2020
Mainframe Modernisation
Business Barometer Report

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Preface

Mainframes are ubiquitous in the workings of central government. Large and powerful, they were introduced to handle enormous and complex workloads. However, a crisis such as the current pandemic, has swiftly exposed shortcomings and limitations. Although the dangers of not modernising have long been clear – high costs, increasing skills shortages, a lack of integration and poor fit from a sustainability perspective – recent events have put this into sharper focus. A surge of Covid-19 related unemployment claims in New Jersey, USA meant the Governor had to make an emergency call for COBOL programmers due to the lack of IT personnel versed in the application's code.

The benefits of modernising IT for government organisations are becoming more and more self-evident. In this 2020 Mainframe Modernisation Business Barometer Report, based on global research of more than 400 large enterprises in Europe and the US, 33% of respondents told us that modernising had enabled them to be more reactive to market changes. This agility is exemplified in the project Advanced recently undertook with The Department of Work & Pensions in the UK. Its Job Seeker's Allowance application system was replatformed to a modern operating system, which proved critical in supporting the claims that rose sharply as a result of the pandemic. The applications are now running over 50% faster which has improved the working lives of 50,000+ of its staff, as well as providing a more responsive service for over 18 million UK citizens.

Public services are always under pressure, but the need for efficient processes and real-time, connected information has never been greater. In line with guidance from The Technology Code of Practice, 54% of CIOs and Heads of IT we spoke to said the ability to integrate was their top reason for modernisation. And 98% reported that they have active plans to move legacy applications to the Cloud in 2020. As technology evolves at pace, so does the appetite to modernise underpinning mainframes. A significant 60% of organisations featured in this report plan to start a modernisation project in the next 12 months. It seems there are compelling reasons to do so.

- Chuka Umunna

Introduction

The 2020 Mainframe Modernisation Business Barometer Report explores the global trends in the mainframe market, the challenges facing organisations and the case for application modernisation among large enterprises with annual revenues over $1 billion.

The results demonstrate that digital transformation and agility are huge drivers for organisations when it comes to modernising their legacy systems – and also highlights the risks associated with not modernising. In fact, an overwhelming majority of companies surveyed believe they will be left behind by their competitors if they fail to modernise.

State of Business

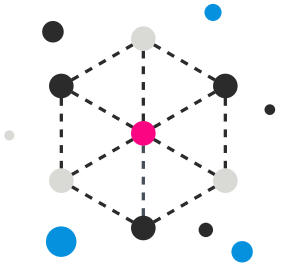
4

On average, organisations are running four mainframes

85%

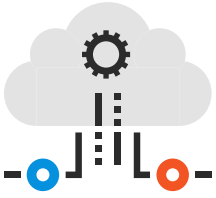
prefer agile over waterfall development

Motivations for Change



60%

strongly agree they will be left behind competitively if they fail to modernise



98%

have active plans to move legacy applications to the Cloud in 2020

The Highlights

Accelerating Innovation

33%

say modernising has allowed organisations to be more reactive to market changes

Organisations could save

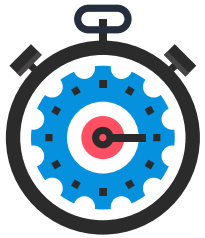
$31 million

in 12 months by modernising

Leadership

74%

want to see value for money when selecting a modernisation partner



74%

of organisations have started a modernisation program but have failed to complete it

"COBOL maintenance resources are becoming increasingly hard to find, so application modernisation puts us in a position to work with a global community of young talented developers."

- Thanos Kaponeridis, CEO, Aerosoft Systems

State of Business

Mainframes are essential in today's global business landscape – with organisations across a range of industries relying on them to run business critical applications. Research shows that 71% of the Fortune 500 depend on mainframes for their business-critical transactions and data processing. According to IBM Institute for Business Value analysis, so do 92 of the world's 100 largest banks.

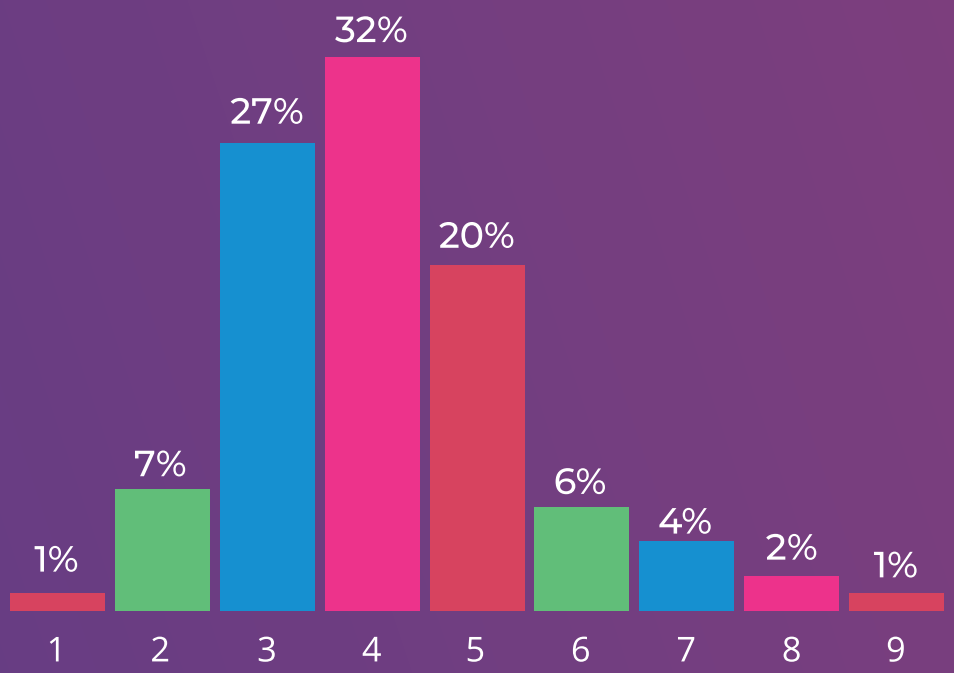
Mainframes can handle mission-critical processing because they are large and powerful machines built to handle enormous workloads. According to IBM, mainframes can also process up to one trillion web transactions daily, while providing the highest levels of security and reliability.

However, many of the mainframes we see today are in need of modernisation as businesses move ahead with their digital transformation plans – and there are a variety of reasons for this. As older generations of workers begin to retire, the skills required to maintain and run these legacy applications on mainframes are disappearing. What's more, there are recognised pitfalls like the cost of owning a mainframe and, in addition to these costs, there are serious limitations with legacy databases which often lack the design considerations to integrate with modern technologies.

