



From chaos to clarity:

How test management streamlines development

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In the world of software development, testing is a crucial component to providing good software product quality. However, without proper test management, the testing process can become chaotic, inefficient and ineffective. Test management plays an essential role in software testing: It provides structure, organization, outlook and control over the testing activities.

How projects benefit from test management

Effective test management adds value to software development and testing projects. **The main benefits are:**



Better quality

Identify defects early in the development life cycle, so that they can be removed quickly — thus contributing to good software and product quality from the beginning



Improved communication

Clear and standardized ways of communicating between testing teams, developers and other stakeholders result in better collaboration



Reduced costs

Optimized testing activities, early defect detection and efficiently used resources save time and money



Increased client satisfaction

Deliver high-quality software products to meet and exceed client expectations



Compliance with standards

Test for adherence to rules, regulations and industry standards, enabling use in regulated industries

The quality of a software product can be greatly enhanced by implementing effective test management. A well-structured and organized testing process that thoroughly tests all aspects of the software — including its functional and non-functional features such as performance, security and usability — enhances the efficiency of the testing process. **It helps with:**

- Defining clear test plans
- Identifying test entry and exit criteria
- Configuring the test environment
- Scheduling testing activities in a prioritized and coordinated manner

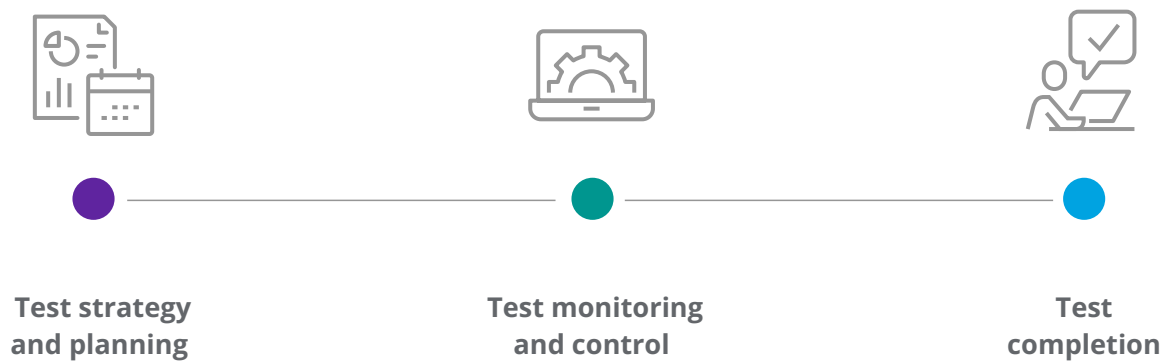
This minimizes time and resources required for testing, while ensuring that the testing is conducted thoroughly and effectively. Moreover, effective test management mitigates the risk of defects and issues in the software product by identifying potential issues early, thus preventing issues from becoming significant problems which require extensive and costly fixes.

Effective test management facilitates communication and collaboration among project team members by providing comprehensive information about the testing process and results. This ensures that all team members are working together toward the shared objectives of meeting the requirements to achieve the final goals:

A flawless product and a happy and satisfied client.

Three phases **for success**

Efficient test management approaches are aligned with the ISO 29119 test process and consist of three phases:



Test management process

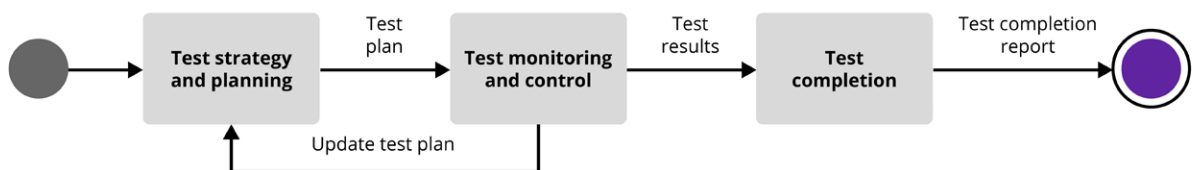


Figure 1. Test management process ISO/IEC/IEEE 29119 software testing

Let's have a closer look at each phase.



Test strategy and planning

To create a solid test plan, gather all relevant information about the project and the device under test. Then, define other critical aspects like the scope, test objectives and test levels. The *ISO/IEC/IEEE 29119:2021 Part 3 (Test Documentation)* includes a recommended template for the test plan that covers the majority of the important details. Furthermore, the test strategy should outline the mandatory approach of the project while also considering different environments — such as simulation, virtualization and real hardware.

