

FINANCIAL SERVICES

WORLD QUALITY REPORT

2012



Table of Contents

Preface	3
Executive Summary	4
Compliance, Business Growth, and Cost Optimization Are Evident in FS Business and IT Priorities	6
▪ Imperatives Facing FS Are Clearly Translating into Priorities for IT	7
▪ IT Investment Is Aligned to Deliver Business Goals	8
▪ QA at FS Firms is Evolving, but Greater Maturity Would Pay Dividends	10
▪ Quality Blueprint Helps FS Firm Plot the Path to Greater Testing Maturity	11
Testing Is an Independent Discipline at FS Firms, Focused on Delivering Effectively and Efficiently	12
▪ Testing Still Takes Many Organizational Forms	13
▪ Testing Budgets Remain Tight	13
▪ QA Is Challenged to Deliver Cost-Effective Quality Solutions	14
▪ Many FS Firms Outsource Testing Manpower and Activities	14
▪ Outsourcing of End-to-End Testing Could Be in the Cards for Many More FS Firms; SLAs are Critical to Accountability	16
Lifecycle Management Is Maturing, and Business Alignment Remains a Key Goal for QA	18
▪ FS Firms Show Growing Interest in the Testing Center of Excellence Approach	19
▪ FS Firms Need Clear Goals when Establishing a TCoE, but the Benefits Are Tangible	19
▪ Vast Majority of QA Organizations Use Metrics to Demonstrate Value to the Business	20
Testing Is Becoming More Complex, Increasing Demand for Automation	22
▪ Need for Security Keeps Test Data Provisioning Close to Home	23
▪ Growth in Online/Cloud Applications Expands the Need for End-to-End Security Testing	25
▪ Mobile Offers New and Unique Challenges to QA Testers	26
▪ Obstacles Exist to Fixing Security Defects Uncovered by QA	27
FS Firms Are Increasingly Eyeing the Cloud, but Perceive Risks	28
▪ Security is the Most Commonly Cited Risk of Cloud Computing	29
▪ Pay-per-Use Models Are Especially Important for Performance Testing	31
Top Priorities for QA Organizations at FS Firms Today	32
About the Study	33
▪ World Quality Report Survey	33
▪ Quality Blueprints	33

Preface

Welcome to the second annual *Financial Services World Quality Report (FSWQR)*, which presents a unique look at the maturity level of testing organizations within financial services (FS) institutions across the globe. (For the purposes of this report, FS comprises banking, capital markets and insurance firms.) The *Financial Services World Quality Report 2012* builds on research from the *World Quality Report (WQR) 2011/12* from Capgemini, Sogeti, and HP.

The survey conducted for the *World Quality Report 2011/12* generated responses from CEOs, CIOs, CFOs, IT directors and managers from around the world. For the *FS WQR*, we further analyzed the *WQR* responses from 175 FS firms.¹ We conducted additional research on issues specific to the FS sector via an *FS WQR* survey, for which there were 267 respondents, and we studied insights gleaned from numerous Quality Blueprint (QBP) testing assessments conducted by Capgemini for large FS firms across the globe.

Our research comes at a critical time for the FS sector. As the initial impact of the global financial and economic crisis abates, FS firms face a "new normal," one in which margins are squeezed, revenues are declining or growing more slowly, the future of certain revenue streams is unclear, and risk management and regulatory demands are more rigorous. Our survey shows the Quality Assurance (QA) function at FS firms is well aware of the tough operating conditions, which have translated for IT into a focus on compliance, business growth, and cost optimization.

And while the business imperatives are many and urgent, the testing-specific challenges for QA are also mounting. Customers and other third-parties are more demanding, and technology innovations mean FS firms are finding new ways every day to facilitate communications, interactions, and transactions with and among their retail customers, corporate clients, and other counterparties.

Of course, QA is also in a position to leverage technology to deliver state-of-the-art solutions, and is increasingly turning to the cloud, and to outsourcing providers, to tap into the range of expertise and environments they need to test modern-day applications properly.

The task is not an easy one, but our survey shows QA organizations at FS firms are embracing their remit, and using a variety of tools and strategies to deliver and demonstrate value to the business. Notably, QA is also learning to show value through activities that occur in earlier phases of the product lifecycle than were typical in the past, and at stages that ensure a tighter and more effective alignment of business, strategic, and IT priorities.

This report has been made possible by Capgemini's Financial Services Global Business Unit (FSGBU) Testing Center of Excellence teams, which seek to provide sector insights, capture industry best practices, and provide strategies for continuous improvement to our clients. We hope you find the report valuable and helpful when defining the direction of your quality improvement initiatives.



Govind Muthukrishnan
Global Leader
FSGBU Testing, Capgemini



Anurag Gupta
India Leader
FSGBU Testing, Capgemini

¹ For public companies, the sector was identified based on Forbes. For private companies, the sector was identified based on how companies identified themselves to the public.



Executive Summary

The findings of the second annual *Financial Services World Quality Report* reveal that the challenges facing Financial Services (FS) businesses are translating directly into a focus for IT on compliance, business growth, and cost optimization. Quality Assurance (QA) organizations are clearly seeking to deliver value to the business, and are especially focused on cloud services to optimize costs and increase agility, on enriching customer experience by providing services on handheld devices, social media/networks, etc., and in general on achieving "more for less."

The study reveals the emphasis differs slightly among FS segments.

- **Many banking respondents deemed cost optimization through process and technology advancements (cited by 57%), compliance/regulatory issues (56%), and business growth (53%) to be important or very important focus areas for IT, given the challenges currently facing the FS sector.** Accordingly, more often than others, banking respondents reported significant investment in business process management (BPM) packages for process and administration automation, as well as integration of IT systems across the organization, and enriching customer experience.
- **Among capital markets respondents, by contrast, 67% indicated growing the business is an important or very important focus, followed by cost optimization (53%).** These firms most often reported high or very high levels of investment in building or enhancing home-grown applications, and implementing industry packages. Many of the same compliance, cost, growth, and IT investment priorities proved to be top-of-mind for insurance respondents, though not as many as in banking and capital markets.

Whatever the specifics by sector, the study's findings clearly reflect the "new normal" for the FS industry, which features very different business economics, risk management, and regulatory paradigms than existed before the global financial and economic crisis. And the capabilities of the QA organization will certainly be critical in driving business success in this environment.

FS firms are all pursuing mobile solutions to enhance customer experience, for instance. Mobile applications must facilitate interactions and transactions in a wide variety of environments, involving myriad different handsets and operating systems—technologies that are themselves advancing rapidly and continually. QA will need to acquire new capabilities and tools, perhaps through partnerships, to make sure such applications stay secure, relevant to the needs of customers, and fully compliant.

But testing budgets remain tight even as the number and complexity of applications grows, so QA organizations are using a number of strategies to try and deliver value to the business. For example, the study shows:

- **More and more FS firms are considering the use of a Testing Center of Excellence (TCoE).** TCoEs can take a substantial amount of time (most often between 6 and 24 months) to operationalize, so only 1% of FS firms say they already have a fully operational TCoE, but another 55% of respondents have recently started to establish a TCoE, or plan to in the future (either in-house or outsourced).

- **Outsourcing already plays an important role in testing, but could be used far more widely to help FS firms capture capabilities and value.** The survey shows 70% of responding FS organizations employ contract testers or outsource testing to third-party vendors, but only 3% said they have completely outsourced testing execution so far, and only 6% indicated they outsource between 76% and 100% of their testers. These numbers suggest there is huge potential for FS firms to expand the comprehensive use of outsourcing, perhaps to encompass end-to-end testing services.
- **The use of cloud and SaaS models is growing rapidly as firms seek to modernize IT infrastructure and services, reduce complexity, and cut operating costs,** as well as capturing benefits such as agility, and speed to market. Among surveyed FS firms, only 15% indicated they have no plans to migrate applications or hosting to the cloud in the next year, while 73% indicated they plan to migrate anywhere between 1% and 50% of their applications to the cloud, and 11% plan to move more than 50%.

These and other strategies show QA organizations at FS firms are actively aligning their strategies with business priorities, though they still have considerable room to mature.

Recent Quality Blueprint (QBP),² benchmarking analysis shows QA organizations at FS firms are at similar (average) levels of QA maturity as other industries in many key areas, such as testing environments and test process management, and are slightly ahead of most in terms of their test organizations.

To succeed however, the future for QA in FS is likely to see greater standardization of estimation tools and methodologies to improve testing, reduce errors, ensure security and performance, and speed time to market. The use of outsourcing, cloud and SaaS options is also likely grow so QA can access the breadth and variety of capabilities needed to properly mimic modern environments and loads, especially on complex and emerging platforms, such as mobile.

¹ Capgemini's Quality Blueprint (QBP) provides the tools and frameworks an organization needs to achieve a higher level of test maturity. It is based on Sogeti's Test Process Improvement (TPI®) methodology. For more information, visit http://www.capgemini.com/services-and-solutions/technology/quality_and_testing/solutions/quality_blueprint/



Compliance, Business Growth, and Cost Optimization Are Evident in FS Business and IT Priorities

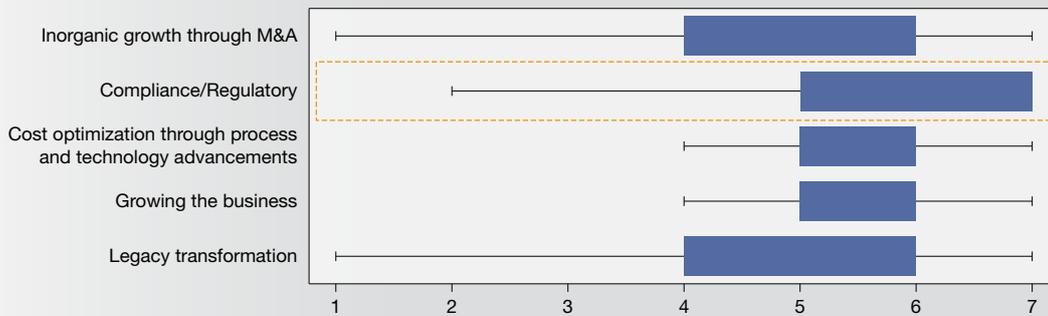
As the immediate effects of the global financial and economic crisis abate, the financial services (FS) industry is left to navigate a new reality in business economics, risk management, and regulation. At the same time, FS firms must manage the increasing demands of their retail and corporate customers and other third parties, while leveraging mobile, Internet, cloud and other technology innovations to facilitate communications, interactions, and transactions, and deliver state-of-the-art solutions.

The confluence of these dynamics means FS firms of all types are under pressure to innovate in operations and service delivery, in a cost-effective and efficient way, to drive profitability and growth.

Imperatives Facing FS Are Clearly Translating into Priorities for IT

The imperatives facing FS are clearly translating into priorities for IT. Our survey shows that across FS as a whole, compliance is first among equals in terms of the areas deemed to be important or very important for IT, given the challenges facing FS firms (see Figure 1). Also critical are issues such as business growth and cost optimization.

