The Mainframe
Surviving and Thriving in a Turbulent World

A survey conducted by Vanson Bourne on behalf of CA

JUNE 2009

Disclaimer:

The information provided in this assessment report is confidential and provided to you for informational purposes only.
Reuse or distribution of this tool without written permission from CA, Inc. is prohibited.
The information in this tool is subject to change without notice.
CA reserves the right to change specifications and product-related information without notice.

All currency noted is in US$.
Calculations are estimates only. Your actual savings may vary.

Contents

1.0 Survey highlights

The mainframe as a fully connected resource within a distributed, web-enabled enterprise

- Organisations using the mainframe as a fully connected resource within the distributed, web-enabled enterprise experience significantly greater benefits than those with a disconnected, comparatively isolated mainframe environment.
- Where the mainframe is a fully connected resource within a distributed, web-enabled enterprise, 65% of all respondents state that it is an 'incredibly secure environment'.
- Where the mainframe is a fully connected resource, 63% of all respondents state that performance levels are 'excellent'.
- Where the mainframe is a fully connected resource, 52% of all respondents state that 'the system never goes down' (52%).
- The more the mainframe is connected to the organisation, the greater the role it plays and the greater its level of utilisation: the average amount of business critical data administered by the mainframe among all 'connected' respondents is 55%.

The mainframe as a cost-effective platform

- Comparing the mainframe with the distributed environment, organisations spend less of their budget with the mainframe—on more critical applications. This is based on the survey finding that respondents spend 19% of their IT budget on the mainframe. They also report that the mainframe holds 55% of their business critical data and hosts a larger than 50% of the critical applications and 55% of their data.
- 82% of companies are concerned about technology spend—and 44% of respondents have not moved from the mainframe because of the cost involved in moving to a distributed environment.
- The average percentage of respondents' IT budget that is spent on the mainframe, the survey reveals, is 19%.

The mainframe and security

- 68% agree that the mainframe-centric infrastructure is inherently more secure than its server-centric equivalent.
- 65% of respondents state that 'the mainframe is an incredibly secure environment'.

The mainframe and the skills shortage

- 52% of all respondents agreed that a web-oriented graphical user interface (GUI) that a less experienced member of the IT department could use would make the mainframe more attractive and would help to close the skills gap.
- Only 20% of respondents with the mainframe as a fully connected resource within the enterprise are looking to 'downsize' the importance of the role the mainframe plays, compared with 68% of the 'not connected' group.
- 37% cited a 'relevant skills shortage' as a threat for continued mainframe use in the organisation.
- 66% of all respondents agreed that the mainframe user will soon start to suffer, if it hasn't already, from a shrinking workforce with the relevant skills not being readily available.
- 33% are looking at skills and training needs as a way of dealing with the skills shortage.

The mainframe as a robust platform

- The mainframe is a highly robust environment: 63% of respondents agree that applications can run reliably on the mainframe for years without any unscheduled interruptions
- 55% of the organisations' critical company data is administered by the mainframe.
- 52% of respondents stated that the reason the mainframe is a key resource in the organisation is because 'it never goes down' and 48% stated 'disaster recovery and emergency management are both extremely efficient'.
- Respondents stated that the average mainframe utilisation level (when it's operating at its busiest) ranges from 59% to 73%. The 'not connected' group reaches 62% at maximum whilst the connected group reaches 72% of maximum—suggesting much less over-capacity amongst the connected group.
- On average, organisations reach their busiest utilisation point 299 days a year. The 'not-connected' group reaches peak utilisation 213 days in the year, somewhat below average, whilst the connected group reaches this maximum utilisation level 387 days in the year on average. So the connected organisations are working their mainframes much harder than the other half of the respondent group.

2.0 Preface

Enterprise computing was born on the mainframe. And though it seemed for a while that distributed computing, the Internet, and mobile networking might reduce the platform's significance, these factors have only served to strengthen the mainframe's primacy in the SOA (Service Oriented Architecture) data centre, Web Services enablement, security, and compliance initiatives that drive business. For many organisations, the mainframe remains the strategic platform of choice for the next generation of enterprise computing.

It wasn't always like this. In the 1970s, the mainframe market was hot. By the 1990s, it began to resemble a sleeping giant, but the tide has turned in the last several years. The popularity of distributed systems as a way to bring local computing power to everyone remains, but distributed computing has been around long enough for the honeymoon to be over. Ironically, the weaknesses of distributed computing environments are now fuelling the mainframe resurgence. The practice of housing an application or database on a specific server proved serviceable for years, but as economic conditions deteriorate—and strict mandates around governance, compliance, security and energy efficiency intensify—IT faces a growing burden to do more with less. As these distributed infrastructures become too costly to maintain, IT is rediscovering the benefits of the mainframe.

