

MAINFRAME OUTSOURCING: REMOVING THE HIDDEN COSTS

EXECUTIVE SUMMARY

Compuware recently commissioned a global, independent study of CIOs to learn about their attitudes toward — and experiences with — mainframe outsourcing. The survey included 520 CIOs from a range of industries in the U.S., Europe and Asia. The results revealed several hidden costs associated with outsourcing that include rising MIPS consumption, and higher investments in testing and troubleshooting due to poor quality and performance.

Several Compuware solutions demonstrate how the new generation of mainframe solutions can aid in application performance optimization; knowledge transfer; testing and debugging; improving ROI for outsourcing efforts; and lowering the total cost of ownership for mainframes.

The mainframe has been haunted by predictions of its demise for many years, yet research shows it still forms the bedrock for a large number of enterprise IT environments. And today, companies are keen to leverage the reliability and power of the mainframe to accomplish even more. Where mainframes used to deliver back-end internal services, they're now being utilized in new ways, such as supporting customer-facing applications. Developing mainframe applications is a specialized discipline, so creating a bridge from the mainframe to more modern services poses challenges for IT. For example, Java and .NET didn't even exist when COBOL and CICS applications were written, so compatibility was never considered.

In 2011, Compuware's "Mainframe Succession: Long Live the Mainframe" study confirmed the reality of this new technology landscape, highlighting how — even at an executive level — the mainframe remains a top IT priority.

The results of that study showed that the number of developers trained to work with mainframes is dwindling; as such, legacy knowledge is in great demand. Added to this, most IT departments are facing budget cuts and — at the same time — increasing workloads as companies become more and more dependent on IT to operate the core functions of the business.

Outsourcing is often heralded as the cure-all to the conundrum, offering companies the promise of much needed cost savings and skills. However, there is a growing suspicion that outsourcers may not be the remedy to enterprise mainframe woes.

With this in mind, in September 2012 Compuware commissioned a new global study of 520 CIOs from enterprise organizations on the subject of outsourcing to determine CIO attitudes toward — and experiences with — mainframe outsourcers. The findings of this study uncovered hidden costs and quality issues, and are compiled here, with a comprehensive analysis of the data and an overview of potential solutions.

KEY HIGHLIGHTS FROM THIS STUDY INCLUDE:

- 71 percent of companies are frustrated by the hidden costs of mainframe outsourcing.
- 67 percent of companies expressed dissatisfaction with the quality of new applications or services provided by their outsourcer.
- 88 percent of companies on CPU consumption-based pay structures believe their outsourcer could manage their CPU costs better.
- 68 percent of companies outsource maintenance of mainframe applications because their in-house team no longer has the legacy knowledge to maintain them.
- 80 percent of companies believe difficulties in knowledge transfer are impacting the quality of outsourced projects.

MOTIVATIONS TO OUTSOURCE (PLUS HIDDEN COSTS)

To understand organizations' attitudes toward outsourcing, it is important to look at the motivations behind the decision to use a third party. Unsurprisingly, the key business driver for many is to reduce costs. This is true of both mainframe application development and maintenance (chart 1), as well as mainframe infrastructure and management (chart 2). Regional variations are evident; for example, the U.S. and Australia are clearly highly motivated by cost reductions, whereas Benelux and the U.K. have other key concerns. However, it is evident that outsourcing is seen as the more cost-effective option compared to in-house for most organizations (charts 1 and 2).

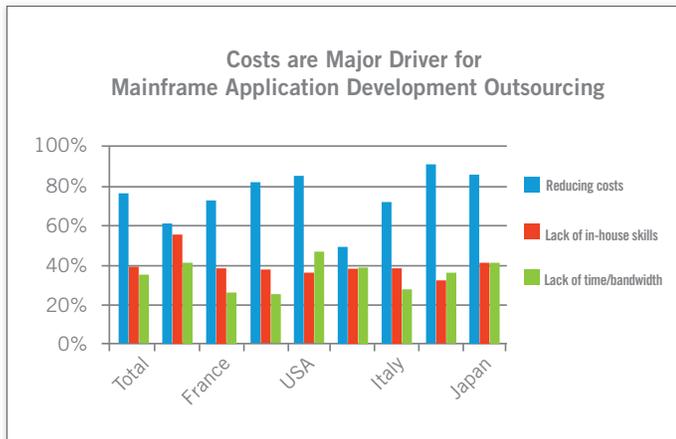


Chart 1: 76 percent of companies outsource mainframe application development to reduce costs; 92 percent from Australia and 86 percent from the U.S. outsource for this reason, as opposed to 50 percent from Benelux and 62 percent from the U.K.