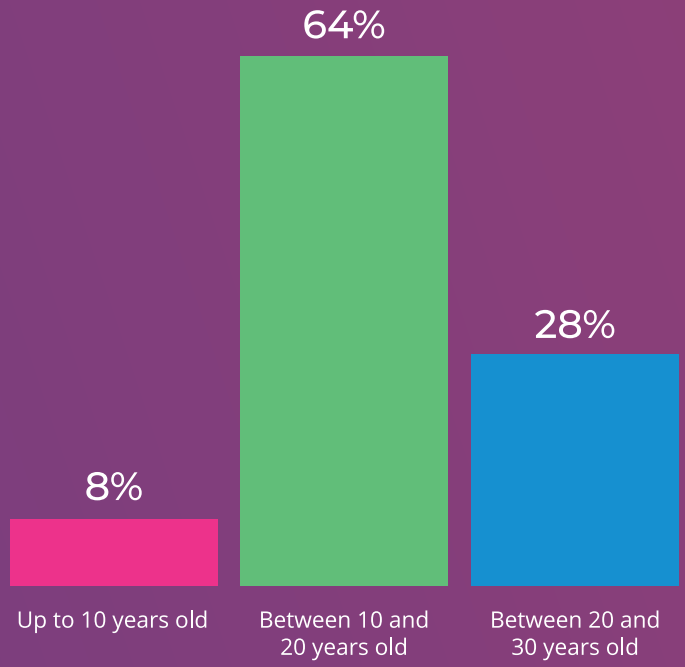
So, what's the state of business today? According to our research, organisations currently use an average of four mainframes, with the oldest (and most established) mainframe-based application being on average 17 years old. In fact, over a quarter (28%) say it's between 20 and 30 years old.

State of Business

How many mainframes are currently in use within your business?



How old is the oldest mainframe-based application that you are still using?



State of Business

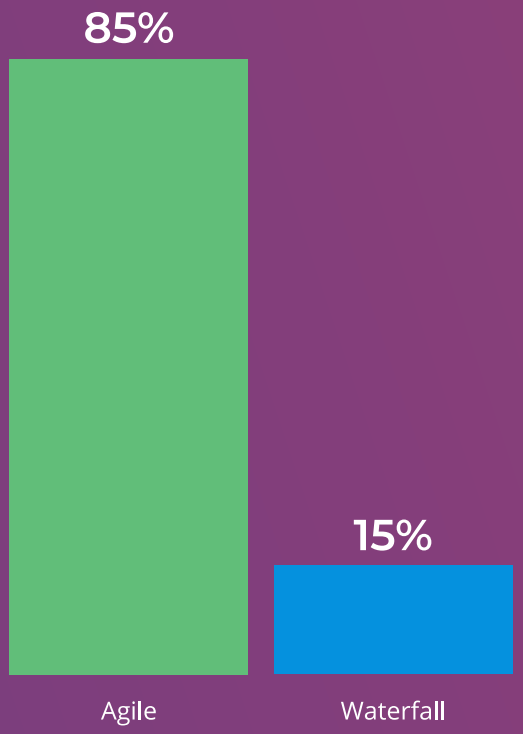
Our research also shows that 36% of businesses consider the majority of their HR systems to be legacy, closely followed by operations at 29% and finance at 23%. Surprisingly, there are differences of opinion among the C-suite when it comes to modernising finance systems. A third (33%) of COOs and Heads of Operations say finance is in need of modernisation, much higher when compared to only 15% of CFOs. This data suggests that CFOs are slower to accept their part of the organisation has a problem or is lagging behind in the modernisation stakes.

Just 7% of an organisation's IT budget is spent on modernising the most urgent elements of their legacy systems which, as highlighted, are usually finance, operations and HR systems. This is concerning as it suggests there aren't enough resources put into modernisation and, arguably, this lack of resource could be the reason why some programs fail.

Reassuringly, a large majority (85%) of organisations prefer the agile development methodology to the waterfall model when looking at modernisation initiatives. In fact, 91% say it's more flexible as they can change requirements at any time – crucial in today's digital era.

The rapidly decreasing popularity of waterfall is supported by external research, with HP suggesting that agile is the new norm because it improves team collaboration and customer satisfaction.

When looking at modernisation initiatives, what development methodology is preferable?



“I thought I knew what my application did, but I was wrong. The Advanced approach showed me how much more there was than I assumed.”

- Marc Rubel, Executive Director of Application Development, GE Capital

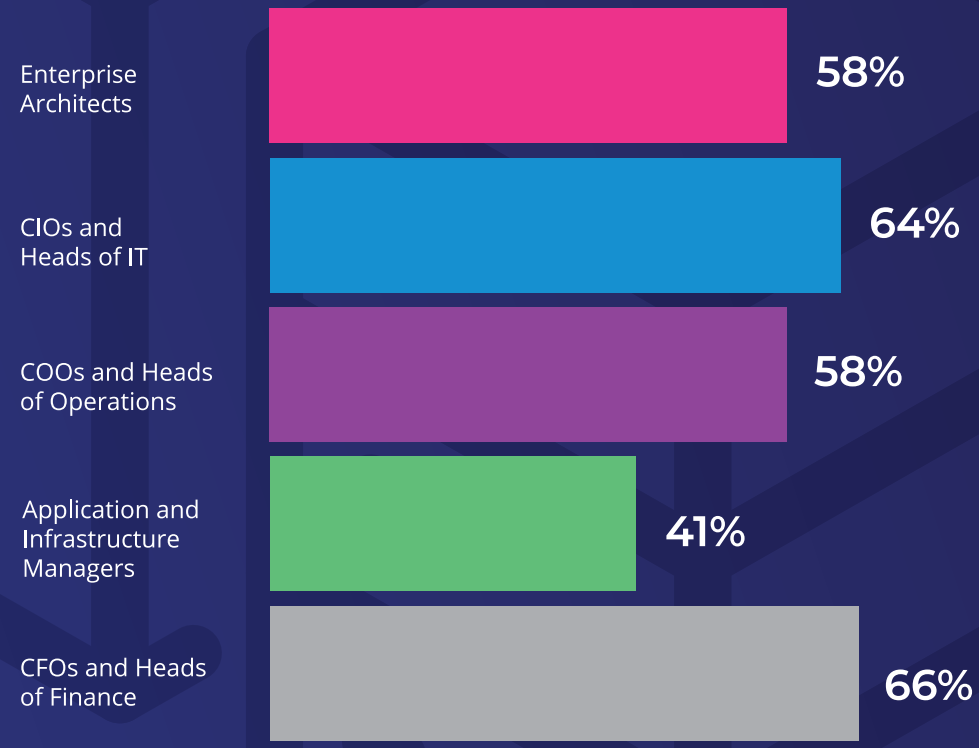
Motivations for Change

As technology evolves, the appetite to modernise the underpinning mainframes increases. As much as 60% of businesses plan to start a modernisation project in the next 12 months, while 23% aim to start two projects, and 13% are planning to commence three.

What's more, when thinking about modernisation, the vast majority of respondents (97%) say they would rehost or refactor their applications as opposed to rewriting them.

One of the key drivers behind organisations' plans to modernise is the fear of being left behind, and therefore unable to compete in their market. In fact, on average, 60% of our survey respondents strongly agree they will suffer competitively if they fail to modernise. This figure is somewhat higher among CFOs specifically, at 66%, which may be because they are more aware of the effects legacy applications have on their competitive edge.

What percentage of respondents agreed they would be left behind competitively if they failed to modernise legacy systems?

