

WHITE PAPER

IT Quality Assurance in the UK — Ready For a Change of Approach?

Sponsored by: Capita

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December 2009

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SUMMARY

Sponsored by Capita, this IDC White Paper is based on research conducted in autumn 2009 among UK organisations with £200 million revenues or above or central government agencies/institutions. The research was conducted to understand how systems quality assurance and testing is undertaken within IT programmes that specifically support business change. From the research:

- ☒ Over 80% of those surveyed expect some commercial consequence will result if delays are experienced in their current change programme portfolio.
- ☒ A high level of historic project success was quoted (in terms of meeting timelines) — but this has often been achieved through a series of post-hoc adjustments that ultimately have had a budgetary impact — such as additional resources being utilised.
- ☒ Business operation's satisfaction levels with current change programme success appear modest.
- ☒ Only 24% of organisations are fully satisfied that they obtain sufficient and timely notice of quality issues.
- ☒ 32% of those surveyed do not measure the effectiveness of QA — the 68% that do measure effectiveness show a significantly higher proportion with perceived satisfaction from the business/organisation
- ☒ Existing ITO/BPO providers were the most frequent choice of suppliers helping organisations to undertake quality assurance. Independence of supplier was the least frequent criterion utilised used in the selection of a provider.
- ☒ When addressing whether software testing differs from overall IT QA, 47% said yes, 53% said no. Further inspection revealed a wide range of interpretations in both "camps".

In many business situations (not only an IT context), the distinction between QC and QA is often not as clear as perhaps it should be; often the terms are mixed. This presents a sizeable challenge that exists not only in definition but also in day-to-day execution. Within the IT domain, high-quality applications and systems are now essential to an enterprise's ability to achieve its desired ambitions and goals.

It is already very difficult for companies to drive the full concept of quality into their organisational culture. The research undertaken has shown that UK organisations are endeavouring to do this, but with a mix of internal and external factors essentially compromising the results.

As a result, QA as "a mindset" has yet to fully emerge from a legacy based on reactive application testing. The low degree to which satisfactory early notice of quality issues becomes available supports this observation.

Given the current economic situation in which budgets will and have come under increasing scrutiny, the modest nature of current satisfaction may come under increased pressure. Cost pressures will exert themselves and post-hoc budgetary adjustments will not be as readily available. But levels of satisfaction will not be allowed to diminish as a result — they will have to improve.

This will require fresh thinking and actions that drive and respond to the findings, trends and recommendations outlined in the rest of this paper.

IN THIS WHITE PAPER

Sponsored by Capita, this White Paper is based on research conducted in autumn 2009 among UK organisations with £200 million revenues or above or central government agencies/institutions. The research was conducted to understand how systems quality assurance and testing is undertaken within IT programmes that specifically support business change. The study set out to "take the temperature" of current quality assurance practices in the UK. The ultimate rationale being: learn from current experience and enable better planning for future success. IDC undertook interviews with those responsible for overall IT quality assurance/programme assurance within each organisation surveyed.

Further details of research methodology, sample demographics and definitions are included in the appendix of this paper.

SITUATION OVERVIEW

Fundamentals of Quality Assurance (QA), Quality Control (QC) and Testing in the IT Domain

In many business situations (not only an IT context), the distinction between QC and QA is often not as clear as perhaps it should be; often the terms are mixed. This presents a sizeable challenge that exists not only in definitions (see Appendix for IDC's definitions), but also in day-to-day execution. Within the IT domain, high-quality applications and systems (those free from significant defects and consistently stable) are now essential to an enterprise's ability to achieve its desired ambitions and goals. The impact of less than satisfactory quality in software or systems is commonly agreed to be considerable.

When specifically applied to software, quality assurance consists of a means of monitoring software engineering processes and methods used to ensure quality is built-in. Quality assurance attempts to improve and stabilise issues that lead to the introduction of defects in the first place; QC typically picks errors up after the fact. The notion of QC is therefore synonymous with Application Testing, a term and discipline present and popular in the IT domain for decades in which quality is checked at differing stages of software development throughout its life cycle (see Figure 1).

Unfortunately, QA cannot absolutely guarantee the production of *quality* deliverables, but it does make it more likely. Likewise, QC does not necessarily eliminate the need for QA — their respective activities need to be integrated. And for software, the challenges are exacerbated due to the intangible nature of the deliverable.