However, you don't stay ahead by standing still. To respond to the unique challenges posed by increasing workloads, tight budgets, high attrition rates, complex regulatory demands, and sweeping green IT movements, organisations must significantly improve the ongoing accessibility and management of the mainframe. This, in turn, will help drive long-term competitiveness, innovation, usage and success on this business-critical platform. Thus has emerged 'Mainframe 2.0', which is geared to making the mainframe significantly easier to use, sustaining the fundamental strengths of the platform, and facilitating a transition of staff and workloads from other platforms and allow new hires to be immediately effective within the environment.

It used to be that we would refer to the mainframe as 'legacy systems' and imagine them to be on their deathbeds. Now, we realise that 'legacy' is the codeword for 'it works'. The fact is, experience counts. And not only is the mainframe the most experienced computing platform out there, it was designed from the ground-up to be a multi-user, business-oriented platform.

The objective of this independent research—commissioned by CA and conducted by the respected international research organisation Vanson Bourne—was to understand the mainframe's position in the organisation and its value as a fully connected resource within a distributed, web-enabled enterprise. The pan-European survey also aims to explore the value of the mainframe in terms of its low total cost of ownership, the value it provides in terms of security, and its robust nature. The survey also discovers the extent to which the mainframe skills gap is impacting the market, and the actions organisations are taking to address this shortage.

2.1 Research methodology

Vanson Bourne conducted a total of 180 interviews during February and March 2009 among IT Directors and Senior IT Managers. The sample comprised 40 respondents in each of the UK, France, and Germany, and 20 each in Italy, Benelux and the Nordics.

3.0 The mainframe as a fully connected resource within a distributed, web-enabled enterprise

It is apparent from the survey that organisations using the mainframe as a fully connected resource within the distributed, web-enabled enterprise experience significantly greater benefits than those with a disconnected, comparatively isolated mainframe environment. Organizations that are recommitting to the mainframe are finding a unique mixture of manageability, reliability, scalability and security—not to mention low per-transaction costs. They are realizing that the mainframe is the asset best equipped to handle these challenges while still providing ample flexibility for growth and business innovation.

There is ample proof in the survey to validate these statements.

First of all, the survey shows that 48% respondents report that their mainframe is a fully connected resource within the distributed, web-enabled enterprise (see Figure 1). These 'connected' respondents were then asked why the mainframe is such a key resource (see Figure 2), and the benefits range from 'it's an incredibly secure environment' (cited by 65% of respondents), to 'the performance levels are excellent' (63%), to 'the system never goes down' (52%), and 'disaster recovery and emergency management are both extremely efficient' (48%).

Respondents were also asked how much of their business critical data is administered by the mainframe. Overall, the average is 55%; however, the larger the company, the higher the percentage—with up to 59% for companies with more than 3,000 employees. This figure rises to 64% among those organisations that report having a 'fully connected' mainframe infrastructure. Not surprisingly, it is apparent that the more the mainframe is connected to the organisation, the greater the role the mainframe has to play and the greater its level of utilisation.

Among the respondents for whom the mainframe is not a connected resource within the organisation, the main reasons they cite are 'we are using other solutions for critical applications and data' (54%), 'the mainframe is too much of a standalone device' (54%), and 'the level of business critical processing tasks being managed by the mainframe is decreasing' (52%).

Figure 1: How far is this true within your own organisation? "The mainframe is now a fully connected resource within the distributed, web-enabled enterprise, where it carries an ever-growing burden of business-critical processing tasks."