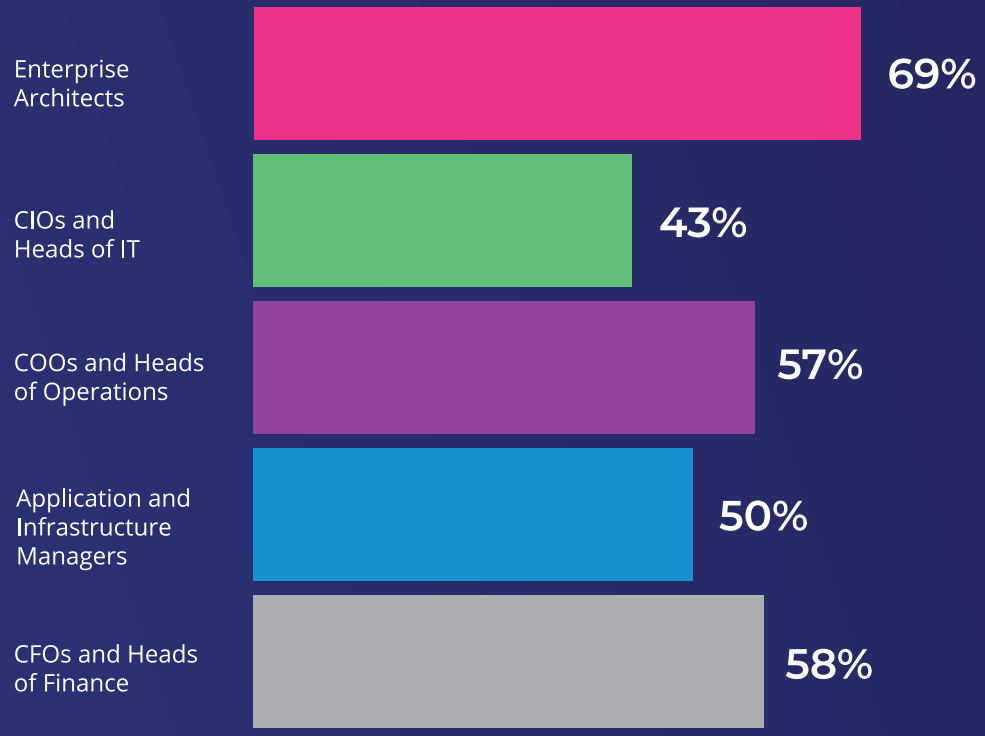


Motivations for Change

The need to be more competitive is emphasised, with 66% of all respondents citing it as the top reason for modernising mainframe-based applications.

There are, of course, other drivers that demonstrate the motivation to modernise and, interestingly, these often vary based on the respondent's job function. More than two-thirds (69%) of Enterprise Architects, for example, say hardware dependency is the top reason for modernisation, citing technical influences, whereas CIOs and Heads of IT cite competitiveness, security and integration as the top reasons (at 65%, 58% and 54% respectively). This suggests that CIOs and Heads of IT are more interested in the complete technology landscape of their organisation, while Enterprise Architects are more focused on their one area.

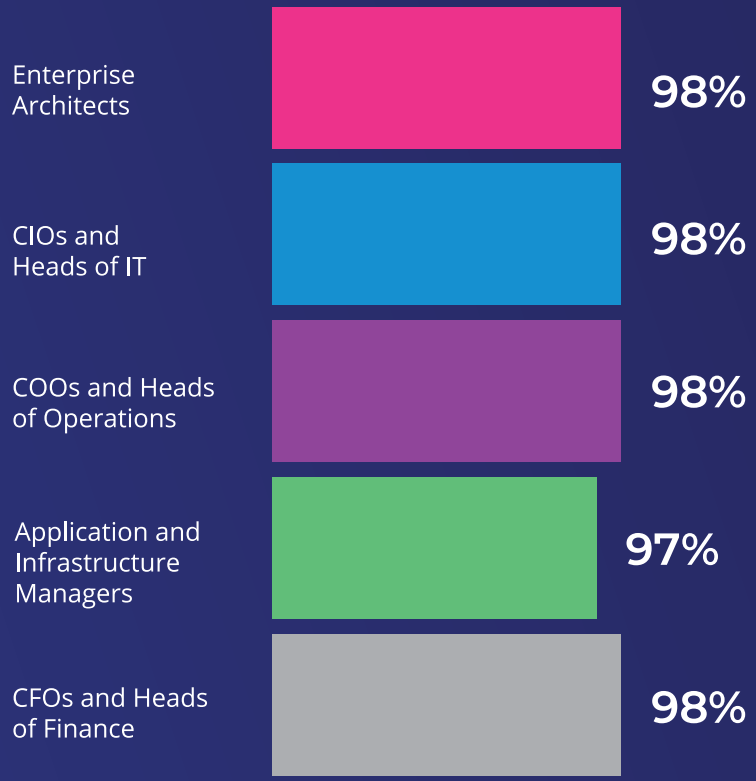
What percentage of respondents agreed hardware is a top reason for modernising legacy systems?



Motivations for Change

What almost everyone is agreed on, though, is the value of the Cloud in the digital transformation era – with 98% of respondents saying they have active plans to move legacy applications to the Cloud in 2020. This is reassuring as, given the current climate, transforming legacy environments allow organisations to make the best use of Cloud technology, while being more agile and flexible. It also enables them to save money, as well as become a more attractive employer to new generations entering the workforce that expect modern systems.

What percentage of respondents have active plans to move legacy applications to the Cloud in 2020?



Motivations for Change

Perhaps one of the most shocking findings in our report is that just 8% of respondents say it's essential for them to modernise their legacy systems to meet current regulatory and legislative demands. This is surprisingly low given the number of regulations, such as the General Data Protection Regulation (GDPR) and California Consumer Privacy Act (CCPA), which have come into force over the last few years.

There are stark differences between Europe and the US too. Only 5% of organisations in Europe say modernising to meet current legislation and regulations is essential, compared to 15% in the US. While the reasons for this are speculative, it could be that organisations in the US are quicker to realise they are not meeting these regulation requirements than those in Europe.

Either way, these figures are a cause for concern, especially when we consider the financial services industry is highly regulated, with enormous fines to match. In the six months to the end of June 2019, for example, the UK's Financial Conduct Authority (FCA) imposed fines worth a total of £319 million for non-compliance – more than five times the annual total for 2018 of £61 million. What's more, fines in the first half of 2019 outstripped the combined total for the previous three years of £311 million.

Yet, over 95% of those in the financial services industry feel there would be either minor or no risks of non-compliance or security issues if they didn't modernise their systems within the next two to three years. Arguably, the industry would not want to admit there is a major risk, but there are clearly lessons to be learned. We know from TSB's IT glitch in the UK in 2018, for example, that there have been a number of outages in banks, with critics blaming legacy systems.

What this demonstrates is that the consequences of organisations failing to modernise are huge. When asked what the ancillary consequences to not modernising legacy systems would be, 61% of our survey respondents state difficulty in integrating legacy systems with modern technology. This is followed by difficulty to recruit the right talent (41%) and reduced levels of customer service (36%).