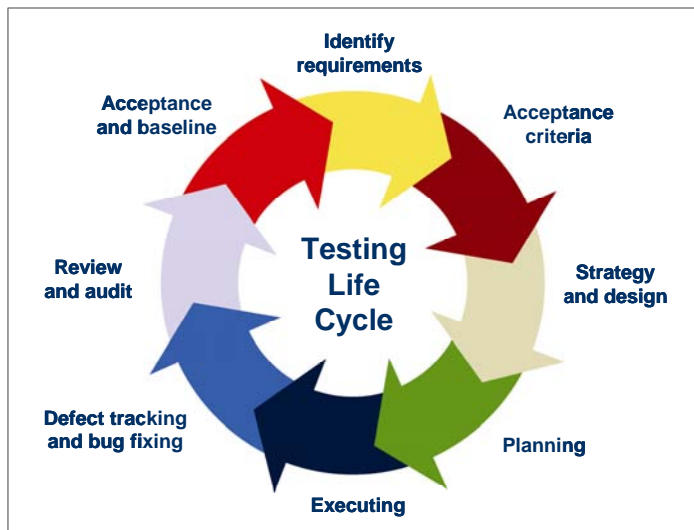
In support of assisting and resolving these issues and challenges, a wide range of third-party quality assurance services are sold by full service outsourcers or pure-play testing service providers. Testing Services (as IDC defines them) can extend across the software development life cycle, beginning from front-end QA consulting services and extending to user acceptance testing. Their essential value propositions vary from process expertise to resource capacity.

But digging deeper, fundamental questions remain:

- ☒ Is there ever a right time to find out about a quality issue?
- ☒ Are QA/QC definitional or operational issues standing in the way of satisfactory change programme outcomes?
- ☒ Given the current economic situation, is now the time to consider a change of approach?
- ☒ What evidence might precipitate real consideration of such a change?

FIGURE 1

Testing Life Cycle



Source: IDC, 2009

Change Programme Impact and Quality in the UK

More Resources Applied to Ensure Timescales Are Met

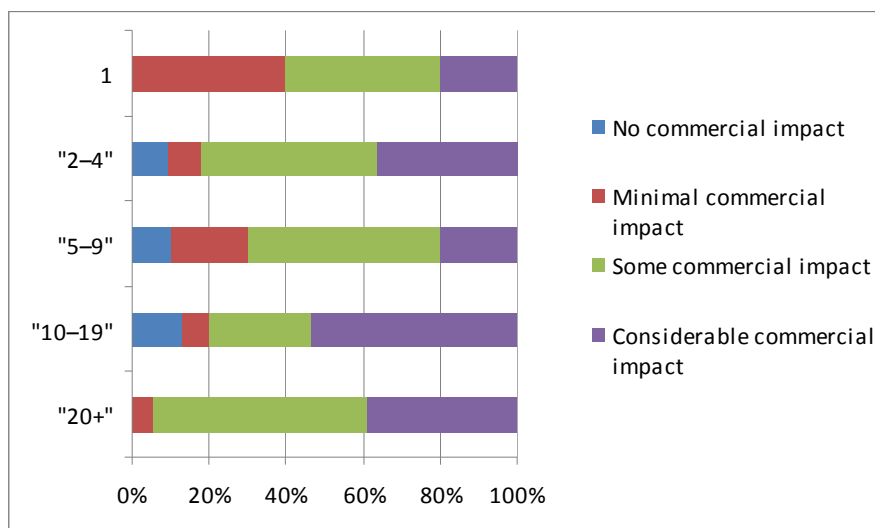
For over 80% of those interviewed in the UK, IDC's research showed that project delay would typically incur some or considerable commercial impact on the organisation.

Likewise, over 80% expect some commercial consequences will result if delays are experienced in the current change programme portfolio. Also, the research indicated that the larger the number of active projects, the larger the degree of anticipated commercial impact.

The absolute degree of commercial impact was somewhat influenced by the organisation's sector or business model. Take, for example, government or subscription based publishing, where immediate impacts were considered lower.

FIGURE 2

What Impact Could a Project Delay Have on Your Organisation Vs. the Number of Active Business Change Programmes?



Source: IDC, 2009

Further IDC research showed that over half of respondents reported 75% or above of their change-orientated projects were delivered on time. However, when asked how the level of "on-time" performance was achieved, this was addressed typically by:

- More human resources being applied than planned
- More budget released and applied to improved systems
- The scope of the project reduced