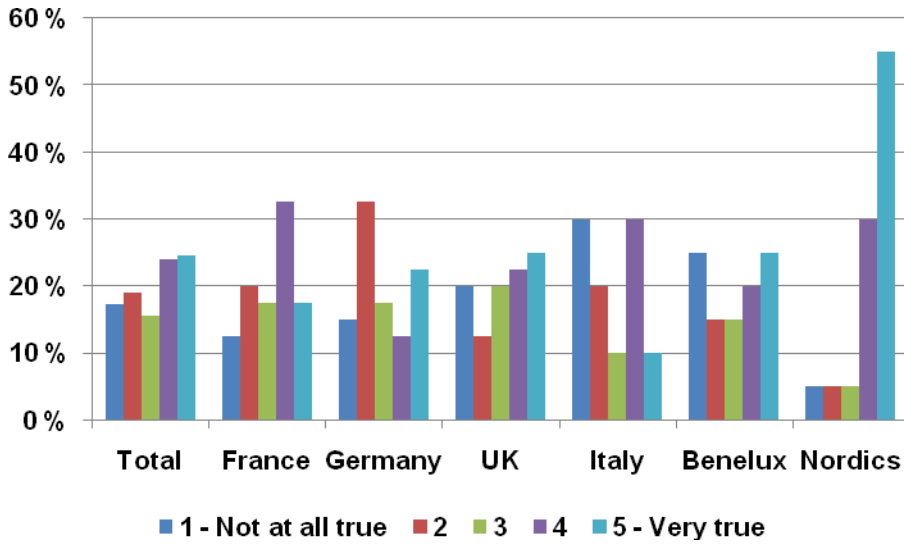
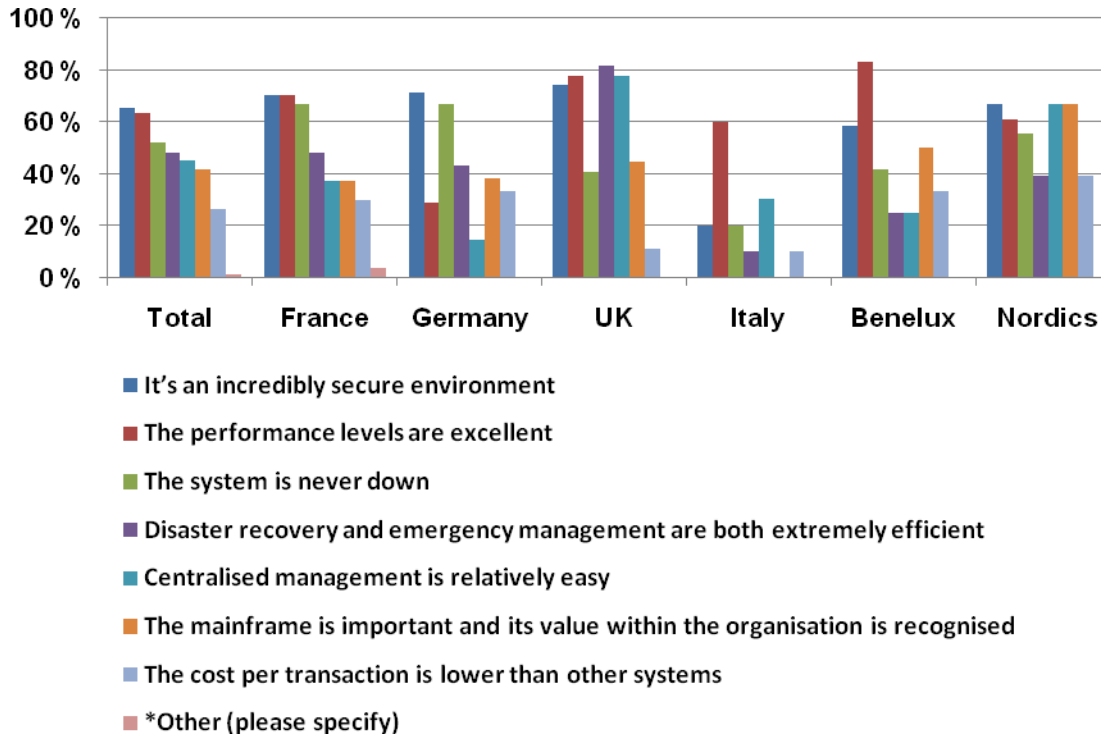


Figure 2: You've suggested that the mainframe is a key resource within your organization. Why is that?



3.1 Country findings: the connected mainframe

There are some interesting anomalies between countries in terms of the connected versus non-connected mainframe infrastructure. For example, 85% of respondents in the Nordics say that the mainframe is a fully connected resource in their organisation (against a European average of 48%). In Germany however, the figure falls to just 36%. The other countries (France, UK, Italy, and Benelux) are broadly in line with the an-European average.

Countries vary considerably in their interpretation of why the mainframe is such a valuable resource. In Italy, only 20% report the mainframe's value as 'an incredibly secure environment' (against a European average of 65%). In Germany meanwhile, only 29% report the reason as being 'performance levels are excellent' (against a European average of 63%). And in the UK, 81% cite 'efficient disaster recovery and emergency management' for using the mainframe, against an average of 48%.

