

Quality Level Management: who, what and how

A new model for managing IT product quality in outsourcing relationships



Our series of features on how testing services should work continues. With **Jeanne Hofmans** and **Erwin Pasmans** of Improve Quality Services

In the first edition of LITS (see <http://professionaltester.com/files/PT-issue16.pdf>) Vinoth Kumar described the information Cognizant provides to users of its testing services. That is a critical activity in any service model, but especially that of a testing service because measuring the effectiveness of testing is very difficult.

Testing should increase confidence in quality. That does not happen because few defects are detected, nor because many are detected and fixed: both phenomena should decrease confidence. Increased confidence comes from knowledge and understanding of the passed tests, gained by digesting much information. It's not easy, but it can be achieved by close observation of the testing work as it proceeds, or ideally being involved in it personally. Converting testing into a service removes first-hand visibility and creates dependency on reporting alone. A test report is by definition a summary, that is it deliberately omits information: it would be impossible to use otherwise. To have accurate knowledge

of the quality of the product the service user must have complete understanding of the meaning of the report. That requires complete knowledge of how it is created, ie what is measured and how, and how it is summarized.

Jeanne Hofmans and Erwin Pasmans are currently completing their book on quality management in outsourced projects with large IT components. Here we ask for their advice on how to look inside testing services.

Who should engage the testing service?

Reports must be designed for the reader. Cognizant's are for "business and IT stakeholders". Other roles, for example project managers, lead developers or test analysts, would require very different reports in order to be able to achieve confidence in the testing done and therefore in the product.

In your opinion, which role is the easiest to which to report well?

JEANNE HOFMANS and ERWIN PASMANS:

Quality is a subjective concept. In his famous book *Quality Software Management: Systems Thinking* (Dorset House, ISBN 9780932633729) Gerald M. Weinberg defines it as follows: "quality is value to some person". James Bach modified this to "quality is value to some person that matters", making explicit an additional point already made by Weinberg in the original context. That subjective nature makes defining and establishing quantitative quality reports very difficult, if not impossible. Thus the question "which role is easiest to which to report well?" should be replaced with "who matters most?". Once that is determined it should be determined what matters most to that person or persons. In other words who is easy to report to is not relevant. You

should report to the people who matter and report on what matters to them. They have probably had a hard time defining what matters most to them and will probably change their mind over time.

That is why we agree that increased confidence comes from close (personal) observation of the testing work as it proceeds. We disagree however that converting testing into a service removes first-hand visibility and creates dependency on reporting alone. To be successful one should not depend on reporting alone. The visibility should be stimulated and simulated (eg using cameras and screens) as much as possible. Visibility is a key factor in the success of metrics. They should be shared amongst the team. Preferably both customer and supplier are able to view the metrics in a shared dashboard. Using this dashboard as an entry point, team members such as lead developers and test analysts find the detailed information that is needed. This visibility and openness is not only applicable to the metrics of the product, but also to dashboards that report on process level and to the organization as a whole. On organizational level it helps to pay visits so that team members get to know each other. It also helps to have screens in the office displaying the team working at another place.

The focus on several levels (product, process and organisation) is key in our book, in which Improve Quality Services presents a new model that addresses several solutions of managing quality in outsourcing. Numerous solutions are already widely available for problems in either outsourcing or quality management, but until now there was not one universal model or framework to approach these problems.

The Quality Level Management-model (see figure 1) has two main dimensions regarding measures to improve and sustain quality: *levels* at which measures can be taken: organization, process and product; *types* of measures: preventive, detective and corrective.