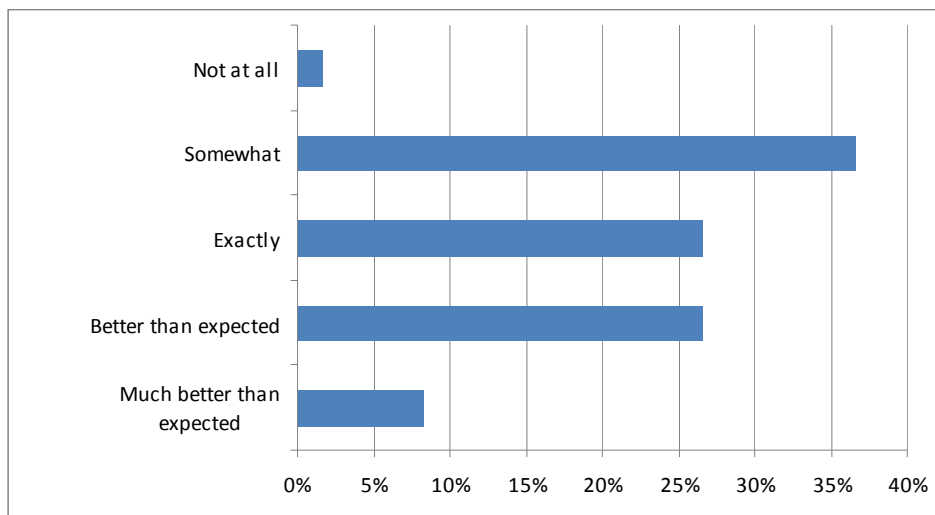
Thus, by original definition, projects — re-scoped or otherwise — seem rarely to meet budgetary or scope targets. Some post-hoc adjustment has had to be applied to ensure timelines are observed.

Current Levels of Satisfaction Appear Modest

Is the business (in the eyes of the interviewee) satisfied with change programme performance? Figure 3 shows that satisfaction levels are modest, with the largest proportion being only somewhat satisfied.

FIGURE 3

How Satisfied is the Organisation That its Business Objectives for Change Programmes Are Being Met?



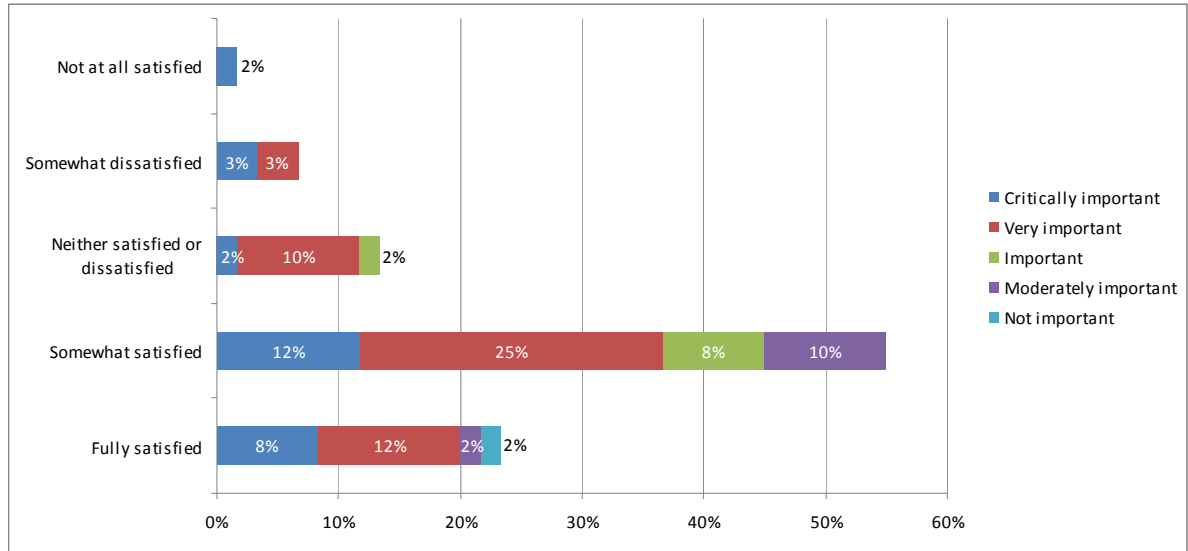
Source: IDC, 2009

Is Sufficient Warning of Quality Issues Being Given?

Whereas 87% consider IT QA critically or very important in ensuring business objectives are met, only 24% of the respondents were fully satisfied they received sufficient warning of potential quality issues, while 56% are somewhat satisfied that warnings are present. All findings show a clear and strong indication that insufficient quality warnings are currently experienced in the UK.

FIGURE 4

How Satisfied Are You That the Current QA Approach Adopted Gives Your Organisation Sufficient Warning of Potential Quality Issues?



Source: IDC, 2009. Split by: How important is IT quality assurance in ensuring business objectives are met?

Is Testing the Same as QA? ... Well, it Depends

When answering the question, "In your opinion, does software testing differ from overall IT QA?", 47% say **yes**, and 53% say **no**. On investigating deeper into the yes and no camps, there was breadth of further opinion, as indicated in Table 1. While there was some grouping of response in the no camp, it became clear that a challenge of definition existed.