Turning to how much critical company data is administered by the mainframe, the country findings vary again. The European average is 55%; however, the Nordics perceive the mainframe to be a particularly robust platform, where the average rises to 66%; in Italy it is 62%, and in Germany it is 60%. The UK is the lowest of the countries surveyed at 44%.

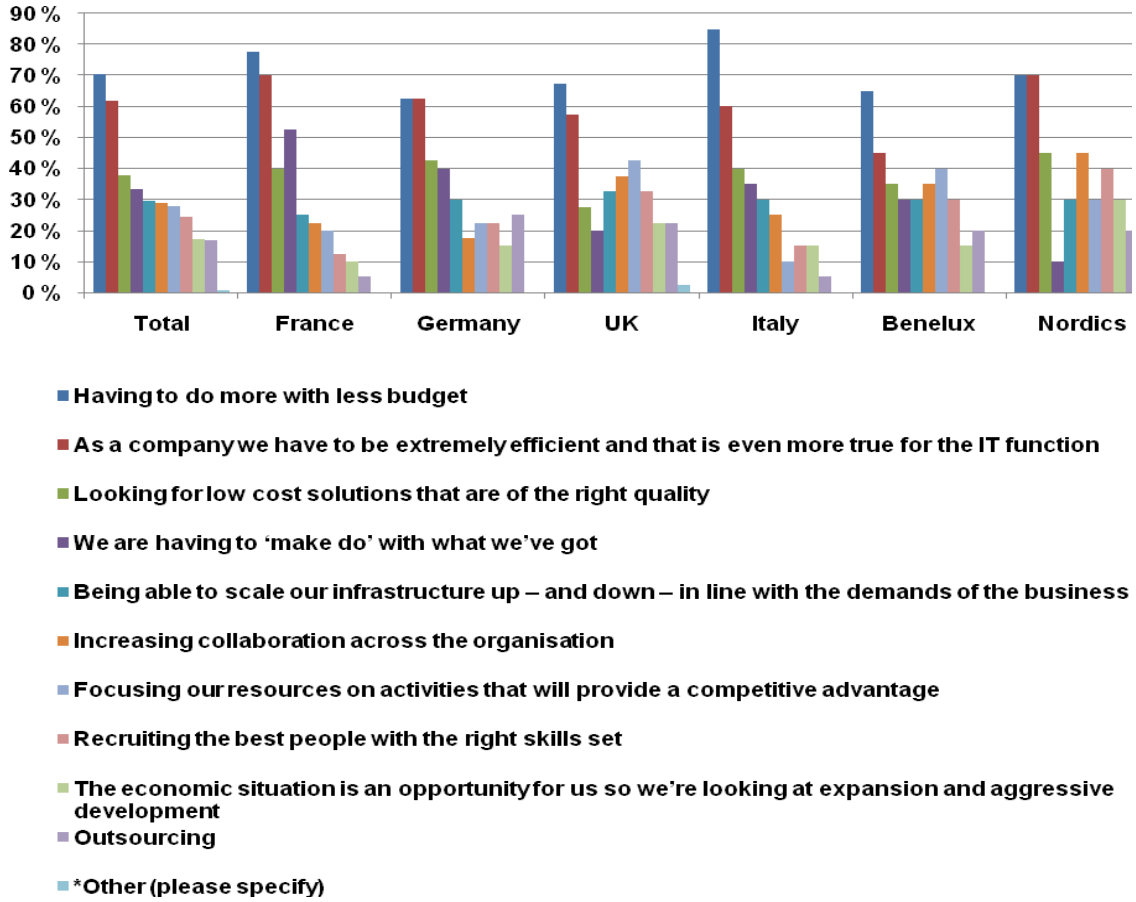
4.0 The mainframe as a cost-effective platform

The mainframe platform has never been more important nor seen such dramatic growth as it is seeing today. Customers are recommitting to the IBM z/OS mainframe platform in ever-increasing numbers. And this recommitment is being driven by the inherent advantages the mainframe uniquely offers—most notably low total transaction costs. After all, price trends, in cost per MIPS and megabytes, continue to benefit the buyer; it takes fewer people to manage a mainframe than it does to manage equivalent distributed servers; entry-level mainframes are not overwhelming, in price or size; and mainframes can run many virtual machines or guests — thousands with z/VM.

Moreover, consolidation is seen as one way businesses can simplify their infrastructures and contain costs through reducing new hardware purchases. Companies that own mainframes and choose virtualisation as a way to consolidate, find that the mainframe can host many virtual machines (VMs).

