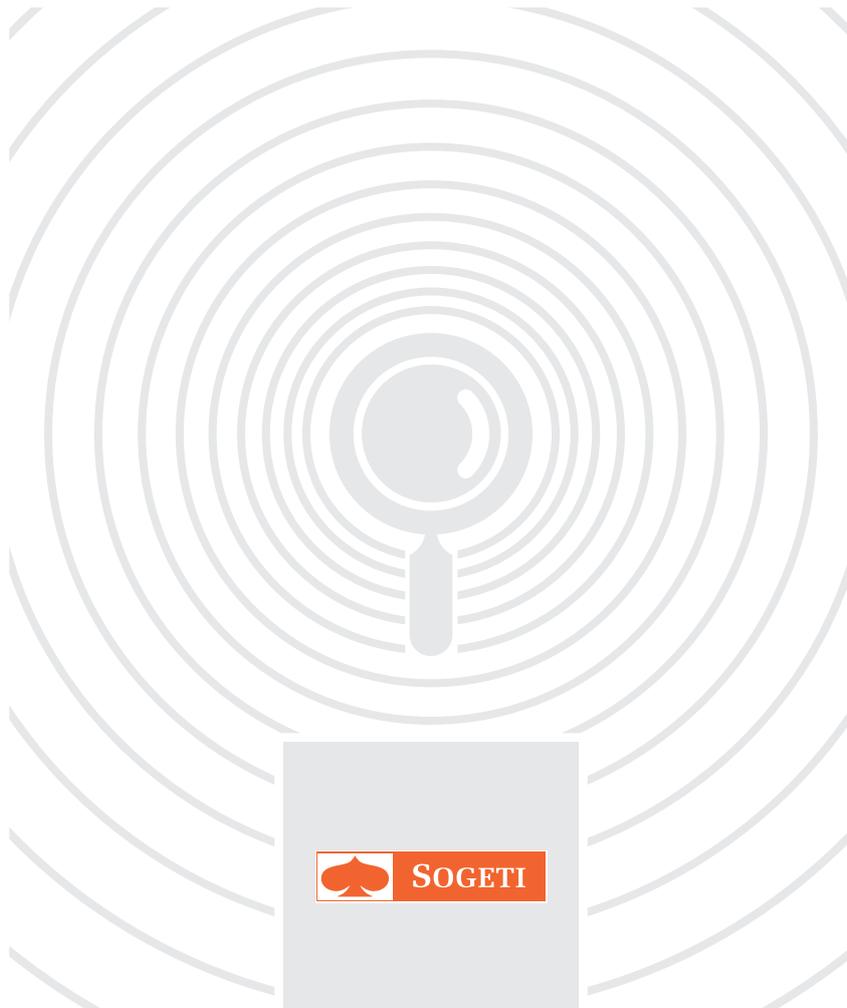


SOGETI : INSIGHT ON INNOVATION

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Innovation in Quality



THE DIFFERENT FACES OF THE TESTER: QUALITY ENGINEER, IT GENERALIST AND BUSINESS ADVOCATE

Innovation in testing is strongly related to system development, which is continuously evolving. Recent developments in IT foster the transition of system development into an industrialized process where formerly separate IT disciplines, such as analysis, coding, architectural design, testing and operational readiness are increasingly integrated.

Within this overall transition, testing moves from a cost centric necessity to a strategically important discipline focusing on application quality. The concept of the 'tester' as solely responsible for assessing quality no longer holds true — quality has become every one's concern. But shared responsibility all too often ends up as no one's responsibility at all.

“...the Quality Engineer instigates a mindset among all team members by which quality is never an afterthought, but becomes a built-in feature.”



This is where the Quality Engineer steps in: an agent for quality, fully aware that (s)he cannot do 'it' all by her/himself, fully aware that other team members have their own quality responsibilities, but also very conscious that nothing 'just happens by itself'. Equipped with the knowledge and skills to 'lead by example' the Quality Engineer instigates a mindset among all team members by which quality is never an afterthought, but becomes a built-in feature.

This article discusses this new role of Quality Engineer, as it is clear that the current tester is more dead than alive.

INNOVATION IN QUALITY ENGINEERING IS TRIGGERED BY INTEGRATION AND INDUSTRIALIZATION

The trigger to change

The irony of the testing profession is that for years testers have been working quite hard to establish testing as a discipline in its own right. And then, just when recognition had finally come, focus shifted from 'the process' to 'the output of the process'. Interdisciplinary cooperation between all roles involved became the dominant work attitude in which the role of an independent and autonomous Quality Manager did not fit anymore. The pace and rhythm of the application lifecycle shortened from 'a couple releases a year' to 'a sprint of 2-4 weeks' and even to continuous delivery on a daily basis! The testing profession, and by consequence the tester, needed to adapt to this trend. And so (s)he did.