Test strategy and planning process

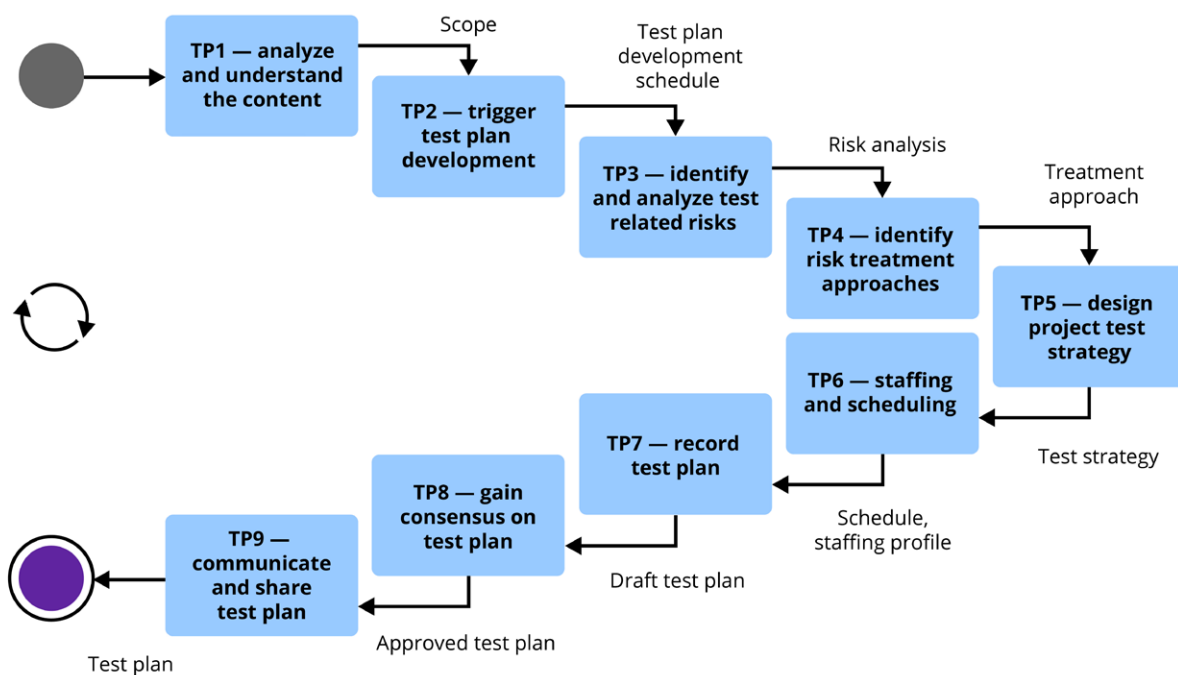
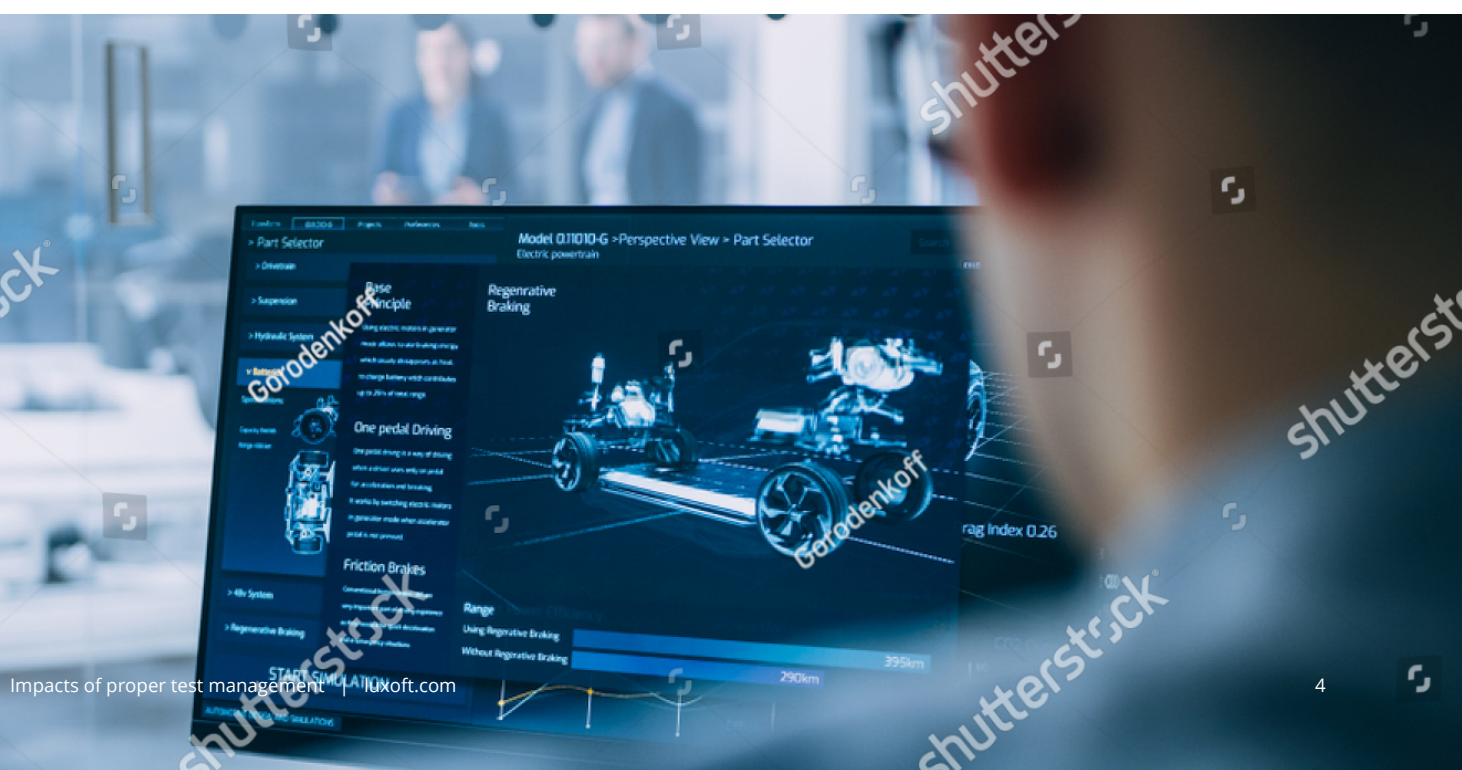


