures[3] specifically for the construction industry show that since 2013 the average annual number of 'business deaths' (companies which went out of business within 1-2 years) is 31,615. Given that the ONS put the total number of UK contractors at 296,000, the average annual 'death rate' in construction is 10.7%. Average annual death rate for SME/ large companies is 9.9%. These figures are slightly higher than the average business death rate across all sectors of 9.4%.

Total new company insolvencies in England and Wales by broad industry sector year ending Q3 2016[2]



[2] Insolvency Statistics – October to December 2016 (Q4 2016)
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/586287/Q4_2016_statistics_release_-_commentary.pdf

[3] Business births, deaths and survival rates. Demography of UK businesses: active businesses, new registrations for VAT and PAYE (births), cessation of trading (deaths), and duration of trading (survival rates).
https://www.ons.gov.uk/businessindustryandtrade/changestobusiness/businessbirthsdeathsandsurvivalrates

These figures suggest that construction companies are more likely to fail than companies in the other sectors of the economy. Even more concerning is that when the economy falters the impact is even greater. Most of the evidence we have assessed so far represents the situation during a period of relative economic recovery (albeit one in the context of the uncertainty caused by Brexit). By comparison, during the recession in 2009 which followed the financial crisis, the insolvency rate in construction was 18.8% compared to a total UK insolvency rate of 11.7%.

Since we conducted this research and analysed the data, the UK's second largest construction company Carillion went into liquidation, leaving thousands of sub-contractors with combined losses of potentially up to £1 billion. At the time of writing, it was too soon for any official figures which indicate the impact of the collapse on the industry at large. However, there is no question that the fallout from this event will provide further indication of the industry's resilience.

Despite the fragile recovery since the end of the financial crisis and in the aftermath of the EU referendum, it seems construction is still more vulnerable than other sectors. For example, a study by insurer RSA in association with the Centre for Economic & Business Research (2014)[4] indicated that overall business survival rates are lower than before the financial crisis. Furthermore, the construction sector is the worst performer with a five-year survival rate of just 44% compared to the all-industry average of 55%.

The general picture is one of a less resilient sector than others and one which is even less able to adapt in the face of economic adversity.

Indeed, our survey found that 70% of respondents stated a need for assistance to improve their understanding and implementation of organisational resilience and 75% identified a strong link with investment.

[4] Growing Pains: How the UK became a nation of "micropreneurs", 2014. RSA. https://www.rsabroker.com/system/files/SME%20Growing%20Pains%20White%20paper.pdf

More likely to fail but why?

In the face of this evidence, the focus needs to turn to the factors that construction needs to address through a more mature approach to organisational resilience. Research carried out by Lowe and Moroke (2010)[5] provided an in-depth analysis of insolvency in the UK construction sector and found that the industry has always tended to suffer a disproportionate share of both corporate insolvency and individual bankruptcy within Great Britain. The main factors underlying this were identified as:

- Low profitability;
- Cash flow;
- Supply chain issues: insolvency of a sub-contractor or client; and
- Fluctuating demand due to external factors such as economic uncertainty.

Research by Jagafa and Wood (2012)[6], from the University of Salford, supported by previous research by Jonathan (2002)[7] and Langdon (2012)[8], reported that cash flow shortages, falling profits, failure to pay suppliers, delayed and/or reduced valuation certificates, progress of works slowing, insufficient resources deployed on the project, falling asset values, excessive borrowing, or even boardroom tensions are signs of

Low profitability

Cash flow

Supply chain issues

Fluctuating demand

[5] Lowe, J G and Moroke, E (2010) Insolvency in the UK construction sector. In Egbu, C (Ed.), Proceedings 26th Annual ARCOM Conference, 6-8 September 2010, Leeds, UK. Association of Researchers in Construction Management, Vol. 1, 93–100.

[6] Jagafa, K and Wood, GD (2012). A turnaround model for construction company rescue: failure to success. Working Paper Proceedings Engineering Project Organizations Conference Rheden, The Netherlands July 10-12, 2012.

[7] Jonathan, R. (2002) The Corporate finance handbook. 3rd ed. Kogan Page. London

[8] Langdon, D. (2008) Construction Business Recovery News. Issue Number 1

company financial difficulty but are often overlooked by management. It was found that the top seven determinants of business failure in the construction industry are:

- Management Incompetence;
- Insufficient Capital;
- Lack of Business Knowledge;
- Fraud;
- Industry Weakness;
- Poor Technical and Technological Capacity, and
- Poor Relations with Clients and Government.

Our survey provided a snapshot of some of the other key risks against which organisations need to build resilience. Some of the common issues identified in wider research were also reflected in the responses received, such as macroeconomic uncertainty. However, the respondents also identified issues including disruptive competitors, reputational risks and threats to information security.

Considered as a whole, many of these factors are well known structural issues for construction. The survey results also highlighted some of the key issues which are new and emerging threats to the industry. Together they present a complex web of potentially disruptive influences.

Similar issues were identified by Accountancy firm Moore Stephens 2017[9] in a study which showed that 26% of construction companies currently exhibit warning signs that indicate they are at risk of failure. The analysis from Moore Stephens' 'Moore Data' service of construction companies (registered as limited companies with Companies House- Year end June 13th 2017), identified key factors for this as follows:

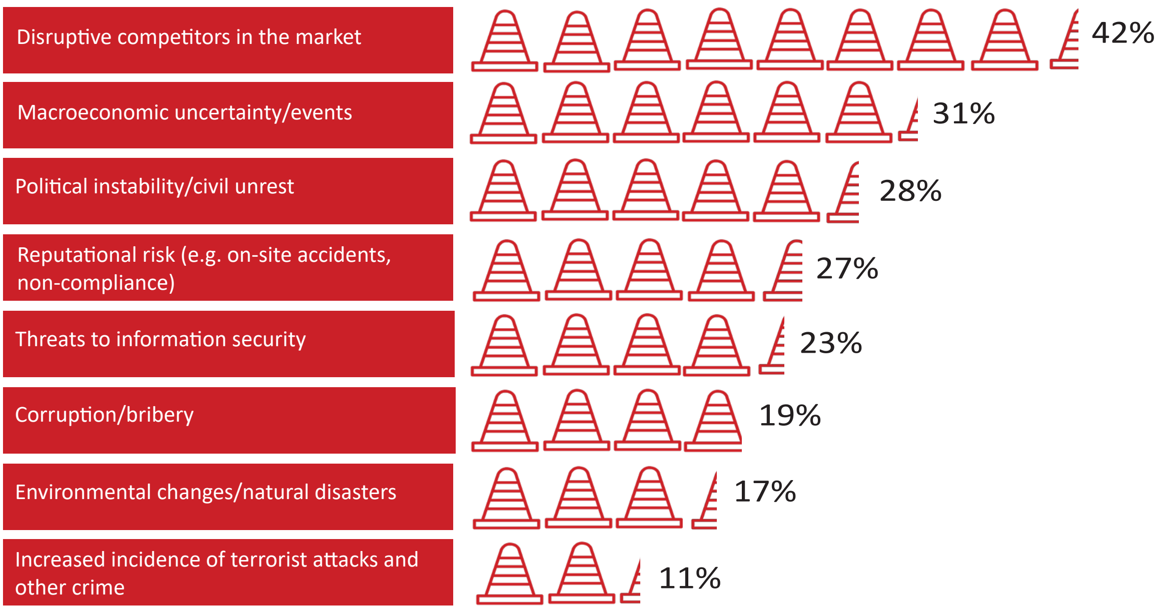
- Construction sector under pressure due to tightening margins as the fall in Sterling since the EU referendum has pushed up import costs, with smaller contractors' profitability among the hardest hit;
- Smaller companies can also find it harder to access bank lending for projects, putting cash flow under strain; and
- Construction companies could face further problems in the future if access to skilled labour becomes more limited following Brexit, pushing up wage bills.