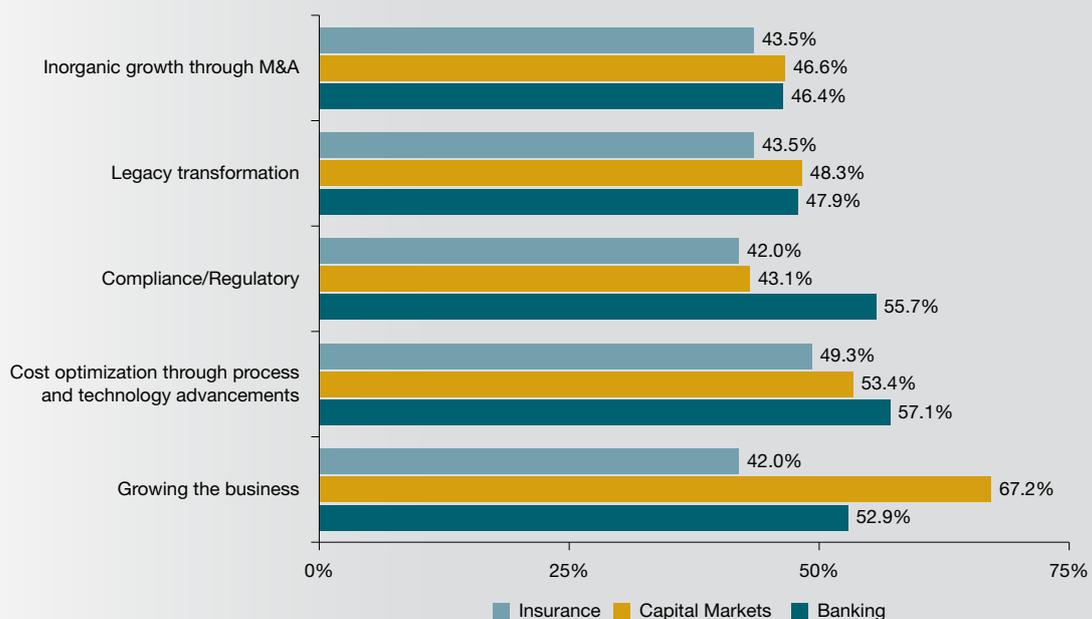
Figure 1 Important Focus Areas for IT Departments of FS Firms, 2011



Note: The important focus areas for IT departments of financial services firms are rated on a scale of 1-7 with 7 being extremely important and 1 being not at all important; each 'box' plots the distance between the 25th and 75th quartiles of the results
Source: Capgemini FS Testing World Quality Survey analysis, 2011-12

The emphasis differs a little by sector. For instance, banking respondents deemed cost optimization through process and technology advancements (cited by 57%), compliance/regulatory issues (56%), and business growth (53%) to be important or very important focus areas for IT (see Figure 2). Among capital markets respondents, 67% indicated growing the business is an important or very important focus, followed by cost optimization (53%).

Figure 2 Key Focus Areas for IT Departments of FS Firms, by Sector (%), 2011



Note: Respondents rated the importance of different focus areas for IT departments of financial services firms on a scale of 1-7, with 7 being extremely important and 1 being not at all important. This chart reflects 'important' and 'extremely important' responses (6 and 7 on that 7-point scale)
Source: Capgemini FS Testing World Quality Survey analysis, 2011-12

This is consistent with the specifics of how these sectors are being challenged right now. Banks, for instance, are directly feeling the bottom-line effects of global efforts to reduce and control systemic risk, and protect FS consumers. As regulators impose stricter requirements on capital and liquidity (e.g., via Dodd-Frank and Basel III), banks are having to steadily improve their liquidity and capital management, risk management, data sources, and business analytics. And they are doing so while other rules are crimping long-time revenue streams. The U.S. Volcker Rule, for instance, seeks to restrict certain types of trading, and separate the various types of business activities in which firms engage. New consumer protection initiatives have required banks and credit card companies to make fees more transparent, and in many cases to reduce those fees.

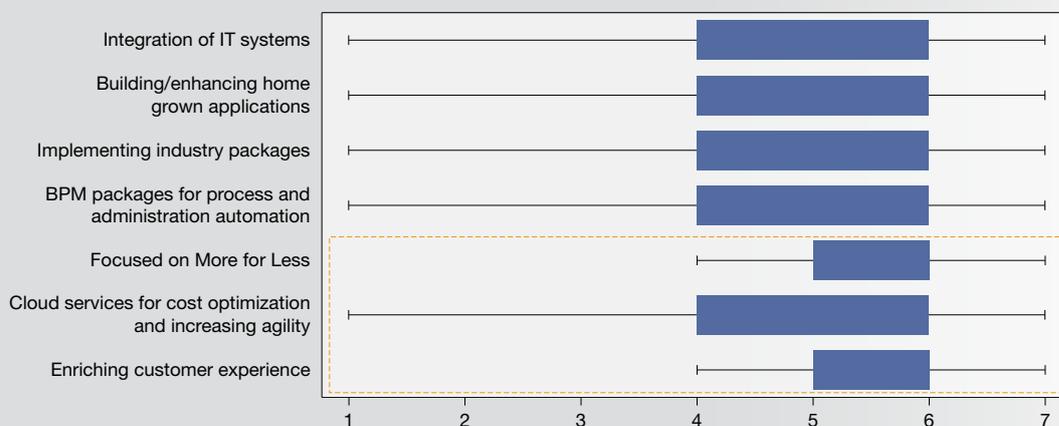
Notably, compliance and business growth are also more commonly cited as critical by FS respondents in the U.S. than in any other region. In the U.S., a slew of systemic and consumer-protection measures have already been introduced, but FS firms still have to determine what the full effects will be—and what additional constraints on their business will emerge when regulations such as the Volcker Rule are finalized.

Many of the same compliance, cost, and growth issues are also top-of-mind for insurance respondents, though not as many as in banking and capital markets. Again, this reflects the realities of the insurance segment, which is feeling the pressure to perform more efficiently, yet remains continually subject to extensive country and sector-specific regulations. European insurers, for example, have been preparing for some time to manage their response to the EU's Solvency II Directive, which sets capital standards for EU insurers, much like Basel banking regulations. And country regulators continue to pursue reforms in areas from mandatory coverage to claims rights and policy renewals, which translate into the need for insurers to be more efficient in their operations and more responsive to customers.

IT Investment Is Aligned to Deliver Business Goals

Our survey shows FS firms are investing broadly to support their focus and the priorities for their businesses, and are especially focused as a whole on cloud services to optimize costs and increase agility, on enriching customer experience by providing services on handheld devices, social media/networks, etc., and in general on achieving "more for less" (see Figure 3).

Figure 3 Level of IT Investments across Key Focus Areas by IT Departments of FS Firms, 2011

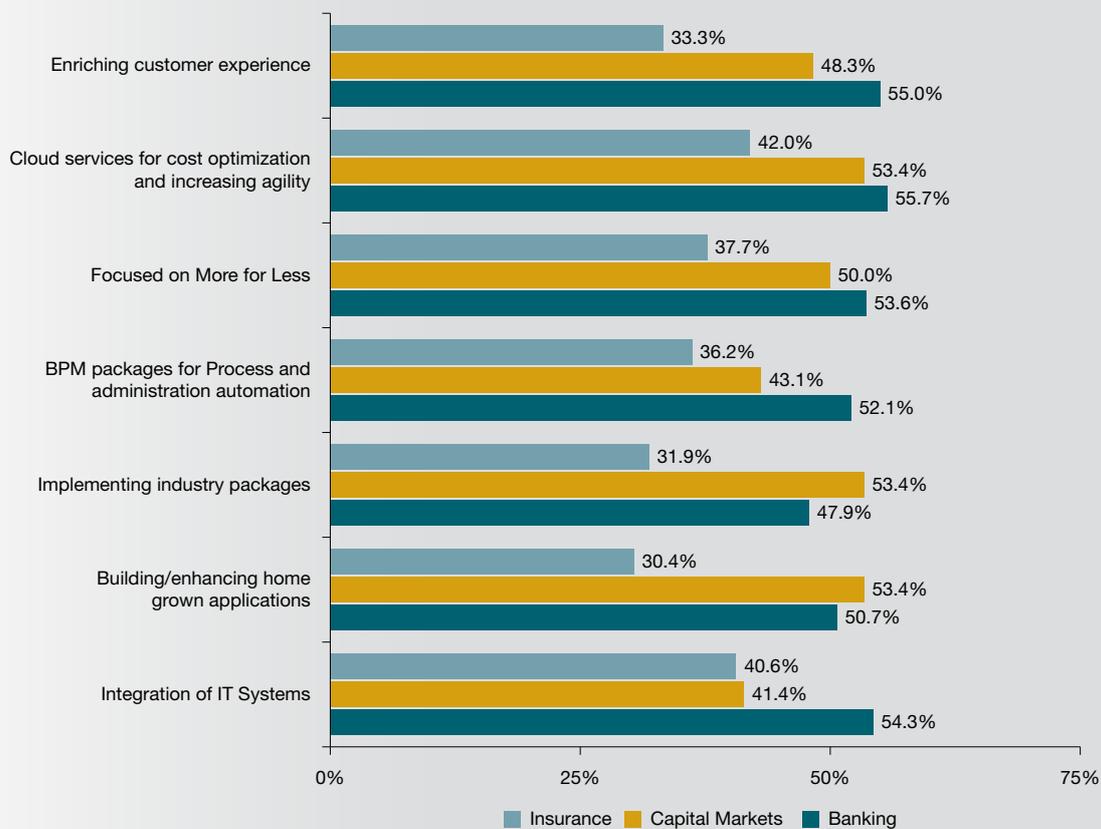


Note: Respondents rated the level of IT investment across key focus areas by IT departments of financial services firms is rated on a scale of 1-7 with 7 being very high investment and 1 being no investment; each 'box' plots the distance between the 25th and 75th quartiles of the results.
Source: Capgemini FS Testing World Quality Survey analysis, 2011-12

By sector, though, capital markets respondents most often reported high or very high levels of investment in building or enhancing home-grown applications, and implementing industry packages (see Figure 4). Banking respondents, more often than others, reported significant investment in business process management (BPM) packages for process and administration automation, integration of IT systems across the organization, and enriching customer experience.

Despite slight differences in emphasis by sector, it is clear the FS industry as a whole is focused on a variety of challenges right now, and that IT is well aware of the issues, and is pursuing solutions—helping FS firms meet their strategic imperatives to reduce costs, gain agility, and deliver enhanced customer experience, all while operating within rigorous compliance frameworks. The capabilities of the Quality Assurance (QA) organization will certainly be critical in driving success in this environment.

Figure 4 High Level of IT Investments across Key Focus Areas for FS Firms by Sector (%), 2011



Note: Respondents rated the level of IT investments across key focus areas by IT departments of financial services firms on a scale of 1-7 with 7 being very high investment and 1 being no investment. The chart reflects 'high' and 'very high' responses (6 and 7 on that 7-point scale)
 Source: Capgemini FS Testing World Quality Survey analysis, 2011-12

QA at FS Firms is Evolving, but Greater Maturity Would Pay Dividends

QA organizations at FS firms are capable of handling this responsibility, according to Capgemini's QBP benchmarking analysis, though they have considerable potential to mature further.

Recent QBP benchmarking shows QA organizations at FS firms are at similar (average) levels of QA maturity as other industries in many key areas, such as testing environments and test process management, and are slightly ahead of most in terms of their test organizations (see Figure 5).