Motivations for Change

Again, there are stark differences among CFOs. A significant 76% say difficulty with integration would be an ancillary consequence, while 52% say difficulty to recruit the right talent would be another. This could be down to the fact that the people who know the legacy applications are beginning to retire and people are no longer learning these legacy skills. And the CFOs' causes for concern are valid. Lack of integration and failure to attract the top talent make changes to applications extremely difficult and time consuming – and therefore costly.

It's therefore worrying that 74% of all respondents admit their organisation has started one modernisation program but failed to complete it at all – which will have likely come at a significant cost to the business. Take Fortune 500 company Hershey's for example. Its failed technology implementation in September 1999 caused its stock price to dip by 8%. Similarly, the Victorian Department of Health failed to implement clinical ICT systems across 19 of the state's health services due to poor planning and inadequate understanding of system requirements.

Organisations looking to modernise need to avoid potential project failures in the future and address the barriers which are, quite often, around complexity and lack of understanding.

“Our motivation for undergoing a full platform modernisation was to build the future foundation of our business.”

- Arne Hansson, IT Manager, Volvofinans IT AB

Accelerating Innovation

Looking at the positives, what's certain is that some level of modernisation is already happening among organisations globally. Customer Relationship Management (CRM) (96%), Enterprise Resource Planning (ERP) (97%), and sales and marketing (96%) systems, for example, have been updated or modernised in the last three years. This is not surprising. After all, these are often off-the shelf package solutions (think Salesforce) and are therefore easier to modernise.

On the other hand, the bespoke applications that organisations have built themselves are much more difficult to modernise, due to their complexity and interdependence with other lines of business systems, which is often why they are left behind in their legacy state. The problem is that these customised applications (usually operational) are often mission-critical, suggesting there is much more risk associated with maintaining them.

The bottom line is that, in an increasingly connected world, organisations need to modernise all systems – including the finance, operations and HR systems that are typically left behind. The benefits to gain are clear. A third (34%) say legacy modernisation has helped the business accelerate their digital transformation efforts, while 33% say it has allowed them to be more reactive to market changes.

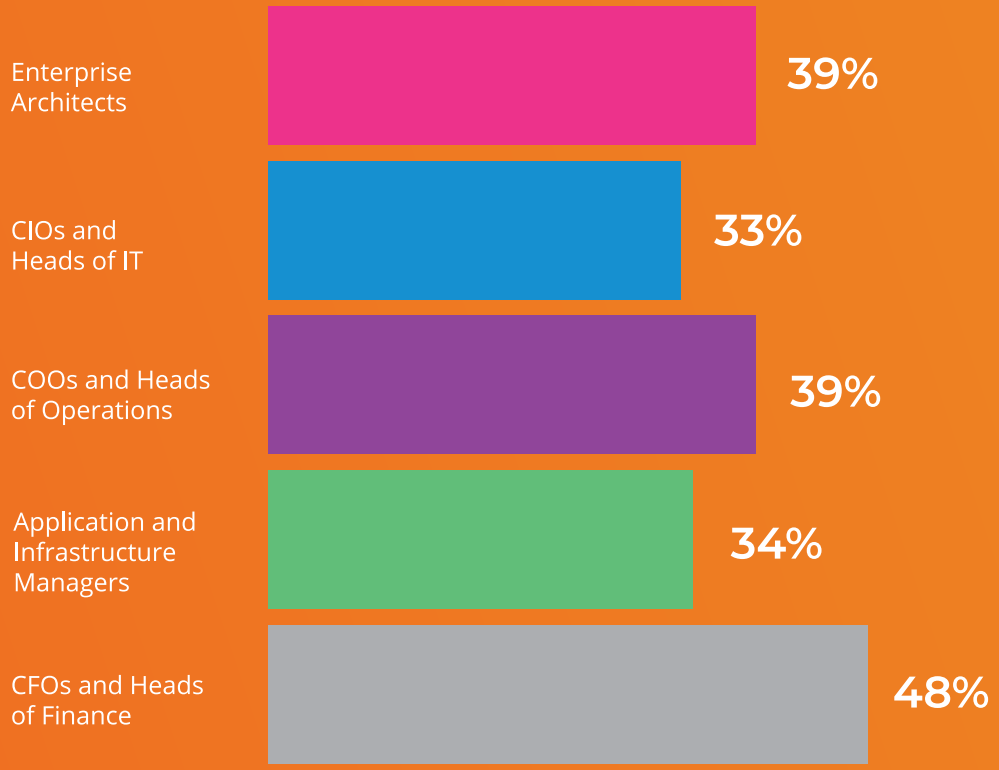
What's interesting is that, on average, 30% of modernisation programs have clearly improved customer relationships. This is an encouraging figure when we consider that customer-centricity is increasingly becoming central to organisations' overall business objectives. This number more than doubles to 62% for Application and Infrastructure Managers. Similarly, 47% of them say it has improved customer service (much higher than the 28% average). This could be attributed to the fact that these managers are at the coalface of modernisation and, therefore, arguably more realistic.

Accelerating Innovation

The potential cost savings of modernisation are impressive too. On average, organisations could save in the region of around US$30 million if they modernised the most urgent aspect of their legacy systems. This figure alone is surely enough to persuade the many businesses that are still willing to bear the large cost associated with maintaining and operating legacy applications.

Since cost saving is hugely important, especially for CFOs, it's no surprise that 48% (compared to 33% of CIOs) say the number of mainframes involved is most important when considering the time required to complete a mainframe legacy modernisation program. This suggests they are thinking about costs because, quite simply, the more Millions of Instructions Per Second (MIPS) they reduce, the more savings they will see.

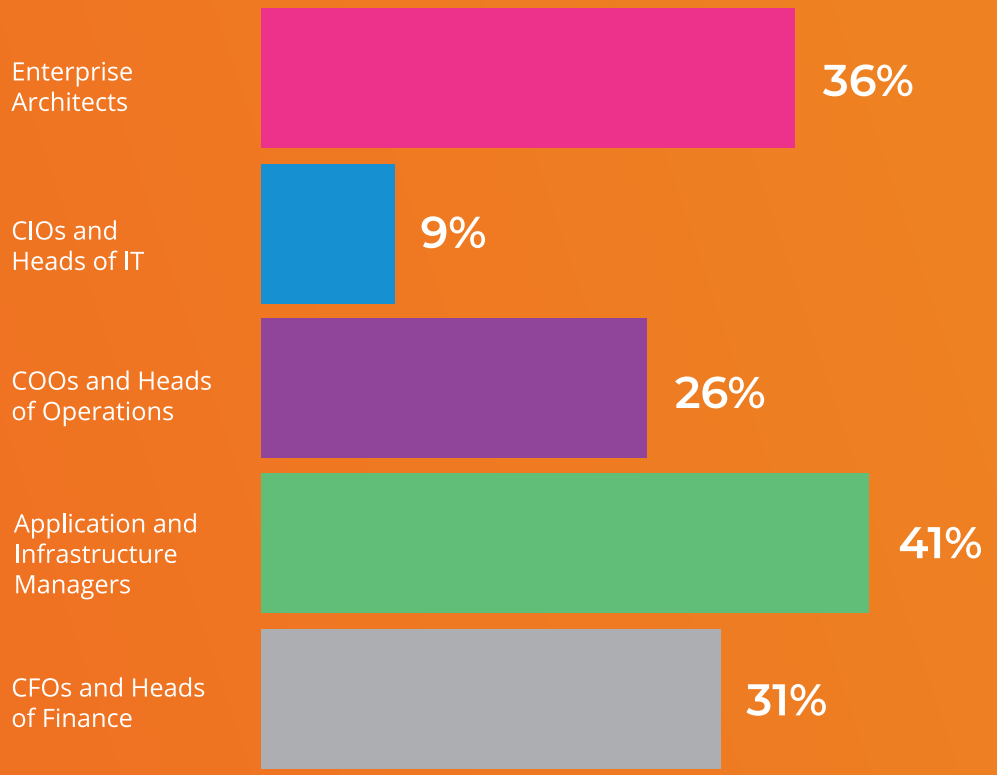
What percentage of respondents said the number of mainframes involved is the most important element when planning the time required for a mainframe modernisation program?