[9] Analysis from Moore Stephens' 'Moore Data' service of construction companies registered as limited companies as per Companies House - Year end June 13th 2017. https://www.moorestephens.co.uk/news-views/july-2017/26-of-construction-companies-at-risk-of-going-bus

These figures are further supported by the Begbies Traynor Red Flag Alert[10] business survey, which showed that the number of construction companies in 'financial distress' grew 31% in the final quarter of 2017 compared with 12 months earlier.

Meanwhile credit information provider Creditsafe reported that the volume of 'bad debt' (debts which cannot be recovered) owed to construction companies rose to £12.7m in Q4 2017 – a £3.6m increase on the previous quarter. It also found that 539 industry firms collapsed in the final three months of the year, an increase on the previous quarter.

Fig 1 The biggest sources of risk which organisations need to build resilience over three years



[10] Begbies Traynor: Financial troubles soar among industry firms in Q4 https://www.constructionnews.co.uk/companies/financial/financial-troubles-soar-among-industry-firms-in-q4/10027379.article

By failing to prepare, you are preparing to fail

In the face of these macroeconomic, political and industry-specific headwinds, the case grows stronger for the sector to address its approach to organisational resilience. In developing its framework for organisational resilience, BSI has identified three core functional domains:

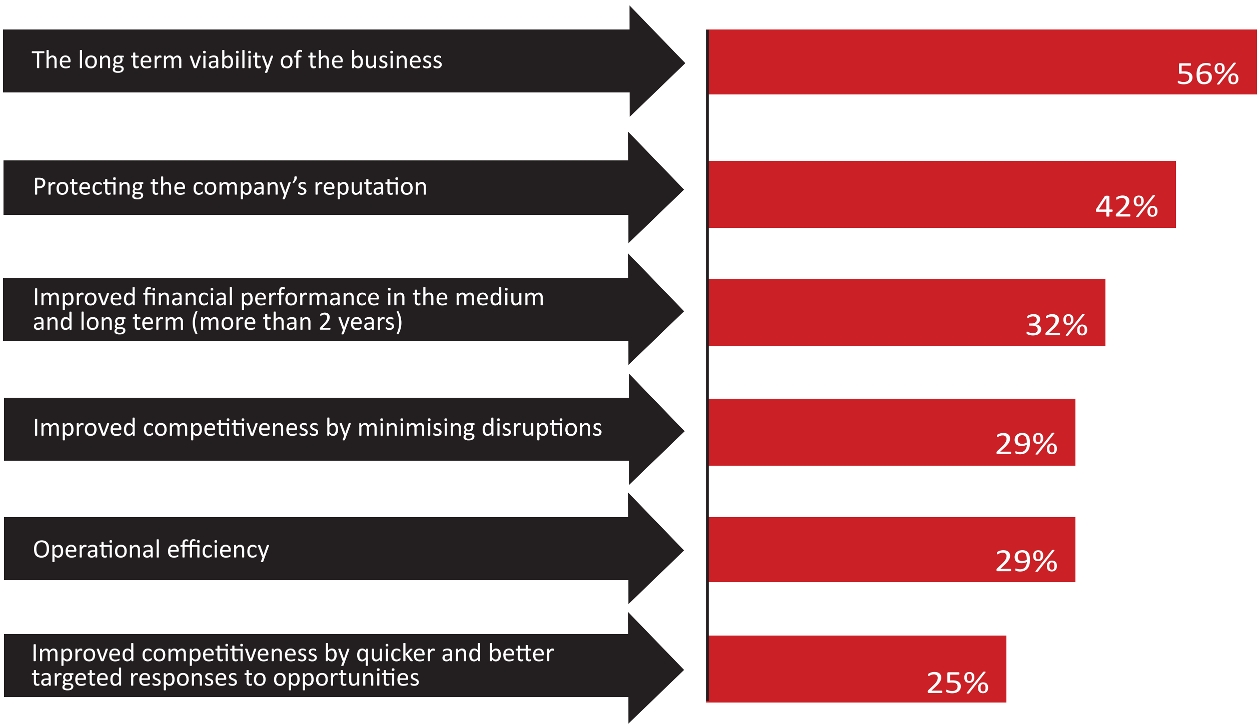
Operational resilience – focused on internal continuous improvement activities with a customer focus in mind.

Supply chain resilience – to quantify and minimise supply chain risks across all business operations.

Information resilience – managing information throughout its lifecycle securely and effectively.

The results of our survey suggest that the industry appears to understand the benefits of organisational resilience. The long-term viability of organisations and protecting reputation were by far and away the most important benefits identified by respondents. These were followed by improved financial performance, improved competitiveness by minimising disruptions and operational efficiency. That 75% of respondents to the survey made the link between resilience and investment indicates a groundswell of awareness, but with a roughly equal percentage stating they need assistance to understand and implement organisational resilience, there is still a long way to go. By failing to prepare, you are preparing to fail might be an old

Fig 2 The primary benefits of investing in organisational resilience



adage in business but one which is particularly apt in relation to organisational resilience. When we asked the industry what the main obstacles were to embrace organisational resilience, 29% stated they didn't see any. All well and good assuming these organisations are taking action. For the remainder, the following key obstacles were identified:

- Immediate financial goals are more urgent – 43%
- Inadequate budget – 27%
- Lack of skills or knowledge related to ensuring resilience/ business continuity – 27%
- Insufficient senior management focus on resilience – 19%
- Opaque operations or practices, making the effects of organisational actions towards increased resilience unclear – 14%

Despite the link made between investment and resilience through the survey, money appears to be the main obstacle to incorporating organisational resilience into business strategies and practices. One could argue that money is always likely to be the limiting factor, especially in an industry characterised by its low margins and apparent lack of resilience to economic shocks. What are perhaps more telling are the lack of skills or knowledge relating to organisational resilience and insufficient management focus alongside opaque operations or practices which appear to cloud the way.

Fig 3 The main obstacles to incorporating organisational resilience into organisations strategies and practices

	Responses
Immediate financial goals are more urgent	43%
Inadequate budget	27%
Lack of skills or knowledge related to ensuring resilience/business continuity	27%
Insufficient senior management focus on resilience	19%
Opaque operations or practices, making the effects of organisational actions towards increased resilience unclear	14%

Skills gaps and skills shortages, an ageing workforce and insufficient training and apprenticeship opportunities in construction are some of the critical factors which potentially could hold back growth in the sector. Recruiting, and indeed retaining, a sufficient pool of talent has been a challenge for construction for some time. This was compounded following the recession precipitated by the financial crisis, when the industry lost an estimated 400,000 people, many of whom did not return. Further disruption seems likely following the UK's exit from the EU. RICS has estimated that the UK construction industry could lose almost 200,000 EU workers post-Brexit should Britain lose access to the single market. Furthermore, recruitment of overseas workers is likely to be constrained by tighter immigration controls once freedom of movement stops. RICS has warned that this could undermine the delivery of the UK's £500 billion infrastructure pipeline.

