

Offshoring: Beautiful from far, or far from beautiful?

Organisations are increasingly looking to move IT activities to low-wage countries such as India. Expectations are that this trend towards offshoring will continue to increase. For the coming years, double-digit growth is forecast for off-shore testing. The complexity of testing as an IT activity is often underestimated, while the advantages of offshoring are often overrated. This article looks at the risks and challenges.



**Michiel Vroon and
Tim Koomen
of Sogeti**

About the authors

Michiel Vroon (L) is a member of the R&D-team for testing and QA at Sogeti in the Netherlands, where he focuses on the offshoring and outsourcing of testing.

Tim Koomen (R) is manager of Sogeti's R&D-team for testing and QA. He is the co-author of the TPI-book and co-editor of the TMap Test Topics book. In 2003 he received the European Testing Excellence Award for his work on TPI, TMap and testing in general.



Distance - only one of the challenges

Increasingly, testers are being confronted with software developed off shore. In fact, various tests are now also being performed off shore. The challenges, whether on shore or off, are the same as in any other testing initiative. But distance - both physical and cultural - poses additional communications barriers that can exaggerate the challenges and make them more difficult to control.

Garbage In - Garbage Out (GIGO)

One of the most important success factors in development and testing is the quality of the input for the activity. This includes requirements, functional and technical requirements, end user documentation and project plans. If these documents are of low

quality (Garbage in), the output will also be of low quality (Garbage out). In regular projects - with parties working nearby, speaking the same language and sharing a common background - the issue of low quality can be solved through frequent meetings and conversations. With offshoring projects, the great distance between the customer and the supplier makes this very difficult. The language barrier and cultural differences also increase the risk of misconceptions, which makes it very difficult to compensate for low - quality documentation.

Lack of business knowledge

Business knowledge, or rather the lack of it, is a problem that increases as the distance increases. Good specifications can make up for a lack of business knowledge, but only to a certain degree. Sometimes, business analysts assume certain business knowledge to be present, which often is not the case. Examples range from topics such as notaries and mortgages to the format of a country's zip code. Because this knowledge is not at hand, no overall view of the system is available. This does not benefit the quality of the development and testing.

Cultural factors - often overlooked

Cultural factors pose a significant challenge that is often overlooked. In near-shore projects, too, problems can occur due also to cultural differences. For instance, people from the Mediterranean region consider Dutch business people to be too direct, while Dutch people find them to be unclear and too indirect. Cultural differences are also apparent when collaborating with Indian companies. For example, it is impolite for Indians to say no, so instead they say it in a cumbersome manner that might sound like a 'yes' to Western people. This might show up in the administration of defects, or lack of. Since it is also impolite

to criticize someone else's work, some defects are not considered defects at all, but rather the failure of the tester to comprehend the programmer's intentions.

Don't develop and test at one organisation!

Many organisations are tempted to outsource both development and testing to the same off-shore organisation. The main risk here is the so-called 'dirty laundry' problem: you don't want to hang out your dirty laundry for all the neighbours to see. In other words, testers find it difficult to report defects in software built within the same company because that would imply criticism of their colleagues. In reporting the defects, they would be exposing their company's faults to the outside world.

Testing is a profession

Not everyone can test. We regard testing to be a profession, but in many organisations it is seen as something that anyone can do, and something you do on top of your regular work as a developer. Currently, in Europe and the USA, large IT companies recognise the importance of good testers. Off-shore organisations however, often do not share this belief. Test teams are often composed of developers without any training or testing experience. A team like this is not capable of setting up a good test nor of demonstrating what they have tested.

Quality and risk control plan

In our vision, in order to achieve successful offshoring you need to establish a quality and risk control plan. Put simply, the following questions need to be addressed: **“What do you want to achieve, how are you going to do that, are you doing it the right way, and have you achieved your goal?”** Answering these questions starts with correctly defining a goal (requirements lifecycle management) and the best way to achieve this goal, for example through a well-established development process that sets out clearly the activities to be executed and the resulting deliverables.

A well-established process, including the necessary checks on its actual application (quality assurance), contributes strongly to

the quality of the results. In addition, product quality needs to be checked as thoroughly and early as possible in the project: the sooner a deviation can be traced, the smaller the damage. A mistake found during a first review of the functional design is cheaper to solve than the same mistake found during testing. Effective management of the different test activities requires coordination (overall test coordination). In addition, the costs of quality and risk control should be weighed against revenues, peace of mind and the reduction of risks. Or, in terms of testing: 'no risk, no test'.

late stage, resulting in project delay or other damage. In addition, the geographical and cultural distance and the difference in time zone make it essential to coordinate the various on-shore and off-shore test levels and to monitor them closely. Coordination, monitoring and adjusting is called Overall Test Coordination (OTC). This is achieved through the creation of a master test plan that includes all test levels.