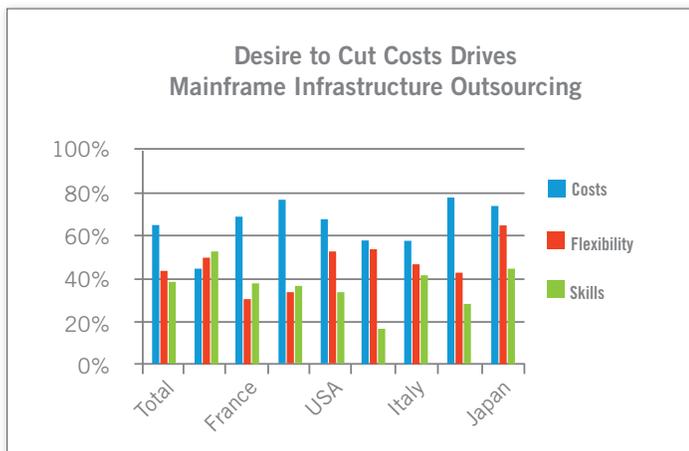


Chart 2: 65 percent of companies outsource mainframe infrastructure and/or management to reduce costs.

Despite this desire to reduce overheads, 71 percent of companies are feeling frustrated by hidden costs associated with mainframe outsourcing (chart 3). These costs can come in a variety of forms, such as spiraling MIPS consumption; increased investment of time and people in the testing and debugging stage; and additional QA and performance testing. It is these additional costs that are not usually taken into account when first signing a mainframe outsourcing contract, which can lead end users to feel that they may not be getting the same value as they originally signed up for.

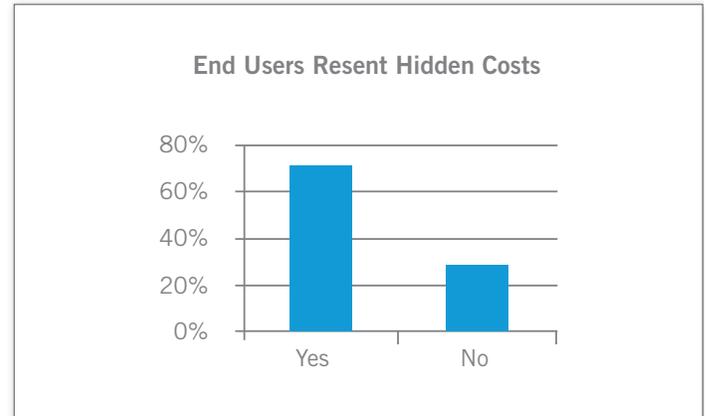


Chart 3: 71 percent of companies are frustrated by the hidden costs associated with mainframe outsourcing.

END USERS FRUSTRATED BY OUT-OF-CONTROL MIPS CONSUMPTION

It is an accepted fact that one of the greatest mainframe expenditures is CPU consumption. The survey found that this cost is increasing on average by 21 percent year over year (chart 4). Forty percent of respondents claimed their MIPS consumption is out of control; this problem seemed particularly acute in the U.K. and Japan (chart 5).

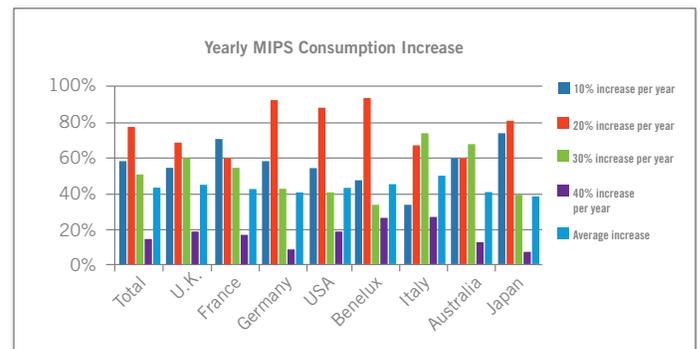


Chart 4: MIPS consumption rises by 21 percent year over year.