Therefore, despite the initial survey results suggesting that organisations have a robust approach to organisational resilience, the industry is perhaps less prepared than it would like to think it is.

CONCLUSIONS

Looking ahead...

A resilient construction sector is good for the UK economy. As an enabler for other industries, the wider economy and the public sector, a resilient construction sector should in theory be more productive, more profitable, more innovative and thus better able to deliver value and efficiencies to its clients. These are all things which are at the heart of the ongoing focus on improvement in the sector.

In the face of ongoing headwinds which are driving incremental change, and which also have significant potential to cause sudden disruptions, our research suggests that the industry is vulnerable. Organisations in the sector are more likely to fail than in other sectors and it is an industry more likely to be impacted by economic shocks, such as the 2008 financial crisis and the subsequent recession. The current economic slowdown in the aftermath of the Brexit vote appears to be adversely affecting construction. Forward orders are reported to be weak as a result of uncertainty in the economy, which is leading clients to hold back on investment decisions.

The effects of Carillion's collapse, both up and down the supply chain, are yet to be fully understood. However, it will be a real test of the industry's resilience to respond to sudden shocks. This will include the impacts on joint venture partners on large projects, which are reported to run into the tens of millions of pounds on certain schemes.

More importantly, the aftershocks throughout Carillion's supply chain, which includes tens of thousands of specialist sub-contractors, are likely to be significant. Coupled with historic industry weaknesses, a looming skills shortage and continuing volatility politically and economically this is an industry which would benefit from a more focused approach to adopting organisational resilience.

The research has thrown up some dichotomies in the industry's perception of its approach to organisational resilience. Whilst more than three quarters of our respondents claimed they were on top of organisational resilience, nearly as many respondents stated a need for assistance to improve their understanding and implementation of organisational resilience. And despite 75% of respondents identifying a strong link between resilience and investment, immediate financial goals and inadequate budget were the main obstacles to embracing organisational resilience.

Encouragingly, the survey also uncovered a range of perceived benefits across the industry, including improved competitiveness, improved financial performance, protecting reputation and operational efficiencies. Conversely, there is a perception that there is insufficient senior management focus on resilience, a lack of skills or knowledge related to resilience and opaque operations or practices,

“Encouragingly, the survey also uncovered a range of perceived benefits across the industry, including improved competitiveness, improved financial performance, protecting reputation and operational efficiencies.”

“Conversely, there is a perception that there is insufficient senior management focus on resilience, a lack of skills or knowledge related to resilience and opaque operations or practices, making the effects of organisational actions towards increased resilience unclear.”

making the effects of organisational actions towards increased resilience unclear.

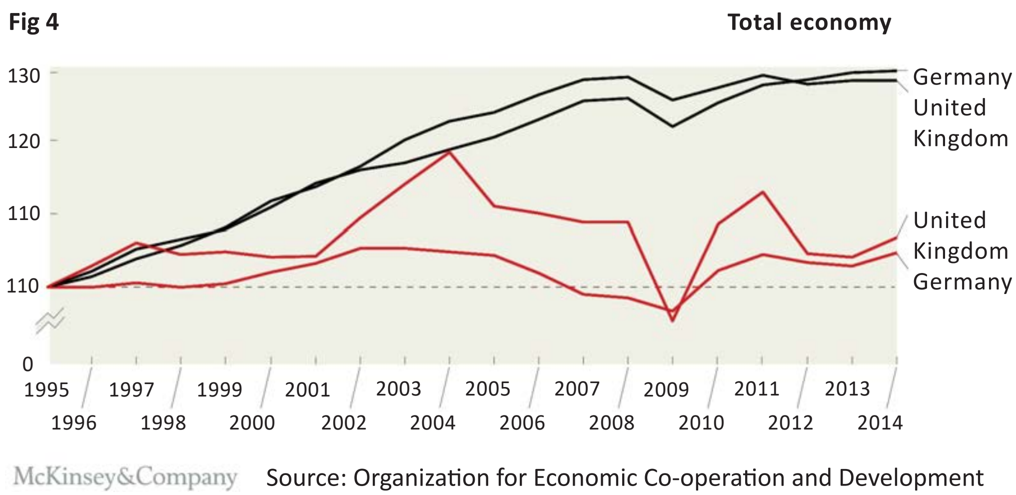
BSI's own research indicates that to date approaches to organisational resilience have focused on risk prevention and recovery. Risk assessment and management is a familiar concept in the context of health and safety as well as project delivery for this industry. Organisational resilience, however, goes well beyond our traditional concept of risk management to encompass a more holistic view of business health and success. A resilient organisation must focus on the long term and learn from experience by embracing a culture of continuous improvement.

Resilience is partly the ability to adapt to dynamic environments and sustain competitive advantage in the long run. To do this companies need Dynamic Capabilities – "[the] ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments."

However, resilience is not a defensive strategy. In its white paper *Organizational Resilience: harnessing experience, embracing opportunity*[11], BSI identifies organisational resilience as a forward looking, strategic enabler. It requires strategic leadership, agility and robust governance. There are many other building blocks which also need to be in place and factors that matter, but it is leaders who place these building blocks and drive these factors.

Leadership needs to come from many sources. We need the leaders within construction firms to understand the importance of their role in building resilience into their business strategies and business processes. They need to be supported in developing strategic adaptability and adopting the principles of change management. These leaders also need to support those who will be responsible for the day-to-day

Fig 4



Source: Organization for Economic Co-operation and Development

[11] BSI: Organizational Resilience: harnessing experience, embracing opportunity. https://www.bsigroup.com/en-GB/standards/benefits-of-using-standards/reducing-risk-to-your-business-using-standards/howard-kerr-organizational-resilience-article/

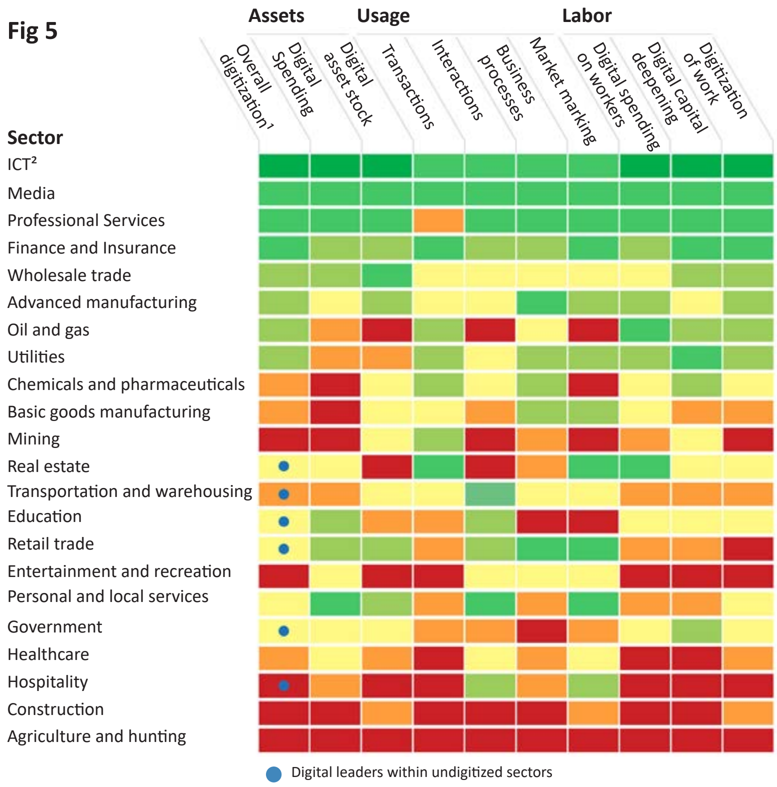
management of these key resilience responsibilities.

