

Testing times for board rooms

A study by LogicaCMG into
software testing in the UK,
the Netherlands and Sweden

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Foreword

Global businesses are under extreme pressure to deliver new products and services quickly and safely in order to retain customers and build revenues. The offerings may, for example, be designed to make doing business faster, easier or more secure, or may have the objective of creating new and exciting ways to interface with end-users. Whatever the objective, all types of businesses from industrial conglomerates, government bodies and utilities through to telecoms operators and financial services companies must continuously find new ways to improve their service to customers.

Many of the new products and services organisations launch are reliant on robust and often complex IT infrastructures. So effective testing of a product or service pre-launch is crucial if businesses are to deliver on their promises to the market and stakeholders, as well as protect their brand. The impact of a delay or service failure within hours of launch can sometimes be irreversible, whether in terms of direct commercial or regulatory risk, or indirectly with factors such as damage to brand image, delayed time to market or reduced market share.

The good news is that a very high proportion (76%) of respondents from both IT and business functions of European organisations do recognise the place of software testing as a strategically important element of new product and service delivery for European businesses, according to independent research commissioned by LogicaCMG.

But what has become clear is that more than two thirds (68%) of IT heads think that too many products and systems are launched without sufficient testing, and 89% of respondents said they had problematic systems 48 hours after go live. In addition, the reality of a new business proposition being introduced during the development cycle regularly poses difficulties, not least at the crucial stage of the run-up to the go live date.

So what is going wrong?

The answer partly lies in the fact that IT managers are becoming increasingly accountable for business failures and that they are also being asked to manage risk without an acceptable level of resources. Poor availability of testing resources and capability (cited by 85% of respondents) and skills required to test new developments (78% of respondents) are largely to blame.

But worse still is the hierarchy of project ownership. Almost three quarters (73%) of European companies surveyed said that accountability for software testing lay with IT directors, IT managers or software developers. Just 1% said that testing was the responsibility of marketing, while 9% said it was the end user department's responsibility.

Business departments are failing to make the connection between poor software testing and potentially disappointing the market. The significant harm to competitive advantage as well as brand and market perception is either unrecognised, neglected or brushed aside in favour of time and cost pressures. Of the IT managers and business users surveyed, 74% believe a more structured risk based approach to testing would more effectively ensure new services meet customer and market expectations from day one.

The research indicates that software testing is not properly aligned with the needs of the business. The tragedy is that IT departments would like to reduce the costs of testing and increase the benefit by concentrating on the areas of most risk. The problem is that they cannot make changes to the testing process without a full

understanding of the potential business risks and the lack of business engagement makes such an analysis impossible.

The good news is the common ground that exists between the business and IT. The research found that both parties believe that improved testing could lead to better products and reduced costs:

- 88% of respondents believe that better testing can lead to reduced development costs overall
- Two thirds (68%) think that too many products are launched with insufficient testing
- Three quarters (74%) believe that a more structured and risk-based approach to testing could improve the quality of products

So where can businesses get help?

Our research found that the vast majority of businesses have held back from using a wholly externally managed service for testing, typically because of concerns around the bedding in of an external provider into the company culture (34%) and worries about additional development activities required to support third party testing (49%).

However, half already use a blended model – working with a strategic partner with the objectives of achieving better quality software applications (41%), better control of the development process (38%), increased accountability (37%) and faster time to market (36%),

So how do companies better manage risk and achieve competitive advantage? The research points to two solutions; firstly the adoption of an approach to testing aligned with business risk, with a quantified presentation of operational risk at every stage for key stakeholders. The result being that business representatives are able to take responsibility for go live decisions based on information that they understand and are fully engaged with the IT function; and secondarily the selection of a managed testing provider, able to not only reduce testing cost and improve quality, but one that is also able to integrate with the business, reduce overall development costs and adapt to the changing resource blends required by the organisation.

It's time for the board of directors to understand the potential effects of poor software testing on corporate reputation and to understand the benefits of an alternative approach. Continuing to waste funds on inappropriate testing is unacceptable. And to expose the IT department alone to the full risk of failure associated with software testing is no longer an option.