While the master test plan usually applies to one project, offshoring, normally involves more than one project. The initial investment is usually not profitable until there have been successive releases of the

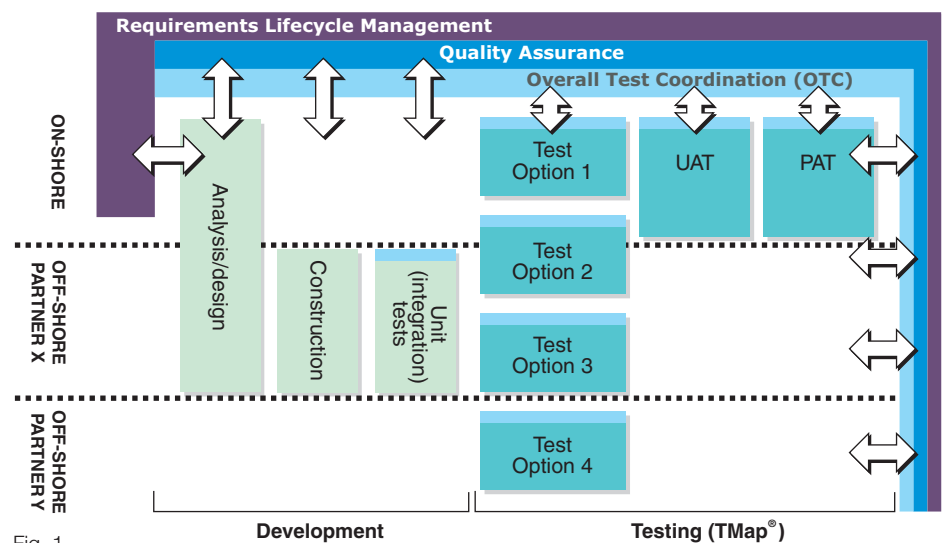


Fig. 1

Overall test coordination

No matter how good the processes or intermediate products are, the end products, such as the system and the procedures, always need to be tested. Only then can an advice be given on the quality, and the risks of taking the products into production. Testing is usually organised in levels like the unit test, integration test, system test and acceptance test. Together, the various test levels take up about 30-50% of the total budget for development and deserve proportional attention. It makes sense to perform several tests off shore, because of the lower labour costs as well as the fact that mistakes are cheaper to solve when found early in the process. However, in shifting one or more of these test levels off shore, a company is effectively surrendering one of its quality 'safety nets'. Inadequate off-shore testing causes too high a number of defects at a

system. To avoid having to make new agreements on how to test for every new release, an extra master test plan should be created: the Generic Master Test Plan (GMTP). This contains general agreements on aspects such as the test process, method of budgeting, procedures, communications, and documentation. The adoption of test method such as TMap® provides a lot of support and creates a common frame of reference.

The GMTP is a kind of Service Level Agreement between the customer and the supplier. It is part of the contract, together with agreements on timely delivery of staff resources, reaction times, training new employees, pricing, etc. The process of outsourcing itself, such as selecting the supplier and creating the contract, is beyond the scope of this document.

With each release or each project, a project Master Test Plan (MTP) is drawn up,

based on the GMTP. This plan contains issues such as what will be tested, the team and milestones

System test

The system test checks whether the new or modified software complies with its specifications, which might be a functional design or an old software release on a different platform. This is relatively straightforward test work and thus lends itself as a prime candidate for offshoring. The following system testing options are possible:

Option 1: completely on shore

Option 2: partly on shore, partly off shore

Option 3: off shore, by the same party as the developer

Option 4: off shore, by a different party from the developer

Within these options even more combinations of variables are possible. There are still several combinations, for instance between whether or not to outsource and whether or not to go off shore. You can decide to outsource the test to an on-shore partner, who in his turn has the tests executed off shore. The various options are considered briefly below.

Completely on shore

This is the most conventional option and is most suitable if you are uncertain about the quality of the software and if the risks are high. This option offers the most control but is also the most expensive.

Partly on shore, partly off shore

In this option, the test is planned and specified on shore and executed off shore. With the available on-shore business and test knowledge, good and thorough tests can be specified that are inexpensive to execute off shore. A web-based test management tool that is accessible on shore and off shore is almost essential. Usually, the off-shore test reports to the on-shore test, which does the overall system test reporting. This option offers average control, and is particularly suitable for testing systems of average risk and systems where the specifications are not clearly defined.

Off shore, by the same partner as the developer

This option occurs frequently in practice, yet it offers the lowest control and is very much based on confidence in the development partner. A lot of energy is needed to ensure this test is manageable and the problems mentioned earlier are kept under control. Here we also have the 'dirty laundry problem'.

Off shore, by a different partner from the developer

This option solves the 'dirty laundry' problem by offshoring testing to a different partner. In this case, the test team will try to demonstrate its added value by finding defects. As in the previous option, careful surveillance is required. There is the potential risk of inefficiency when the software quality is poor. The nightmare scenario is an infinite repair-retest cycle whereby the software passes continuously from development to test partner, with the hours both partners spend charged to the customer. This can be overcome with clear

agreements. For systems with an average risk, this is an efficient solution.

Does this mean that offshoring testing is a bad idea? Certainly not. For while expectations are sometimes unrealistically high, labour costs are really low, representing as little as one-eighth of the European equivalent. But no matter how cheap the labour is, it won't make up for poor results. To make the offshoring of testing a success, the solution we have chosen is that of close cooperation with the off-shore partner. We call it transparent testing. This does not mean defining new solutions, it simply means using existing solutions in a more formal way. As a whole we strongly believe that provided care and attention are paid to what some people might perceive as 'overheads', many tests can be offshored perfectly, to the advantage of all parties ■

Dhanya-waadh (Hindi "Thank You")

Michiel.Vroon@sogeti.nl;
Tim.Koomen@sogeti.nl

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Redmill Consultancy

22 Onslow Gardens
London N10 3JU, UK

Tel: +44 (0)20 8883 0789

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