In addressing and embracing organisational resilience, the industry needs also to address and overcome its own structural issues. These include low levels of profitability, a fragmented supply chain, adversarial client/contractor/sub-contractor relationships, skills weaknesses, low digital maturity and low productivity. The lessons learned from the collapse of Carillion will no doubt further expose some of the weaknesses in the industry and its susceptibility to sudden disruptions. The McKinsey Global Institute *Industry Digitization Index*[12] places construction one place above agriculture in its digital maturity (Figure 5) and data from the OECD (Figure 4) shows that productivity in construction has not kept pace with other sectors. Productivity in the sector remains stubbornly low – even in the face of the broader productivity challenges we see in the UK.

However, the potential for digitisation is a huge opportunity for the sector. The UK government's mandate for Level 2 Building Information Modelling and its ongoing commitment to work towards Level 3 is forcing change at an unprecedented rate. It is a good example of where incremental change is driving companies to adapt and one which should enable greater efficiencies in a sector not known for its productivity gains.

Digitisation of construction should deliver operational efficiencies for companies and in return deliver better margins, which as this research has shown, is one of the industry's weaknesses. Couple digitisation with the government's recently announced industrial strategy, which contains a specific sector deal for construction, and there are significant opportunities as well as threats that the industry needs to respond to. These are examples of opportunities that could

Fig 5



[1]Based on a set of metrics to assess digitization of assets (8 metrics), usage (11 metrics), and labor (8 metrics).
[2]Information and communications technology.

Source: AppBrain; Bluewolf, Computer Economics; eMarketer; Gartner; IDC Research; LiveChat; US Bureau of Economic Analysis; US Bureau of Labor Statistics; US Census Bureau; McKinsey Global Institute analysis

McKinsey&Company

[12] McKinsey: Which Industries Are the Most Digital (and Why)? https://hbr.org/2016/04/a-chart-that-shows-which-industries-are-the-most-digital-and-why

be embraced through approaches to organisational resilience which enable the responsiveness required.

These are strategic issues that need leadership from government both as a policy maker and as a client. The government's recent Industrial Strategy includes a new Sector Deal for Construction which identified a new National Retraining Scheme that supports people to re-skill, beginning with a £64m investment for digital and construction training. It also focuses on bringing together the construction, digital technology, manufacturing, materials and energy sectors to develop and commercialise digital and off-site manufacturing technologies. These in themselves are potential disruptors and the industry needs to be enabled to respond. Whilst a Sector Deal is welcome, and in theory will provide some of the building blocks to underpin greater productivity and strength in the sector, its effects are unlikely to filter down to the backbone of the industry.

As with any study of this type we are left with as many, if not more, questions than answers.

Organisational resilience cannot be viewed in isolation, nor is it a silver bullet to all the industry's challenges. Many of the factors that have been highlighted in the report are well known structural issues for construction and present a complex web of potentially disruptive influences. Many of these issues need to be addressed at a more strategic level. At the same time, however, organisations need to be able to identify these challenges and to adapt and respond effectively. Resilience also needs to be seen in the context of opportunity as well as threat and the potential it offers to positively respond to incremental changes which are driving improvement and efficiencies in the sector.

Our work provides a snapshot of some of the issues that the industry faces around organisational resilience. There is clearly more work to do to map the landscape of the industry in relation to this emerging area of business improvement. Our initial findings suggest that there are some key priorities that in the short term would help the industry put organisational resilience into context and provide a firmer footing for a more coherent and industry-specific approach. These priorities will require a co-ordinated approach, embracing the industry, government, industry bodies, and those tasked with shaping the skills agenda.

"There are many other building blocks which also need to be in place and factors that matter, but it is leaders who place these building blocks and drive these factors."

Therefore, our initial priorities and recommendations include:

- Further research into the resilience of the industry and the characteristics which appear to make it more vulnerable to shocks and the reasons why the failure rate is higher than other industries.
- Learn the lessons that will emerge from the collapse of Carillion and the impact on the industry as a whole.
- Develop a more robust evidence base of the benefits to the industry of embracing approaches to organisational resilience to address concerns over the required investment.
- Develop industry-specific approaches which enable construction companies to identify and understand the external influences that threaten the sector as well as those that are driving positive change.
- Develop approaches to support leaders in construction to up-skill them and enable them to provide the strategic leadership required to drive organisational resilience, including the abilities to identify the sudden shocks and incremental changes.
- Develop industry-specific approaches to enable construction businesses to build resilience into their business plans and their business processes in line with the BSI's model and BS 65000.
- Identify the key knowledge gaps and the skills needed in relation to organisational resilience to develop a roadmap to address these shortfalls.
- Leadership from government to continue to place the strategic priorities for industry improvement in the context of the resilience of the industry, including skills and training, digitisation, procurement approaches, pipeline visibility and approaches to collaborative working led by clients.

A resilient industry is good for clients, for the workforce, for communities and for the economy. Organisational resilience is a real opportunity to enable the industry to weather the storm, grasp opportunities as they arise and put itself onto a firm footing for the future.

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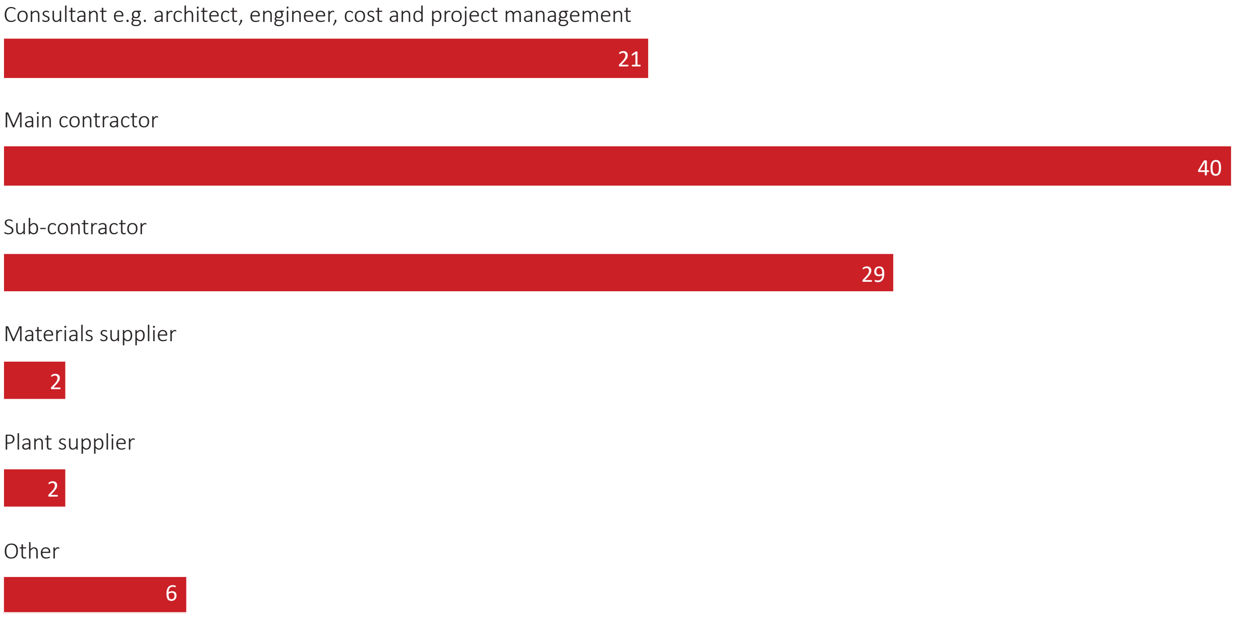
APPENDIX

