China

China's approach to quality assurance and testing is characterized by energy, enthusiasm – and business-mindedness

David Chen
Associate Testing Director, Capgemini China

Yiwen Liu
Associate Testing Director, Capgemini China

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China is a very business-oriented country. We saw that in last year's report, and we see it again this year, too. For example, when asked about their objectives for testing and quality assurance (QA), Chinese respondents told us the most essential criteria for them were the contribution to business growth; ensuring end-user satisfaction; and detecting software defects before go-live. Also, a substantial proportion of Chinese respondents told us they always monitor defect leakage into production – an indicator, we feel, of the country's high responsiveness to the experience needs of its end users. In all these cases, China's responses were significantly higher than the global average figures.

As far as objectives are concerned for overall IT strategy, enhancing security was rated as essential by 85% of Chinese survey participants. This isn't just because, as in other countries, Chinese organizations need to protect the integrity of their intellectual property and of their customer data. It's also because security is a significant concern for the Chinese government, and many of the regulations imposed on organizations are continuously being updated.

In general, we see optimism about the extent to which application development targets are achieved. A substantial 70% of Chinese respondents said that tools and methods for development and test activities were sufficient and available, while almost two-thirds (63%) said their testing covered everything that was needed, and 60% said end-to-end automation was in place from build through to deployment. Almost three-quarters (74%) added that they always have the right testing and QA expertise, and almost as many (69%) said they always or almost always meet their quality goals. It was surprising to note that far fewer of them (37%) felt they had the right testing strategy or methodology. Maybe Chinese organizations are meeting their goals on a case-by-case basis,

but don't feel they have yet been able to extrapolate from this a workable, general approach.

Agile and DevOps: the importance of context

Do Chinese organizations face challenges in applying testing to their agile developments? The picture that emerges in response to this question is really mixed.

In many ways, the story is positive. For example, far, far fewer Chinese respondents than our survey average noted significant issues in terms of the difficulty in aligning the tools they should use for automated testing, in terms of the professional test expertise in their agile teams, and in terms of the availability of a good testing approach that fits with their agile approach. All these responses indicate to us that the organizations responding are those who handle their software development in-house, who have confidence in their approach, and who are beginning to use new approaches to QA.

The less positive story can be seen where the challenges are greater. For instance, the figures are higher for difficulty in determining which tests have been run by teams, for estimating the test effort involved in agile initiatives, and for enhancing the efficiency of automated tests. We suspect that a different kind of Chinese organization is responding here. For this group, IT is only a support function, and it is likely not to be conducted in-house, but by an external services provider. This would explain the lower level of confidence in these cases.

Still in an agile and DevOps context, we asked about the extent to which skills needed to change for testing and QA team members. The only significant skills gap identified by

Chinese respondents was in collaboration skills. This is an important criterion in the Chinese market, and it's no surprise to us that the perceived skills gaps in more technical areas such as knowledge of build and deployment tools was much lower. Why? Because the learning curve is much shorter in these cases.

That's not to say the technology is unimportant. For Chinese respondents, it was rated very highly as a factor in successful agile and DevOps environments. Rated higher still in this regard was executive support. In our view, major organizational change is implicit in agile and DevOps developments, and executive buy-in is therefore crucial.

New QA technologies and approaches

Just now, we mentioned that Chinese organizations with well-established in-house development functions are beginning to use new approaches to QA. We see this confidence reflected in several ways. For example, they told us they are increasing their testing efficiency by implementing intelligent autonomous test solutions to a far greater degree than our survey respondents are doing as a whole.

They also showed great enthusiasm for the use of artificial intelligence and machine learning. Very high proportions of them strongly agreed that their current test strategies will work for AI too; that they are planning to collect data during AI development in order to build the right test approach; and that they are going to use AI technologies as part of this approach to testing AI itself. In addition, very many of them (91%) said they are planning to use AI to generate test environments and test data; that AI systems are going to be used to store and reuse important domain knowledge (87%); and that they will be putting in place more AI proofs of concept (84%). In our view, these high levels of willingness are currently aspirational. The plans of which they speak do not seem to us to be quite ready yet to be put into action.

The mixed picture we observe in the survey for the current status of test automation in China is possibly a reflection of the way this technology is currently being used. High proportions said they have ready access to the appropriate test data and test environments, that they have enough time to build and maintain their automated tests, and that they have the necessary tools. All this is probably because Chinese legacy IT systems mean there is a lot of regression testing, which is an area in which test automation is particularly useful.

However, organizations need to extend the use of the technology, to build it out and enhance it, and this takes times and effort – which is why we also see relatively low proportions saying, for instance, that they currently have the right automation strategy, and that they get a return on their investment.

Bucking the budget trend

The disruption caused by this year's pandemic prompted us to ask our survey participants to review their priorities for testing and quality assurance, and it was no surprise for us in China to see so many of our respondents reinforce the priorities to which we have already alluded in this article. Even more emphasis, they told us, is going to be placed on customer experience validation, on security validation, and on better collaboration tools for teams.

Organizations here are well placed to make good on these plans. By contrast with much of the rest of the world, China's economy is buoyant at the time of writing, which might help to explain why the anticipated decrease in QA budget allocation is lower than in other countries.

Indeed, in our view, it would be no surprise to see Chinese budgets for QA and testing actually to grow in the coming year. We've already said how business-oriented and customer-focused this market is – but we also need to acknowledge China's great energy and determination.