Alex Garrick
General manager, managed testing, LogicaCMG

Key overall findings

- All respondents believe in the value of testing but believe problems lie in under funding
- More than two thirds (68%) of IT heads think too many products and systems are launched without sufficient testing
- 86% of respondents said they had problematic systems 48 hours after go live
- Almost three-quarters (73%) of European companies surveyed said that accountability for software testing was owned by IT directors, IT managers or software developers
- Just 1% said that testing was the responsibility of marketing, while 9% said it was the end user department's responsibility
- Poor availability of testing resources and capability (cited by 85% of respondents) and skills required to test new developments (78% of respondents) put projects at risk
- A third of respondents (32%) blamed the drive to meet go-live dates for poor testing
- Nearly half (43%) said that projects were late or were failures because of user changes mid-development
- Half (50%) of European organisations surveyed said that some new software developments go live later than the planned deadline
- 88% of respondents believe that better testing can lead to reduced development costs overall
- Two thirds (68%) think that too many products are launched with insufficient testing
- Three quarters (74%) believe that a more structured and risk-based approach to testing could improve the quality of products
- One third (33%) of companies said that concerns over security or confidentiality would prevent them from going down a managed testing route
- Only a small proportion (2%) use a wholly managed service, half already use a blended model – an area that is likely to grow in the future

Who tests, why and how?

- 44 % of all respondents agreed that software testing is strategic and very important to the business. Around one third of all companies thought that the approach was tactical but still important. Interestingly 18 % of IT respondents considered testing as “just something that had to be done”; this was especially the case in the Netherlands.
- Around one third of all companies, but 44 % in Sweden, **always** use business and risk based assessments to determine where testing should focus. Only 31 % of UK firms fell into this category. Only 27 % of all IT people use business and risk based assessments to determine where the testing should focus, compared with 47 % of respondents from the business decision makers/managers who think that their IT teams are taking this approach.
- 43 % of all firms (49 % of those in the UK) report that they **sometimes** use business and IT risk assessments to help focus the testing process. Nearly half of all IT people (56 % in the UK) agreed with this.
- Only 27% of all IT people stated that they use business and risk based assessments to determine where the testing should focus, compared with 47% of respondents from the business decision makers/managers who think that they IT teams are taking this approach.
- 11 % of IT respondents admitted that their company never uses business and risk based assessments to help focus testing activity, with 17 % of Dutch firms falling into this category.
- Of the IT managers surveyed, 74% believe a more structured risk based approach to testing would ensure new services meet customer and market expectation from day one.

Testing priorities

The table below shows the proportion of companies that agreed that each factor is taken into account when prioritising the testing requirements of a project.

Factor	UK	NL	SW	All
The cost of testing versus the benefit	75	67	72	71
The time to test versus the time to deliver	75	55	78	68
The skills required to test new developments	80	79	72	78
The availability of testing resources and capability	91	88	68	85
Demands for changes from the end-user of the system	80	73	82	78
Cost of testing versus the business risk	71	52	76	64
Cost of testing and the cost of failure	69	61	64	65
Impact on the reputation of the organisation in the market	63	58	46	57
Revenue impact of the solution	70	34	72	56
Impact on customers and stakeholders	77	59	58	66
Time to market for the product	61	33	40	46

Prioritising testing requirements (All figures are %s)

In the UK and Sweden the most important factors are the availability of testing resources and capability, the skills required to test new developments and demands for changes by end users of the systems. Only in the UK is the impact on customers and stakeholders used as a method of prioritising the testing requirements of a development. In the Netherlands, it is noticeable that the ratings are in most cases lower than in the UK and the least important factors are time to market for the product and revenue impact of the solution. It would appear, therefore, that Dutch companies take less account of the financial impact of the development in terms of their method of prioritisation.

As might be expected, business respondents were more focused on customer facing issues when looking at how testing requirements should be prioritised. 63% of business respondents compared with only 56% in IT see impact on the reputation of the company in the market as an important factor and 54% of business respondents are focused on time to market compared with only 43% of IT respondents.

Risk

Around 20% of all business respondents (30% in the UK) report that they always apply a risk based approach to their go to market planning and a further one third of all companies (46% in the UK) sometimes take the risk based approach.

The use of risk based test management is set to increase overall in the next two years, with only 4 % of companies reporting a decline in its use. 14 % of all companies (18% in Sweden) report that its use will increase greatly while an additional 32 % (48 % in Sweden) suggest that it will increase marginally.

As might be anticipated, IT respondents see more growth in the use of test management than do business respondents. 52 % of the latter feel that the level will remain the same in two year's time compared to today while 15 % of IT respondents feel that the use of test management will increase greatly.

Management and resourcing

The survey discovered that 49 % of all companies (55 % of UK firms) resource testing internally, compared with only 2% who exclusively use a third party. The rest take a blended approach. 20 % of companies not using a third party or blended approach expect to move to a blended approach in the near future, with the main drive coming from companies in the UK and Sweden. IT and business respondents had very common perceptions in this regard.

The main benefits of using a third party supplier for managed testing were seen to be the fact that better quality software would be generated in the end and the process is better controlled. There was little difference between the business and IT responses here, but users are more likely to feel that better quality software will be generated by using a third party than IT respondents.

