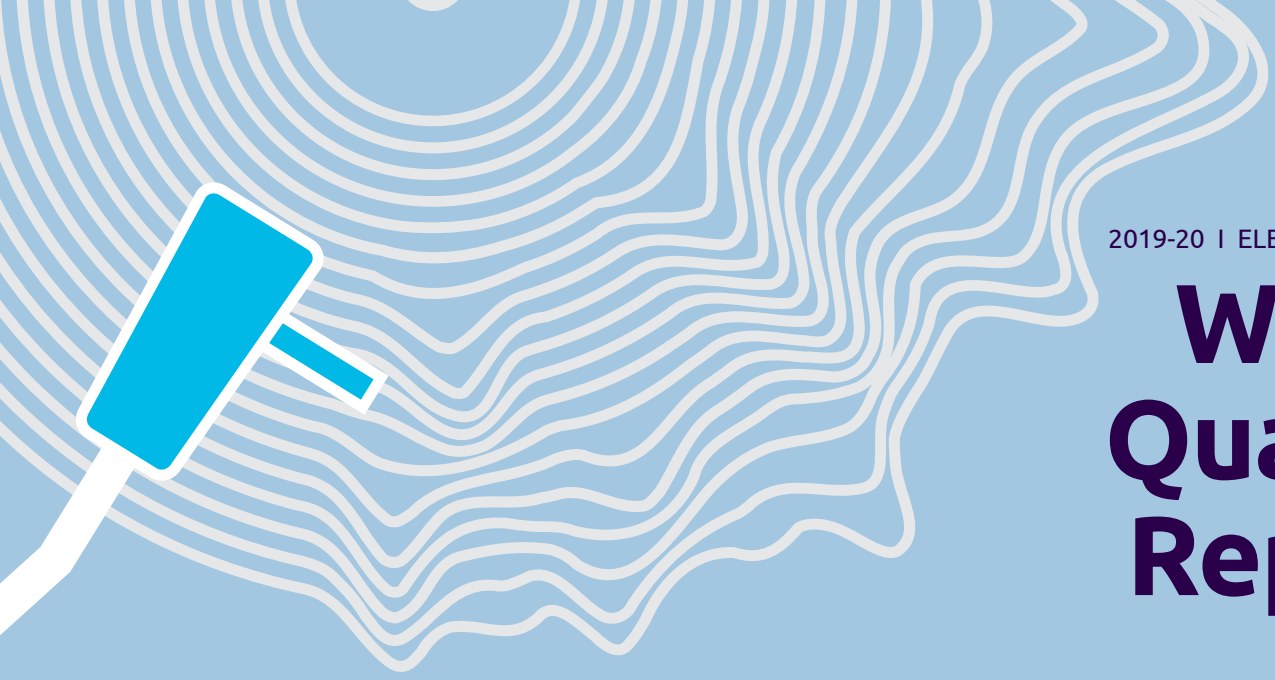

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World Quality Report

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China

China is keen to tackle its testing and QA challenges – and its IT emphasis is on security and customer satisfaction

Digital transformation is a worldwide phenomenon, and in China, as elsewhere, it is leading to greater demands for test automation, for the use of artificial intelligence (AI) in testing, and for more robust levels of security. Chinese organizations are seeking higher quality and greater efficiency, ideally at a lower cost.

The sample for this year's country analysis is representative of a broad spread of commercial and public activity, with around two-thirds of the total drawn from the public sector; telecommunications, media, and entertainment (TME); financial services; consumer products, retail, and distribution (CPRD); and the automotive industry.

Customer satisfaction and security

China's rapid economic growth in recent years demonstrates that, to a large extent, the country is subject to the same drivers we see elsewhere in the world. Principal among these is the consumer imperative: businesses need to do as much as they can to enrich the customer experience, to satisfy demand, to create and sustain a relationship, to remain competitive, and to protect and enhance their brand. We see all this implicit in Chinese assessments of the importance of objectives relating to testing and quality assurance (QA). In every case, Chinese responses are higher than average, and they are frequently consumer-driven. For example, the highest-ranked objective of all is to "ensure end-user satisfaction," and others include contributions to business growth and business outcomes, and protection of corporate image and branding.