TABLE 1

The "no" camp — split 50/50	The "yes" camp — a wider range of views
50% believed so because software testing was seen as part of an overall quality assurance programme — indicating the desire if not actual practice of a more holistic approach to QA.	QA being seen as an external process, whereas testing being an internal process.
50% saw a more tactical view whereby testing was seen as synonymous with QA.	The two processes being undertaken by different teams and therefore being different.
	The actual process content being different in each.

Source: IDC, 2009

HOW AND WHEN IS IT QA APPROACHED?

When is Quality Checked?

Respondents were asked to discuss how IT QA was approached in their organisation. Critically, *when does the organisation manage and control deliverables during the development life cycle?* The majority (67%) claim to undertake quality control at each stage of the life cycle. Some exceptions do apply, but the majority (83.5%) check quality at defined stages during the life cycle.

TABLE 2

At What Stage Typically Does Your Organisation Manage and Control the Quality of Deliverables (Such as Software) in all its Development Projects?

Stage	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Other
As part of the requirement stage		x	x	x	
At the initial design stage			x		
During code generation/early implementation		x			
At the user acceptance stage		x	x		
All of the above	x				
% of total	67%	10%	6.5%	6.5%	10%

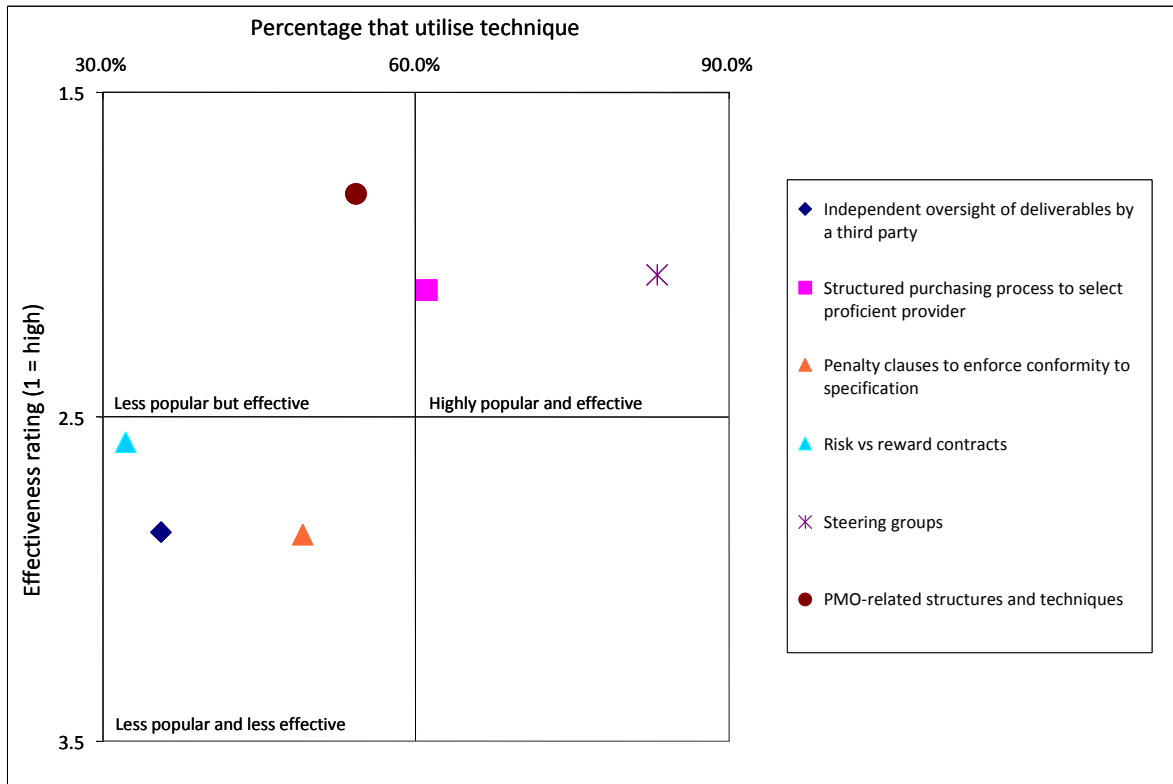
Source: IDC, 2009

How is Quality Managed and How Effective is the Technique?

