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# Software Testing Trends that are Powering the Future

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**T**he Software testing industry is undergoing a transformation in order to support the swiftly altering technologies. Technology concepts such as Social, Cloud, IoT, Mobile and Analytics (SCIMA), are driving innovation in business. The software development methodology is being redefined by incorporating processes such as Agile and DevOps. There are now many options in the form of open sourced tools that encourage collaborative effort for better efficiency, and ultimately result in lower costs. Multinational corporations and entrepreneurial enterprises alike, are in an effort to digitally transform their business, and are increasingly becoming aware that integrating testing services or employing third party testing firms plays a crucial part in achieving the desired outcome.

In today's world where innovation across the globe is being driven by new technological concepts, there is a compelling need to discuss and align businesses to the demands of the growing IT trends. A few that are worth looking out for include:

## 1. Open Source Tools

More organizations are adopting open source tools, with a bigger community available for support. Open source tools are now increasingly being used in agile, DevOps, test automation, etc. Clients are also generally inclined towards the open source pricing model. Established enterprises are currently banking on cloud computing services to be of help, as there is no upfront license cost associated with the concept of platform-as-a-service. Open Source tools like Selenium are being embraced by vendor-based tools, especially over commercial tools. Proprietary IP tools, along with open source tools are providing corporations the ability to attain further granularity in their analysis of bringing forth new dimensions, such as Artificial Intelligence, to software testing.

## 2. Client-centric TCoEs

Forrester, an American independent technology and market research company, reasons that testing must move to the forefront of development. Centralized centers of excellence, it goes on to say, are no longer as productive as test-driven development practices, in which collaborative effort involving testers and developers is a daily practice. This gives rise to Software Development Engineers in Test (SDETs), as more testers can develop testing software. Client-centric Test Centers of Excellence (TCoE) assure high-quality software that would be operated by testing professionals who can work cross-domain. This inevitably ensure that clients do not have to deal with exorbitant overhead costs that come with building high-quality applications.

## 3. Quality at Speed

With many available options, and through widely available acclaimed channels of research, customers or end-users are more or less well informed about their choices. Above everything, quality either makes or breaks a product and at its heels, time to market. Enterprises are now opting the concept of a minimum viable product (MVP), thereby encouraging the basic model to hit the markets faster, with assured quality. With more updates and patches released in iterations, this is ideal for digital products. Continuous testing practices are vital to meet this unparalleled insistence for speed with quality.

## 4. Digital Assurance

Organizations call for an all-inclusive digital assurance platform that can provide an array of digital testing services. The phrase 'digital business' holds a different meaning for different industries. While e-commerce applications, which account for 90 percent of app-usage by millennials, are used for shopping and finding out



reviews about a certain product; communication applications, which account for 60 percent of app-usage by millennials, involve being active on social media platforms. Meanwhile, banking applications must ensure that security is paramount for their customers. A digital assurance platform is required to ensure multi-channel interactions, accessibility, security, and social media integration, to mention a few. The chief-drivers of digital transformation are customer satisfaction and profitability, which comes from high brand recall and customer retention.

## 5. Test Data Management

Characteristically, an enormous volume of information and data is used while running projects. For applications that are under test, a considerable amount of data is necessary in order to carry out testing; more so for testing techniques such as Boundary Value Analysis and Equivalence partitioning. There is a requirement for an abundance of pre-existing test data for testing these units, so that edge-case scenarios are covered. There is an increase of automated testing, which permits data to be filled out during non-working hours, where human interaction is almost negated. This saves a massive amount of time, generates data that is more accurate, and ensures that the data in question is high in volume. Third-Party tools are precise while creating test data, as they comprehend the system and the domain systematically. The tools are hence, designed in a manner that populates real-time data in the system.

## 6. Wearable and IoT testing

According to Gartner, devices operating on the Internet of Things (IoT) are said to grow to an estimated 26 billion in number, by the year 2020. The market potential for the same, the report cites, is expected to near \$1.9 Trillion. While this makes investment in IoT devices appealing, according to a study by HP, 70 percent of these devices are vulnerable to attack. This demands for a thorough security testing of IoT devices.



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## 7. DevOps

Ever more organizations now function in a DevOps environment. DevOps offers earlier operation and quality assurance to today's multifaceted IT structure, in order to speed up the time-to-market, with lesser costs. DevOps execution depends not just on software tools, but also on organizational updates and a collaborative effort from multiple teams.



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## 8. Security Testing

Cyber security is a constant cause for alarm in today's ever growing era of digital use. From DDoS attacks disrupting anticipated software releases, to identification threats and sensitive information being leaked, internet fiascos send users into frenzy. When incidents of this magnitude occur, it takes mere minutes to destroy the reputation of a brand that has been carefully built over a number of years. Security testing helps prevent such debacles.

## 9. Service Virtualization

Virtualization of services helps corporations by emulating behavior of components in component-based applications such as Application Programming Interfaces (APIs). Through testing services, applications development is accelerated.

## 10. Quality Engineering

Quality plays a role right from the build of the product, to its dispatch, and even after that. Several interlinked and collaborative IT services and teams ensure that Quality Engineering becomes a reality. With quality assurance necessary at every stage, testing as we know is now being transformed with rise in customer expectations and digitization of businesses.

The discussed set only represents a massive portion of the emerging testing trends. While each individual corporation might not have the necessary tools and expertise to facilitate such a transformation, more organizations are doing a double-take at emerging independent software testing enterprises. **CR**