Q-Course: Quality & Organization

Introduction

This book is for everyone involved in quality in an organization. That is everyone. Not only testers and quality assurance people are involved in quality. Also the people responsible for the quality of machines, personnel, training, finance, products, materials, services, methods, procedures, you name it. And especially the management that is responsible for everything in the organization, also the optimal organization of the processes, so that the highest possible quality is realized at a minimum of time and cost.

Testing and quality are not very popular. People like to be creative: they like to create something new. Testing and quality are regarded as "dirty work". Often testing is regarded as "everyone can do that". The consequence is that, in difficult times, the first cuts are on testing and quality. Developers are ordered to test themselves. The time spent on testing is reduced. We don't need to tell you that developers are not the most objective testers. Developers are proud of their work and are not always eager to admit that their creation is far from perfect. Also: after a while people get blind to their own mistakes. Often there is not enough testing and quality knowledge. We hope to change that in this book.

Development projects usually are under pressure of Time and Money. In the triangle Quality-Time-Cost the Quality often is underrated. Projects often run out, but the deadline is sacred. Because quality often is not an integrated part of the development process, but starts at the end of the product development, there is not enough time for proper testing. In this book we will see how this can be improved.

More and more people who don't have a lot of knowledge of testing and quality have to do the testing. Developers have to test their own product for example. This is the result of cuts. We can be annoyed about this; we can also accept this trend and try to deal with it as well as possible. This book describes how quality can be optimized. Unnecessary paperwork is left out as much as possible. The attention is focused on what is really important: the finding and solving of problems. With a minimum of knowledge about quality strategies everyone can realise an optimal quality level using this book.

Quality not only has to do with how well a product is tested. The way the whole development process is organized is very important. The way the development process is organized has largely to do with the way the whole organization is organized. Every department within the organization is involved in quality, one department more than another. Tricks are presented that you can use in case your situation is not ideal, e.g. when
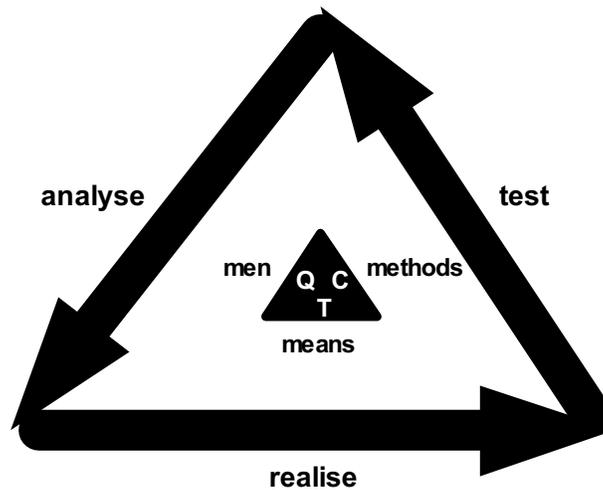
The Development Process

Figure 1.1.1: the development process in a nutshell

When the goal is adjusted a new round follows. There is the analysis of how the product should be adjusted. The modifications are realized and the result is compared with the goal and requirements. This is done as long as it takes to make the people involved confident that the product can be made a success.
So: the development process can be described as a triangle.

For each phase (for each process) men (or women of course), means and methods are available. These are not processes and are therefore they are not represented by arrows. They are the resources of the process. The process is initiated and executed from within.

When the preliminary design is ready an analysis follows of how the design can be worked out in more detail. This analysis phase is followed by realization in more detail. Of course this process can be executed in several steps. The product or service has to be tested again. Defects that are found will be analyzed and improved in the next draft. The quality is improved.
So: quality is an integral part of the development process.

New functionality can be added to the design. When the improvements and new functionality are implemented the product or service is tested again. This could be called Regression Testing. Every time at the top of
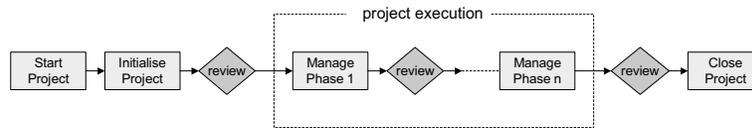
Quality in the Project Organization

Figure 3.3.1: the Prince 2 project cycle

The most important documents in Prince 2 are:

- Project Initiation Document: this document consists of the goal, (management and technical) planning, time, personnel etc of the project.
- Communication Plan: this document contains all people involved and interested parties, the relations, the way and the frequency of communication between the parties involved.
- Business Case: in this document the goal and the purpose of the project are discussed, the pros and cons, the foundation for the execution of the project.
- Quality Plan: in this document all the quality requirements are addressed, the way the quality policy will be implemented and the way quality will be realised, the QMS (Quality Management System).
- Project Approach: this document discusses the project approach, the chosen solution for the realization of the project or the product, the environment in which the product will be implemented, the risk analysis.