Accelerating Innovation

The potential cost savings can particularly be seen through the use of innovative processes like automation which can help organisations manage and reduce timelines – and ultimately cost. Our technical respondents tend to agree, with 41% of Application and Infrastructure Managers and 36% of Enterprise Architects saying automated conversion offers significant cost savings versus a manual rewrite. This is compared to 9% for CIOs, which is not surprising as they're not working as closely to the ground.

What percentage of respondents said automated conversion offers significant cost savings versus a manual rewrite?



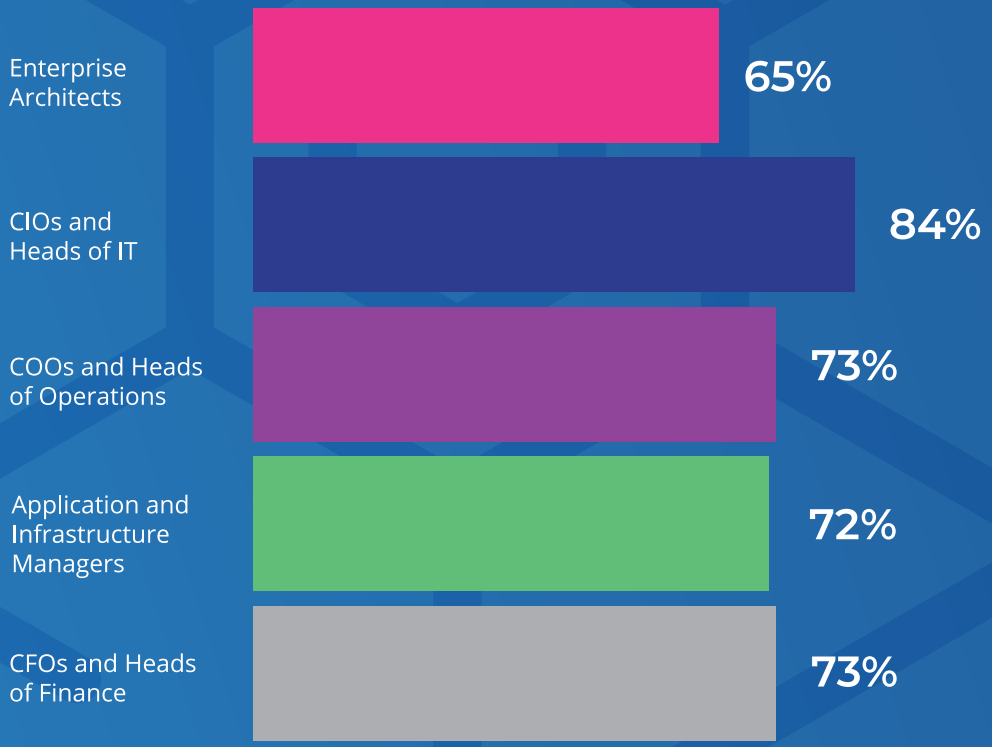

“As a result of the project, the business experienced significant savings and from an IT perspective, we now enjoy simpler upgrade and maintenance cycles.”
- Serge Grenier, Principal Director of IT and VP of Insurance Technologies, Desjardins General Insurance Group

Leadership

One of the key takeaways from our report is the need for collaboration to ensure successful modernisation. On-the-ground teams have to demonstrate to senior leadership the benefits of certain processes in modernisation – an argument for bespoke modernisation, rather than off-the-shelf, for processes like finance. The C-suite absolutely needs to be brought on board, especially CFOs who hold the purse strings, so they can understand the value and wider business impact.

The need for technical teams to show leadership the cost versus benefit analysis is supported by the fact that 84% of CIOs (compared to an average of 74%) want to see value for money when organisations are selecting a partner for a modernisation effort.

What percentage of respondents said value for money was the most important factor when selecting a partner for a modernisation effort?

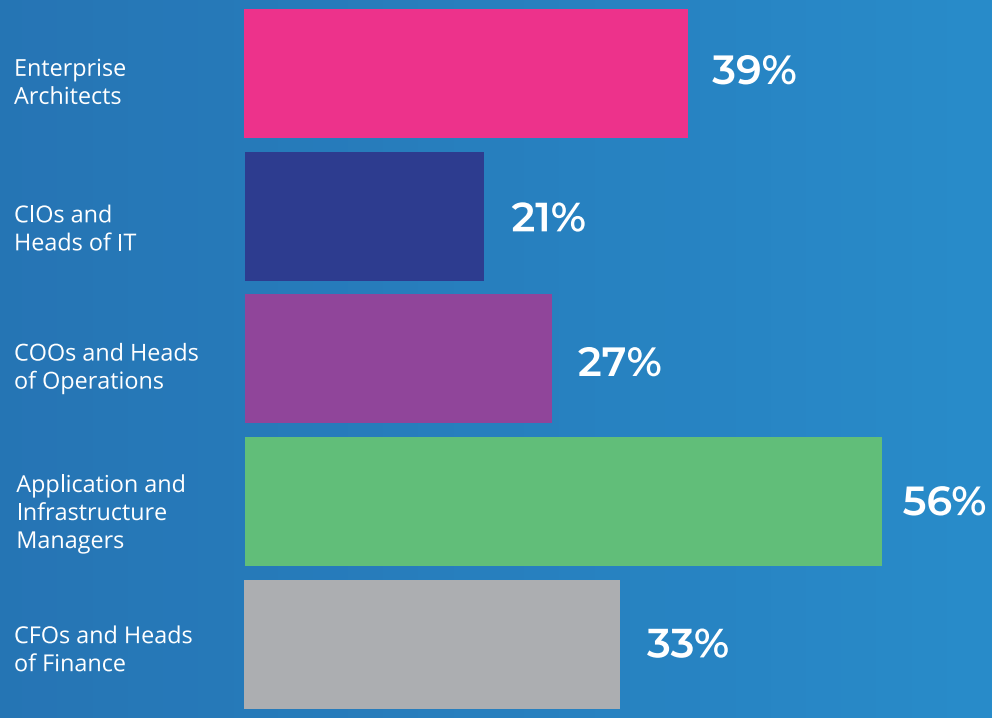


Leadership

Conversely, just 12% of Application and Infrastructure Managers say they receive full commitment from the leadership team when getting funding for modernisation projects. What's more, 56% say they fail to get funding because of fear of change. This is remarkably different when compared with other roles. Over half (53%) of CIOs get full commitment from senior leadership, as do 42% of CFOs.