Figure 2. Test strategy and planning process — ISO/IEC/IEEE 29119 Software testing



Test monitoring and control

Maintaining oversight of test activities, schedules and deadlines is critical. One effective way is to create a dashboard. Additionally, it's beneficial to track: Internal quality aspects (such as requirements) that lack corresponding test cases; test cases that lack any association to requirements; defects that lack links to testing cases; and other relevant metrics that can aid in improving overall testing quality.

Test monitoring and control process

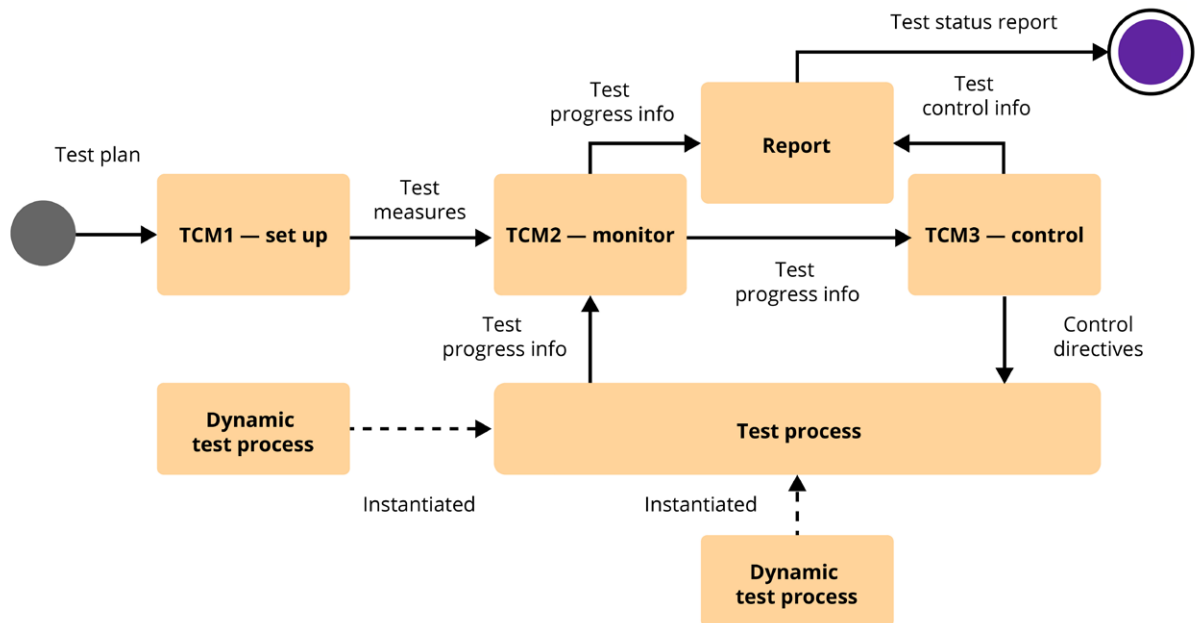


Figure 3. Test monitoring and control — test management process ISO/IEC/IEEE 29119 Software testing