The survey finds that 82% of companies are concerned about technology spend (it is the second most important theme after IT security, which is cited by 83% of respondents). In fact, when asked to highlight the 10 most important issues they face in the current challenging economic climate (see Figure 3), the four most popular issues are related to cost: 'having to do more with less' was the key issue (cited by 71% of respondents), followed by 'operate extremely efficiently' (62%), then 'look for low cost solutions that are of the right quality' (38%), and 'make do with what we have got' (33%).

Figure 3: Given the current economic climate, what are the key issues that your organisation's IT department is facing as we begin 2009?



Against this backdrop, the survey finds conclusive proof that the mainframe offers a low total of ownership compared with the distributed environment. The difficulty and cost of managing large numbers of distributed systems has fuelled the trend back to the mainframe, with the survey finding that 44% of respondents have stayed loyal to the mainframe environment because of the cost of moving to an entirely distributed infrastructure.

The cost benefits of the mainframe don't end there. The average percentage of respondents' IT budget that is spent on the mainframe, the survey reveals, is 19% (see Figure 4). Whilst it will be no surprise to learn that the connected mainframe companies are very high spenders at 24% of IT budget.

But what do these figures equate to in terms of revenue and spend levels? Across the 180 companies interviewed, where the average turnover was over £3 billion, the average IT budget was just over £180 million with around £34 million being spent on the mainframe. Within the 'connected companies', although they spend less on IT than the non-connected (£179million versus £212million), the connected companies spend a higher proportion on the mainframe and this equates to some £43millin compared with £30 million from the not connected organisations.

4.1 Country findings: cost-effectiveness

Respondents in Italy and the UK are twice as less concerned about the mainframe cost per transaction being lower than other systems. 10% of Italian and 11% of UK respondents are concerned about this cost per transaction, compared with the pan-European average of 26%. This may be an anomaly, since the two countries record European average scores when it comes to being concerned about technology spend.

Italy also stands out when it comes to switching to a distributed infrastructure. According to the findings, 30% of Italian respondents have not moved away from the mainframe owing to the costs associated with moving to an entirely distributed environment. This compares with a European average of 16%.

The countries in order of average percentage of budget spent on the mainframe are: Germany 24%, Nordics 22%, Benelux 20%, France 18%, Italy 15%, and the UK 13%.

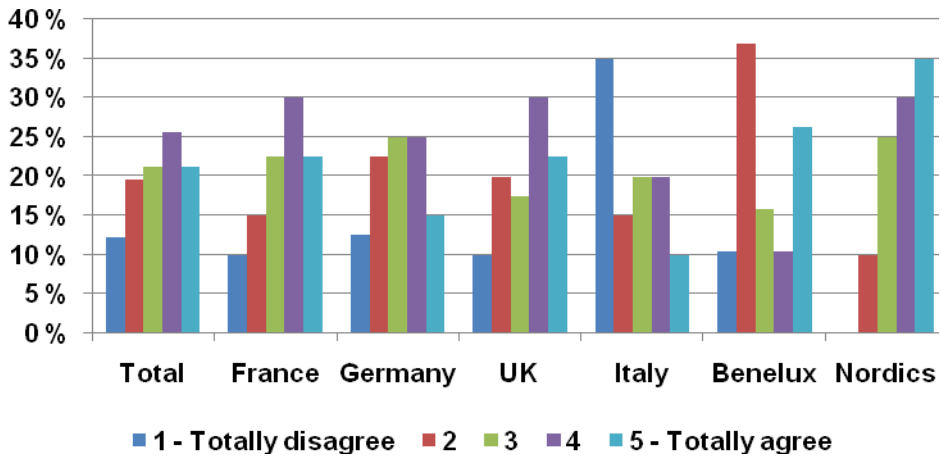
5.0 The mainframe and security

With today's applications shifting to open platforms like Linux, and the increasing accessibility of mainframe data via IP networks, multiple computing platforms and the Internet, millions of users can now potentially access mainframe data from anywhere. Taking this into account, the potential for mainframe security breaches today is greater than ever. As the nature of global business evolves, organisations will face new challenges on multiple fronts that will profoundly impact their ability to maintain adequate IT security on mainframe and other computing systems.

The security-rich holistic design of the mainframe can mitigate the risk of security breaches and help to protect an organisation's brand image—and bottom line. Originally designed to be shared by thousands of users, the mainframe has security built into nearly every level of the computer—from the processor level, to the operating system to the application level—thereby protecting organisations from malware, viruses and threats from insiders. The inherent security of the mainframe can also help meet regulatory reporting needs, including encryption, access control management, and extensive auditing.