Our survey findings show many QA organizations at FS firms are starting (or seeking) to capture the kinds of benefits seen at highly mature organizations, including greater alignment between business and IT, lower operating costs, better product quality, and faster time to market.

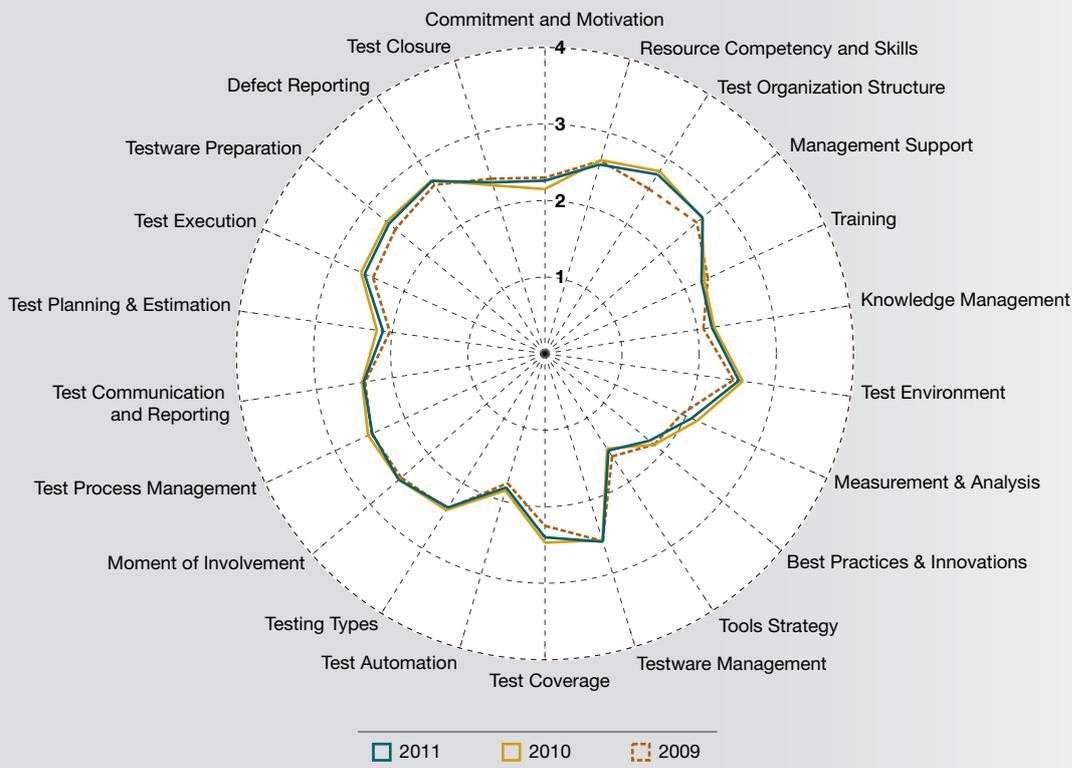
Overall, our QBP assessments show the maturity of FS firms overall did not increase significantly in 2011, but the gaps that have existed between banking, insurance, and capital markets are starting to close, such that no one sector is noticeably more mature than another in terms of QA maturity overall.

There is a tangible difference between regions, however. North American firms have the highest level of QA maturity across all parameters, while European firms fall largely in the middle, and Asia-Pacific firms have the lowest levels of QA maturity. Asia-Pacific is lagging mostly because while the region has long been a chosen destination for outsourcing, not many global FS firms have set up complete IT/QA operations there. As the offshoring trend increases, however, firms will increasingly build development centers offshore, and QA maturity in the region is bound to increase.

Many QA organizations have also begun, or soon will, to pursue the Center of Excellence model for testing (though because such initiatives take time, the benefits are not immediately visible in QBP benchmarking scores). In addition, many FS firms are using outsourcing to drive more business value from QA. And QA itself is focused on trying to deliver effective and cost-efficient solutions to the organization, despite age-old budget and organizational challenges. These developments should all drive additional business value for FS QA over time, especially if aligned with the broader business and IT priorities imperatives around compliance, business growth, and cost optimization.

Even more telling, perhaps, is the fact that the number of organizations that undertook a Capgemini QBP assessment in 2011 was double the number that had done so in 2010, a compelling indicator that more and more QA organizations are looking to assess their current state of maturity as a first step to improvement.

Figure 5 Year-on-year Maturity Assessment of FS Industry against Global Benchmark



Note: Please note the scale of the analysis where 1-Basic, 2-Intermediate, 3-Advanced and 4-Engineered
Source: Capgemini FS Global Quality Blueprint maturity analysis, 2011-12

Quality Blueprint Helps FS Firm Plot the Path to Greater Testing Maturity

The QBP, which is based on the proven TPI® methodology, assesses four key areas that control the software testing domain. Those areas are: testing lifecycle, test organization, infrastructure available to the testing team, and the testing techniques used by the team. When leveraged together, the TPI® methodology and QBP framework provide an industry benchmark that equips firms to make better-informed decisions about improving their testing performance.

A large North American FS firm used Capgemini's QBP-driven roadmap to undertake a structured path to improve test maturity. The results included:

- Continuous improvement in test maturity, which delivered better quality, lower costs, and faster time-to-market.
- Consolidation of tools and resources, which significantly improved asset utilization levels, resulting in cost savings and improved service levels.
- Standardization of processes, which helped to make testing more rigorous, enhanced the quality of the end-product, and improved customer satisfaction.
- Flexibility in testing models, which ensured much-needed scalability during peak demand for testing efforts.
- Greater employee satisfaction, due to a more clearly defined career path, and a wider range of opportunities for employees to use their capabilities.



Testing Is an Independent Discipline at FS Firms, Focused on Delivering Effectively and Efficiently

Testing has matured into an independent discipline at most FS firms, but is still challenged on many counts to provide effective and cost-efficient solutions to the organization. Yes, the budget remains tight, but there are also age-old cultural obstacles to success at some companies, including lack of business commitment, and ineffectual coordination between stakeholders. In part to drive more value from QA, the use of outsourcing is increasing, as are the expectations attached to such relationships. Notably, though, while no one organizational structure is favored across the board for testing, the goals are universally focused on delivering benefits such as standardization, cost optimization, and business alignment.

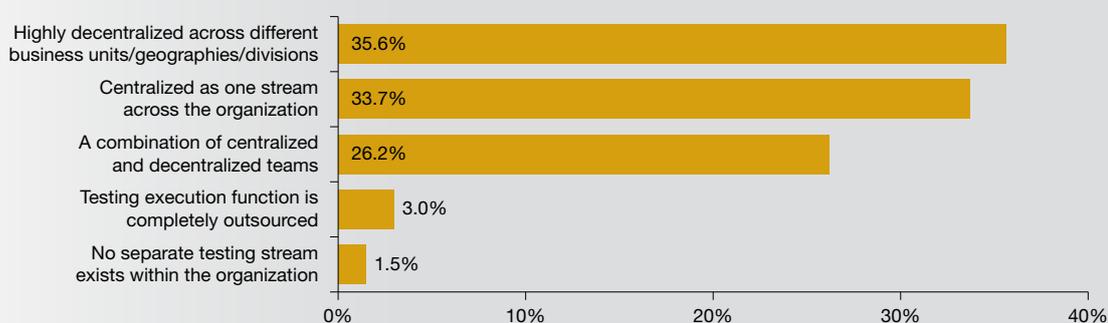
Testing Still Takes Many Organizational Forms

Testing is an independent discipline at 99% of surveyed FS firms, but no one organizational form predominates. Centralized organizations offer benefits such as standardized processes, shared costs, optimized resource allocation, and opportunities to facilitate the sharing of best practices, but decentralized models remain common as they are often easier to manage and run, and may offer more direct control over resources.

Among surveyed FS firms, testing is centralized as one stream across the organization at 34% of firms, and highly decentralized across business units, divisions, or geographies at 36% (see Figure 6). At 26% of firms, there is a mixture of both structures. Notably, only 3% of firms have completely outsourced testing execution, suggesting there is huge potential for FS firms to expand the comprehensive use of outsourcing, potentially releasing operating budget, and improving efficiency.

The variety of structures holds true across banking, insurance and capital markets, though the survey showed centralized testing is a tad more common among insurance respondents (39%).

Figure 6 Structure of Testing Stream in FS Firms across Business Units, Geographies, and Divisions (%), 2011



Source: Capgemini FS Testing World Quality Survey analysis, 2011-12

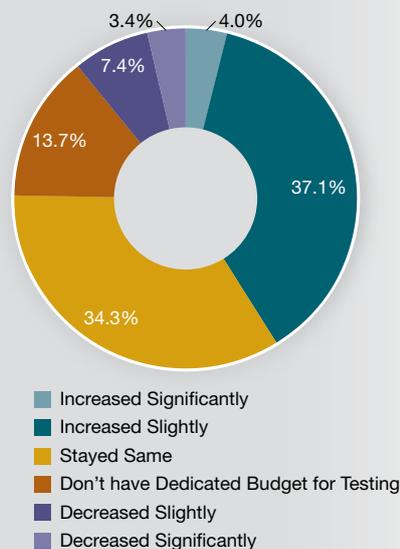
Testing Budgets Remain Tight

While testing is generally a discrete discipline, 14% of respondents said they do not have a dedicated budget for testing (see Figure 7). The lack of access to budget could pose an especially significant challenge for these QA organizations, but the survey shows few testing functions are flush with funds in the current environment anyway.

About one-third (34%) of firms said their QA budgets have remained the same for last two years, while a larger number (37%) increased their QA budgets slightly. Only 4% of responding FS firms said they have increased their QA budgets significantly. While the respondents themselves did not quantify the size of any increases, our field experience suggests a 'slight' increase in the current environment would be 2%-5%, while a 'significant' increase would be more than 5%.

There were no major differences in budget trends between regions, but a noticeably higher-than-average number of respondents in China reported a significant increase in QA budgets. This is consistent with the IT investment trends in emerging markets, where FS firms are less likely to be burdened by legacy infrastructure, and are investing proactively and aggressively in new solutions. Growth in technology investment is inevitably more restrained in highly developed markets, such as the U.S., where baseline investment levels are already enormous.

Figure 7 Change in Budget Allocation to Testing Function Over Last Two Years (%), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12

QA Is Challenged to Deliver Cost-Effective Quality Solutions

Lack of budget is clearly exacerbating the pressure on QA to provide more for less, forcing testing organizations to innovate in technology and processes, and to consider outsourcing to deliver a relevant proposition. But budget is not the only impediment faced by testing organizations as they try to deliver cost-effective quality solutions to the business.

In fact, while two-thirds of firms cited inadequate budget as a tangible challenge, about the same number cited the lack of overall coordination between business users, development and testing teams, limited domain and technology skills, or inadequate leveraging of technology innovation and industry best practices.