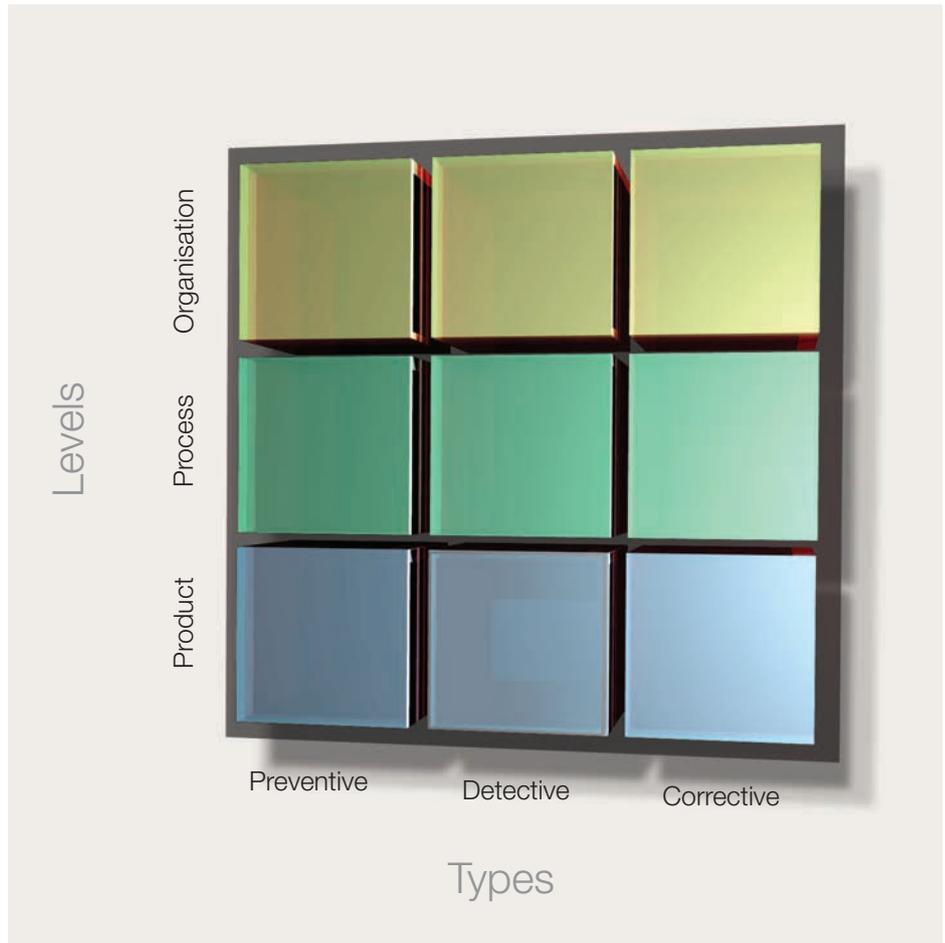


Figure 1: levels and types of measures in the QLM-model

Collecting metrics is an example of a detective measure on product level. The use of dashboards, showing the progress of testing is an example of a detective measure on process level. Determining relevant stakeholders and involving them is an important activity on organizational level. All levels are needed to report meaningfully about quality.

What should the service provider measure?

Different reports require different inputs.

In order to report meaningfully to “who matters most”, what needs to be measured and how should that be done?

HOFMANS and PASMANS: To report meaningfully a key factor for success is to limit the amount of metrics. A limited amount of metrics is easier to understand to all involved, especially because metrics should be interpreted carefully. Few defects

does not automatically mean the product is of good quality. It could also indicate testing is not taken seriously. The effectiveness of testing decreases as it takes much more time to decently report bugs. Is a testing service performing badly if the code that is being delivered is poorly maintainable? Perhaps users are satisfied with the product delivered but the maintenance department is not. And is that same testing service doing a good job if they achieve 100% requirement coverage? Perhaps the requirements are poor or very generic. Perhaps every requirement is traceable to a test case, but that test case covers only a small part of that requirement. Just measuring test effectiveness is not enough.

As in test framing, the process and the story of the product must also be told. The story contains the highlights of the test approach, the constraints of the test process and the results of testing. Often the customer is not specialized in IT processes. The story of the product contains more information than a report full of metrics. 80% decision coverage is meaningless if the code of the remaining 20% is used most often or in critical parts of the product. That is why reporting should be about risks. This can be accomplished by listing items covered versus items not yet covered by successfully executed test cases. Not just the reporting, but also the testing itself should be about risks and defining appropriate measures. Stakeholders worry most about potential failures and their impact. Therefore these risks should be agreed upon by the stakeholders and reported back during and after testing.

How should the service's reports be actioned?

Testing should aid decision making.

How can who matters most know (i) the risk of allowing a test item to pass out of their responsibility; (ii) by how much and how quickly more testing can reduce that risk?

HOFMANS and PASMANS: An important aspect is that good testers are aware of defect

clustering, the phenomenon that defects tend to cluster in one area or component. A good tester does report this so it can be decided whether further targeted testing should be performed. Good testers also divert from the test script if there is a reason to do so. They also report strange side effects: dynamic implicit testing. This is impossible to grasp in quantitative metrics. The use of both quantitative metrics and qualitative information of testers aids decision making based on risks.

The best chance for success in passing the responsibility of a test item is to use detective measures at all three levels. At product level review the test cases and requirements, perform some witness or acceptance testing. At process level perform some collaborative quality scans or audits to check if risk analysis meetings are held, if configuration management is working properly. At organizational level it is very wise to talk to the people involved. Knowing that testers are well capable and understand the perceived risks of

the stakeholder can give a huge confidence boost in the testing performed.

Reducing risk is not just about taking detective measures like testing but more importantly about taking preventive and corrective measures. These preventive and corrective measures are applicable to the organizational, process and product level as well. The QLM-model describes all these types of measures. A preventive measure on organizational level is to achieve a level of trust and confidence between customer (stakeholder) and supplier. Because trust alone is not sufficient measures at process level and product level are needed, for example an incident management process that is easy to use by both partners or the use of coding standards. Quality is not achieved by just testing but also by good design and development practices. Our book on the QLM-model is therefore not just about testing services but covers all aspects of managing quality in outsourcing: quality level management ■

Jeanne Hofmans and Erwin Pasmans are test consultants at Improve Quality Services (<http://improveqs.nl>). Their book Quality Level Management: Managing Quality in Outsourcing, will be presented at Eurostar 2012
