

Major International Telco

Experience story: TMap[®] Business Risk Based Test Approach

A Sogeti Quality Engineer was assigned to define the test process at a major Telco company in Sweden. The objective was to define a test process for the System Test department which is the responsible for system testing and for verification of products developed by the Development departments. Most applications developed by the client are of an embedded nature and the assignment required a good understanding of technical issues like testing embedded applications as well as organizational issues like team building.

New tasks and responsibilities

The Telco company was experiencing new changes within the organization, the scope of testing and the responsibilities of the test team were increasing rapidly. The new scope did not only include testing and verification but also validation of functionality as well. In other word the test group was required a much earlier involvement in the development process.

One of the new changes in the organization was several projects running in parallel instead of one project at a time however, the number of internal resources did not change nor did the mindset of these resources. They did not realize that running projects in parallel required a new way of planning. In order to meet the bigger scope of responsibilities, the SVG group (System Verification Group) was renamed to V&V (Validation & Verification) and was divided into several smaller groups. One of them was ESW (External Software). Each individual group has its specific area of focus. The ESW group was now responsible for verifying and validating the quality of the external applications that were included in the product. There were over 100 external suppliers delivering software to the company.

'The new structured way of testing greatly improved the quality of the external software'

For the ESW group validation meant checking that the suppliers reached the required level of quality and functionality before even delivering to ESW. This was done by performing assessments on the test maturity of the companies, by checking and

reviewing their test plans, test strategies, test specs and test reports.

'Other test methods cause lots of rework for test preparation.'

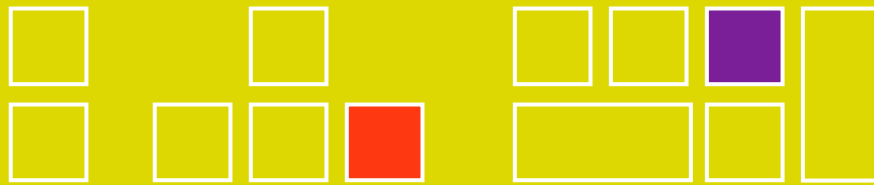
This case describes the approach the ESW group followed. This approach adopted the business and risk driven testing method TMap (Test management Approach) and proved to be very successful. The new objective for ESW was that no 3rd party product was to be included in the final product if it did not fulfill the quality criteria set by ESW. Previously this was not checked. The approach helped ESW to determine the quality criteria per supplier depending on their business risk ranking.

Approach

The new TMap based approach, considering the business risk, was defined to better control the test effort. The ESW group also used the TPI (Test Process Improvement) model on the external suppliers to rank their test process maturity. The TPI assessment combined with the business risk assessment created the different levels of this approach. More test effort was put on companies with low test maturity and/or high business risks. ESW also urged and helped suppliers with low test maturities to improve their testing processes. The requirements for the test projects were reviewed more carefully, with contradictions and gaps in the requirements resulting in new requirements and test cases. More time and more experienced people were allocated for high risk test projects.

A test spec was created which clearly reflected the business risk and test case priority. The ranking





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was introduced even per test case and per test case step. Using one to one mapping of requirements to test cases made the test spec future proof, allowing the overall project, including parallel running projects and test phases to use the same test specs.

The test spec was built as follows. Each test case was ranked with a project and a product risk, the project risk determined the order of which the test cases were executed, the product risk determined the level of test depth.

Low product risks were mapped to positive test actions and higher product risks were mapped to more negative test actions. The structure of the test spec, for instance for a the high ranked test case was to start from the positive test cases and continue to more and more negative test scenarios step-by-step.

'A smarter way of testing, more structured test effort'

Execution

A number of external firms delivering test services were performing the quality control and testing of the external software that was planned to be included in the product. All of these test services companies were given workshops to teach them the benefits of using the new TMap risk-based testing method.

A careful time planning for all external software suppliers and test houses was also required in order to coordinate the test execution. ESW's project leaders spent a lot of time on planning, allocating resources and coordinating the deliveries of all external supplier's products towards the external test houses.

High(er) risk applications were followed up more frequently and suppliers were urged to use this method themselves before delivering to V&V, and guidelines for how to use the method were provided by ESW.

The side effect of this was increased test maturity at the suppliers, and less test effort at V&V, therefore a win-win situation.

Achieved results

ESW achieved a more structured way of testing, which greatly improved the quality of the external software. Reusing the specs in different projects for different products, with different risk rankings, and

with minimal modification effort saved a lot of time and money for the company. The time for test execution within each project was also used in the most efficient way, since different projects and test phases did not have to rework their test specs. The feedback from the internal workshops confirmed that the new TMap based test method improved the test structure and saved time.

The increased interest of this method within all the other test teams in the V&V group resulted in a number of workshops around the method.

Client feedback

Feedback on the new method from the internal workshops:

- Smarter way of testing, more structured test effort
- Resources were put on higher risk test objects
- Full traceability of the whole test process
- Good approach, easy to write specs and easy to modify
- Creates the possibility to cover all test scenarios. If required new test cases will be introduced to cover gaps in the requirements, and negative testing
- This method makes the spec clear and structured
- Excellent possibilities for reuse
- 1 to 1 mapping requires writing the test cases in the right order to get the right flow
- Only minimal modification time is required
- Multiple projects could easily be run in parallel
- There is a smooth transition from simple to complex steps
- Specs appear to be more organized and systematic when compared to the old specs
- Ranking the application and the spec ensures that the tester covers all test areas in an efficient manner (stress, negative, performance etc)
- Other test methods cause lots of re-work for test preparation
- Our method eliminates re-work by executing test cases in a methodical manner

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