When approaching IT QA during the life cycle, respondents were asked what techniques were applied to assist them. Typically, 3 to 4 techniques are used in combination (Table 1). Some were viewed as more popular and more effective than others — particularly steering groups, PMO structures and techniques plus structured purchasing. Figure 5 shows the degree of effectiveness of techniques versus the proportion of interviewees who utilised the specific approach. From the in-depth interviews it became apparent that risk reward contracts, although deployed by a smaller proportion of respondents and viewed as currently less effective, were seen as an increasingly important technique.

FIGURE 5

How is IT QA Approached and What is Seen to be Effective?



Source: IDC, 2009

Is the Current Approach Delivering Results?

To qualify further the approach taken, respondents were asked if their organisations measured the effectiveness of QA

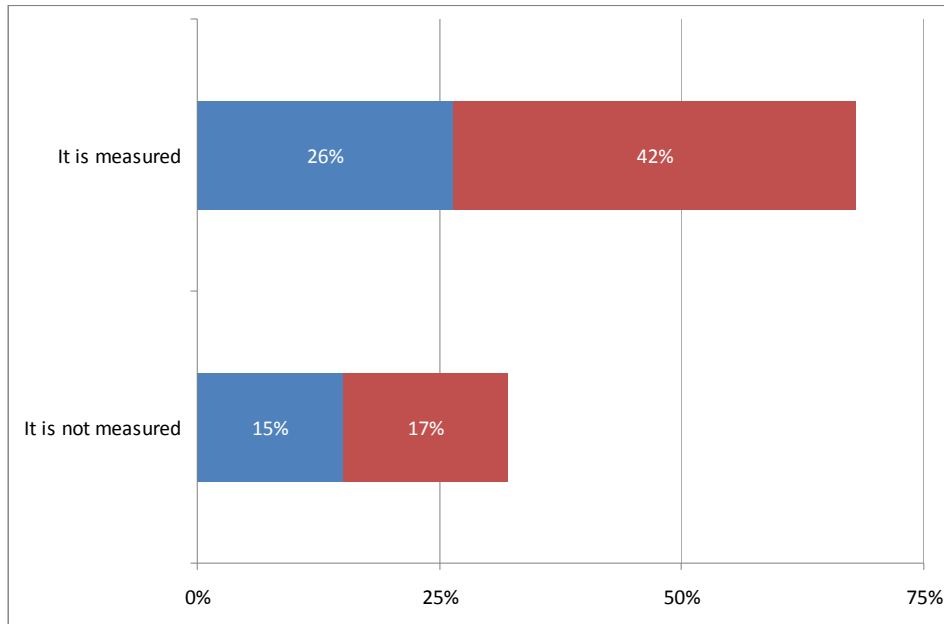
- 32% of those surveyed **do not** measure the effectiveness of QA
- The 68% that do measure effectiveness report significantly higher proportions of perceived satisfaction from the business

Among the 68% that did measure effectiveness, the most popular measurement techniques utilised included:

- The effectiveness of the solution versus efficiency of rollout process (29%)
- End-user satisfaction (11%)
- A benchmarking process (11%)
- Use of ISO9001 (9%)
- The number of incidents immediately after going live (9%)

FIGURE 6

How do You Measure the Effectiveness of Your Quality Assurance Vs. How Satisfied the Organisation is That its Business Objectives for Change Programmes Are Being Met?



Note: Red = sum of exactly or above when answering "how satisfied is the organisation that its business objectives for change programmes are being met?"

Source: IDC, 2009

What Kinds of Service Providers Are Helping UK Organisations?

Typically, in most organisations a number of providers were used (typically 2 to 3 company types in combination). The most frequent combinations being used are indicated in Table 2. Existing ITO/BPO providers working alongside self-employed contractors provided a core most often.

Specialist quality assurance companies were used by 18% of respondents, but were typically deployed independently.

The selection criteria used for providers emphasised skills, domain knowledge and track record. Typically, 6 criteria were used in the process, but surprisingly independence was utilised the least.