Could this mean the technical teams on-the-ground need to be able to talk the business language?

What percentage of respondents said fear of change is the key reseaon why they fail to get funding for modernisation projects from leadership?



Leadership

The simple answer is yes – it's those organisations taking a business-focused approach that will succeed in modernisation. This requires building a strong business case for modernisation projects, and ensuring there is a solid understanding about its business value. In our experience, we know that being able to show the value of such change is something that people often struggle with.

Research firm Gartner has long advocated the need to build a strong business case, and believes there are four critical areas, at a minimum, that organisations must address: problem statement, technology migration, project description and cost-benefit analysis.

Ultimately, it's those organisations able to build a strong business case that are more likely to succeed in modernisation.

About Advanced

Advanced is a leading international provider of application modernisation services with unique expertise in the legacy modernisation market.

With more than 500 modernisation projects completed worldwide, and 2.5 billion lines of code processed through our solutions we have been driving IT efficiency, agility, and competitive advantage for customers through core application and database transformations for the past 35 years. Over that time, we have helped organisations across all sectors including the UK Department of Work and Pensions, FedEx and the New York Times.

Within the UK, Advanced is one of the three largest providers of business software and services, with a strong track record in helping our customers journey to the Cloud with solutions for public, private and third sector organisations.

We have a £261m turnover, 20,000+ customers and employ 2,500+ employees all helping organisations create the right digital foundations that drive productivity, insight and innovation – all while remaining safe, secure and compliant.

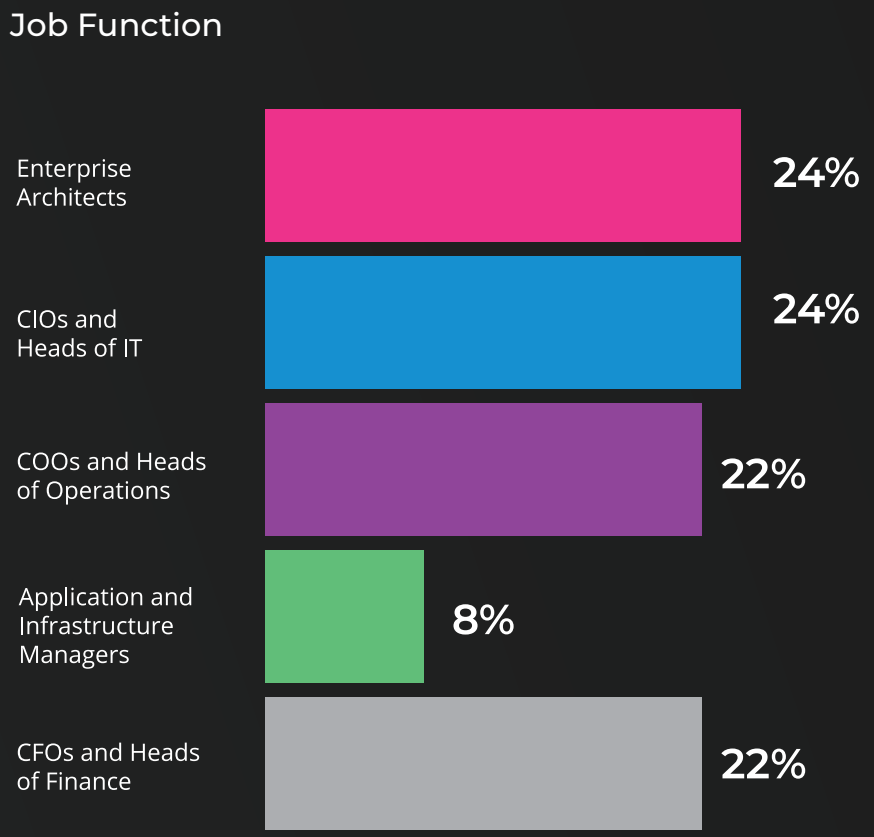
We simplify complex business challenges and make a difference by delivering immediate value, positively influencing millions of people's lives. Advanced's solutions enable a variety of fundamental transactions to take place, including helping care for 40 million patients in the UK, sending 10 million sports fans through turnstiles, managing over £4 billion in charity donations, supporting 2.5 million students and, ensuring 1.2 billion passengers arrive at their destinations on time.

Our international modernisation business was expanded with the 2019 acquisition and integration of Modern Systems.

To find out more, please visit the website.

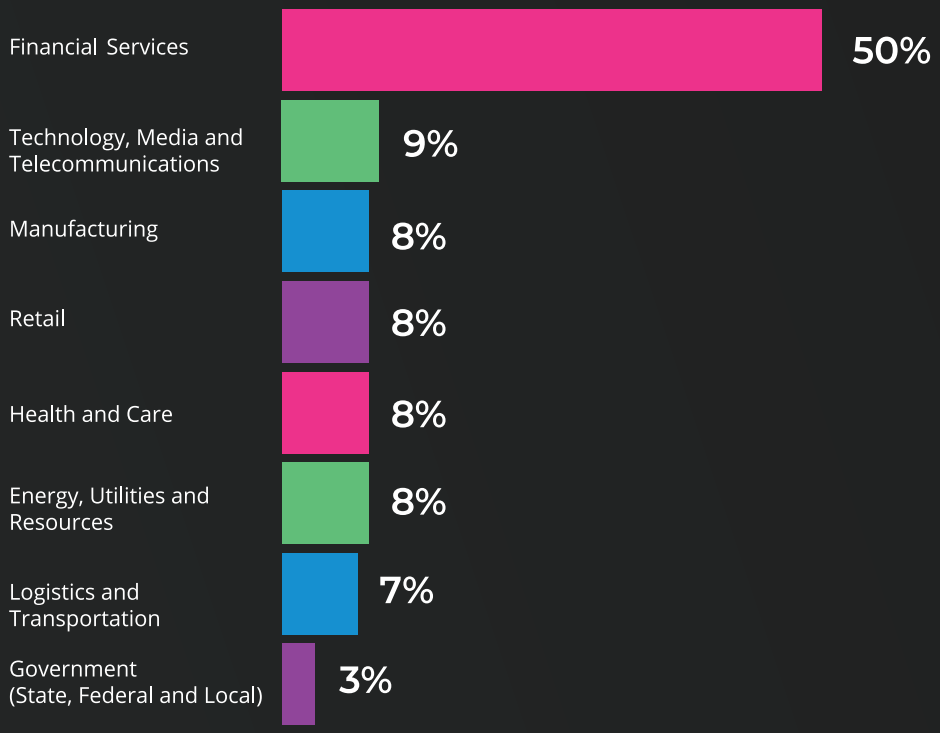
Methodology

The 2020 Mainframe Modernisation Business Barometer Report survey was carried out online by Coleman Parkes throughout March and April 2020. The sample comprised 400 people working for large enterprises in Europe and the US, with a minimum annual turnover of US$1 billion.