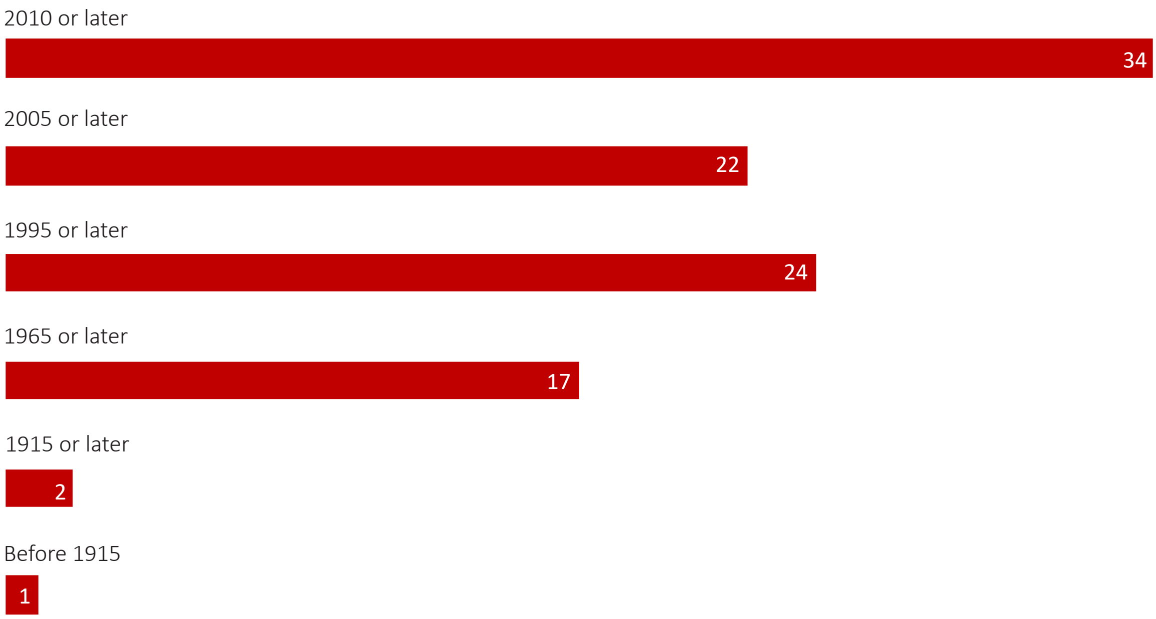
Project Five Consulting conducted this survey across 100 senior business managers and executives based within UK construction organisations in September 2017.

The results of the survey are included in the following pages. We wish to thank all participants who took part in this survey.

