

WORLD QUALITY REPORT

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Germany

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IMPORTANT TRENDS

- The continuing shift towards agile and DevOps, the increased adoption of automation in testing, the growing alignment between business and IT and the rising importance of Digital Testing are the most important trends this year.
- Organizations have found ways to implement agile in a structured manner that is more suitable to the process-driven German culture and agile today is a must-have for most German organizations.
- More and more organizations are shifting to smaller and more specialized Test Centers of Excellence (TCOEs) that can be used in a plug-and-play manner by the wider organization.

The QA and Testing market in Germany is evolving rapidly, and yet, the fundamental factors driving this evolution remain the same as earlier. These factors, which arise from Germany's history as a center of manufacturing excellence, are the prevalence of a process-driven, engineering mindset and the ubiquitous 'culture of quality' which is seen across German society. It is these underlying factors that are responsible for many of the unique challenges as well as the strengths of QA and Testing in Germany. With them remaining the same, the QA and Testing trends too, are broadly similar to those seen last year, with a few having gained in strength since then.

The biggest trends seen in Germany this year are the continuing shift towards agile and DevOps and the increased adoption of automation in testing. There is also a growing alignment between business and IT and digital testing is becoming more and more important. Another recent, impactful trend is the boom in Internet of Things (IoT) products seen over the last couple of years. In addition, there are also challenges with regard to strict data protection laws in place in Germany. These challenges around data protection and privacy have been brought into further focus by the preparation for the General Data Protection Regulation (GDPR), which will be implemented by May of 2018.

German business leaders understand that IT quality directly impacts business as well as their international competitive position. This, together with the aforementioned 'culture of quality' drives the rapidly expanding focus on quality, as well as the increasing alignment between business and IT. This is clearly borne out

by this year's survey results. For instance, when asked about the objectives of their IT strategy, German IT leaders gave the highest weighting to options such as 'higher quality of software solutions', 'enhance customer experience' and 'enhance security'. Similarly, when asked about the objectives of their QA and Testing strategy, German respondents assigned the greatest importance to increasing the quality of software or product.

The second major trend is Digital Transformation which touches on almost every sector of the German economy today. Due to the direct interaction with the customer provided by digitalization, there is a lot of focus on end-user satisfaction and digital testing. According to our survey, efficiency/performance, functionality and security were the three most important areas on which German QA and Testing Departments focused when testing mobile applications. There were also a number of challenges when it came to the testing of mobile devices, with the most significant of them being not getting enough time to test, not having the right testing tools or difficulties with choosing the appropriate testing process or method.

Much greater challenges are being faced in the related field of IoT products, which is one of the hottest topics in Germany today. The rise in the number of IoT products and the consequent exponential rise in the communications between them, has led to a huge number of use cases. This magnitude of use cases is becoming unmanageable with manual testing. In addition, the impact that malfunctioning IoT products can have on brand value is immense, not to mention the real world accidents they can cause. Due to

such challenges, experts believe that the spends on IoT and cognitive testing are likely to rise rapidly in the coming years.

Currently, however, the testing of IoT products involves several challenges, mainly due to their ever-expanding complexity. This is because manufacturers of these products are typically dependent on inputs from a large number of specialized suppliers. The differences in software, tools and processes among all these different suppliers can make structuring and optimizing E2E quality assurance and testing of the end-products a nightmare. The challenges arising from this are also reflected in our survey results, where 'testing the security aspect', 'creating test environment with virtualized end-products, devices or test data' and 'testing the integration with 3rd party solutions/products' were the top three challenges reported for IoT testing.

Another major trend in Germany, since the last couple of years is automation. The country's history as a center of manufacturing as well as the current low unemployment rates, all play a part in this interest in automation. German companies have already achieved a fairly high level of automation internally and today the focus is on automation outside the organization. Currently, the focus is on aligning processes and platforms between organizations and their suppliers, following which there is likely to be a wave of automation of the entire value chain, which will play out over the next few years.

Germany also consistently reports higher levels of QA and Testing automation than the rest of the world. According to our survey, as much as 18% of test data in Germany is generated using test data tools (as opposed to a worldwide average of 16%) and 18% of functional test cases are generated using test generation tools (as opposed to a worldwide average of 16%). Survey respondents also pointed to challenges such as 'difficulties with integrating various automation tools together', 'automation tools not supporting mobile testing', 'challenges with service virtualization' and 'lack of skilled and experienced test automation resources'.

The next major trend is agile which has almost become a must-have for German organizations. According to our survey, Germany

is still slightly behind the worldwide average in terms of adoption of agile, but they are catching up fast. Organizations have found ways to implement agile in a structured manner that is more suitable to the process driven German culture. However, when it comes to testing in an agile environment, significant challenges still remain. According to respondents, one of the biggest of these challenges is the difficulty in slicing test activities for more than one location.

This challenge is a direct result of the way in which testing activities are set up in Germany today. With agile practices being adopted almost everywhere; one does not see too many of the big Managed Testing Centers of yesteryears. Instead, more and more organizations are shifting to smaller and more specialized Test Centers of Excellence (TCOEs) that can be used in a plug-and-play manner by the wider organization. Another new trend when it comes to TCOEs in Germany is the use of crowd sourcing for building up quick test capacity.

Finally, mention needs to be made of the importance of security in the German market. German data security laws have always been particularly strict but this has come into much more focus due to the GDPR which is expected to come into force next year.

To summarize, quality is something that has always been taken seriously in German culture and society. The QA and Testing function, however, has evolved significantly over the last few years. Today, there is an increasing alignment between business and IT and a lot less emphasis on cost reduction as an objective for QA and Testing. Instead, there is a heightened focus on business goals such as reducing time-to-market, increasing customer satisfaction and improving product quality.

There has also been a steady shift towards agile and DevOps ways of working and we can expect a further growth in the usage of agile methodologies in Germany over the coming years. Looking to the future, we can expect a further rise in the use as well as returns from automation and an increasing focus on security. We are also likely to see an increase in IoT testing and a move towards hybridization of specialized TCoEs in the immediate future.



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