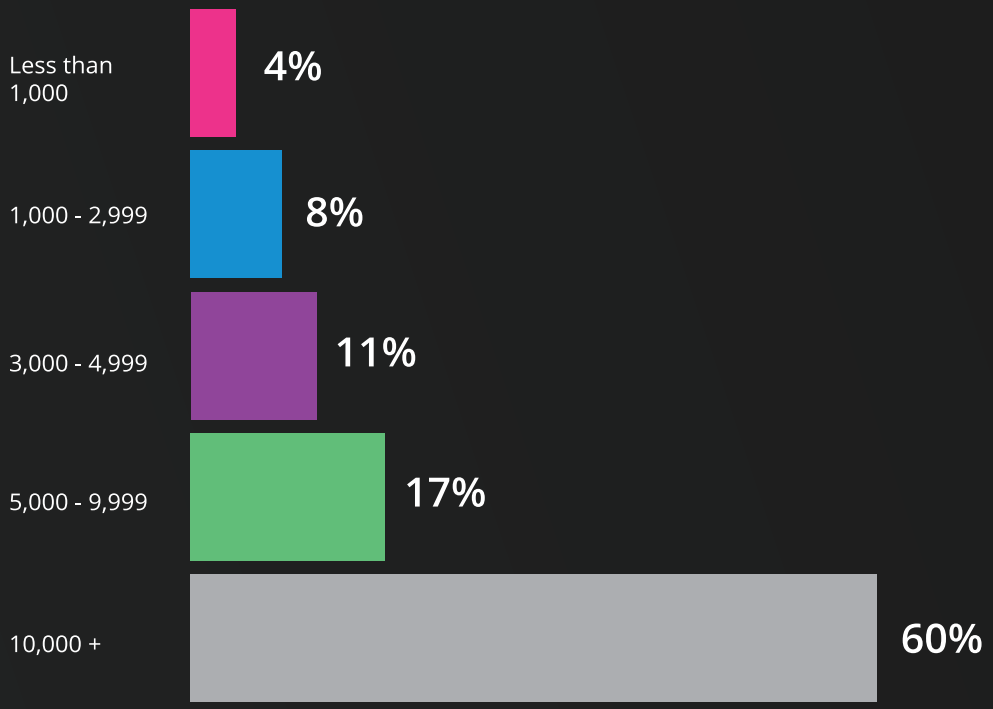


Methodology

Sector



Number of Employees

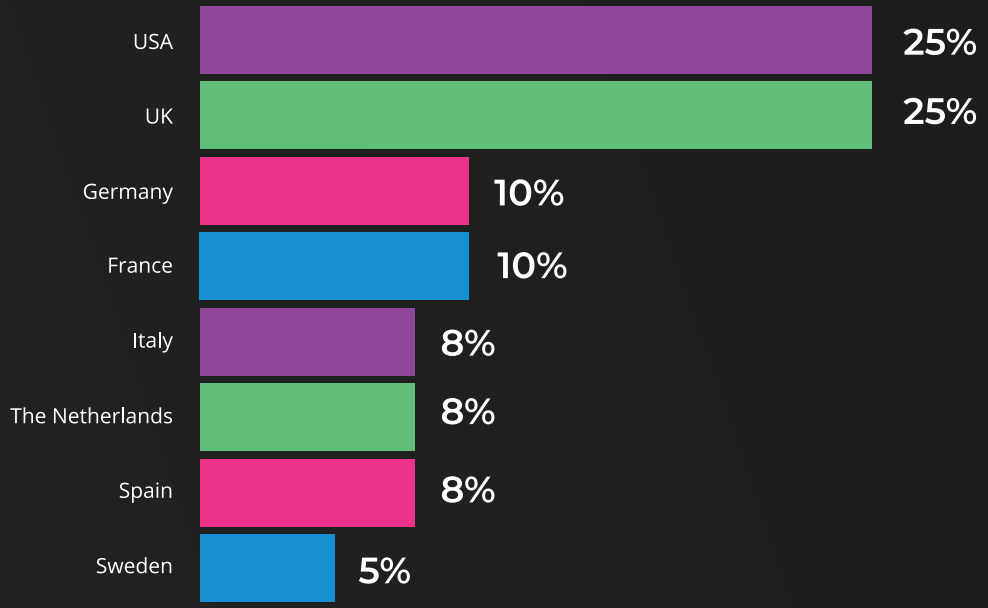


Please note some figures may not add up to 100% due to rounding.