Test completion

Sharing information is a core responsibility of management — it keeps the team focused and allows project managers and stakeholders to make more informed decisions. It's crucial to define a set of useful reporting metrics though — they allow effective communication when tailored to the project setup and the intended recipients of the reports.

Test completion process

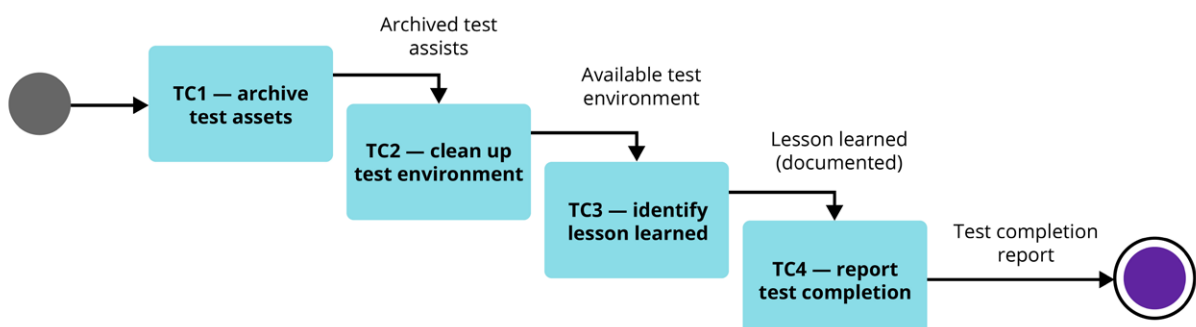


Figure 4. Test completion process — test management process ISO/IEC/IEEE 29119 Software testing

A real-life example

Proper test management really makes a difference, as the following success story of a current project shows:

“When we started, everything was quite chaotic. It was the first project where all the testing activities were implementing Agile methodology. What’s more, the development team did not follow old processes — these could have helped the testing team to reach its objectives.

So, our issues were:

- Project didn’t follow the ASPICE framework as requested when mapping requirements and testing levels
- Stories and epics were not implementing complete features
- Stories and epics were released to the system testing team for evaluation way before the features were fully implemented and ready for a system test
- Development teams didn’t have correct or useful information for the testing team

Additionally, development teams and testing teams were located in different time zones, making communication even more difficult. Knowing that reaching the start of production was at stake, senior management support was brought in.

By applying proper test management, the situation gradually improved.

Now — a year later — we see:

- Clear and open communication between all the stakeholders
- Stories and epics are used correctly — they describe complete features and are handed over for testing when they are ready
- Development teams have a clear understanding of the processes to follow
- The project is compliant with automotive standards

Overall, team efficiency has increased and things have started to go in a normal way. We have a test manager who knows how to identify risks and how to make things better, and teams who follow processes. Due to proper test management, we’ll soon have a successful product and a satisfied customer.”

An essential part of software development

Effective test management is essential for delivering high-quality software products that meet customer expectations and comply with industry standards and regulations. Effective test management practices, software development and testing projects can improve software quality, increase efficiency and achieve customer satisfaction. Don’t underestimate test management — it’s an essential aspect of software development.

About **the author**



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Rabih leads the Connected Vehicle System Testing offering at Luxoft, where we provide a comprehensive range of services including telematics, diagnostics, vehicle network, over-the-air updates and cybersecurity testing.

As a test expert with extensive experience in software/system testing, his main focus is on test processes, strategic and operational test management and test advisory. He's also an ISTQB-certified professional and has served as a board member, author and reviewer of the advanced-level test manager.

Rabih's passion for testing and his desire to deliver quality solutions has driven him to continuously learn and explore new challenges.

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Luxoft, a DXC Technology Company delivers digital advantage for software-driven organizations, leveraging domain knowledge and software engineering capabilities. We use our industry-specific expertise and extensive partnership network to engineer innovative products and services that generate value and shape the future of industries.

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