1. What is your role in the construction sector? (%)

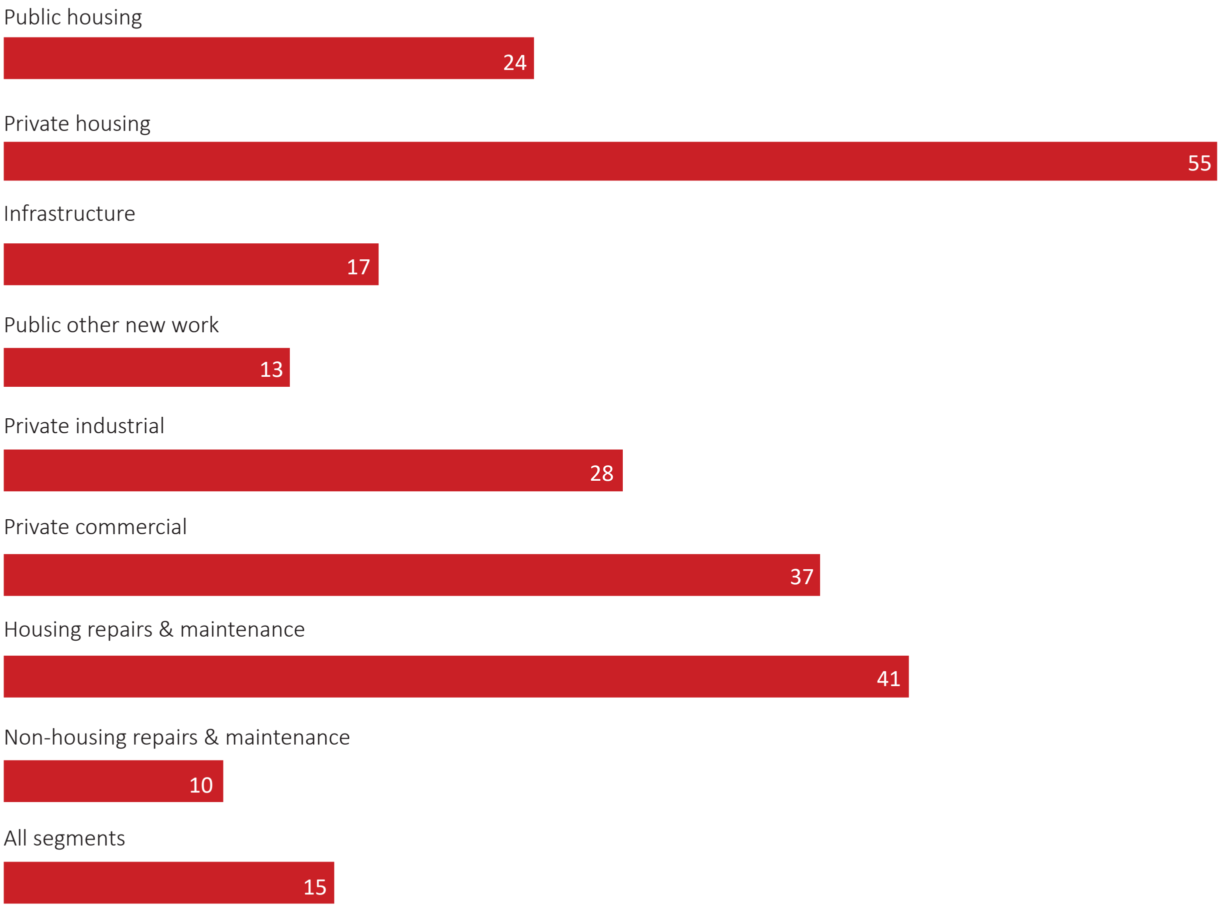


2. When was your organisation established? (%)



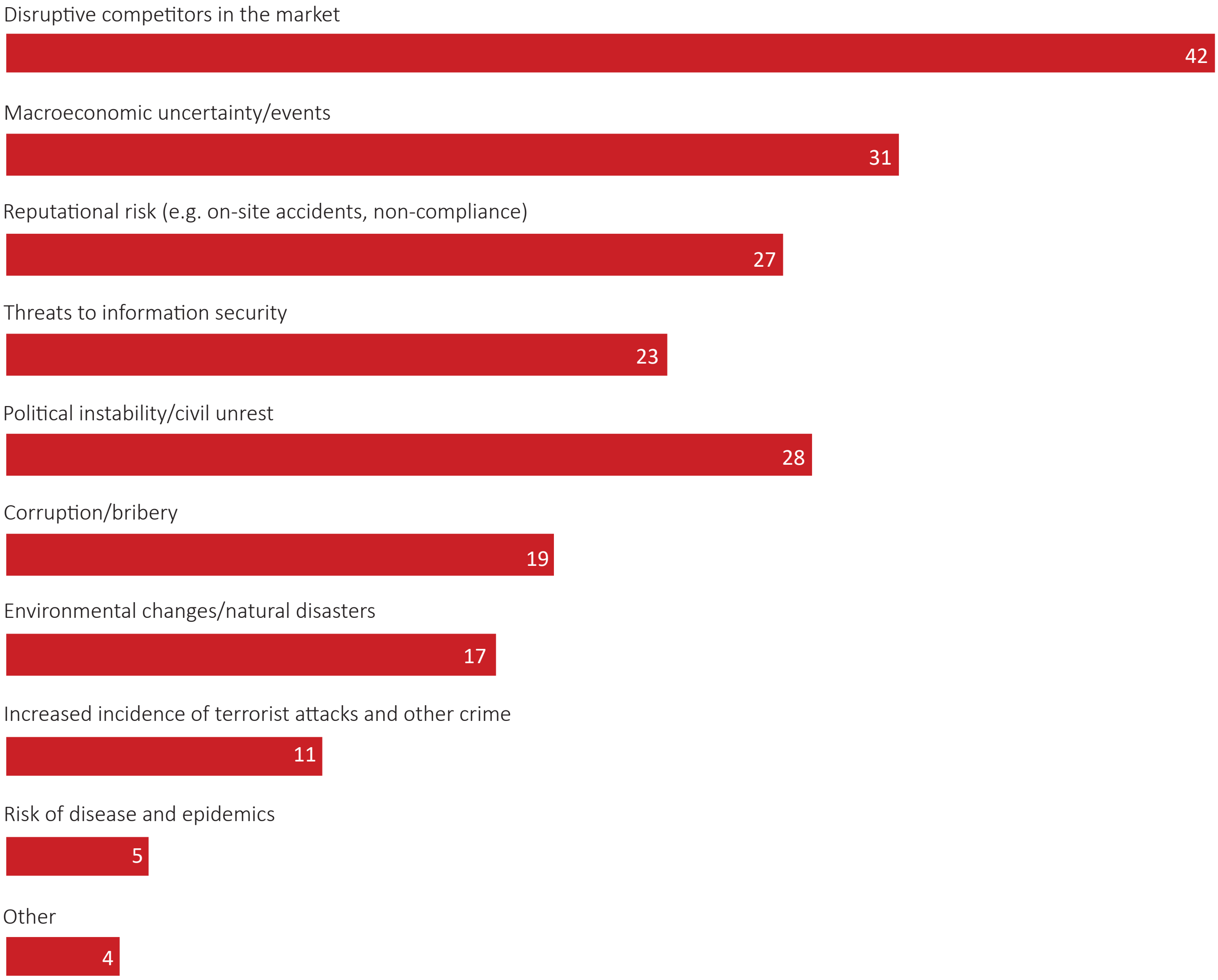
3. How many people do you directly employ? (%)