Methodology

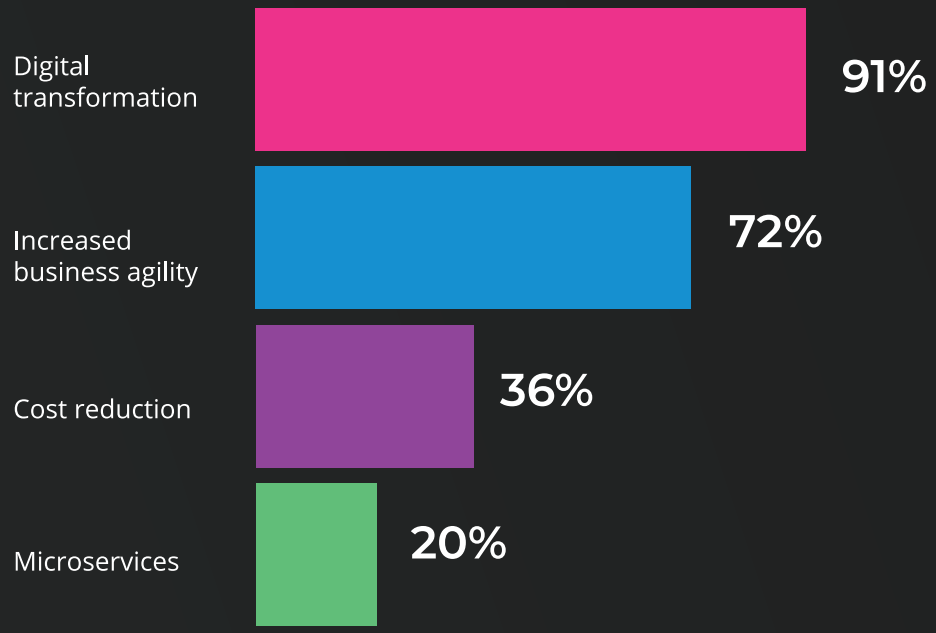
Turnover

Country

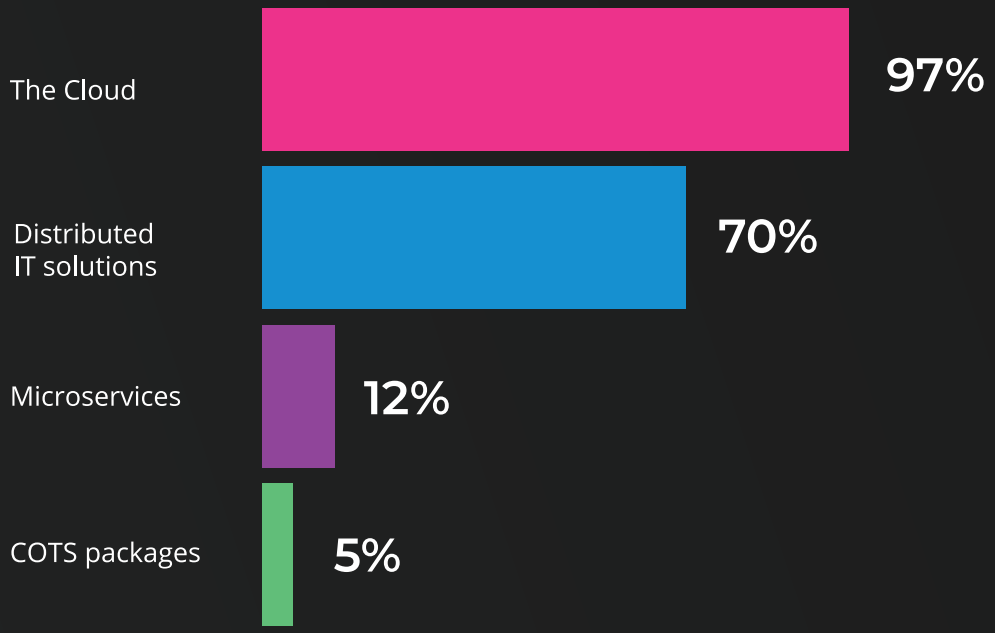


Methodology

Strategic Initiatives



Reducing Dependency on Mainframes



Please note these questions were used as part of the screening process. Some figures may not add up to 100% due to rounding.

Methodology

Coleman Parkes' approach for calculating the US$30-31 million saving below:

1. The survey data collected provided annual turnover ranges as well as the percentage cost saving relative to our IT budget question i.e. "If you modernised the one legacy system you think is most urgent, what percent of your IT expenditure could you save or reinvest?"

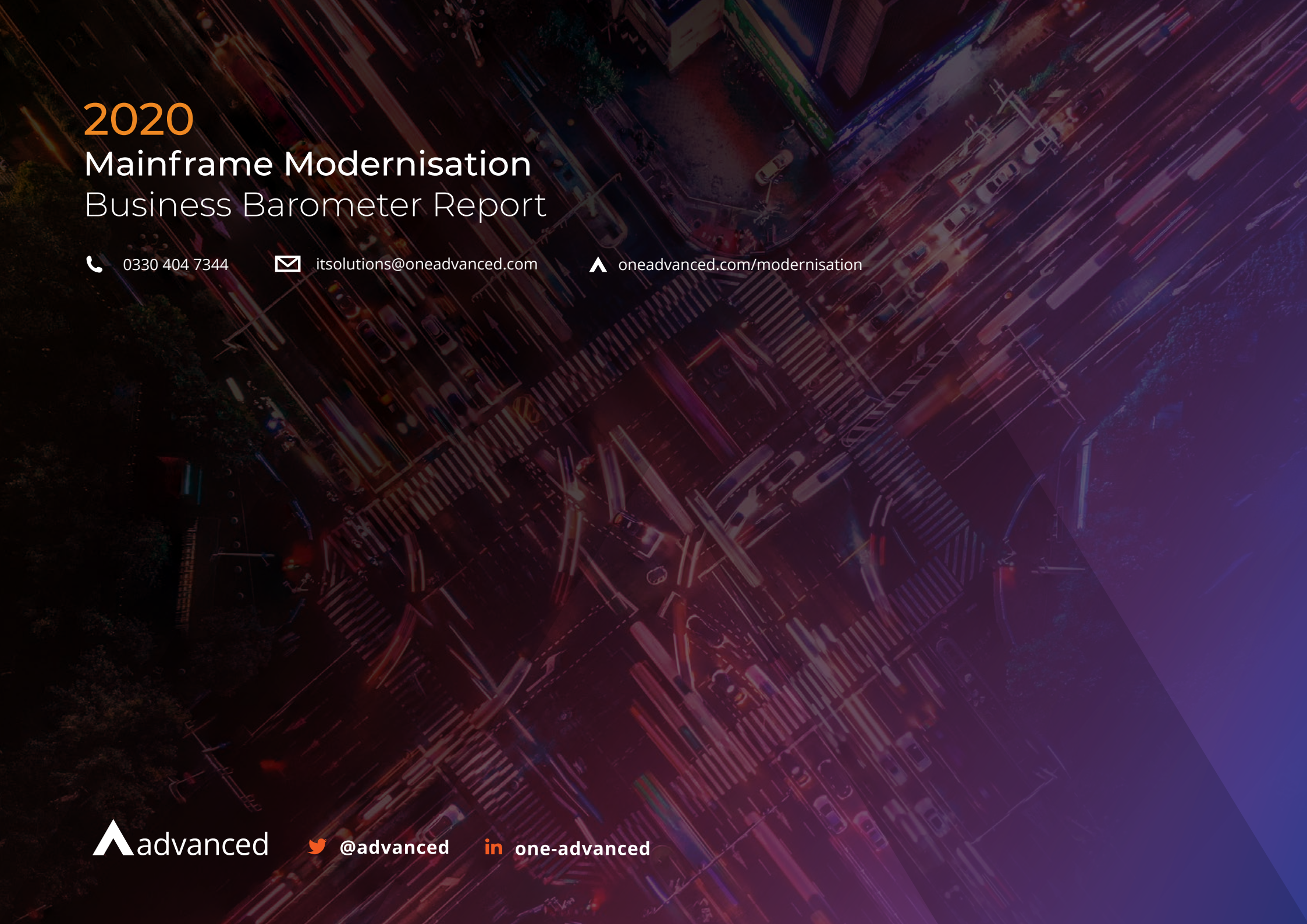
2. Coleman Parkes then calculated IT budgets as a percentage of annual turnover per sector, which amounted to an average of 4% across the sample. This is in line with industry figures i.e. from Gartner.

3. The ratio between IT budgets and total revenue was calculated as a percentage using industry figures we'd sourced that reported IT spending ratios (budget as a percentage of turnover) at a sector level showing ranges between 25th – 75th percentiles.

4. This calculation (IT budget derived from turnover) was applied at a per case level i.e. a respondent in Financial Services had a different IT spend versus turnover ratio than a respondent in Retail or Manufacturing.

5. Coleman Parkes then calculated IT budgets as a percentage of annual turnover per sector, and used the percentages from our IT budget question to calculate the proportionate cost savings from the IT budgets derived from the turnover figures.

SECTOR	US$ million
Financial Services	44.4
Energy, Utilities and Resources	20.2
Technology, Media and Telecommunications	24.4
Retail	9.2
Health & Care	16.7
Manufacturing	6.2
Logistics & Transportation	22.8
Government (State, Federal and Local)	22.4
Average	**30.6**



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