TABLE 3

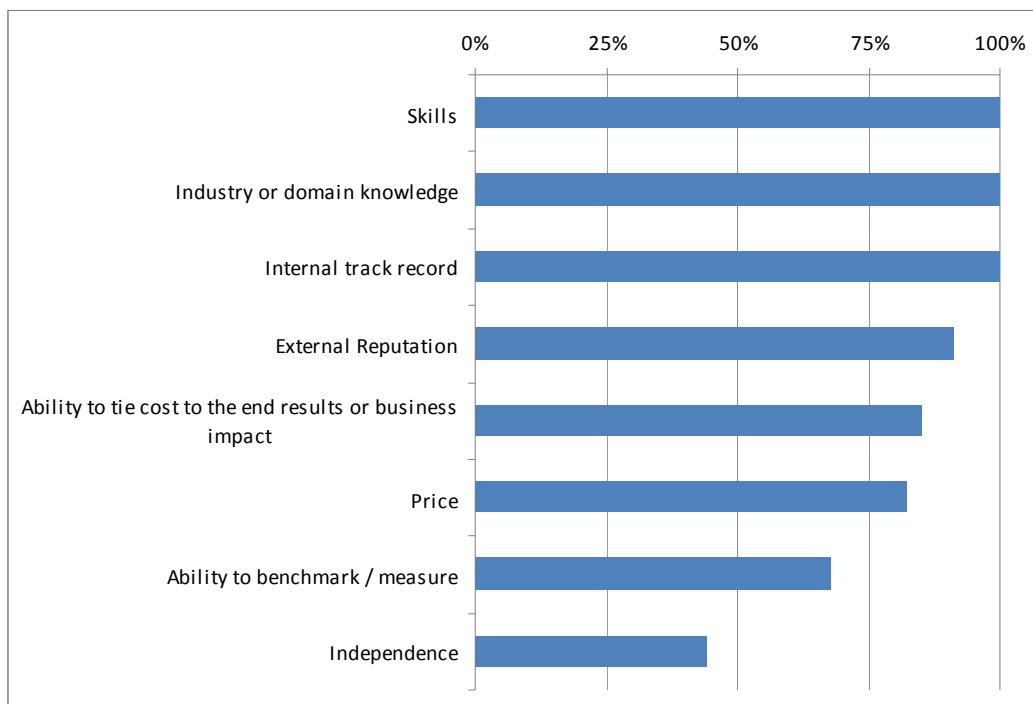
Most Popular Service Provider Combinations Used

	Provider combination 1	Provider combination 2	Provider combination 3
The same company undertaking the ITO / BPO contracts	X	X	X
Self employed software-testing contractors		X	X
Specialist testing company			X
An ITO or BPO provider other than our main provider	X	X	
Specialist quality assurance company			

Source: IDC, 2009

FIGURE 7

What Criteria Are Used to Select Service Providers?



Source: IDC, 2009

ANALYSIS AND FUTURE OUTLOOK

Given the current economic situation, the modest degree of current change programme satisfaction may come under further strain. Historic tactics used to ensure past success may not be as readily available. Reduced budgets or resources could cause project timelines to be extended and/or scopes reduced. All of which leads to a conclusion that further dissatisfaction may ensue.

The degree to which effectiveness of QA is actually measured appears too low. However, the apparent linkage of measurement to a higher proportion of satisfaction is encouraging. But what is much less encouraging is where low levels of satisfaction are combined with a lack of early quality warning. This is an area that needs urgent attention if the situation is to improve.

So there still remains a considerable need for improved and consistent satisfaction to be explored. The desire "for better, faster, cheaper" QC exists with earlier notification of issues as a key deliverable. New approaches will need to be found to satisfy this requirement. The challenge for the future is how two seemingly opposite characteristics of thorough approach and available budget can be reconciled.

In this context, and in parallel with ongoing research, IDC sees a number of important trends emerging and consolidating:

- ☒ Recessionary pressures continuing to force IT and QA departments to lower their cost structures and therefore consider a host of innovative test delivery options.
- ☒ An increasing rigor around measurement of QA performance metrics across key service deliverables.
- ☒ The ability to drive validation into the front end of the software development life cycle (SDLC) gaining significant traction. Companies will leverage this approach to lower costs and optimise test efforts through third-party expertise in test strategy, tools, and frameworks.
- ☒ Third-party testing services reaching a critical inflection point in enterprise awareness and usage.
- ☒ Consequently, provider competition continuing to intensify in the testing services landscape — with the maturity and evolution of QA consulting practices signifying a change in the market *beyond* its traditional function test history.
- ☒ Prior experience with an existing provider remaining critical — but a value proposition tied to independent testing services becoming an increasingly important consideration.
- ☒ Companies that are more mature and experienced in their adoption of testing services being likely to increase their use of QA consulting services from a range of providers.

ESSENTIAL GUIDANCE

It is already very difficult for companies to drive the full concept of quality into their organisational culture. The research undertaken has shown that UK organisations are endeavouring to do this, but with a mix of internal and external factors essentially compromising the results. Without a fresh look at emergent trends and approach, IDC believes that any drive for quality risks becoming isolated and tactical when actually a strategic IT QA response is required.