So how do the respondents view mainframe security? When asked why the mainframe was such a valuable resource in the organisation, the most popular response was, 'it's an incredibly secure environment' (cited by 65% of respondents). When asked to agree or disagree with the statement: 'The mainframe-centric infrastructure is inherently more secure than its server-centric equivalent', 68% agreed or strongly agreed with the statement (see Figure 4). The argument for the mainframe being highly secure is also reflected in the earlier finding that the average amount of business critical data administered by the mainframe among all 'connected' respondents is 55%.

Figure 4: Can we ask you to agree or disagree with the following statement: 'The mainframe-centric infrastructure is inherently more secure than its server-centric equivalent'?



5.1 Country findings: security

Turning to the country findings, only 20% of Italian respondents viewed the mainframe as a key resource in the organisation (European average was 65%). This compares with 74% in the UK, 71% in Germany, 70% in France, 67% in the Nordics, and 58% in the Benelux.

The Nordic region agrees that a mainframe-centric infrastructure is inherently more secure than its servercentric equivalent (90% agreeing, against a European average of 68%), with France (76%) and the UK (71%) also recording above-average scores.

6.0 The mainframe and the skills shortage

Customers are recommitting to the IBM z/OS mainframe platform in ever-increasing numbers. This recommitment is driven by the inherent advantages the mainframe uniquely offers—including low total transaction costs, superior reliability and security, optimised scalability and a level of energy-efficiency ideally suited for today's focus on 'green IT'. Each of these ingredients have continued to underscore the long-term viability of the mainframe.

At the same time, the available pool of skilled mainframe professionals is shrinking, due to both the impending retirement of the industry's 'greatest generation' of mainframe experts and the fact that new IT staff has been motivated to pursue careers in distributed platforms over the past two decades. As a result, the lack of mainframe expertise can't be filled fast enough to ensure that the world's mainframes—and the volumes of mission-critical data and applications they support—continue to run uninterrupted. Customers therefore need help to fully capitalise on the potential value offered by the mainframe as the availability of mainframe professionals becomes increasingly constrained.

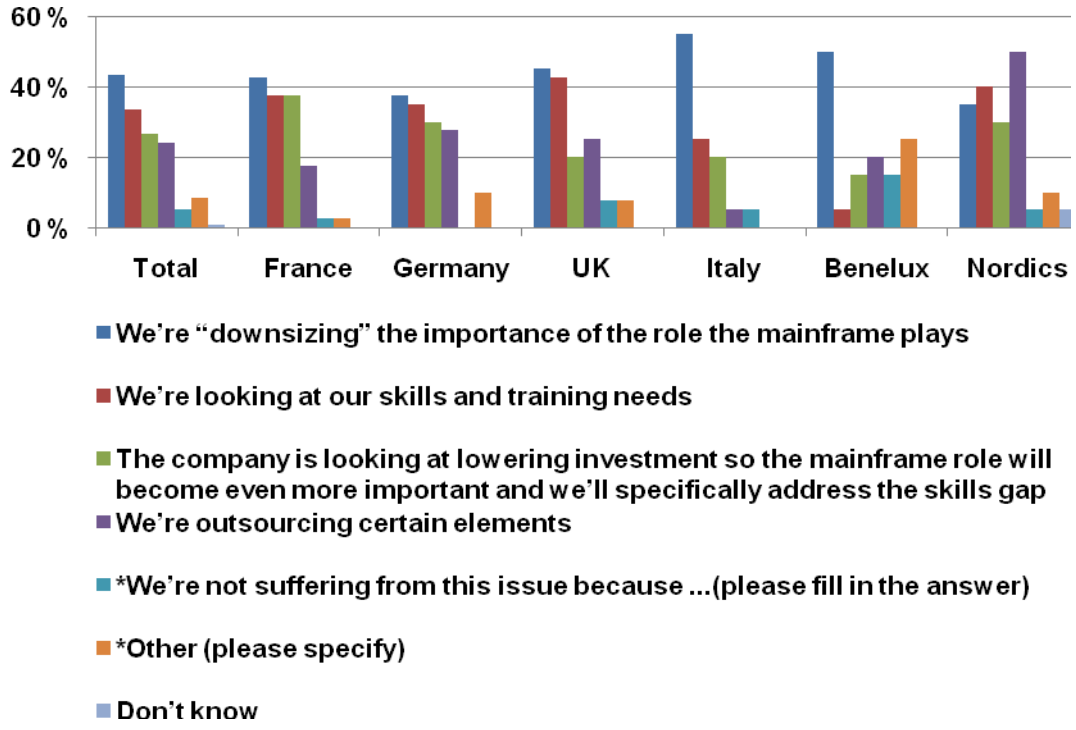
This argument is reflected in the survey findings. Asked what threats they envisaged for continued mainframe use in the organisation, 37% cited a 'relevant skills shortage'. It has also been said by many commentators that the mainframe user will soon start to suffer, if it hasn't already, from a shrinking workforce with the relevant skills not being readily available. 66% of all respondents agreed with this statement.