These obstacles largely held true across market segments, although insurance respondents were slightly less likely than those in banking and capital markets to cite inadequate budgets and a lack of business/management commitment as

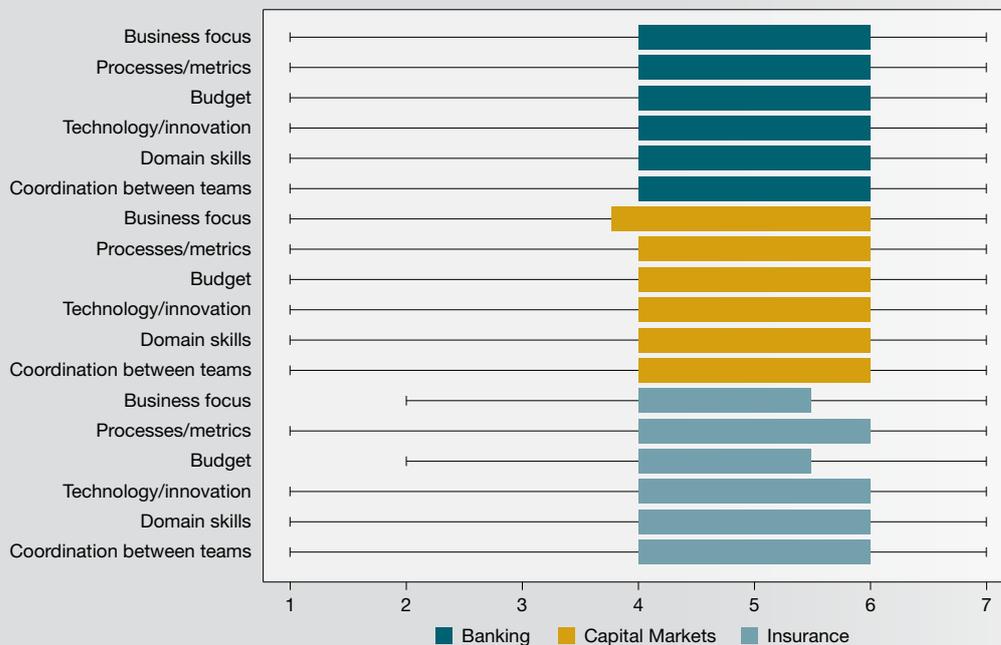
obstacles (see Figure 8). The major reason for this may be that many insurance businesses have tended to be highly committed to the use of QA for some time, and hence are more likely to have rallied discrete budgets for QA already.

Clearly, though, testing organizations at FS firms will need to overcome a range of cultural, organizational, and resource challenges if they are to deliver effectively the type of cost-effective solutions that are relevant to their businesses.

Many FS Firms Outsource Testing Manpower and Activities

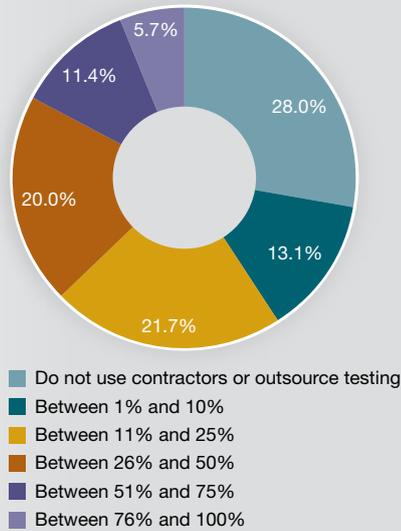
In the search for capabilities and value, the use of outsourcing is growing. The survey shows 70% of FS organizations employ contract testers or outsource testing to third-party vendors (see Figure 9). Of those, 60% are contracting or outsourcing between 11% and 50% of their testers, and 16% use more testers from outside the firm than from within.

Figure 8 Difficult Challenges Testing Organizations Face in Delivering Cost-Effective Quality Solutions by Sectors, 2011



Note: Respondents rated the current challenges testing organizations face in delivering cost-effective quality solutions on a scale of 1-7 with 7 being very difficult challenge and 1 being not a challenge; each 'box' plots the distance between the 25th and 75th quartiles of the results
Source: Capgemini FS Testing World Quality Survey analysis, 2011-12

Figure 9 Contractors and/or Outsourced Testers to Third-Party Vendors Across FS Firms (% of all testers), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12

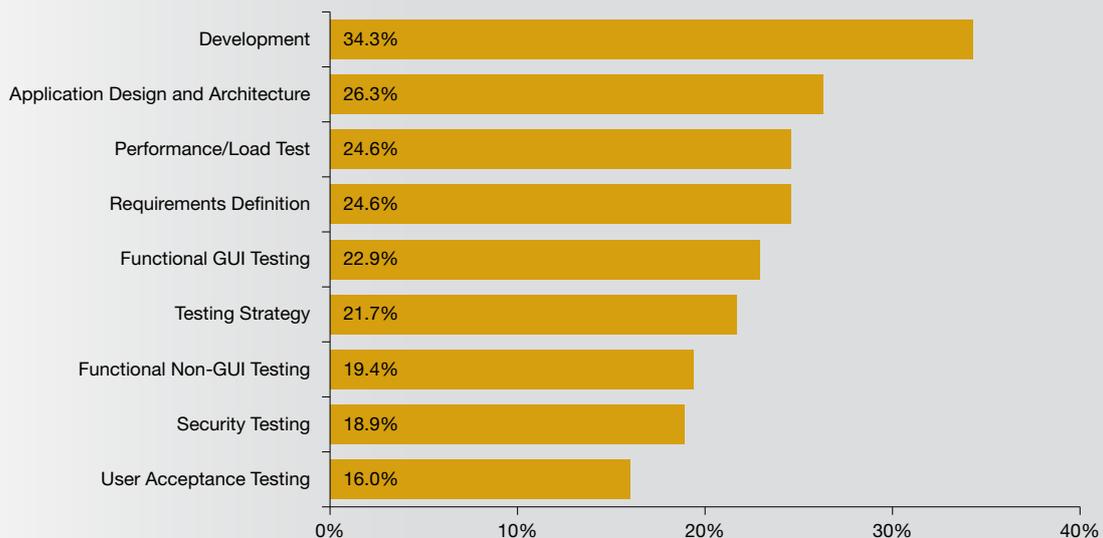
Out of the total, 6% of firms indicated they outsource between 76% and 100% of their testers, which confirms (along with the fact that only 3% of firms have completely outsourced testing execution) that there is significant opportunity for FS firms to expand their use of outsourcing.

Outsourcing is likely to be increasingly critical for FS firms as they look to focus on their core businesses while outsourcing to specialized vendors non-core activities such as QA/testing. In this way, FS firms are seeking to optimize the value these providers can deliver through their scale and capabilities. (Also see Outsourcing of End-to-End Testing Could Be in the Cards for Many More FS Firms, Page 16).

Not surprisingly, at present, the survey shows larger firms are more likely to outsource, and of those firms that do not use contract or outsourced testers, 71% are small firms with less than 500 employees.

Still, demand exists for outsourced services in all types of activities along the testing spectrum, as well as for strategic consulting services, such as test strategies, metrics programs, and tool consolidation (see Figure 10). Such services do not fall under the traditional purview of end-to-end outsourced services, and usually involve the short-term engagement of very high-level expertise.

Figure 10 Activities Contracted Out and/or Outsourced by FS Firms, (% of respondents), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12

Outsourcing of End-to-End Testing Could Be in the Cards for Many More FS Firms; SLAs are Critical to Accountability

As more and more FS firms experiment successfully with outsourcing basic testing services to nearshore and/or offshore facilities, many are becoming more comfortable with the possibility of outsourcing the full gamut of testing services to third-party vendors.

Notably, many large FS firms have experience to date of working with multiple vendors for different testing requirements, but are looking now to consolidate vendors to capture scale benefits, reduce costs, and simplify the management of such arrangements.

In the process, FS firms will increasingly demand complete operational transparency and accountability from their outsourcing partners, and are designing more rigorous service-level agreements (SLAs) to formalize their demands and expectations, and ascribe penalties for non-performance. Outcome-based models for QA services are also increasingly being adopted as companies seek ways to measure contract performance, rather than focusing entirely on resources. Still, successful implementation of these models is still rare to date.

Ultimately, there is no one outsourcing model that will be able to serve all needs, and firms will most likely need to use a combination of models to meet their outsourcing needs. However, accountability will be a critical component of any

outsourcing arrangement, as illustrated by Capgemini's commitment to provide "Best in Class" managed testing services, and deliver cost benefits of about £40 million to one FS firm over 5 years.

Our commitment to deliver enterprise savings through transformation initiatives and service excellence included delivering on critical and specific SLAs, including:

- Accelerated leverage of test automation from 0% to 35% over 3 years.
- Test service optimization of more than 13% through periodic business-driven TPI[®] assessments.
- "Shift Left," using our PointZERO™ approach, to provide more value to business earlier in the project lifecycle, using techniques such as Orthogonal Defect Classification, Static Testing, and requirements-based testing, to reduce defect leakage into production by 10% every six months.
- An output-based service model that uses test case points for test estimation, with a committed price improvement of 1% month-on-month from the 18th month of the engagement.
- Offshore leverage increased from 45% to 70% within the first year, including Test Automation-as-a-Service delivered completely from offshore.

To formalize any partner's accountability, FS firms will need a robust SLA model, such as the following example of common Capgemini SLA terms. These terms are used to establish a credit-reward model for delivering services to the client such that:

- A **Service Level Credit** is awarded to the client if Capgemini fails to meet a Minimum Service Level.
- A **Service Level Reward** is awarded to Capgemini if service levels exceed the desired targets.

Rigorous performance measurement is also integral to attaining the proper level of accountability from a service provider. In our engagements, for example:

- Outcomes for each Service Level must be reported regularly.
- Missed Service Level metrics are evaluated on a monthly basis.
- Any failure to meet any of the Minimum Service Levels as defined in the SLA framework makes the client eligible for a credit (the formula for which is defined as a percentage of a base primary risk amount).



Lifecycle Management Is Maturing, and Business Alignment Remains a Key Goal for QA

As QA organizations at FS firms continue to mature, an increasing number are considering the use of a Testing Center of Excellence (TCoE) to act as a consolidated hub of testing.

TCoEs offer an ideal model in which to standardize testing practices, methodologies, and metrics across all testing projects, share resources (processes, templates, tools, tips, estimates, etc.), reduce costs, and achieve a more direct and robust relationship between QA and the business. In firms that opt to retain testing as a decentralized function, the TCoE functions as a project management office (PMO) for testing to ensure that at least some of the same benefits can be captured as in a centralized structure.

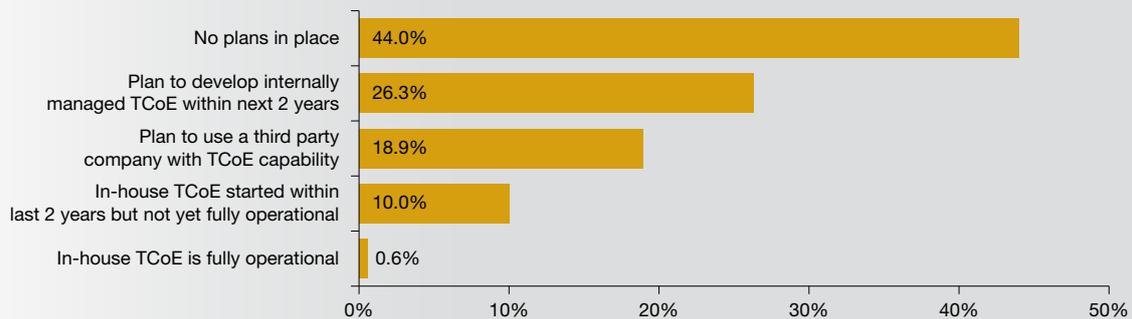
FS Firms Show Growing Interest in the Testing Center of Excellence Approach

Less than 1% of responding FS firms said they already have a fully operational TCoE, but that number is probably small because it takes a substantial amount of time (most often between 6 and 24 months) to set up and operationalize a TCoE. Interest in the TCoE approach is clearly more widespread, with another 10% of respondents saying their firms started to establish a TCoE within the last two years, and 45% saying they have plans to leverage a TCoE approach, either in-house or outsourced in the future (see Figure 11). At present, though, 44% of FS firms say they have no plans to use a TCoE model.