IDC therefore recommends that organisations:

- ☒ Focus on both long-term transformational change and near-term savings with short-term projects. This will be essential in lowering QA and maintenance costs while enabling tighter alignment of IT with business objectives. Examine the business case for lowering costs *and* enhancing deliverable timeliness and functional predictability.
- ☒ Undertake an independent QA maturity assessment to assess where the organisational weak points exist and routes to increased client satisfaction and cost savings may be present.
- ☒ In support of the above, challenge the pattern of third-party assistance currently utilised and the processes used to select third parties.
- ☒ Review future suppliers on the basis of their QA intellectual property and how it is brought to bear in their offerings. Do the ethos and the business model of the supplier target early notification of issues and support transformational change?
- ☒ Challenge existing suppliers' operational independence (particularly if a BPO or ITO provider) through understanding how communication is governed between development and testing teams.
- ☒ Implement measurement of QA effectiveness; in particular, question how earlier notice of quality issues can be delivered consistently.

CONCLUSION

In the UK, IT QA as a mindset has yet to fully emerge from a tactical legacy based on reactive application testing (the low degree to which satisfactory early notice of quality issues becomes available supports this observation). Given the current economic situation, there is also a risk that this situation may worsen. Likewise, there is a risk that when good times return, a tactical and reactive approach will perpetuate.

From IDC's perspective, QA within IT will not continue as it is. Given the current economic situation in which budgets will and have come under increasing scrutiny, the modest nature of current satisfaction may come under increased pressure. Cost pressures will exert themselves and post-hoc budgetary adjustments will not be as readily available. But levels of satisfaction will not be allowed to diminish as a result — they will have to improve. Where a strong business case exists, the strategic and tactical should be combined to build short-term savings while supporting longer-term transformation. But this will require fresh thinking and actions that drive and respond to the trends outlined in this paper.

APPENDIX

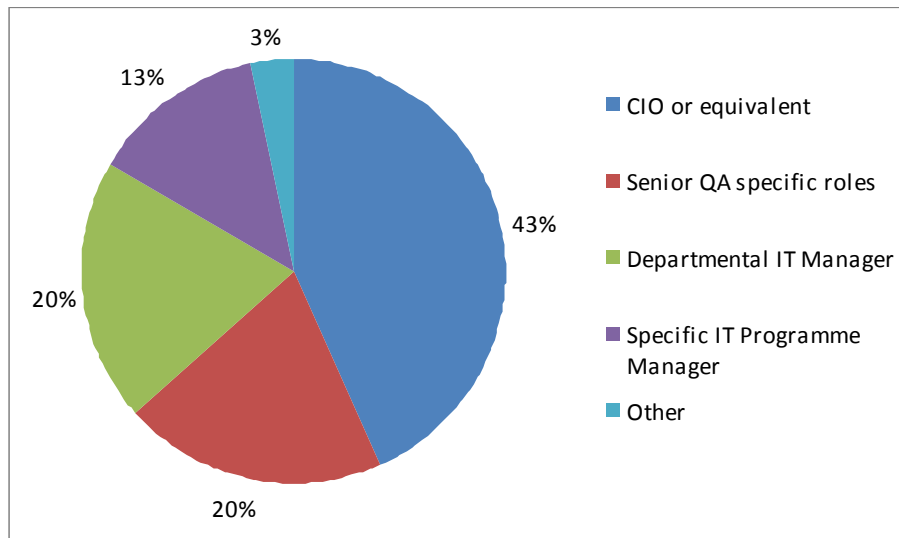
Methodology

To support this White Paper, research was conducted via a three-step process:

1. Within 60 substantial UK organisations, structured telephone interviews were held with the role-holder with overall responsibility for IT quality assurance/programme assurance
2. A further series of follow up clarification interviews were held with volunteers from the 60 or their nominees.
3. IDC Consulting reviewed the existing IDC research base and consulted relevant IDC analysts.

FIGURE 8

Interviewee Roles



Source: IDC, 2009

Demographics

The targeted sectors covered were:

- Communication, media and utilities
- Financial services
- Manufacturing, retail, and distribution and life sciences
- Public sector and education and healthcare
- Services, transportation and construction