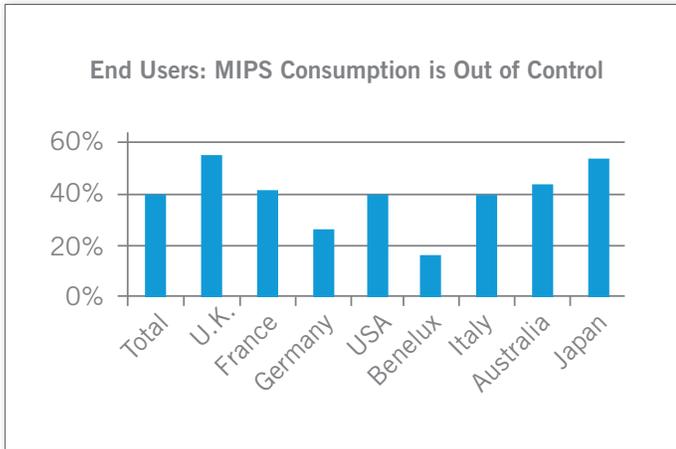


Chart 5: 40 percent of companies feel MIPS consumption is out of control; 55 percent of companies in the U.K., and 53 percent in Japan, feel this way.

Inefficient coding at the application level can increase MIPS, often because code has been rushed and/or thorough performance testing has been sidestepped. This fact has not gone unnoticed by survey participants. More than half of the respondents believe their application development and maintenance outsourcer does not worry about the efficiency of the applications that they write, leading to increased MIPS consumption (chart 6).

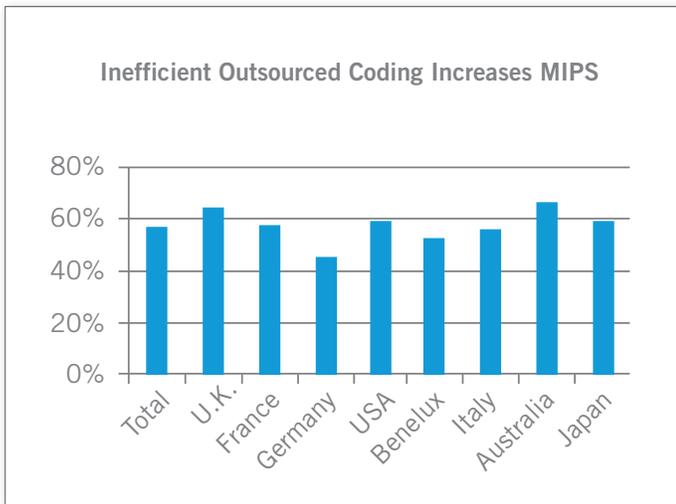


Chart 6: 57 percent of respondents believe outsourcers do not worry about the efficiency of the applications that they write.

Inefficient code can cause a problem for the 42 percent of respondents using pay structures based on CPU consumption (chart 7), as inefficiency has a direct impact on the cost of their outsourced projects due to increased MIPS. For outsourcers that are charging customers on a per consumption basis there is also little incentive to reduce CPU consumption, as this will only cost them money. As a result, the vast majority of companies using CPU consumption-based pricing structures believe their outsourcer could manage CPU costs better (chart 8).

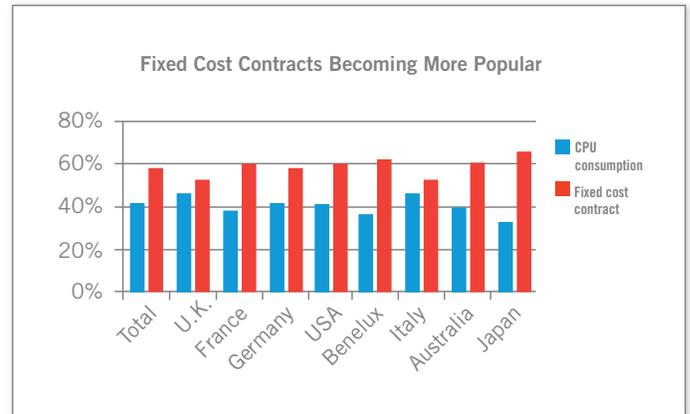


Chart 7: 42 percent of companies use CPU consumption-based pricing contracts; 47 percent in the U.K. do this and 51 percent in technology and telecommunications.