Benefit	UK	NL	SW	All
Faster time to market for developments	42	29	38	36
More accountability for the projects	41	31	44	37
Better project planning	41	23	37	33
Better control of the development process through SLAs	44	30	46	38
Reduced cost of development	40	22	34	31
Better quality software and applications in the end	56	33	33	41
Better communication with the end user department	44	16	46	13

Benefits of a managed testing approach (All figures are %s)

Dutch companies were much slower to see the benefits of a managed testing approach compared with respondents in the UK and Sweden. In particular Dutch companies did not feel that a managed testing approach would improve communications with the end user department. However all of the ratings for the benefits were below 50% and it was clear that this was partly because few companies were using a managed testing approach and so there was little first hand knowledge of the benefits.

The main drawbacks of moving down a managed testing route were perceived as the costs of getting the organisation prepared to use a third party provider and the possible extension of the time to deliver the software, rated an issue by 38% of all respondents.

Interestingly, more UK companies saw more drawbacks than those in either the Netherlands or Sweden, but also has a more optimistic view of the advantages.

Ownership

Half of all business respondents said that they never take an active role in the determination of the risk of a future software or application development, reinforcing the fact that testing is not seen as a business manager issue, even though it should indeed be the case.

It was no surprise that IT managers (35%) and IT directors (27%) carry the overall accountability for the development of the software, but in 35 % of cases the IT director also carries the commercial/business risk for the company. As might be expected more business respondents felt that IT carried the accountability for the software development, and they also pinpointed the IT director in terms of commercial risk, thereby indicating that they themselves are managing to offload this risk at present.

66 % of business respondents saw the business risk lying with the IT director or IT manager.

Attitudes to testing

Only 10 % of businesses respondents have stopped a development going live in the last 12 months due to fears about the level of testing undertaken. However, because few take an interest in testing they are usually unaware of the risks in this area.

41% of business managers agreed that they have to compromise in their go to market approach knowing that a development may have flaws. This was most notably the case in the UK and Netherlands and less so in Sweden where there would appear to be a more determined effort to ensure that the software functions properly before go live.

Only 11% of companies (16% in the UK) agreed that no products have had errors 48 hours after going live, reflecting the core issue about the attitude taken to testing. 14% of all firms report that 30% or more of their developments still had errors 48 hours after going live. What is clear is that testing is not being undertaken sufficiently well to prevent the implementation of error prone software applications.

In addition only 14 % of companies report that no products have gone live late. One quarter of all companies (one third in Sweden) report that over 20% of their developments have gone live late. The implication is that not only are developments going live late, they still have errors in them on go live date. One quarter of all companies (one third in Sweden) report that over 20 % of their developments have gone live late.

User changes mid development (43 % overall, 65 % in Sweden) was cited as the most common reason for the late development of a software solution. 35 % of IT respondents compared with 32 % of business managers indicated that poor departmental communications was a key driver for the failure of some software. One third of IT respondents admitted that poor testing was also a cause for poor implementations.

Statement	UK	NL	SW	All
Better testing can lead to reduced development costs overall	89	94	88	88
The IT team could improve the quality of software releases if it had more time	78	74	86	78
A more structured and risk based approach to testing could reduce development time	82	67	73	74
Too many projects go through with insufficient testing	65	68	71	68
Testing is too often compromised for time to implementation	72	68	85	72
Compliance with regulation is having a major impact on how our testing activities are undertaken	58	63	25	53
Poor software leads to a loss of reputation in the market and higher customer churn	68	79	58	70
Testing is not a marketing or customer facing priority	58	58	50	76

Attitudes towards testing (All figures are %s)

There is common agreement amongst the countries that better testing can lead to reduced development costs overall. 78 % of all companies (86 % in Sweden) also feel that the IT team could improve the quality of the software if it had more time.

Almost three quarters of all companies also agreed that a more structured risk based approach to testing could reduce development time. Half of all companies felt that compliance was having a major impact on testing, but those in Sweden certainly did not feel this was the case. Too few companies see the problems of inadequate testing as a real business issue, an attitude that needs to change in the medium term.

Cost

41 % of all respondents were unsure about the proportion of the total IT cost of a typical software development assigned to testing. Almost 40 % of all companies (41 % in the UK) assign less than 20 % of the budget to testing. 32 % of respondents feel that up to 20 % of the cost of a typical development should be assigned to testing, but 16 % feel it should be between 21 and 30 % (compared with only 13 % actually investing that level of IT cost into the development). In general companies agree they should be investing more in testing than is currently the case.