Integration of Quality Engineering with IT practices

So far testing has always stood at the tilting plane of system development between 'pure IT' and 'the business'. Looking at the changes in both areas, testing or quality engineering tends to align considerably more with IT and its evolutions than with 'the business'. Although major developments like Cloud, Big Data, Social Media and Mobile are the result of the interaction between 'business demands' and 'technological capabilities',

the way system development is conducted is most under change in the IT departments themselves. Business-oriented test focus, such as usability, business process end-to-end testing and functional testing, has not faced that many revolutionary changes and remain rather manual, whereas the IT-oriented test focus, such as automated testing, performance, mobile or security testing and service virtualization has seen far-reaching changes in approach accompanied by a substantial growth in tool support.

Another significant development testing trend can be identified with 'continuous' as a common denominator: continuous integration, continuous delivery, continuous deployment,... and all of these include (continuous, automated) testing. None of these could be successful with old style (manual) testing. The capabilities of current test tools have - on the surface - not much changed. But the accessibility and volatility of the tools have increased considerably, to the point where one does not need to be a 'techie' to use them. So, a quality engineer operates in the range from in-depth technical white box testing to abstract, user experience focused black box testing, in both cases more and more supported by technology.

The Quality Engineer is increasingly showing signs of a true IT person!

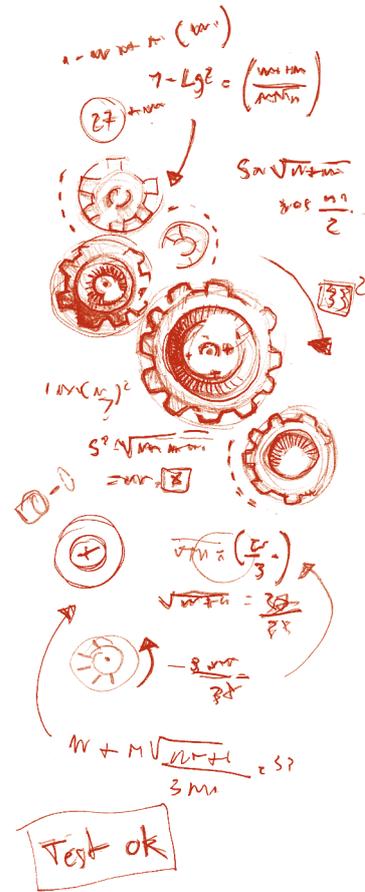
Industrialization as innovation

The key concept of industrialization is a repeatable, predictable, and cost-effective way of working. This calls for automation as well as outsourcing. The common ground under both outsourcing and automation is standardization. It is too optimistic to state that the testing community has standardized profoundly all its practices so far. The existence and variety of methodologies and approaches related to software testing makes one common language not an easy target to reach (despite some international efforts such as ISO 29119).

“Further fine-tuning or optimizing the profession of a quality engineer is a continuous movement”

Standardization is by default a precondition to start with advanced industrialization. Uniforming and defining quality assurance processes and procedures is a critical success factor for any outsourcing or automation initiatives. These activities are of course not new, but they are still relevant in today's context. Further fine-tuning or optimizing the profession of a quality engineer is a continuous movement: not only adapting what already exists to the new reality, but also adding new ways of working. The financial and economical crisis of recent years speed up this process, given the potential win there is in terms of cost cutting.

The use of standard frameworks and packages can surely ease the life of the quality engineer. It can quicken its work, but still the same amount of testing work (in terms of coverage) needs to be performed.



THE HUMAN FACTOR OF THE QUALITY ENGINEER

The sketched developments in the IT landscape that affect 'testing' and the demands that are imposed on 'the tester' and the 'quality manager' requires a human adaptation of the current 'tester'. New and other skills and capabilities need to be put into practice. The 'hard' IT and testing skills and knowledge is, of course, an obvious part of the quality engineer's capabilities. But a business-oriented focus is still crucial. The challenge of the quality engineer lies in finding the right balance between IT and business. How hard does the quality engineer need to defend its independence? A too business-oriented approach jeopardizes an efficient collaboration with the other IT stakeholders and could impact the productivity of work (no model-based testing, no service virtualization, no continuous integration,...). Going too much to the IT side of the spectrum endangers the existence of a tester who should still have a fresh (rather than independent) view on the product's quality by challenging sufficiently the development activities and outcome.