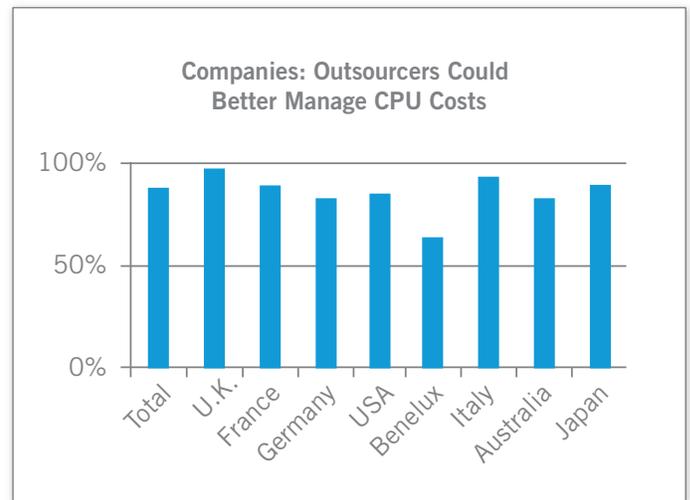


Chart 8: 88 percent of companies using CPU consumption-based pricing contracts suspect their outsourcer could better manage CPU costs; 98 percent in the U.K. think this and 93 percent in the technology and telecommunications sector.

Finally, despite regular declarations that “the mainframe is dead,” the research shows this has never been further from the truth. In reality, the mainframe is working harder than ever. Almost two-thirds of respondents (62 percent) are now using mainframe applications, which were initially designed to perform back-end functions, to now support external-facing services, such as e-commerce (chart 9). This is putting added pressure on the mainframe and, in turn, increasing MIPS. This is evidenced by the fact that 68 percent of respondents believe that the increase in mobile applications is driving higher MIPS usage (chart 10).

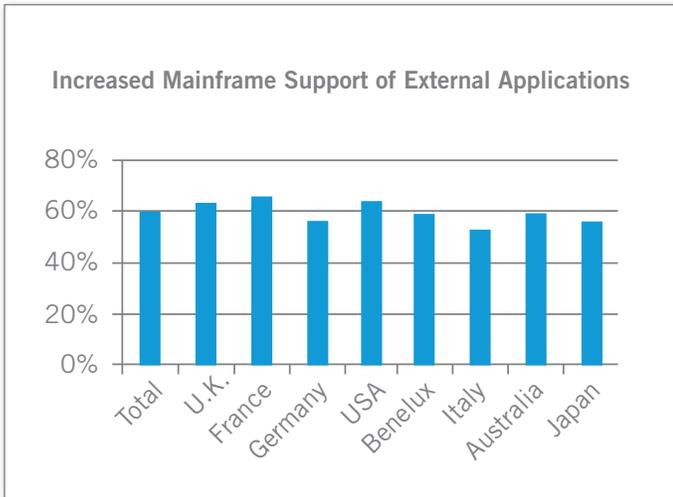


Chart 9: 62 percent of companies are using their mainframes to support external applications, such as online banking.

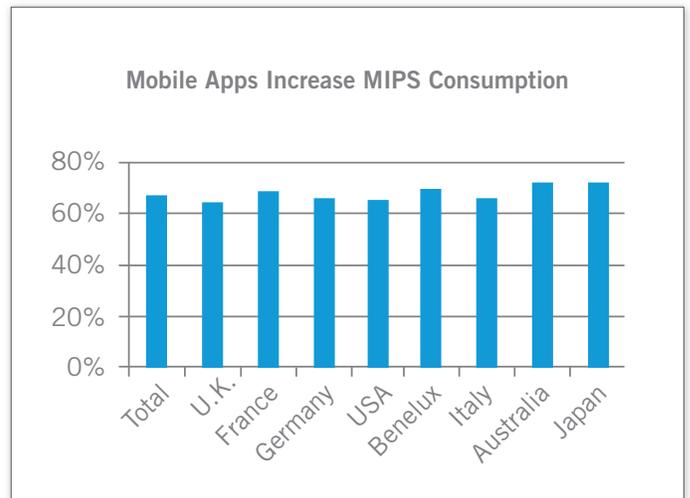


Chart 10: 68 percent of respondents believe that the increase in mobile applications is driving higher MIPS usage.

This all paints a worrying picture of strained relations between outsourcers and their customers, which is not helpful for either. For the relationship to work successfully, companies need to feel confident that their outsourcer is working with them to reduce overheads.