4. What are your primary market segments? (%)

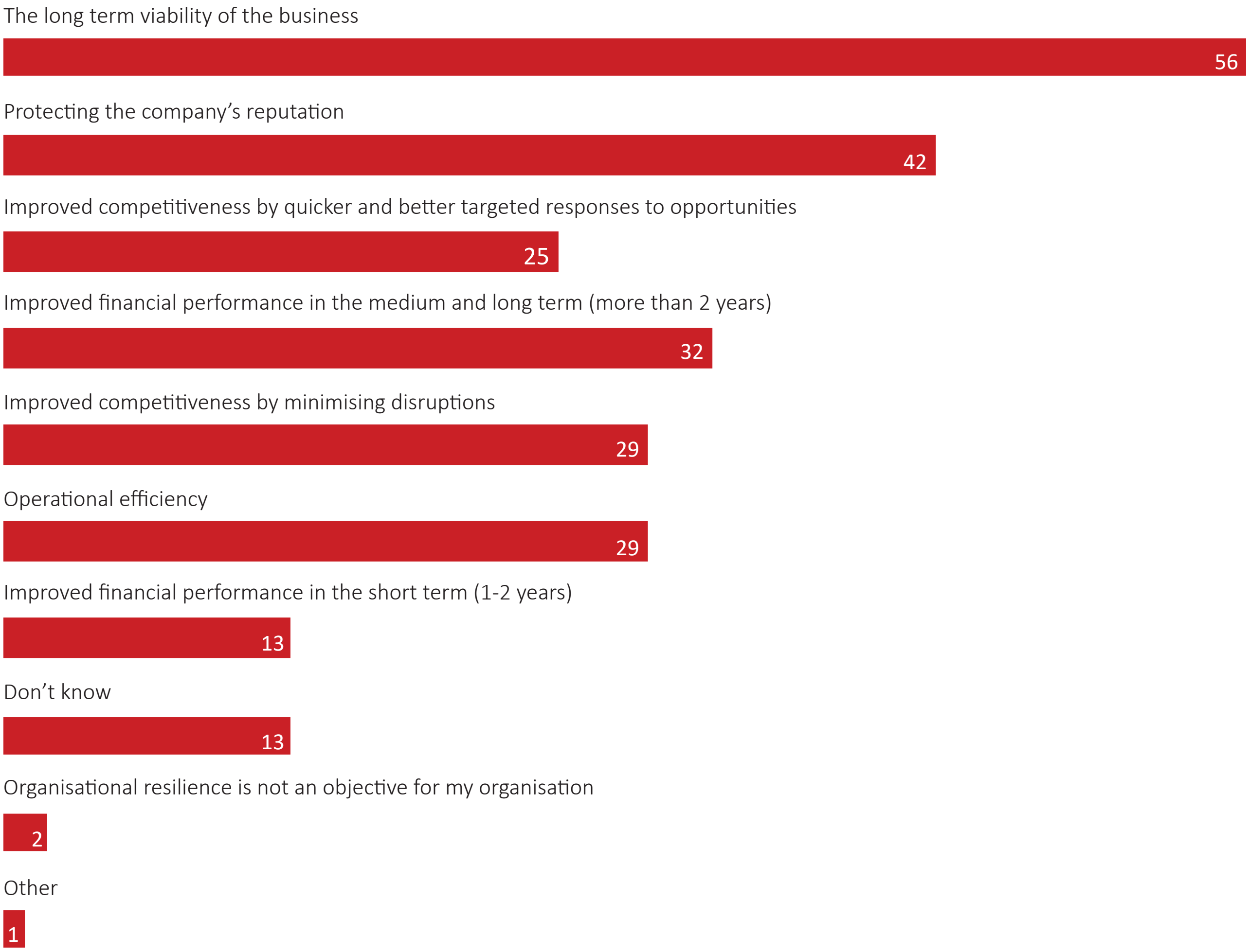


5. Which of the following best describes your organisation's approach towards organisational resilience? (%)

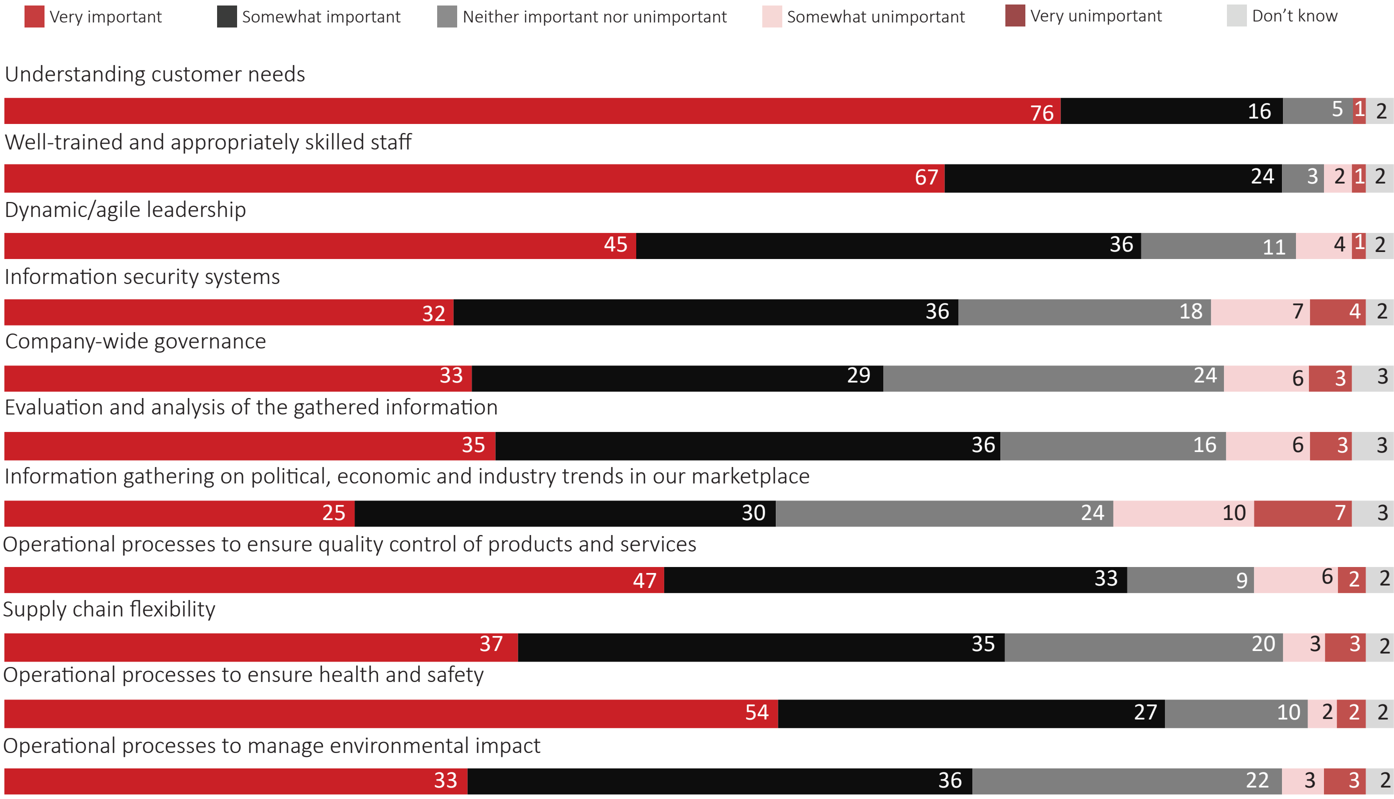
6. In your opinion, what are the biggest sources of risk against which your organisation needs to build resilience over the next three years? (%) *Please select three.*



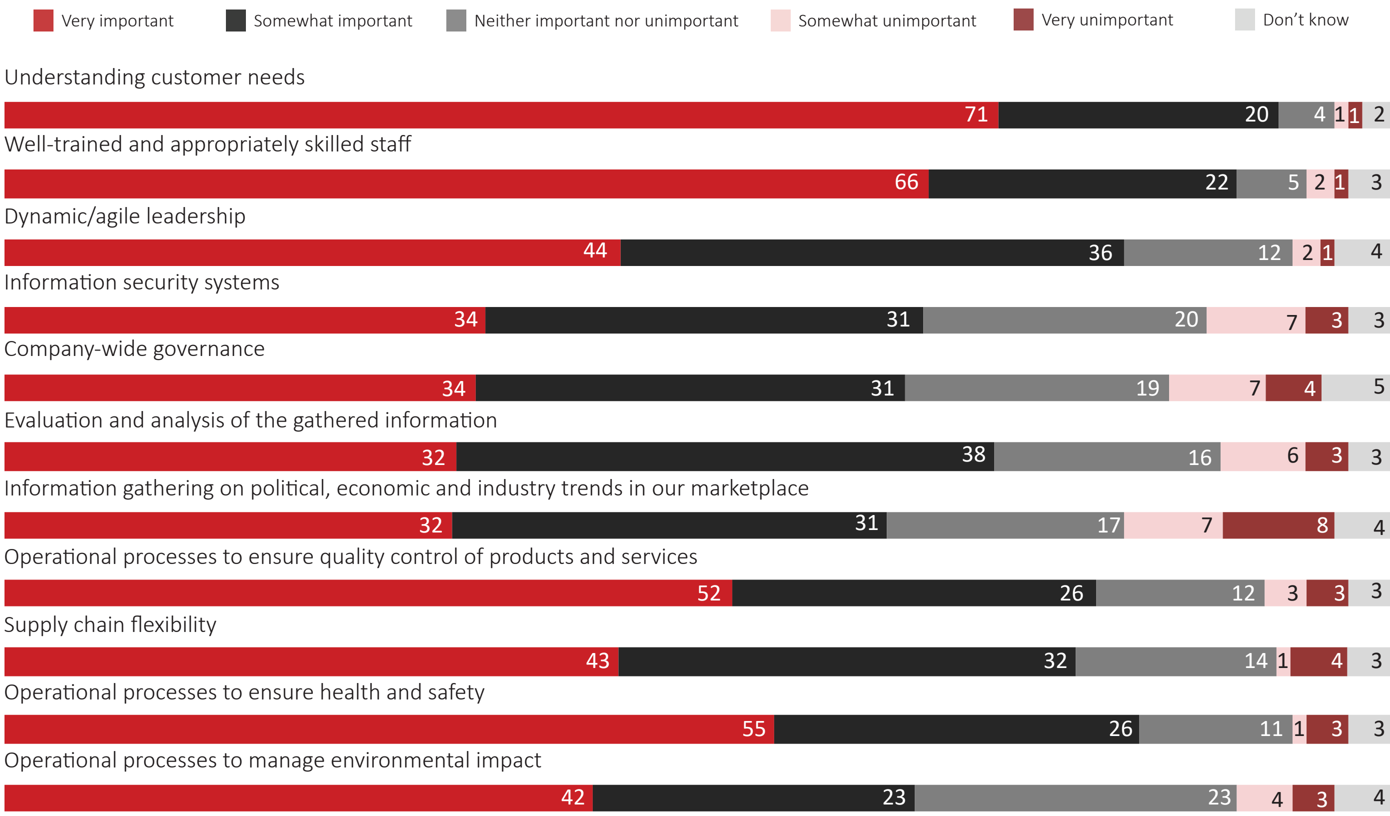
7. What if any, do you believe are the primary benefits of investing in organisational resilience? (%)
Please select your top three.



