11

September 2010

testing experience

The Magazine for Professional Testers

printed in Germany

print version 8,00 €

free digital version

www.testingexperience.com

ISSN 1866-5705

Metrics

Testing: 'What do we really know?'

Column

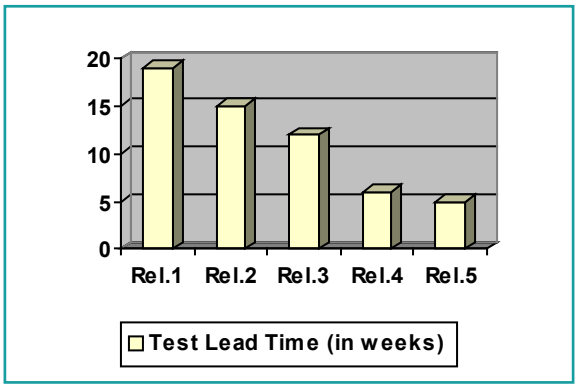
by Erik van Veenendaal

State-of-the-practice

The focus of this issue of Testing Experience is on test metrics. A topic within the testing discipline that is still in its infancy. Many papers (and even books) have been written addressing test metrics, but (too) few organizations have really practiced test measurement programs. Beware, I'm not discussing metrics in the context of running a test project, but metrics in the context of a test process or even test improvement project. If you think about it, it's amazing how much we do not know regarding testing. Many decisions about starting (and thus investing time and money!) to use a new method or technique are taken based on gut feeling and, sadly enough, not on hard factual data. (We are by the way far from being unique in this within the ICT-industry!) Even with relatively straightforward questions, we are most often lost. Examples of such questions being "Which test design technique will guide us in finding most defects (in a certain situation)?", "What is a reasonable level of defect finding effectiveness?", "What are quantitatively measured benefits when acquiring a test management tool?", or "How many testers per developer in a SCRUM team get the job done?" Of course, measurement is far from easy, and interpreting data is even harder, but wouldn't it be nice if we had at least some clues.

Part of test process improvement

Nowadays many test professionals are involved in test process improvement based on either TPI (Next) or TMMi. I often encounter so-called success stories of testers that tell me the great things they have achieved; „We are now doing risk-based testing, we have implemented CTM, etc". When I ask them for concrete data to convince management for long-term commitment, they often go quiet. What contribution does test process improvement provide towards achieving business objectives, and does it really have a return-on-investment? That it can be measured is shown by the graph where an organization had reduction of time-to-market as its major business driver for improving the testing process (using TMMi). The graph clearly shows a reduction of the lead time for the test execution phase for the various releases over time.



Test measurement programs are (too) difficult

Full-blown test measurement programs are too far off for most organizations. Remember measurement programs are an investment, too! At TMMi the test measurement process area is at level 4; most of us are not even close yet. Only when you are mature enough, when you have a stable and defined process, when there is real management commitment towards measurement, can a full test measurement program be successful. Most organizations that I have seen trying to implement a test measurement program do not meet the constraints and therefore fail sooner or later.

Does that mean we cannot and should not do anything on measurement? I largely disagree! Of course, it is more difficult if you are a level 1 organization, of course data is less reliable, but when you want to get a management buy-in for testing and test process improvement, you shall convince by showing metrics they understand. Initially you need to find someone who is a believer; someone who will support you in starting test process improvement. However, after a while this supporting manager (or his boss) wants to know what you are doing and achieving with all the effort and money that is being put in.

Getting started

So how do we start, what can we do? I like to keep things simple, because making things too difficult will surely lead to failure. Perhaps you have heard the saying "Less is more". Here is my 5-step light-weight test measurement process:

1. *Identify business objectives* – Test process improvement does not have self-fulfilling reasons. There needs to be a business problem why we are doing it. Are our customers complaining about the level of quality? Are we missing a market window because testing takes too long? We must have a very clear understanding what the business *problem is that we are targeting.*

2. *Define test performance indicators* – Related to the business objectives, define two or three (maximum!!) metrics that we will use to show management that we are contributing to business objectives. Use metrics (performance indicators) that are easy to understand for management and can be shown in a simple graph. For example, if the business problem is product quality then the Defect Detection Percentage (DDP) would be an ideal candidate as a test performance indicator.

3. *Establish a data gathering template* – Of course, one needs to gather the base data that is required to calculate the test performance indicators/metrics. Notice, I do not mention the term process or procedure. Again, start low profile! If test projects already have a test project closure phase in place, then it is easy to link the template to a test evaluation report (template). Keep the data to be submitted to the minimum level possible. Recently, I was provided a highly sophisticated 5-page Excel sheet to submit data. After trying for 30 minutes, I gave up.....

4. *Analyse and discuss draft performance indicators* – Since you're doing this for the first time and data can easily be incorrect, be very careful. In measurement what you see is often not what you get..... It is recommended to perform data integrity checks as close to the source of the data as possible. Checks can include scans for missing data, out-of-bounds data values, and unusual patterns and correlation across measures. It is also appropriate to review initial interpretations of the results and the way in which they are presented before disseminating and communicating them more widely. Reviewing the initial results before their release may prevent needless misunderstandings and lead to improvements in the data analysis and communication.

5. *Present results to management* - and to all other stakeholders and interested parties. Now the time has come to show the added business value of test process improvement. Keep relevant stakeholders informed of results on a timely basis and assist them in understanding the results. Discuss the result in so-called feedback sessions. Be open, create awareness, and talk about testing. This is when you can achieve management buy-in. If possible make an A3 print and show it at coffee corners. Of course, corrective and improvement actions can be defined based on the analyzed results.

Benchmarking

Of course, this is not the perfect or most reliable way to gather data and metrics, but 15 years after the first release of TMap, 10 years after the start of the ISTQB certification program, isn't it about time we start some measurements program, and preferably in a practical and feasible manner. After all, we are (very) slowly getting more mature. We would all benefit if we shared our results openly. It will allow benchmarking, which is something that we are all looking for, but is still lacking. I challenge you to start with some simple metrics, learn, create management commitment, and publish the results openly. Thanks on behalf of the testing community!

Erik van Veenendaal is a leading international consultant and trainer, and recognized expert is the area of software testing and quality management. He is the director of Improve Quality Services BV. At EuroStar 1999, 2002 and 2005, he was awarded the best tutorial presentation. In 2007 he received the European Testing Excellence Award for his contribution to the testing profession over the years. He has been working as a test manager and consultant in software quality for almost 20 years.
He has written numerous papers and a number of books, including "The Testing Practitioner", "ISTQB Foundations of Software Testing" and "Testing according to TMap". Erik is also a former part-time senior lecturer at the Eindhoven University of Technology, the vice-president of the International Software Testing Qualifications Board and the vice chair of the TMMi Foundation.