Interest in TCoEs is not limited to large firms: 21% of small firms (less than 500 employees) said they have plans to develop a TCoE compared to 33% of medium-sized firms (between 5,000 and 10,000 employees) and 21% of large firms (10,000 plus employees).

Any firm aspiring to a TCoE model, though, will first need to assess the current state of their testing organization to gauge the maturity and competitive positioning of current test processes, and understand what steps are needed to achieve business-specific goals and align more efficient and effective test processes with those business imperatives.

Figure 11 FS Firms' Plans to Create a Standardized/Industrialized Testing Center of Excellence (%), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12

FS Firms Need Clear Goals when Establishing a TCoE, but the Benefits Are Tangible

Setting up a TCoE takes time, and a structured approach. For one Wall Street firm, Capgemini began by first helping the firm to:

- Assess and analyze existing process frameworks and test methodologies to understand the current situation and key "pain points."
- Identify opportunities where existing strengths could be leveraged.
- Identify opportunities for improvement in the testing framework.
- Identify key tracking parameters for cost optimization and quality improvement.
- Implement improvements in a staged manner.
- Monitor the progress using a defined set of metrics.

The initiative delivered tangible benefits to the client, including:

- Reduced time-to-market for new application features, due to process standardization.
- An optimized QA process framework to meet specific client business requirements.
- Resource consolidation across business units, which improved service levels.
- Cost optimization via 100% automation of identified applications. For example, regression-testing time was reduced by nearly 80% per cycle.

Vast Majority of QA Organizations Use Metrics to Demonstrate Value to the Business

The way firms collect, document, and share QA metrics is also a strong indicator of the maturity and efficiency of their QA processes, and 85% of surveyed FS firms indicated their QA organizations are using some form of metrics to demonstrate their value to the business.

The vast majority (85%) said they consistently calculate and analyze quality metrics, though only a small percentage (9%) use specialized tools designed for managing the QA process. In fact, nearly half (47%) said they use spreadsheets to aggregate and share QA metrics they have collected manually or automatically (see Figure 12). Only 28% of firms use professional business intelligence (BI) tools to collect, share, and distribute QA metrics, perhaps because the costs tend to be high.

Medium-sized firms (between 5,000 and 10,000 employees) were most likely to say they rely on BI tools (42%), while large firms (10,000-plus employees) lag behind, with just 21% indicating they collect, document and distribute QA metrics using BI tools, and one-third saying they use home-grown Excel-based tools. This is probably because larger organizations are more likely to work in silos, and to be using different metrics in different parts of the organization (either in terms of measurement and/or taxonomy). Replacing these home-grown approaches with standard commercial BI tools is therefore an especially complex undertaking for larger firms.

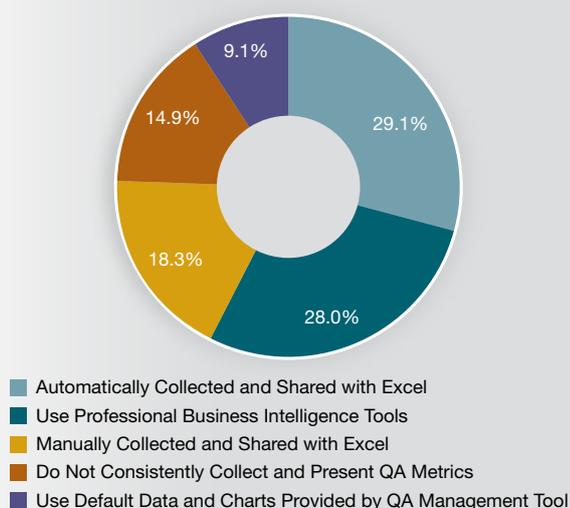
Quantifying the Financial Impact of Defects Is Just One Way to Demonstrate Value

Aligning QA metrics with business goals can clearly help QA organizations to establish a correlation between application quality and business revenues, but the survey shows there is no clear consensus on how best to demonstrate that value to the business.

When asked how QA proves it is delivering value, 29% of respondents said they quantify defects in terms of financial losses. In other words, QA tries to demonstrate value in terms of the potential loss of revenues that could occur in the case of service degradation or failure. A similar number (27%) said they align their QA metrics with business goals (see Figure 13). Both of these approaches are designed to resonate with the business, but QA organizations will need to take care to couch value in terms of specific business imperatives, such as compliance, business growth, and cost optimization, to make a real impression.

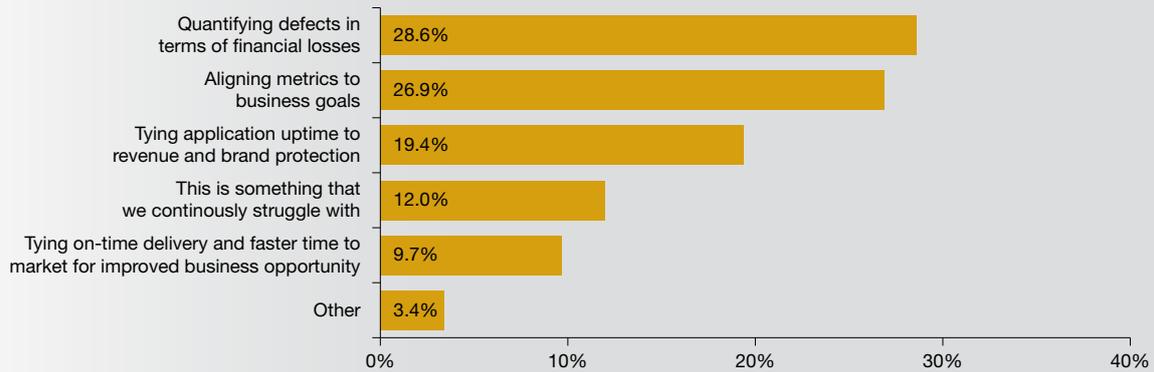
It will also be hard for QA to demonstrate value if it is unable to benchmark its own costs. The survey shows little consensus on how best to estimate the QA effort required for a given project. The most common response (34%) cited the use of internally developed estimation methods, and an additional 31% approximate the effort required for a new project based on their own past experience, or by assuming their effort to be some portion of the total development effort (see Figure 14). Only 19% of respondents said they use industry standard estimation methods, such as test case points, and more than one in ten firms (12%) do not estimate at all; they simply test until time/budget has run out.

Figure 12 FS Firms Collecting, Sharing, and Presenting QA Metrics (%), 2011



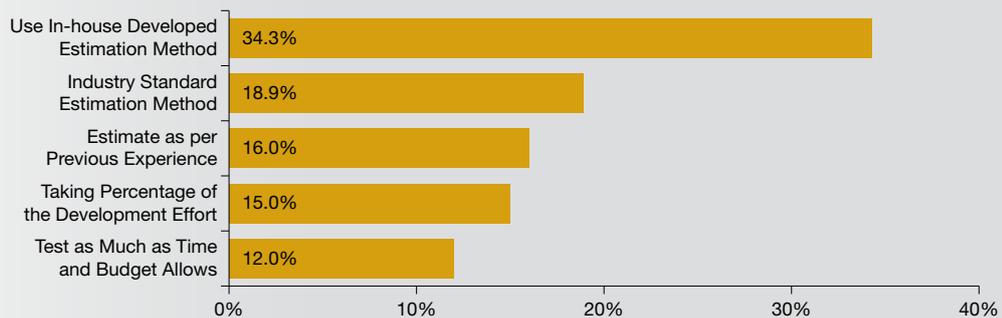
Source: Capgemini Testing World Quality Survey analysis, 2011-12

Figure 13 How QA Organizations Prove That They Are Delivering Business Value to the Firm (%), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12

Figure 14 How Do FS Firms Estimate QA Effort for a Project? (%), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12

While internal estimation methods may be accurate, they are by nature proprietary, so firms will need to evaluate such. This alignment will enable firms to benchmark metrics such as productivity and defect density against peers, and make a more compelling business case to management when seeking commitment on budgets and timelines. QA organizations that continue instead to use generic or manual metrics will inevitably find it harder to demonstrate that they are delivering cost-effective solutions

and broader value to the business. Failure to adopt industry-standard estimation tools and methodologies could also impede the ability of QA to overcome risks around project delays and errors.

Whatever iterations occur in measurement practices, the key will be to ensure traditional lifecycle-management metrics and estimation tools are viewed squarely through the prism of business goals.



Testing Is Becoming More Complex, Increasing Demand for Automation

FS firms need robust testing capabilities to support the growing number and complexity of applications that underpin their businesses today. These applications must be reliable and stable, and be available as needed to facilitate the myriad interactions, transactions, and communications that occur every day—while adhering to strict data-protection rules and providing auditable information trails for regulators.

As applications become more complex, the job of testers becomes more difficult, especially because testing processes and approaches are far from standard. Manual testing is still the preferred method for verifying applications at many FS firms. The survey finds that 58% of responding FS firms conduct between 11% and 50% of their tests manually. Another 15% run up to 10% of their tests manually, and only 28% use automated solutions for more than half of their tests (see Figure 15).

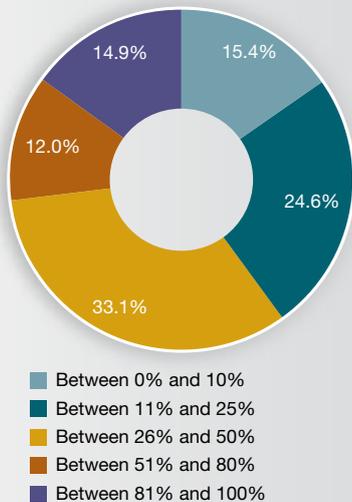
Our QBP analysis also indicated test automation is one of the least mature areas across all three FS sectors. While many firms are focused on becoming more sophisticated, there has been no significant improvement in the maturity of test automation in FS in 2011, largely due to the lack of well-defined automation processes and frameworks.

In FS, it is true that automation is not feasible or cost-effective for all types of applications, but there is certainly room to adopt greater levels of automation than are common today, especially now that automation as a service has become more widespread within all phases of the testing lifecycle. Pay-per-use models, for example, can help to reduce the upfront cost of automation, and automated testing for mobile applications has increased significantly as more and more FS firms introduce their applications on Smart devices. Moreover, automation was traditionally considered to be an onsite activity, but technology innovations, and the availability of skills, now make offshore automation an option.

