Chapter 3

Culture, Knowledge Management, and Maturity in Complex Engineering Projects

ABSTRACT

This chapter opens a discussion of how mature organizations in project management deal with culture and knowledge management in complex projects. This discussion also includes organizational structure and communication aspects. This chapter seeks to establish relationships between these four aspects and the three main characteristics of complex projects: ambiguities, multiple stakeholders, and multinationality. At the end of chapter, a table summarizes these relationships. The purpose of this chapter is to begin a discussion of the culture and knowledge management aspects of mature organizations dealing with complex projects. Along with culture and knowledge management, the authors also cover aspects of organizational structure (for project implementation) and communication, since they have a strong relationship with each other. In fact, the boundaries between these four aspects (culture, knowledge management, structure, and communication) are not clear and there are overlaps between them.

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INTRODUCTION

The purpose of this chapter is to begin a discussion of the culture and knowledge management aspects of mature organizations dealing with complex projects. Along with culture and knowledge management we will also cover aspects of organizational structure (for project implementation) and communication, since they have a strong relationship with each other. In fact, we can say that the boundaries between these four aspects (culture, knowledge management, structure and communication) are not clear and that there are overlaps between them.

Let’s highlight some concepts related to complex projects that will be used in this chapter.

Increasing the pace of change, growing economic complexity, and global competition require executives to re-examine their strategies to meet stakeholder expectations and meet market needs. It is in this context that maturity in project management fits.

The Project Management Institute (PMI, 2013a) has published a specific edition of complex projects called “Navigating Complexity” in one of its “Pulse of profession in-depth reports”. In it, which also addresses this context, PMI indicates the reasons that make it highly relevant to discuss complexity in projects. He says that complexity tends to grow larger and that it is usually associated with significant budgets. Thus, knowing how to deal with complexity becomes a competitive advantage for companies.

In the same report, PMI (2013a) lists the eleven main characteristics that define a project as complex, as follows:

1. Multiple stakeholders;
2. Ambiguity of project features, resources, phases, etc;
3. Significant political/authority influence;
4. Unknown project features, resources, phase, etc;
5. Dynamic (changing) project governance;
6. Significant external influences;
7. Use of a technology that is new to the organization;
8. Use of a technology that has not yet been fully developed;
9. Significant internal interpersonal or social influences;
10. Highly regulated environment;
11. Project duration exceeds the cycle of relevant technologies.
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