But the customer imperative is not the only driver. The same chart shows that high values are also given to security-related objectives, and in response to a separate question about important aspects of their IT strategy, almost two-thirds (63%) of Chinese organizations give the highest score possible to "enhance security," against just 44% in the rest of the world. Chinese personal data protection requirements are demanding, and so, too, are security certification levels.

We see that China faces many of the same technical challenges as other countries in applications development. The lack of end-to-end automation is a particular issue. While Chinese organizations are accustomed to discrete processes for unit tests, systems integration tests, performance tests, and more, there is a distinct need for a more joined-up approach.

It may seem a little surprising to see such a low value assigned in this chart to a too-slow testing process, when so many other countries report difficulties in this area. We feel this is because in China, testers simplify the process by working closely with applications development teams to increase efficiency and speed things up.

Elsewhere, we note that the use of crowd-testing is significantly higher in China than in the rest of the world. Chinese respondents tell us 27% of their digital projects use this method to test real-world scenarios, against a survey-wide average figure of 19%. In our experience, this approach is used a great deal by Chinese high-tech companies that employ A/B testing methods to fine-tune their market offerings.

Early-stage IoT

We find it a little surprising that strategies for testing products in an internet of things (IoT) environment are consistent with global averages in our survey. Forty-three percent of Chinese respondents say they have a fairly mature IoT strategy. A further 34% say that their products have IoT functionality and that, while they don't currently have any specific test strategy in this area, they plan to include one in the near future.

Why do we think this odd? Because IoT developments are fairly immature in China. The constituent elements of an IoT strategy – the hardware, the software, the real-time data transfers, the data analysis, the cloud service provision – all these things present a significant integration challenge, which makes developing a testing strategy highly complex. We don't think China is quite there yet.

The percentage of overall project and team effort allocated to developments in agile and DevOps are higher in China than in the rest of the world. These platforms are proving popular with Chinese online businesses. As a result of this trend, we note that Chinese respondents are much more likely to use automated tools to decide what tests are really needed to accelerate and optimize testing in these development environments.

Test automation in China

That said, the country does face significant challenges with test automation. It's less of a problem for e-commerce organizations, but it is particularly the case for businesses in traditional industries, outside the tech and telecoms space. Our survey highlights:

- Considerable difficulties with automating because applications are changing too much with each release
- Starting too late with testing and test automation
- A proliferation of different automation tools
- Challenges with the availability of appropriate test environments and also of skilled and experienced resources.

We expect Chinese organizations to continue to tackle these challenges, because the benefits they perceive from automation are considerable. They include:

- Better control and transparency of test activities
- Better reuse of test cases
- Reduction of test costs, and also of test cycle times
- Reduction of overall security risk and of security-related issues.

Cloud-based testing environments are still at fairly early stage in China. Almost half of all testing (48%) still occurs either in a traditional permanent test environment, or in a temporary test environment that is not cloud-based. Our respondents tell us they face challenges, including the cost of test environments, defects caused by inaccurate configuration of those environments, and a lack of clarity about what can and can't be tested in incomplete environments. The test data itself can also be an issue. One particular challenge we find in this year's Chinese survey is the difficulty of maintaining test data consistency across different systems under test.

In spite of these issues, we do see cloud-based test environments being used in several different capacities. As we would expect in a Chinese context, these include performance testing and security testing, and also the functional testing of customer-facing applications and of cloud services.

Finally, we note that fewer than average Chinese respondents say they have been spending proportionally more of their IT budgets on test and QA in recent years. They also envisage a lower-than-average spend in years to come, with an estimated 25% of the total IT budget likely to be earmarked for testing, against 27% in the rest of the world. These low estimates may be because, as we have noted earlier, many Chinese test teams work closely with their peers in development, and there may be an assumption in some cases that roles and budgets will merge.

Two things, however, are certain. The first is that the pace of change is unlikely to diminish – and the second is that Chinese enthusiasm for tackling its challenges will continue unabated.

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