A new interface may be part of the answer. 52% of all respondents agreed that a web-oriented graphical user interface (GUI) that a less experienced member of the IT department could use would make the mainframe more attractive and would help to close the skills gap.

So how are companies dealing with the skills shortage? With companies having a mainframe skills shortage and, at the same time, being asked to deliver more with less, how are organisations tackling this problem? 43% state that they are 'downsizing' the importance of the role the mainframe plays (see Figure 5); 33% are looking at skills and training needs; 27% are looking at lowering investment so the mainframe role will become even more important and the skills gap will be address; and 24% are outsourcing certain elements.

It is also interesting to note that the mainframe 'not connected' group, 68% say they are 'downsizing' whilst this figure drops to 20% amongst the connected group. Over half of the connected group are looking at skills and training.

Figure 5: With companies having a mainframe skills shortage and, at the same time, being asked to deliver more with less, how is your organisation dealing with this problem?



6.1 Country findings: the skills shortage

The skills shortage appears most strong in France and the UK, with 55% and 43% respectively reporting that the skills gap threatens the continued use of the mainframe (while only 10% of Italian respondents perceive it to be a threat). France and the UK also record above average scores when asked whether the lack of relevant skills will impact the mainframe—recording 73% and 83% against a European average of 66%.

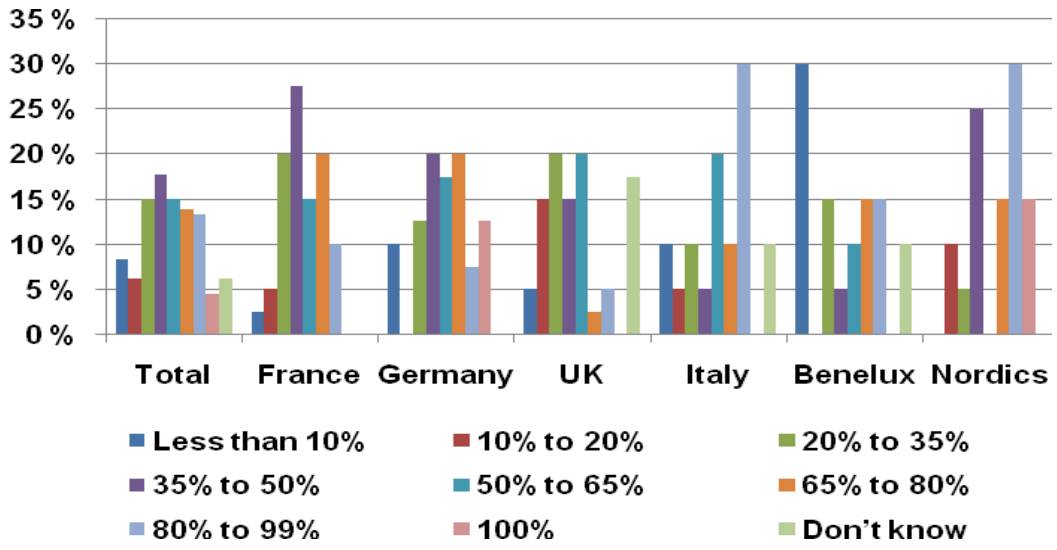
40% of Nordic respondents see the recruitment of the best people with the right skills set as a major challenge in 2009, against the average of 24%.

The approach to dealing with the problem also varies between countries. While the most popular European program is to downsize the importance of the mainframe (cited by 43%), only 35% of Nordic respondents are considering this course, with 40% in this region looking at more training and 50% outsourcing certain elements. In the UK, 43% are looking at extra skills and training to overcome the skills gap (against the European average of 33%).

7.0 The mainframe as a robust platform

True workhorses, mainframes are ideal for high volume data processing such as credit card processing and telephone billing services. Well engineered, mainframes are also known for their reliability availability and serviceability (RAS), making them excellent platforms for critical applications. As IT infrastructures increase in complexity and business demands escalate, mainframes can be at the heart of helping organizations adapt to changing business demands, improve services, and contain costs. Respondents to the survey stay true to these values, reporting that an average of 55% of the organisations' critical company data is administered by the mainframe (see Figure 6).

