QUALITY THROUGH TEST MANAGEMENT IN PRODUCTION MANAGEMENT VISION ON SOFTWARE PRODUCTION LINES

Giovani Salvadori[1]
ENSI, National School of Computer Science, 2010, Manouba, Tunisia
E-Mail : giovani@giovanisalvadori.com.br [1]

Abstract: Software Products are a necessity more and more present in the modern society, however they can present so much fails and imperfections that can modify planning, enhance costs and even contradict the Use Cases defined by the customer if well defined structures of tests will not be applied, impacting the product quality. This article comments this deficiency, that today is present in many IT departments, and how it can be related to the Production Management, as well as a possible methodology that can be applied to help to collect and to analyze these data.

Key Words: Software Products; Tests; Quality; Production Management.

.

1 INTRODUCTION

The increase of the demand for software products, associate to the importance of the role performed by them in the society, has conduced to a considerable concern about the productivity in the development and the quality about the developed products. Surpassed periods, low productivity, high costs and deficient quality are situations constantly found in the software production area. As described by [CHE00], the increase of the software quality depends much less on the use of new technologies that effective use of adequate managemental practical.
Exist, then, the necessity of understanding of the involved problems in the development and in the software tests, that are not only technological, but principally managemental, so that can be made a planning aiming at the process improvement and, consequently, developed product quality improvement.

2 ANALYSIS OF THE PROBLEM

Product quality.

"Someone that is determined to produce an excellent product is faces to face with two problems. How to know when the product is good as sufficient? And, if the product is not still good as sufficient, how to guarantee that the involved ones know about it?" [RUP01]. Architects and Software Managers, as well as the Developers, know that the answer to the first question will allow liberating the release of a product, and the answer to the second question will help to prevent the release of an unsatisfactory product. Summarizing, it helps to reach quality in the product.
When we talk about Software Factory, the quality concept is enhanced. As in [GUL96], in a production line, the quality of a software product should be verified since the inception until the delivery of the product to the customer. That is the same way that the Rational IBM Process [RUP01] was developed, where foresees the necessities of tests in all production line, the beginning to the end, as it can be analyzed in Figure 1.

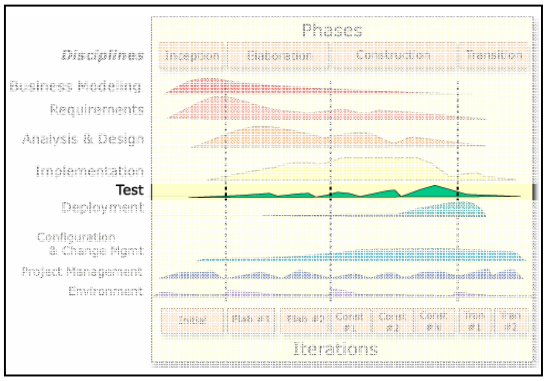

Figure 1. RUP Customized Process Disciplines [RUP01].

The Rational Unified Process is a process of Software Engineering that it aims at to guarantee the production of software of high quality attending of the necessities of the user in the time and chronogram foreseen. In this process very known and admired, Test Discipline has a great value in the vision of product quality. The performed tests in the production can guarantee the excellent product quality, but should be applied in clear way, objective and, principally, including all the modules of a system and to cover 100% of the Use Cases, requested by the customer.

When a software product is not properly tested, considerable are the possibilities of this product to be so different of the project initially elaborated and proposed between Software Factory and customer. Moreover, products without quality reduce the concept of the company and bring much more costs to correct the errors later.

3 THE CONNECTIVITY WITH PRODUCTION MANAGEMENT

Making an analogy to the Production Management, the Tests Management can be applied to a Software Factory conform the Productive System Structure of the Figure 2, adapted from [KRU00].

This Productive System refers to the development of Software Products, aiming at the qualification of the product before being delivered to the customer. The Central System is composed by developers and the Management System is composed by Tests Managers and Analysts, which use tools to qualify the product and to verify the requirements of the request. Certainly in the Production Management, the Software Product will not be able to make use of all the existing techniques and practice them totally, once that the final result many times is not a physical product, but a virtual product.

However, it tries to reach some objectives of this management, aiming at agility, exploitation of resources, optimization of processes and reduction of costs, objectifying the supply of the products in the expected time, therefore it allows to analyze the problems before they can occur, preventing itself.