Need for Security Keeps Test Data Provisioning Close to Home

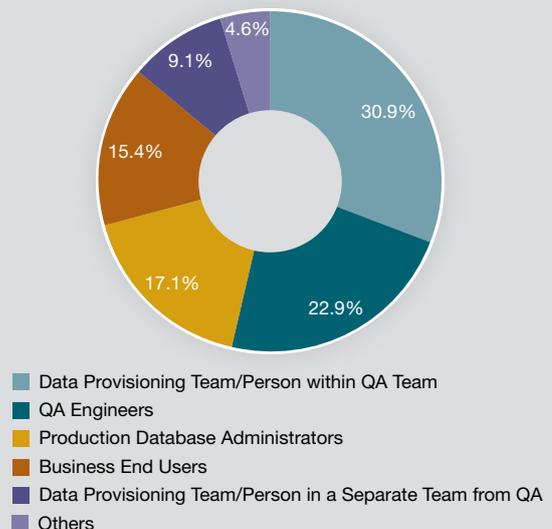
For testers to be sure applications are being properly tested, they need to run those tests with appropriate and relevant data. This is especially critical in FS, where precision is paramount, and the data ranges and forms must be realistic, so testers can see exactly how applications will perform in practice. Not surprisingly, then, QA teams (either engineers or provisioning teams) are responsible for data provisioning at more than half (54%) of all surveyed FS firms (see Figure 16).

Figure 15 Test Execution Being Conducted Manually at FS Firms Across Regions (%), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12

Figure 16 Persons Responsible for Provisioning Test Data Across Global FS Firms (%), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12

The data itself is most often new, the survey shows, with 49% of respondents saying their firms prefer to generate new data for testing, either by using custom-built or commercially developed automation tools (see Figure 17). Another 15% said they use production data (sanitized or not) for testing. Other options include restoring back-end data sources with each iteration so as to allow the same data to be reused (14%), and using spreadsheets to generate data manually (14%).

These data show there are few systematic processes/tools for creating and managing test data. This variability not only adds overhead to test cycles, it raises the likelihood that critical defects could be missed.

Test Data Management is Closely Guarded in FS

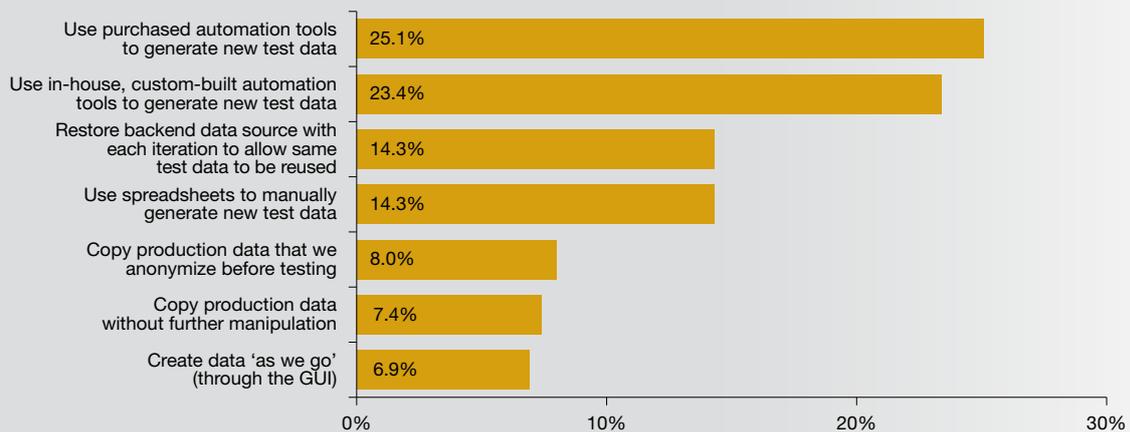
Structured, automated test data management (TDM) solutions can help firms to standardize and manage test data from multiple sources, but the focus in TDM to date has generally been on generating and masking data appropriately, rather than on any holistic approach to manage test data.

Notably, TDM is also viewed as a discrete activity within test design. As a result, while activities such as test-case writing, test execution and automation have been outsourced, and are moving to the cloud, TDM solutions are still very much a closely held activity in terms of location and/or oversight, suggesting FS firms are very sensitive about how their test data is handled.

Although options exist for both on-site and Software-as-a-Service (SaaS) delivery, nearly half (45%) of surveyed firms said they prefer their TDM system to be deployed onsite and fully managed internally (see Figure 18). Another 25% favor onsite deployment, but with the engagement of a third-party.

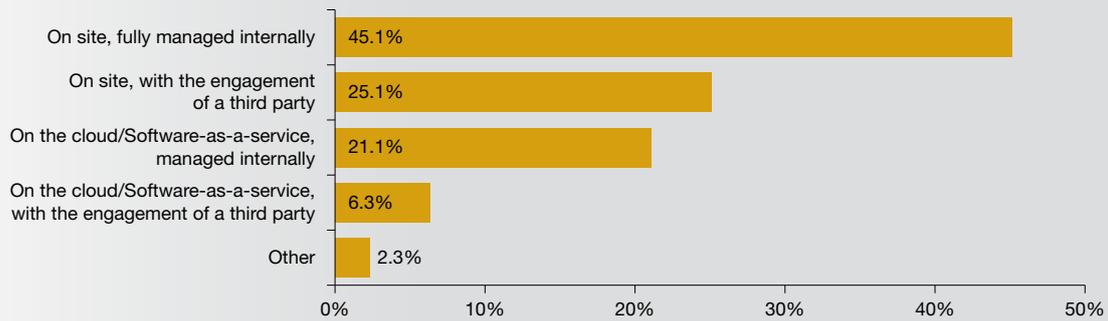
Some firms do prefer SaaS/cloud delivery, but 21% said they prefer that option managed internally. Only 6% of responding firms said they prefer cloud/SaaS-based TDM systems with the engagement of a third-party.

Figure 17 How FS Firms Generate Test Data for Multiple Iterations of Testing (%), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12

Figure 18 Preferred Method of Deploying Test Data Management (TDM) Solution by FS Firms (%), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12

Growth in Online/Cloud Applications Expands the Need for End-to-End Security Testing

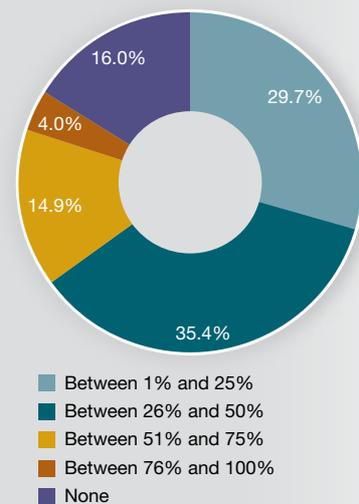
Governments and industry regulators are also adding to regulations around data security, privacy, and data protection. The compliance requirements can be especially complex in FS, where systems must accommodate regulatory compliance in multiple jurisdictions, and account for seemingly conflicting imperatives such as transparency ('Know Your Customer') and privacy (consumer protection).

Not surprisingly then, only a small minority (16%) of surveyed FS firms said regulation in no way impacts their security testing budgets, while 35% indicated that between 26% and 50% of the budget allocated to security testing is directly driven by regulatory compliance requirements (see Figure 19).

But the larger, undeniable pressure on security testers (and budgets) is the explosive growth in cloud and Internet-based applications, and in FS in particular, the now-pervasive use of online tools to facilitate payments, banking, and trading. High-profile cases of hacking and security breaches hit the headlines with striking regularity, so QA must verify on an ongoing basis that unauthorized users cannot access their confidential and sensitive information, and that systems cannot be compromised. This is a continual yet urgent process given the speedy rate of innovation and adoption of applications, and the need to stay ahead of the associated vulnerabilities and threat.

The potential threats also increasingly call for end-to-end security testing that covers applications, infrastructure, and networks, as well as data, and yet application security seems often to be viewed as an audit function toward the end of application development—even though it is well known that the longer a defect lies undiscovered, the more it will cost to repair. Testing environments must also be able to mimic the environments for emerging platforms, such as mobile (Also see Mobile Offers New and Unique Challenges to QA Testers, Page 26).

Figure 19 Application Security Budgets Motivated by Regulatory Compliance Requirements (%), 2011

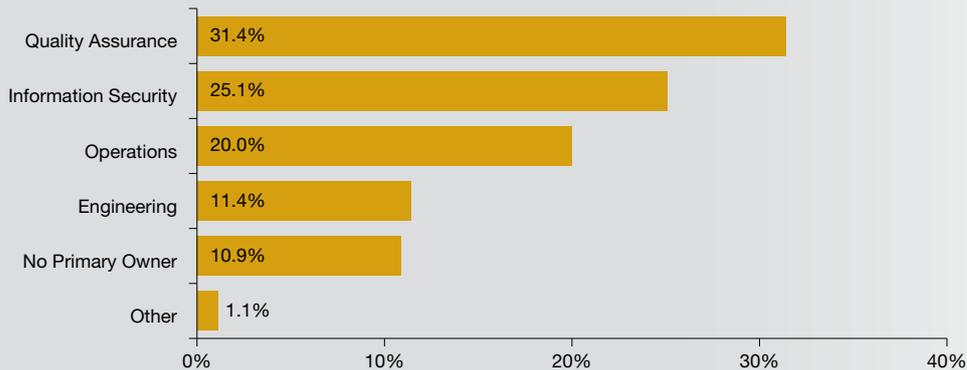


Source: Capgemini Testing World Quality Survey analysis, 2011-12

Only 45% of responding FS firms said they capture security requirements during the requirements phase, and 13% indicated they begin security-assurance during the development phase without having first captured security requirements and designed for them. Only 9% of responding FS firms said they actively participate in application security-assurance activities across all testing phases, from requirements through design to deployment.

In terms of accountability, our survey shows security testing is most often the responsibility primarily of QA (31%) or a specialized Information Security group (25%) (see Figure 20). Less commonly, it falls to Operations (20%) or Engineering (11%). Only 11% of responding FS firms said security testing has no primary owner.

Figure 20 Who is Primarily Responsible for Ensuring Application Security at FS Firms? (%), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12

Mobile Offers New and Unique Challenges to QA Testers in FS

FS firms have moved rapidly toward mobile solutions for customers. Mobile banking, for example, has quickly taken hold as a must-have for customer experience. However, the introduction of these and other services is an iterative process, which usually starts with basic website features being made available in mobile formats. Only when these solutions have proved successful, for firms and users, do firms begin to add more value-added features. The whole process, though, is a challenge for QA.

All mobile applications need to be tested for a host of hardware, operating system, and network combinations. This testing must occur amid rapid advances in mobile handset technology and operating systems. To address these challenges, QA will increasingly need to:

- *Adopt automation for mobile application testing.* Considering the breadth of permutations and combinations that need to be tested, this is the only way to attain the required coverage.
- *Develop and test using Agile principles,* which will help incorporate changes in technology much faster than other development models.
- *Partner with technology providers,* which can maintain test environments that account for a relevant set of handheld devices.