Figure 6: What percentage of your organisation's critical company data is administered by your mainframe?



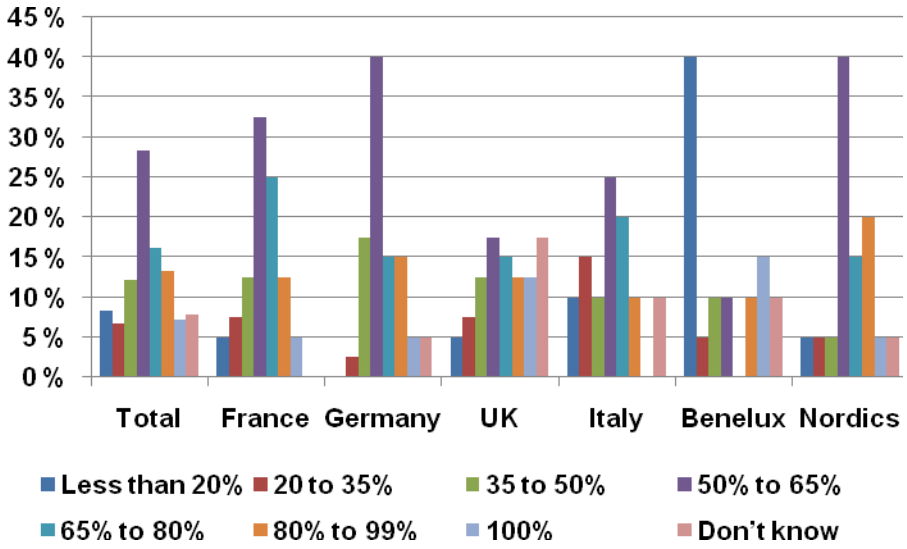
The argument for the robust nature of the mainframe goes further. Sixty three percent of respondents stated that the reason the mainframe is a key resource in the organisation is because 'performance levels are excellent, 52% stated 'it never goes down', and 48% stated 'disaster recovery and emergency management are both extremely efficient'.

There's more evidence to support the fact that the mainframe is a highly robust environment: 63% agree that applications can run reliably on the mainframe for years without any unscheduled interruptions.

Utilisation is cited as a frequent advantage of the mainframe. Whereas many distributed environment struggle to operate above about 30%, the mainframe regularly runs at extremely high levels of utilisation, with 99.999% uptime being a normal availability measure. The survey bears this out. Respondents stated that the average mainframe utilisation level (when it's operating at its busiest) ranges from 59% to 73% (see Figure 7). If we look at the 'not connected' and the 'connected' groups, then the not connected group reaches 62% at maximum whilst the connected group reaches 72% of maximum—suggesting much less over-capacity amongst the connected group.

The survey also asked how often, on average, the organisation reaches this busiest utilisation point. Respondents reported that the average is 299 days a year. This shows very high utilisation rates although there are huge variations across the countries. And again, looking at the connected and not-connected groups, the not-connected group reaches peak utilisation 213 days in the year, somewhat below average, whilst the connected group reaches this maximum utilisation level 387 days in the year on average. So the connected organisations are working their mainframes much harder than the other half of the respondent group.

Figure 7: Can you estimate your organisation's current mainframe utilisation level when it is at its busiest utilisation level?



7.1 Country findings: robustness

The lowest percentage of critical company data administered by the mainframe is in the UK which has an average of 44%. The highest average is in the Nordics with 66%. The pan-European average is 55% (See Figure 6).

Turning to the mainframe being a key resource, only 29% of German respondents indicated that 'performance levels are excellent', against a European average of 63%. 20% of Italians and 41% of UK respondents reported that 'the system never goes down' (European average 52%). And Italy also downplayed the statement 'disaster recovery and emergency management are both extremely efficient' with only 10% in agreement.

85% on Nordics respondents agree that the mainframe is a highly robust environment (European average 63%).

Mainframe utilisation also varies between countries. Against a European average of 66%, the average utilisation rate in Benelux, for example, is 48%; although it is above average in Germany (72%) and in the Nordics (73%).

There is also a huge disparity between countries concerning how often the mainframe reaches its busiest utilisation point (see Figure 8). The average is 299 days per year; however, it is as low as 99 days per year in Germany and 120 in France; whereas in Benelux it reaches 745 days a year and 460 days a year in the Nordics.

Figure 8: How often, on average, does your organisation reach this busiest utilisation point?