In the PCP (Production Control and Planning) Systems Management, its layers can be referred as:

- Master Planning: Analysis of the Use Cases, Requirements of the System and List of Risks;
- •Detailed Planning: With the accomplished analysis, to develop the Test Cases and planning of the actions to be done if unexpected errors occur in the system;
- Shop Floor: Execution of the Test Cases, analyzing theirs results and developing metrics and reports as consequent products

4 METHODOLOGY

The subject in specific is a subject that requires too much studies and research, because companies and IT departments can be very distinct between them, with diverse technologies, processes and areas. In this subject, it is important to acquire a great bibliographical base to be able to analyze the results gotten by other researchers of the area. In the same way, it is important to

interview personally people who are directly involved with the subject in its departments, because becomes easier to discover possible imperfections that can compromise the study. Thus, it can be detached three types of methodologies that could be strong used in this study:

- Case Studies;
- Experience Relations;
- Bibliographical Research.

However, some cares should be observed when the studies will be more specifics. "As in others techniques where it has direct intervention of the researcher, in the Case Study exists the risk of the distortion of the presented data, risk that increases according the researcher deepens in the process" [PAD97].

One or more techniques of methodology can be used, but to detach the main one are necessaries more deepened studies about the subject.

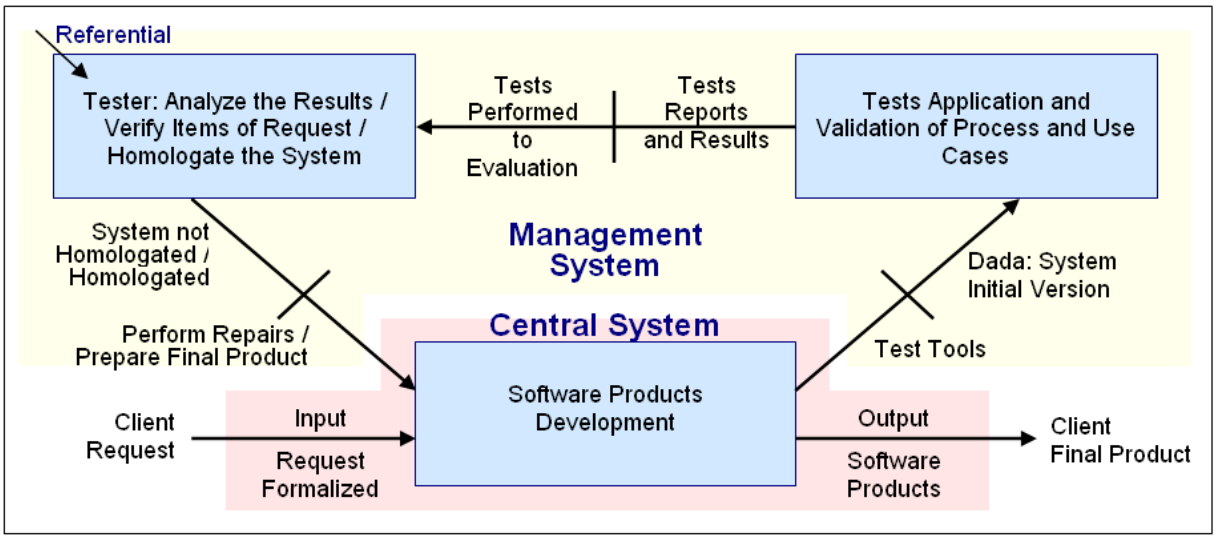

Figure 2. A Productive System Structure to Software Products, adapted from [KRU00].

5 REFERENCES

[AES78] ADVANCES IN ENGINEERING SOFTWARE. Inglaterra: Elsevier Applied Science,1978.

[BRA02] BRAGA, Juçara. Sistema otimiza a gestão de estoques do sendas. Revista Tecnologística, São Paulo: v.6, n.74, p.42-44, jan., 2002.

[CHE00] CHERUBIN, Paulo Fernando. Estratégias de negócio em Software-Houses. Revista da Fae, Curitiba , v.3, n.2 , p. 17-29, maio. 2000.

[GUL96] GULLO, Carla. A conquista da qualidade. Istoé. v. 0, n. 1372, p.40-45, 17 jan., 1996.

[KRU00] KURSTEDT, H. A. (2000). Management Systems Theory, Applications, and Design. Virginia Tech. Blacksburg, VA, EUA, 2000.

[MAC96] MACHADO, Carlos; PENTEADO, Sônia. Uma revolução no mercado de softwares. Exame Informática, v. 11, n. 118, p.52-58, jan., 1996.

[PAD97] PÁDUA, Elisabete Natallo Marchesini. Metodologia de pesquisa: abordagem teórica-prática. 2° edição. Campinas: Papirus, 1997.

[RUP01] RATIONAL UNIFIED PROCESS, version 2001, Portuguese. Rational IBM, 2001. Rational Suite.

Special gratefulness: Mr. Marco Antonio Pedroso Vicente, PhD. George Wagner Leão e Sousa, ICET and PUC-PR.