HOW COMPUWARE CAN HELP REDUCE MIPS CONSUMPTION

Compuware’s Application Performance Management (APM) solutions help outsourced organizations keep their outsourcer in check. For outsourced projects (either new development or maintenance), Compuware APM for Mainframe provides baseline measurement capabilities — enabling a performance comparison when the outsourcer returns the new or modified code. With Compuware APM for Mainframe, the end customer can quickly and objectively identify if the outsourcer has introduced inefficiencies into the application. In addition, Compuware APM for Mainframe provides suggestions for resolving inefficiencies, which provide the end customer with actionable information to share with the outsourcer. This quality gate process catches inefficiencies before the application is put into production, thus avoiding additional costs.

For organizations that have already outsourced their infrastructure, Compuware APM for Mainframe provides watchdog capabilities to find inefficiencies within production applications. These inefficiencies cost the end customer money in some fashion — especially for those who are charged by their outsourcer on a CPU-consumption basis. Armed with tuning recommendations, the end customer can offset the lack of incentive by the outsourcer to proactively find and implement cost reduction opportunities.

THE KNOWLEDGE TRANSFER ISSUE: HIGH TURNOVER AND A LACK OF DOCUMENTATION

As stated above, mainframe applications are increasingly being used to support external, or customer-facing, applications. This increasingly complex mainframe ecosystem requires specialized knowledge to integrate new services and develop applications that can bridge the gap between the mainframe and the modern world. Specifically, developers need to understand the makeup and workings of legacy mainframe applications to ensure that performance and efficiency are not compromised as new applications and services are delivered. However, the research found that 37 percent of respondents do not have vital documentation for existing legacy applications, creating a challenge for developing new services and applications (chart 11).

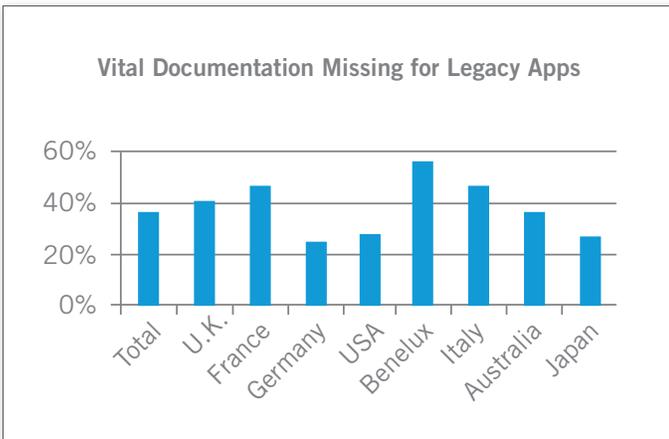


Chart 11: 37 percent of respondents do not have comprehensive documentation for existing legacy applications.

Companies are not only lacking legacy documentation. Many mainframe developers are retiring or planning to do so in the next five years, taking with them the historic understanding of the applications that they have developed. In fact, more than two-fifths of companies (41 percent) outsource some or all of their mainframe application development and maintenance because they do not have the skills in-house, making it the second biggest motivator for mainframe outsourcing after cost (chart 1). Additionally, of this group, over two-thirds (68 percent) outsource the maintenance of their mainframe applications because their in-house team no longer has the legacy knowledge to maintain them (chart 12). This lack of legacy documentation and skills within the in-house team is having a direct impact on the success of outsourced projects. In fact, the vast majority of companies (80 percent) believe there is a problem with knowledge transfer and that this is impacting the quality of their outsourced mainframe application development and maintenance projects (chart 13).

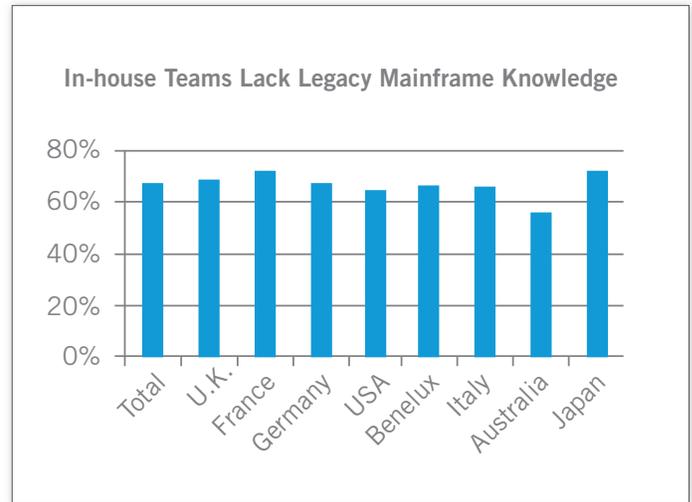


Chart 12: 68 percent of companies outsource because their in-house team no longer has legacy mainframe knowledge.