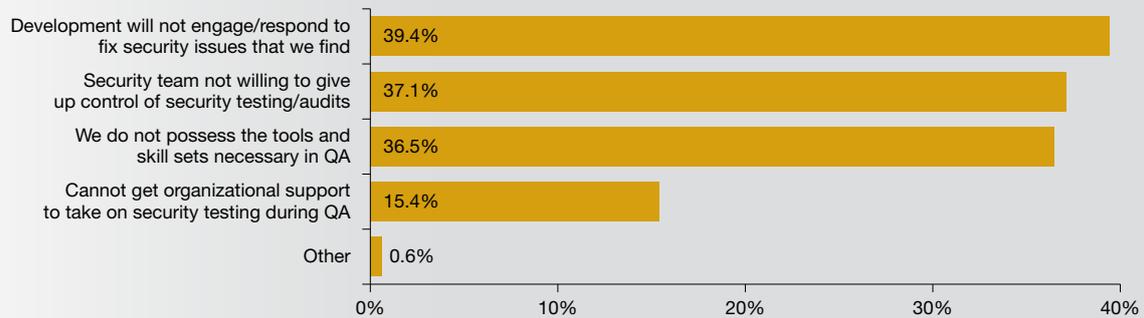
Obstacles Exist to Fixing Security Defects Uncovered by QA

While QA is most often the team primarily responsible for security testing in FS, it nevertheless faces obstacles in executing that task. The most commonly cited issue (39% of respondents) is that developers will not respond to or engage in security fixes found by QA. This could be because developers do not budget for closing large security-related defects, so are loath to tackle them late in the day.

The next most commonly cited challenges for QA (see Figure 21) are the refusal by security teams to cede control of security testing/audits (37%), and the fact that QA lacks

the requisite skills and tools (37%). These organizational challenges suggest security testing could improve efficiency and efficacy by adopting a more formal and standard model of accountability, and getting more management commitment (and budget) for security-assurance activities. Firms could also tap into the growing number of automated tools, which are becoming more advanced, and are capable of providing deep insights into security vulnerabilities. Open-source tools are also an option for bridging capability gaps, though these are not yet as mature.

Figure 21 Biggest Challenge FS Firms Face While Doing Security Testing During QA (%), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12



FS Firms Are Increasingly Eyeing the Cloud, but Perceive Risks

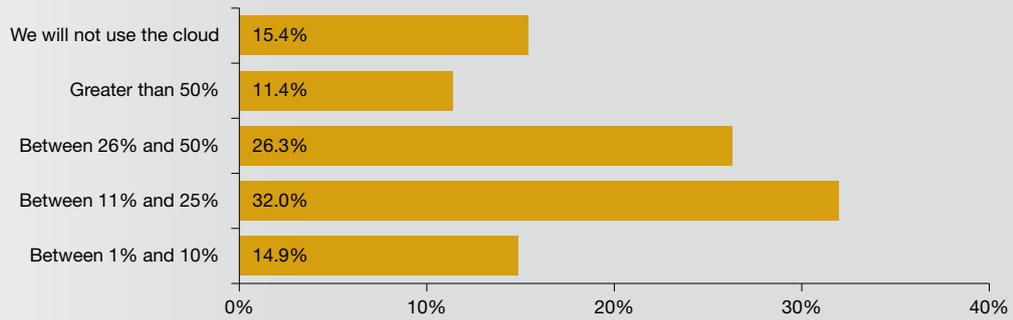
The adoption of cloud computing is likely to keep rising steadily in coming years as firms seek to modernize IT infrastructure and services, reduce complexity, and cut operating costs, as well as capturing benefits such as agility and speed to market.

Among surveyed FS firms, only 15% indicated they have no plans to migrate applications or hosting to the cloud in the next year (see Figure 22). In fact, 73% firms indicated they plan to migrate anywhere between 1% and 50% of their applications to the cloud, and 11% planned to move more than 50%.

However, leveraging the cloud means different things to different firms, with some envisaging Remote Desktop Sharing or virtualization of machines, and others expecting the cloud to provide a shared common infrastructure.

While the cloud clearly offers infrastructure benefits, it may also cause a dilemma for many FS firms over the treatment of legacy systems, and requires them to identify the best strategy for optimizing the return on investment in both the pre-existing and new environments.

Figure 22 FS Firms Hosting or Migrating Their Applications to the Cloud Over the Next Year (%), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12

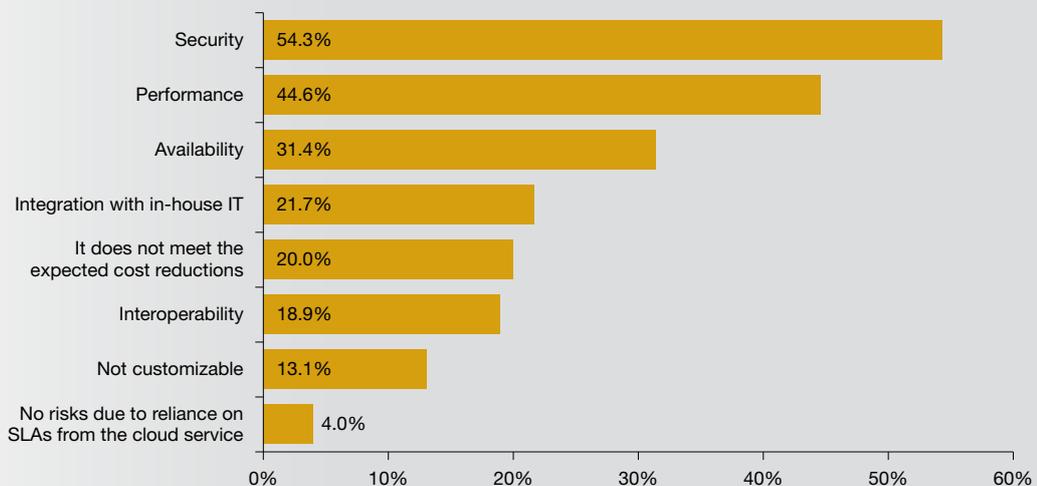
Security is the Most Commonly Cited Risk of Cloud Computing

While many FS firms plan to use the cloud, they also perceive risks. When asked the greatest risks of using a cloud environment, 54% of surveyed FS firms cited security (see Figure 23). Notably, 38% of respondents separately reported that they had actually encountered security issues with cloud-based applications in the last year.

Firms will need to address these risks before committing to any wholesale movement of applications to the cloud, especially those related to critical customer-facing applications.

Performance was also a concern, with 45% citing it as a risk, and 54% reporting actual performance problems with the cloud in the prior year, either due to server or network issues.

Figure 23 Greatest Risks Faced by FS Firms Using a Cloud Environment (%), 2011



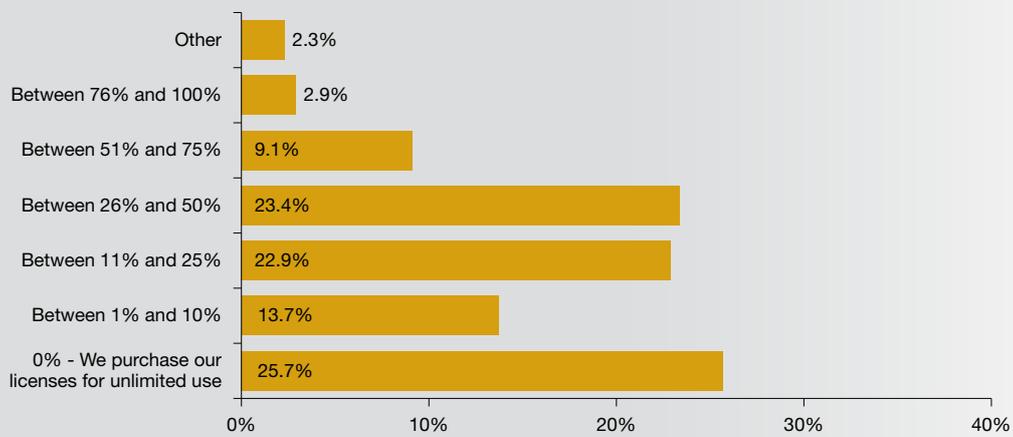
Source: Capgemini Testing World Quality Survey analysis, 2011-12

The cloud is often a more cost-effective, quicker, and easier way to perform testing (even of the cloud itself), especially because the cloud can be used as a separate test environment or as a pay-per-use model. When asked what percentage of their QA/testing software licenses use an SaaS model, nearly a quarter of all respondents said that between 11% and 25% of their licenses are based on usage, with an additional 23% saying between 26% and 50% of their QA software is delivered via SaaS (see Figure 24). These licenses are most often used for performance (cited by 50%) or functional (45%) testing (see Figure 25; also see Pay-per-Use Models Are Especially Important for Performance Testing, Page 31).

Requirements management (30%) and security testing (28%) are other key areas in which FS firms say they are using the SaaS model.

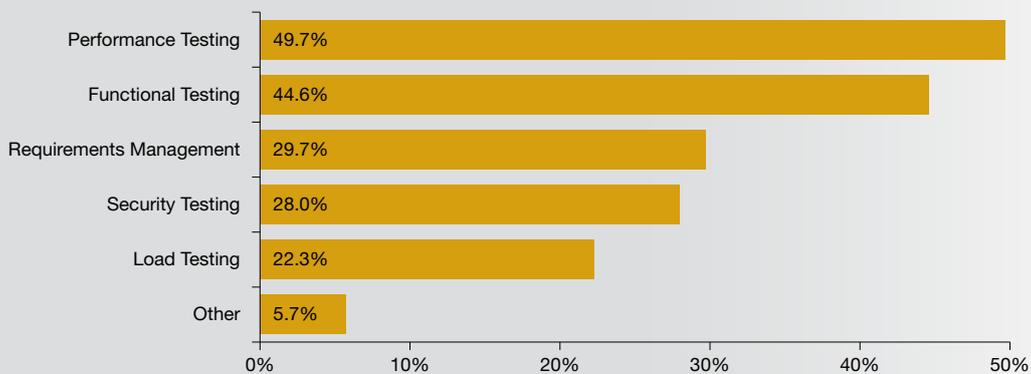
Nevertheless, 26% of firms indicated they would not be using the SaaS model for QA/testing licenses as they have already invested in enterprise licenses for test tools. Since very few firms (3%) say SaaS is used for most (76% or more) of their QA/testing licenses, it seems SaaS and enterprise licenses will continue to be used in tandem, at least for now.

Figure 24 Percentage of Software Licenses Using an SaaS Model (%), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12

Figure 25 Areas of the QA Function in which Firms Are Using Software-as-a-Service Model (%), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12

Pay-per-Use Models Are Especially Important for Performance Testing

Performance and load testing have been a part of the testing lifecycle for many years, but such oversight has tended to occur toward the end of testing cycles. Many firms have also favored web-based testing, rather than comprehensive performance tuning and engineering to ensure applications are robust and scalable. Admittedly, the challenges of performance testing can be considerable, not least because of:

- *Time pressure.* Since performance testing is usually considered an end-of-lifecycle activity, there is rarely enough time before a market launch to conduct a thorough test. In most cases, even when performance issues are detected, there is no time to introduce a fix before the initial release.
- *Inferior environment and tools.* It is expensive, especially for smaller firms, to set up environments that can match the needs of performance testing. As new platforms such as mobile emerge, firms are increasingly forced to partner with vendors that can provide the tools and infrastructure needed to properly mimic these environments for testing.

FS firms are likely to increase their use of outsourcing and SaaS licensing models to overcome these and other challenges of modern-day performance testing. These approaches can significantly reduce the upfront cost of setting up performance suites, and make performance testing much more affordable and flexible for FS firms.