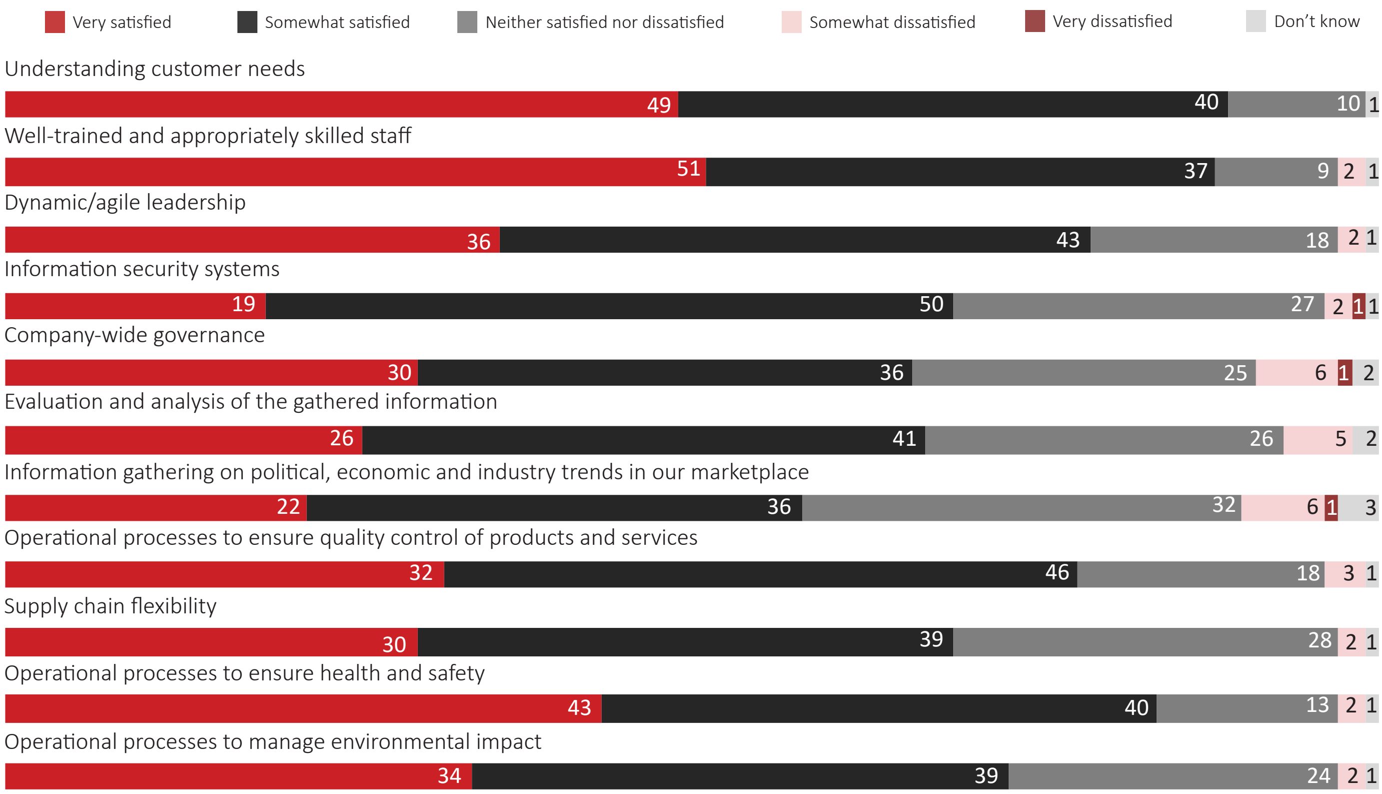
8. In your view, how important are each of the following factors in ensuring the organisational resilience of your company? (%)



9. How important do you believe the following priorities will be for your organisation in three years' time? (%)



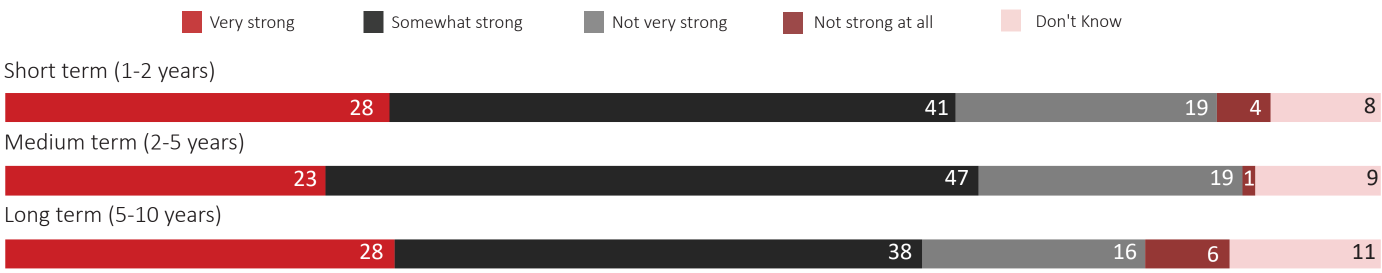
10. To what extent are you satisfied that your organisation currently meets the following priorities? (%)



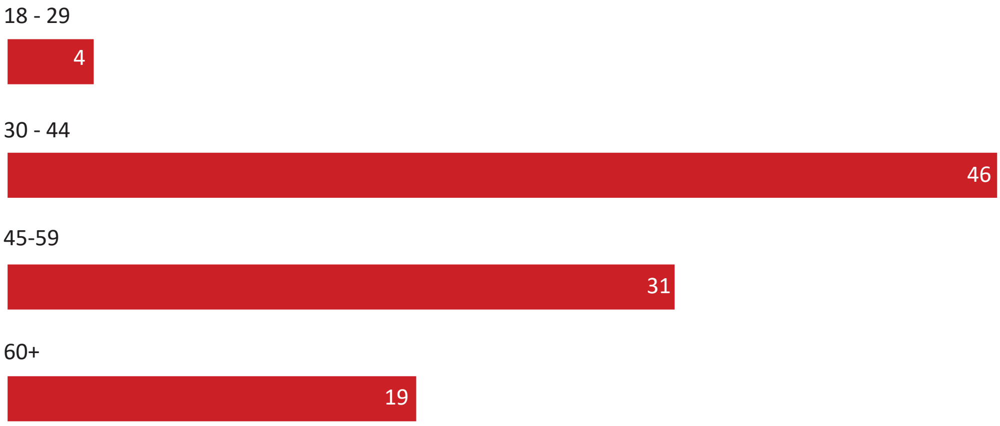
11. To what extent do you agree with the following statements? (%)

12. Which, if any, of the following are the main obstacles to incorporating organisational resilience into your organisation's strategies and practices? (%) *Please select up to three.*

13. How strong, if at all, do you believe the causal link between your organisation's investment/ commitment to organisational resilience and its financial performance to be over the short, medium or long term? (%)



14. What is your age? (%)



15. What is your gender? (%)

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www.resilienceinconstruction.report