Chart 13: 80 percent of respondents believe knowledge transfer issues impact outsourcer quality.

Added to the issues surrounding knowledge transfer is staff turnover within outsourcer organizations. This can impact the service delivered, as knowledge will often be lost in the handover from the old team member to the new one. Sixty-five percent of respondents cited staff churn within their outsourcer as negatively impacting the quality and turnaround time for outsourced projects (chart 14). This appears to be a particular problem in Japan, where the figure rises to 91 percent.

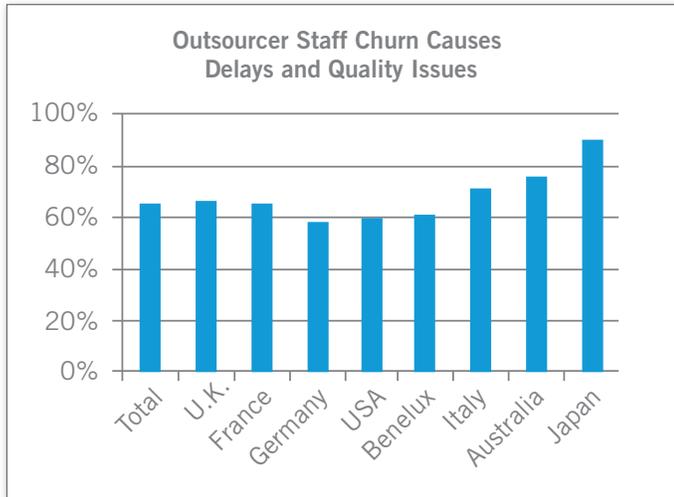


Chart 14: 65 percent believe staff churn within outsourcers negatively impacts the quality and turnaround time of work.

As the mainframe is expected to continue delivering more complex services, having a good base of information is essential. It is therefore no wonder that quality is suffering as a result of the knowledge gap. To create new applications that will deliver a good end-user experience without CPU costs getting out of control, it is essential to understand the environment that you are working within. Given the fact the mainframe is now servicing customer-facing applications, these problems will also become much more visible. This is an issue that companies need to collaborate with outsourcers on, to ensure that if documentation or legacy skills are lacking they find an alternative way to ensure that the gaps are bridged and knowledge transfer still takes place.

HOW COMPUWARE CAN HELP EASE THE TRANSFER OF KNOWLEDGE

When outsourcing application projects (new development or maintenance), Compuware Developer Productivity Solutions provide a framework for exchanging application knowledge from the end customer to the outsourcer. Having application flow diagrams, program structure charts, file structure insight and coding quality metrics provides the end customer with current and automated documentation on applications. This information facilitates better requirements communication with the outsourcer — enabling them to hit the ground running with intelligent insight into the complexities of business applications. The end result is increased outsourcer productivity for meeting project deadlines — as well as increased code quality.

POOR QUALITY IN OUTSOURCED PROJECTS

As we've seen, issues with knowledge transfer, lags in investment and inefficient coding are not only leading to a rise in costs, but also a deterioration in quality. In fact, more than two-thirds (67 percent) of respondents who outsource mainframe application development and maintenance are dissatisfied with the quality of new applications or services provided by their outsourcer. This number is particularly high in Italy and France (chart 15).



Chart 15: 67 percent of companies are dissatisfied with the quality of new applications or services provided by outsourcers; 78 percent in Italy and 77 percent in France.

As a result, 54 percent of companies have had to increase investment in performance testing and troubleshooting, due to the poor quality of work provided by their outsourcers (chart 16). Additionally, 51 percent of respondents outsourcing their mainframe application development and maintenance have had to increase investment in internal QA teams to monitor the work provided by their outsourcers. This is particularly true in Australia and the U.K. (chart 17).