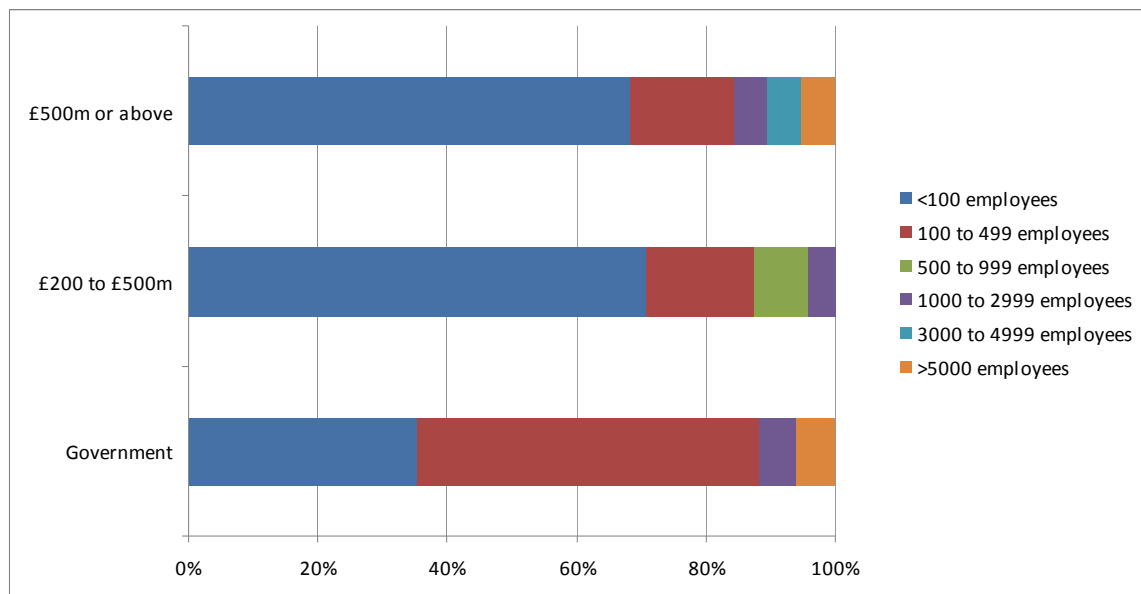
72% of those interviewed were from private companies (40% with revenues between £200 million and £500 million, 32% with revenues above £500 million). The remaining 28% were from significant public sector organisations.

Each organisation was asked to confirm the scale of their IT organisation by employee count.

Each interviewee was asked to confirm their role and responsibility for IT QA assurance. Ultimately, the responsibility was stated as "shared" in approximately 60% of organisations.

FIGURE 9

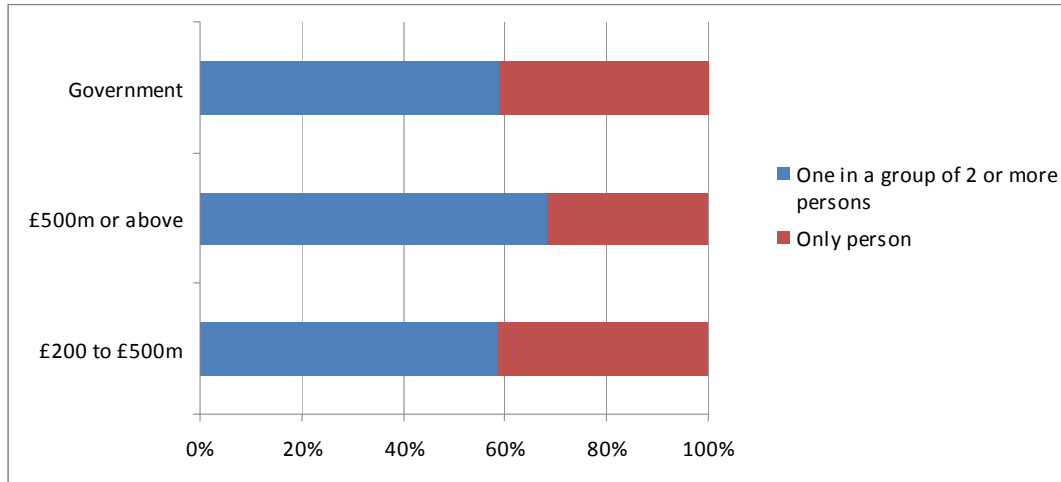
Numbers Employed in IT



Source: IDC, 2009

FIGURE 10

Degree of Sharing of IT QA Assurance



Source: IDC, 2009

Definitions

Quality Assurance (QA) typically refers to systematic and planned processes that instill confidence in a project deliverable's suitability for its intended purpose. It is a set of activities intended to ensure that deliverables satisfy customer requirements in a systematic and reliable way.

Quality Control (QC) typically emphasises testing of deliverables to uncover defects, and reporting to those who can allow or deny release.

Testing Services are third-party quality assurance services that are sold in a range of delivery styles by full service outsourcers or pure-play testing service providers to enterprise, technology product organisations or OEM customers. Testing services can extend across the software development life cycle.

QA Consulting Services: These engagements may focus on advising clients on organisational restructuring models for optimising internal QA functions, centralising a distributed model, or helping IT groups sort out the selection or application of toolsets where heavy investment has already occurred. Most outsourcers are now offering testing process maturity assessments and testing process capability recommendations, extending from small to larger contract engagements.

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