Standard templates are used to create uniform documents. They also serve as checklists for dealing with the standard subjects of a project.
Prince 2 is mostly used in IT but can be used in other sectors as well. Because it is a formal method the correct and consequent implementation takes a lot of time and discipline of all the people involved. It is applied especially in larger companies, because uniformity and the recording of responsibilities are regarded to be very important in larger companies.
It is not required to do everything that is described in Prince 2. In fact: Prince 2 itself advises to "only use what you need".

ITIL

ITIL stands for IT Infrastructure Library. ITIL is mainly developed for IT, but can be used in other disciplines as well. ITIL is developed by the British government, but was soon adapted by the rest of Europe. Other than in most quality systems (with the exception of TQM) the emphasis in ITIL is on the customer. That idea is not new, but it is formalised in ITIL.

Quality in the Project Organization

3.2   Planning of the Development Project

The total development process of a product is also called the *life cycle* of the product. The development project consists of three major phases: the analysis phase, the realization phase and the testing phase. When these phases are executed in that sequence then this is called the *Waterfall method*. The Waterfall method is represented in figure 3.2.1. The shape of the Waterfall can be recognized.
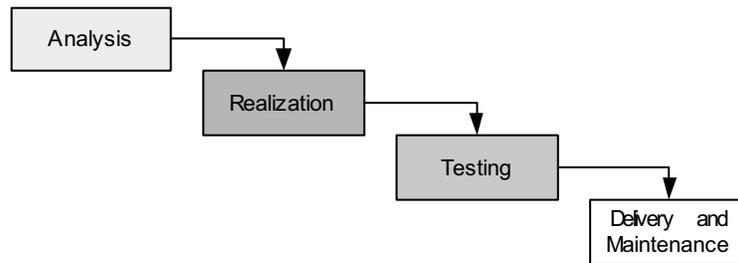

Figure 3.2.1: the Waterfall method for a product life cycle

It is logical that the realization starts when the analysis has finished. A major problem with this project planning is that testing starts when the product realization has finished. That is why this method is also called the "throw it over the wall approach". The developers throw their product over the wall and the testers have to figure it out. Especially in companies where little time and effort is invested in the creation of proper models and drawings this method is often used. Testing takes a lot of time, since not only the tests have to be executed, but they have to be prepared as well.

That is why the V-model is more popular. In the V-model the testers can prepare the tests during the realization phase (technical design, product realization). The V-model looks like the one in figure 3.2.2.

The horizontal dotted line indicated the border to the outside world. In the left upper part of the diagram the wishes of the developers, managers, customers etc are established and analysed. The left bottom section is the introverted section of the development process: the technical design is created, the product is realized. After that the white box tests are executed (e.g. code tests, see chapter 2.1), after which the functional or Black Box tests are executed. Finally the contact with the outside world is renewed. Outsiders, usually the users who have to work with the product, execute the acceptance tests.

Quality in the Project Organization

Project Plan stage of the project already must be indicated whether the tests will be automated or not. That is another reason to involve testers or the test manager in the Project Plan. It is up to the Project Manager to decide whether the roles must be fulfilled by people from within the company organization or by external resources.

A proper description of the **communication lines** are important and should be reviewed in context with the responsibilities of the project team members. If the Project Manager wants to pull all strings, then the flexibility and readiness of the team is limited. When, in the spirit of TQM, the team members have a lot of responsibility, then it is possible that the team members communicate with the outside world. Of course the project manager should be informed on important matters. Important decisions are still up to the project manager to make. The boundaries of the responsibilities of the team members should be defined clearly in the Project Plan. The Project Plan could be regarded as a project agreement. The following rule could be considered:
- Matters concerning time and money, matters concerning the total project, matters that have consequences for others within or outside the project team should be presented to and decided by the project manager.
- Matters that involve the direct (way of the) execution of the work activities, efficiency improvements of the activities and the communication with others are the responsibility of the project team members.