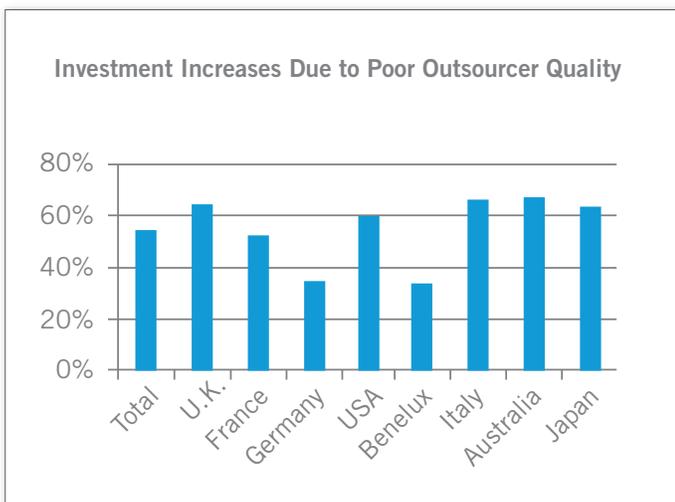


Chart 16: 54 percent of companies have had to increase investment in testing and troubleshooting due to the poor performance of work being delivered by outsourcers.

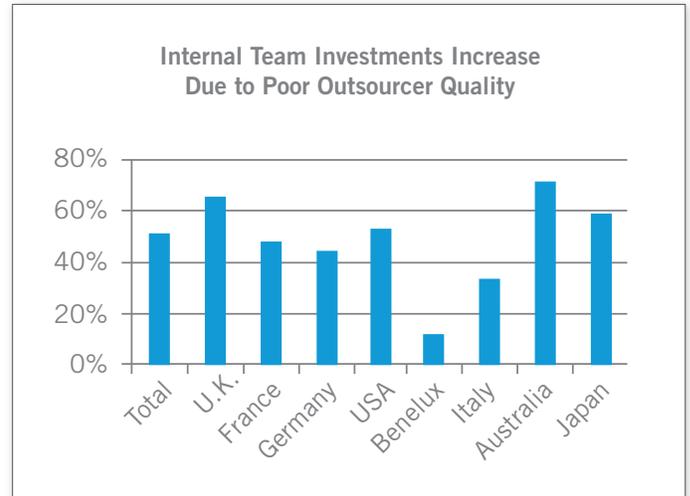


Chart 17: 51 percent of companies have increased investment in internal QA teams due to the poor quality of outsourcer work; 72 percent in Australia and 66 percent in the U.K.

Almost half of respondents find that the error and bug rate in application code delivered by an outsourcer is higher than with in-house developers (chart 18). In fact, IT teams are spending an average of 10 days on any given project fixing application bugs and performance problems from outsourcers (chart 19).

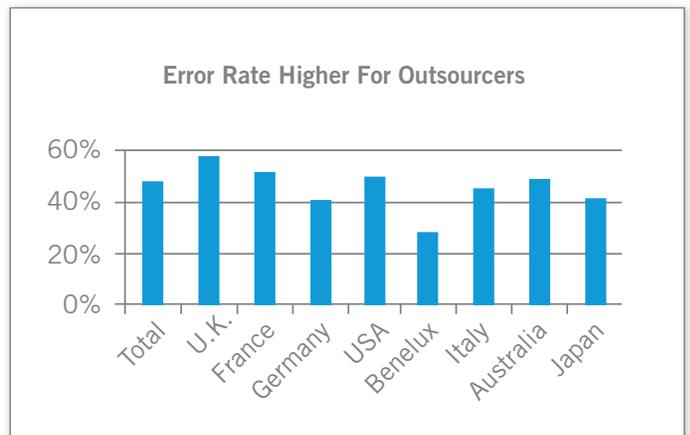


Chart 18: 47 percent find the error rate in code delivered by an outsourcer higher than with in-house developers.

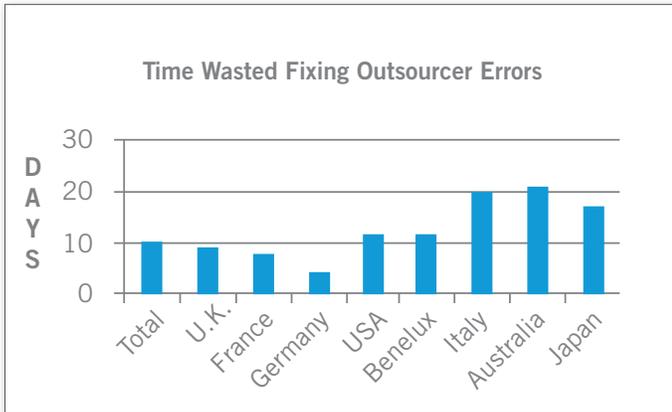


Chart 19: Companies spend, on average, 10 days fixing problems from outsourcers on any given project.

