Chapter XI
Findings for the Industrial Case Study

INTRODUCTION

Chapter XI presents results, analyses, and conclusions about the industrial case study.

From a micro perspective, it presents findings of the management control system of the organization process performance. In particular, it gives special attention to the analysis of data of a set of five successive large-scale software projects which were engineered and managed in the Telecommunications Management Networks (TMN) Section of NEC of Brazil (NOB). These data include project cost (C) and project requirements completeness (R) and they represent the state variables of the software process of the TMN Section. C and R are fed into the cognitive machine which performs the computation of performance indexes of the software process of the TMN Section. The performance indexes include Customer Satisfaction (CS) and Project Management Quality (PMQ). The process of mapping the inputs (C and R) to the outputs (CS and PMQ) was illustrated earlier in Figure 10.2. In this perspective, organization process performance is synonymous with the TMN Section’s process performance.

From a macro perspective, this chapter presents analysis and conclusions about the main correlations between measures of organization process improvement and organizational cognition. Findings indicate that improvements in the level of organization process performance are associated with improvements in the level of organization process maturity. Proceeding further, we associate these results with improvements in the degree of organizational cognition. Chapter XI also outlines
the main contributions and limitations found with the implementation of The Capability Maturity Model in the organization of study.

THE ORGANIZATION PROCESS

The TMN Section’s Software Process

From the micro perspective presented in the introduction of this chapter, the organization process is represented by the TMN Section’s process. Therefore, the management control system, and thus the cognitive machine, is responsible to evaluate the performance of the TMN Section’s process which is the representation of the Project’s Defined Software Process (PDSP) in the Radio Systems Division. The PDSP of the TMN Section was mostly specified and constituted by engineering and management policies whose procedures were mainly based on the Organization’s Standardized Software Process (OSSP). The OSSP was mostly written as a tailored version of the Process Maturity Level 2 of The Capability Maturity Model (CMM) guidelines. A top-down structure of these processes in the organization (NOB) was illustrated in Figure 9.2.

From the implementation of the CMM Level 2 in NEC of Brazil (NOB), its four divisions and thus the TMN Section expected to improve their software process and to achieve success through discipline and experience accumulated with similar projects or projects of similar complexity. For this purpose, Projects’ Defined Software Processes were written in the TMN Section with basis on engineering and management procedures in order to reach the necessary specification and maturation of the CMM Process Maturity Level 2.

Large-Scale Software Projects

The data about this investigation was gathered from five successive, large-scale and discrete software projects which were developed in the Telecommunications Management Networks (TMN) Section of the Engineering Department of the Radio Systems Division of NEC of Brazil (NOB). These software projects belong to the class of Telecommunications Management Networks of International Telecommunication Union (ITU) standards – where ITU is the United Nations Specialized Agency in the field of Telecommunications (ITU-T, 2000). They were developed in the period between 1997 and 2000 and they were similar in their scope of application and complexity. According to the guidelines of the CMM, the organization that achieves Process Maturity Level 2 can repeat success in their projects findings through disciplined processes and accumulation of experience for a line of similar
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