Around 16 % of all business respondents (one quarter in the UK) tried to quantify the cost to the business of poor software but most found it impossible to put a value on the actual cost. What was clear is that people are aware of a real business cost (even if unquantifiable) to the poor development of software.

Specific Industry Comments

- Government and defence organisations (39%) are least likely to see testing as strategic and important. 33 % of travel and transport companies see testing as “just something that has to be done”.
- 17 % of government and defence organisations do not use business and risk based assessments at all.
- 40 % of finance firms always use business and IT risk based assessments to determine where testing should focus compared with only 25 % in the government sector and one third in each of the other two covered by the survey (travel and transport, and telecoms and utilities).
- 90 % of telecoms and utilities companies take account of the skills required to test new developments when prioritising the testing requirements of a project, far more than any other sector. They are also the most likely to take into account the availability of testing resources and capability. Telecoms and utilities (58%) and government and defence (48%) are most likely to increase their use of risk based test management over the next two years.
- Around half of all finance companies internally resource software testing and a further 47 % use a blended approach, compared with only 40 % of telecoms and utilities organisations. 54 % of travel and transport companies internally resource their testing activities.
- Travel and transport companies show the greatest trend towards the blended approach to testing, while finance companies seem to prefer their current approach with few looking to change in the next two years.
- The table below shows the main benefits as seen by each industry sector of moving to a managed testing approach. Travel and transport companies are least likely overall to see the issues as benefits of better in house testing, but they appreciate that the managed approach can lead to better quality software and more accountability for projects. Finance sector companies are most appreciative of the benefits of the managed approach, citing better quality software, faster time to market and better project planning as key benefits.

Benefit	Fin	Tel	Gov	T&T
Faster time to market for developments	42	46	28	23
More accountability for the projects	41	40	27	39
Better project planning	42	28	30	31
Better control of the development process through SLAs	33	44	38	23
Reduced cost of development	27	34	30	31
Better quality software and applications in the end	45	52	38	38
Better communication with the end user department	25	26	25	30

Benefits of a managed testing approach by sector (All figures are %s)

- The cost of development is cited as the major drawback of moving to a managed testing approach, this being focused on the cost of getting prepared to use a third party provider effectively. Interestingly this was not seen to be the biggest issue in the travel and transport sector, which focused on the ability to control the third party provider.

Drawback	Fin	Tel	Gov	T&T
Cost of development	50	52	47	38
Ability to control the third party	30	24	32	46
Concerns about security/confidentiality	32	32	35	31
Managing the accountability for the project	37	26	33	31
The extension of the time to deliver	38	42	38	38
Bedding the third party into the company culture	40	32	33	23

Perceived problems of moving to a managed services strategy by sector (All figures are %s)

- Finance companies seem most concerned about bedding the provider into the culture of the company.
- The most commonly cited reason for the late development of a product is the fact that the user changes the requirement mid development, a situation relatively common in the travel and transport sector, where it is the most often cited issue by some margin. Telecoms and utilities firms seem to suffer poor communication between departments more than any other sector and government bodies seem to have more problems getting their test environment ready.

Reasons for late developments or failures	Fin	Tel	Gov	T&T
Poor testing due to a drive to meet the go live date	31	32	35	13
Poor project management	20	22	30	7
Poor communication between the departments involved	35	40	34	20
Test environment not being ready	25	18	34	7
User changes mid development	37	47	43	47

Reasons for late developments or failures by sectors (All figures are %s)

- Finally, travel and transport companies are more likely to have products go through with insufficient testing compared to any other sector and companies in this market, perhaps oddly, also see compliance as having a great impact on what they are doing, more so than in any other market.
- Finance companies are more likely to agree that the IT team can improve the quality of releases if given more time, the implication being the team is not being given the right amount of time for developments.
- Telecoms and utilities firms are least likely to feel that testing is compromised for time to implementation, but even here fully two thirds of companies agreed this was an issue.

Statement	Fin	Tel	Gov	T&T
Better testing can lead to reduced development costs overall	87	88	75	69
The IT team could improve the quality of releases if it had more time	85	72	80	69
A more structured and risk based approach to testing could reduce development time	78	74	68	77
Too many projects go through with insufficient testing	72	64	71	85
Testing is too often compromised for time to implementation	75	68	73	77
Compliance with regulation is having a major impact on how our testing activities are undertaken	55	38	58	62
Poor software leads to a loss of reputation in the market and higher customer churn	72	70	69	69
Testing is not a marketing or customer facing priority	48	52	56	54

Attitudes towards testing by sector (All figures are %s)

Research methodology

255 quantitative interviews were conducted by independent research company Coleman Parkes, 101 in the UK, 102 in the Netherlands and 52 in Sweden. Respondents were split between IT and business managers.