This increased pressure on internal IT departments to fix problems with outsourcers' work is particularly problematic when you consider the fact that a number of companies are outsourcing so their internal teams can concentrate on different areas of the business. In fact, 35 percent of companies stated that they outsource because their in-house developers do not always have the bandwidth or time to meet business requirements (chart 1).

So despite the fact that people are buying services to reduce an internal team's workload, many companies must still invest more than originally planned to roll out new applications. This is creating more costs and headaches for companies, as they are forced to divert IT resources away from other projects to pick up the additional work that is being created by outsourcers. As a result, important projects could be delayed as unforecasted investments of time and people are required to ensure mainframe applications are maintained and new applications linking back to the mainframe perform and meet business needs.

HOW COMPUWARE CAN HELP IMPROVE THE QUALITY OF OUTSOURCING

Compuware enables an IT organization to overcome the quality challenges of outsourced projects in several ways.

- Higher quality test data drives higher quality testing. Compuware Test Data Optimization provides the end customer with a repeatable, cost-effective process for creating high-quality test data to provide to their outsourcer.
- Code quality metrics give the end customer the opportunity to see if coding changes have been done properly.
- The end customer can require the outsourcer to provide test coverage reports (showing all new or modified code was tested before being returned).
- The end customer can easily obtain quality, test coverage and performance metrics from the testing done in-house prior to migrating the application to production.

Combined, these capabilities enable the end customer to mitigate outsourcing quality risk and cost — thus protecting the desired outsourcing savings.

CONCLUSION

The Compuware study of CIOs highlights the fact that many companies are struggling to manage the development and maintenance of their mainframe applications and associated costs. Outsourcing is often seen as a silver bullet solution for this problem, promising lowered costs and skilled workforces. However, the experience of CIOs suggests that the promise is not always living up to expectations and there is evident frustration among businesses that spiraling costs could be avoided.

While companies are still relying heavily on the mainframe to support back-end functions, the research shows this is increasingly being expanded to include highly visible front-line services. This is naturally not only putting the mainframe infrastructure under added pressure, but it is also increasing the complexity with regard to developing and maintaining applications. Add to this a widening knowledge gap, with in-house legacy skills and documentation becoming increasingly scarce and in turn making knowledge transfer even more difficult. The resulting impact, as the research demonstrates, is that MIPS are rising, quality is suffering and internal IT teams are being burdened with extra workloads due to increased testing and troubleshooting.

Fortunately there are solutions to help solve these issues. Companies should be looking to invest now to maximize the productivity of mainframe outsourcing contracts and avoid hidden costs. Compuware has years of experience helping companies:

- control costs associated with rising MIPS
- better understand and document mainframe applications
- improve and verify application quality.

CONTROL THE COSTS OF RISING MIPS

[Compuware APM for Mainframe](#) helps organizations that outsource application development and/or their infrastructure keep MIPS increases to a minimum. “Before” and “after” visibility into

application performance identifies any new performance problems. This proactive approach reduces application inefficiencies that cause excessive CPU consumption and greater hardware and software costs. Compuware APM for Mainframe provides the in-depth application performance data and remedy recommendations that IT professionals need to locate and eliminate mainframe performance issues with speed and accuracy.

BETTER UNDERSTAND AND DOCUMENT MAINFRAME APPLICATIONS

[Compuware Developer Productivity](#) solutions provide essential application analysis to help outsourcers understand application functionality. Having application flow diagrams, program structure charts, file structure insight and coding quality metrics means outsourcers can provide better estimates, meet SLAs and improve code quality.

IMPROVE APPLICATION QUALITY AND PERFORMANCE

[Compuware Developer Productivity](#) and [Test Data Optimization](#) solutions help improve code quality in a number of ways. Higher quality test data and metrics for code quality, test coverage, and performance can be used by both the end customer and the outsourcer to meet quality standards and keep testing and problem resolution costs to a minimum.

METHODOLOGY

Compuware commissioned Vanson Bourne, an independent research company, to conduct a study looking at the impact of new IT trends and models on the application environment. In September 2012, the independent research firm interviewed 520 chief information officers (CIOs) from large enterprises across a range of industries in the U.S., Europe and Asia. The firm spoke with 100 CIOs each in the U.S., the U.K., France and Germany, as well as 30 CIOs each in Italy, Benelux, Japan and Australia.

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