Top Priorities for QA Organizations at FS Firms Today

Given the dynamics under way in global financial services, and based on Capgemini's experience of delivering high-quality applications and implementing and maintaining centers of excellence, we contend that the QA organizations at FS firms will need to concentrate in the near future on innovation, optimization, and standardization in order to deliver value to the business.

These imperatives could translate into many different types of initiatives, depending on the firm and the structure of the QA organization, but QA will certainly need to do the following:

- **Broaden the scope of outsourcing.** QA will likely need to use outsourcing or other partnerships to acquire capabilities for innovation, as well as to optimize costs. These partnerships will be especially important as QA seeks to properly mimic complex modern environments and loads, and make sure applications stay secure, relevant to the needs of customers, and fully compliant. QA should also consider extending the use of outsourced services to the entire testing spectrum, and work with partners to develop flexible, transparent and value-driven outsourcing models.
- **Pursue the Center of Excellence model for testing.** TCoEs promise considerable benefits in terms of optimization, agility, and service quality, but the approach requires far-sightedness, management commitment to change, and a substantial amount of patience. The journey should begin with an assessment of the current maturity and competitive positioning of test processes, and a solid understanding of what steps—and ultimately what new processes—are needed to achieve business-specific goals. In particular, QA will need to evaluate, define, and implement whatever processes and infrastructure are needed for specialized testing like security, test data management, environment management, and testing for mobile.
- **Evaluate how best to use the cloud.** The cloud offers a cost-effective, quick, and easy way to perform testing, especially because the cloud can be used as a separate test

environment or as a pay-per-use model.

However, while the cloud offers infrastructure benefits, especially while QA is hoping to do more with less, FS firms will need to identify the best strategy for optimizing the return on investment in both legacy and cloud environments. And firms will also need to address any risks (real or perceived) before committing to any wholesale movement of applications to the cloud.

- **Build skills toward testing for mobile applications, and leverage automation wherever possible.** As more and more applications go mobile, QA organizations will need to build the expertise needed for thorough testing, or partner with the right vendors to achieve robust applications. Automation as a service is providing new opportunities to expand the use of automation within all phases of the testing lifecycle, and there are more options for offshore automation due to technology innovations and the growing availability of skills. More relevant still is automated testing for mobile applications as automation is a pre-requisite to comprehensive coverage in the mobile space.
- **Ensure end-to-end security testing.** Right now, a small minority of FS firms have QA actively participating in application security-assurance activities across all testing phases, from requirements through design to deployment. In today's complex world of FS interactions and transactions, the potential threats demand that security testing extend across applications, infrastructure, and networks, as well as data. Firms should aim to design for security requirements from the outset, and have clearly defined processes, roles and responsibilities throughout the project lifecycle.
- **Benchmark metrics, including competencies, productivity and defects.** To succeed, many QA organizations will need to overcome organizational challenges, including inadequate management commitment, a lack of skills, and poor coordination between teams. Quantitative management and benchmarking will help QA to monitor and report the value it is generating, and make more tangible the value derived from innovation and initiatives such as TCoEs.

Whatever the specific initiatives, QA organizations must recognize that FS firms need to adopt multi-pronged strategies to thrive in today's challenging business climate, and will need their business partners—both within and outside their firms—to be experienced in the challenges they face.

QA will need to be engaged early on in the demands and goals of the business, and be flexible in exploring a range of initiatives to deliver the best possible proposition, directly or through partnerships, to deliver value to the business.

About the Study

The Financial Services World Quality Report 2012 is based on data from two sources: The 2011/12 World Quality Report survey and Quality Blueprints. Those methodologies are derived from more than 20 years of assessing and supporting testing organizations within FS firms.

World Quality Report Survey

Capgemini, Sogeti, and HP worked with FreshMinds, a U.K.-based research firm, to conduct the survey for the *World Quality Report 2011/12*. The survey was completed online by more than 1,200 CEOs, CIOs, CFOs, IT directors and managers. It included responses from 175 financial services firms, which were further identified as banks, insurance companies or capital markets firms.³

The majority of those FS firms were headquartered in North America (50%), with about 38% from Europe, and the remainder from Australia and Africa.

We used this FS-only data to look at trends across banking, insurance and capital markets, and conducted additional research via an FS WQR survey, for which there were 267 respondents (see Figure 26).

Quality Blueprints

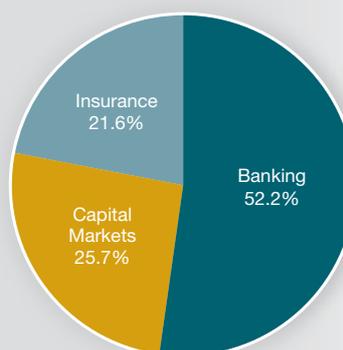
FS WQR 2012 is also supported by Capgemini benchmark data derived from client projects and 72 Quality Blueprint assessments. Capgemini collates industry quality benchmarks to help organizations evaluate themselves against global trends, identify the direction in which the industry is moving, and take requisite steps to ensure they are not left behind. It also helps organizations identify areas of focus that would make test delivery cheaper, faster and better.

How do we calculate this benchmark?

We calculate the benchmark through data analysis of Quality Blueprint assessments carried out for Capgemini FS clients across the globe. Each client is assessed on a range of 22 parameters of QA maturity and rated based on interviews, project profiling, and documentation reviews. The overall scores for all organizations are aggregated to develop the benchmark.

This FS WQR also draws on Capgemini's more than 20 years of experience in testing and quality management. Over the years, Capgemini Group has developed a range of best practices, including TMap® (Test Management Approach) and TPI® (Test Process Improvement),⁴ which are now

Figure 26 Respondents to FS WQR Survey, by sector (%), 2011



Source: Capgemini Testing World Quality Survey analysis, 2011-12

accepted as industry standards around the world. TMap® is a business-driven, risk-based methodology for structured software testing, which is designed to address the key issues of quality, time and cost across the whole development lifecycle of solution delivery. TPI® is Capgemini Group's registered model for the improvement of testing, which offers insight into the maturity of the current test process, and identifies improvement actions to accomplish the desired test maturity level.

³ For public companies, the sector was identified based on Forbes. For private companies, the sector was identified based on how companies identified themselves to the public.

⁴ TMap® and TPI® are registered trademarks of Sogeti, part of the Capgemini Group.

About Us

Capgemini

With around 120,000 people in 40 countries, Capgemini is one of the world's foremost providers of consulting, technology and outsourcing services. The Group reported 2011 global revenues of EUR 9.7 billion. Together with its clients, Capgemini creates and delivers business and technology solutions that fit their needs and drive the results they want. A deeply multicultural organization, Capgemini has developed its own way of working, the Collaborative Business Experience™, and draws on Rightshore®, its worldwide delivery model. More information is available at: www.capgemini.com.

Capgemini's Financial Services Global Business Unit (FSGBU)

Capgemini's Global Financial Services Business Unit brings deep industry experience, innovative service offerings and next generation global delivery to serve the financial services industry. With a network of 18,000 professionals serving over 900 clients worldwide Capgemini collaborates with leading banks, insurers and capital market companies to deliver business and IT solutions which create tangible value. Our testing practice has over 2,800 professionals dedicated to financial services testing and combines deep domain expertise with award-winning quality assurance tools, methodologies and accelerators to provide the full spectrum of testing services from model-based workbenches to managed services to leading financial institutions.

More information is available at: www.capgemini.com/fstesting.

Sogeti

Sogeti, a wholly owned Capgemini subsidiary, is a leading provider of local professional services, bringing together more than 20,000 professionals in 15 countries, and is present in over 100 locations in Europe, the U.S. and India. Together, Capgemini and Sogeti have developed innovative business-driven quality assurance (QA) and testing services, combining best-in-breed testing methodologies (TMap® and TPI®) and the global delivery model, Rightshore®, to help organizations achieve their testing and QA goals. Capgemini and Sogeti have created one of the largest dedicated testing practices in the world, with over 9,500 test professionals and a further 14,500 application specialists, notably through a common center of excellence with testing specialists developed in India.

More information is available at: www.sogeti.com/testing.

HP

HP, the world's largest technology company, simplifies the technology experience for consumers and businesses with a portfolio that spans printing, personal computing, software, services and IT infrastructure. Our Business Technology Optimization (BTO) products, along with our new and complete approach to Application Lifecycle Management (ALM), help our customers to achieve better business outcomes.

More information about HP (NYSE: HPQ) is available at www.hp.com.

We would like to thank the following people for collaborating to produce this report:

Financial Services Testing Practice: *Ajay Walgude, Alpesh Kankariya, Amitabh Kaushal, Anand Padhye, Brijesh Prabhakar, Dilip Kajgaonkar, Keshava Handanahalu, Kunal Jadhav, Manoj Sharma, Maurice Pijnaker, Mohsin Fasih Umar Mohammed, Nailesh Sampat, Nikhil Joshi, Raamji Sharma, Prabhakar Das, Pradeep Singh, Rahul Nagar, Rajashree Thandy, Ramasubramanian Krishnamoorthy, Rashi Singh, Sanjay Kurundkar, Sanjeev Das, Sarang Dewaikar, Srinivas Sundaresan, Shubh Shrivastava, Trivikram Pujar, Trupti Gandhi, Uma Pillai, Vasant Gore, and Vineet Hans.*

Market Intelligence Team: *Ashish Kanchan, Bill Sullivan and David Wilson.*

Global Product Marketing & Programs: *Jyoti Goyal and Karen Schneider.*

Corporate Communications: *Matt Hebel, Sourav Mookherjee, Stacy Prassas, Erin Riemer, and Sunoj Vazhapilly.*

For more information contact us at fstesting@capgemini.com.

Govindarajan Muthukrishnan

Global Leader, FSGBU Testing, Capgemini

govindarajan.muthukrishnan@capgemini.com

Anurag Gupta

India Leader, FSGBU Testing, Capgemini

anurag.b.gupta@capgemini.com

Nikhil Joshi

North America Leader, FSGBU Testing, Capgemini

nikhil.a.joshi@capgemini.com

Uma Pillai

U.K. Leader, FSGBU Testing, Capgemini

uma.pillai@capgemini.com

Maurice Pijnaker

Netherlands, Belgium, Switzerland Leader, FSGBU Testing, Capgemini

maurice.pijnaker@capgemini.com

Keshava Handanahalu

Asia-Pacific Leader, FSGBU Testing, Capgemini

keshava.handanahalu@capgemini.com

© 2012 Capgemini. All Rights Reserved. Capgemini Group and their services mentioned herein as well as the Capgemini logo are trademarks or registered trademarks of Capgemini Group. All other company, product and service names mentioned are the trademarks of their respective owners and are used herein with no intention of trademark infringement. No part of this document may be reproduced or copied in any form or by any means without written permission from Capgemini.

Disclaimer

The information contained herein is general in nature and is not intended, and should not be construed, as professional advice or opinion provided to the user. This document does not purport to be a complete statement of the approaches or steps, which may vary accordingly to individual factors and circumstances, necessary for a business to accomplish any particular business goal. This document is provided for informational purposes only; it is meant solely to provide helpful information to the user. This document is not a recommendation of any particular approach and should not be relied upon to address or solve any particular matter. The information provided herein is on an "as-is" basis. Capgemini disclaims any and all warranties of any kind concerning any information provided in this report.

VISIT

www.capgemini.com/financialservices

For inquiries or more information,
contact us at fstesting@capgemini.com