“The ‘new style’ testers are no longer satisfied with a position at the side line; they want to actively participate in the game and take real ownership.”

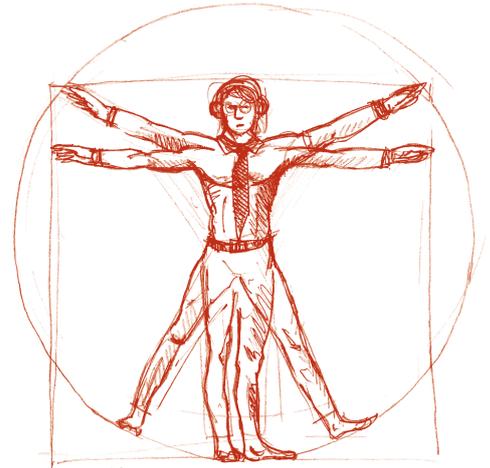
The labels 'tester' and 'quality manager' therefore do not suffice anymore. More convenient is to speak about 'Quality Engineer' representing any team member who primarily (but not exclusively!) creates artifacts that are used in assessing quality. Even one step further would be the 'Quality Catalyst' as label for its role in the team dynamics: the person who is motivating and supporting other people to put quality related activities on their agenda.

Raising the quality of all project disciplines

It has always been a strange paradox that 'quality people' were perhaps least responsible for the actual quality of the end product. This strange contradiction bred a culture that did not foster cooperation and mutual respect between 'development' and 'quality'. A truly successful tester nowadays differs considerably from the successful tester of a decade ago. The 'old style' tester organized testing as a separate track parallel to system development, bordering on paranoia when it came to 'independence' and merely assessed quality as a kind of advocate of the client. He did not feel personally responsible for the end product's quality. Instead, he was just giving advice on the product's quality and the related risks, all in an unprejudiced way due to his distance from the project. This last characteristic – not feeling responsible – is perhaps the most outstanding difference. The 'new style' testers (the quality engineers and catalysts) are no longer satisfied with a position at the side line; they want to actively participate in the game and take real ownership.

The new role of the tester is definitively the one of 'quality engineer'. An engineer is still producing valuable assets such as a test strategy, Definition of Done, acceptance criteria, test estimations, automated test scripts/test cases, etc. just like the old school tester. So he is not only the critic on the sideline but is also the person who performs the actual work.

Is this 'quality catalyst' then so different from the old tester as we know it? A catalyst is in essence an accelerator, motivator and facilitator for quality:



his/her efforts are aimed at doing the right things and doing them right first time. Preventing rework is a powerful accelerator! The crucial difference with the old way of working is that the new style tester doesn't do it all by himself. He rather performs the role of intermediary between all participants, each with their own focus and agenda.

Secondly, quality still deserves its own advocate who's an active part of the team effort. Quality cannot be tested into a system, and certainly not at the end of the IT lifecycle, it needs to be built-in right from the start. But that doesn't happen just by itself; someone needs to draw attention to quality again and again. So, although the responsibility is shared, one still needs one person whose role is starting the discussion on quality (and continues the discussion throughout the time needed). By frequent coaching and motivating people there would be sufficient attention for quality in all its aspects.

Fostering collaboration between all project stakeholders

The quality engineer remains responsible for 'traditional' testing artifacts such as test cases, automated test scripts, quality reports, etc. The distinctive feature that sets the quality engineer apart from the old style tester is his ability to proactively encourage others to avoid error-prone assumptions or misinterpretations and to broaden their understanding of 'good quality' by a more intensive collaboration. Quality is the result of a human collaboration, rather than the work of an individual test team producing specific test artifacts.

In addition to this, a keen eye for industrializing quality measures also characterizes the quality engineer. This goes further than 'merely' creating automated test cases— it bears to 'design to test' aspects in analysis, architecture and design. The quality engineer acts as consultant to the developers with respect to, for example, coverage of the automated test suite ('100% statement coverage' sounds very 'high quality', but is actually a rather low form of coverage!) and where and how to create 'hooks' for test automation to attach.

CONCLUSION

This article started wondering if there is a future for 'the tester' in its current form, is (s)he dead or alive? The conclusion is that there certainly is a future and a bright one too! But only if the tester leaves his/her position at the side line of the software development playing field and reinvents himself/herself into a quality engineer or even quality catalyst. In this new role (s)he takes up a clear responsibility for the project's outcome. It is, however, not an individual involvement aimed at quality, but rather a joint responsibility by a true collaboration between all relevant project disciplines to deliver fit for purpose applications with the right business value. The quality engineer or catalyst remains, of course, the main representative for quality. And (s)he feels certainly comfortable with that.

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