The Semantics of Project Knowledge Management

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ABSTRACT

This paper suggests a new approach to the knowledge management aspect of project management. The approach taken constructs on the structured building of the New Product Development method that divides the development project into a multitude of predefined phases performed by pre-assigned personnel with specific professional characteristics. The model proposed correlates knowledge modules to the combination of a project phase with the profession of the project team involved in it. These modules include information necessary for the project team for the performance of the specific phase, as well as a collection of the team’s experience that would enrich the company’s intellectual data-base. This model would create a practical solution to the never-ending quest for knowledge sharing within and between projects and would also ensure the usage of necessary standards and directives by the project teams. The originality of the model proposed is in the semantic tagging of the knowledge modules that enables navigating through the events described by project phases and teams characteristics to retrieve necessary information and document newly experienced knowledge.

Keywords: Content Management, Knowledge Management, Knowledge Modules, New Product Development, Project Management, Semantic Categorisation

INTRODUCTION

Most organizations conduct their business according to ordered projects. This article refers to these as project-based firms as opposed to functionally-based firms. Projects are the framework defining the work that needs to be performed for an outcome to result in a given time and prescribed resources. When establishing a project or when accepting its terms and committing to them, organizations assume they are aware of their initial conditions, and based on them, they can estimate the very ability to accept the project, and furthermore to deliver its outcome on time and on budget.

Initial conditions usually consist of existing resources which are not yet committed (human resources, facilities, machines, infrastructures, and required licenses). What is usually missing from that list is the very capability of the organization to choose and perform the required activity at the expected quality; this is taken for granted given the subject of the project at stake and its similarity with previous activities the organization was involved with, or given the profession of the organisation’s employees. Nevertheless, the volume of business conducted as projects, indicate the importance organisations should give to any element affecting the means of conducting them and the quality of their outcome. This is the basis of interest of this article which addresses both knowledge
management as well as project management, and adds conceptually to the current body of knowledge through new thinking.

What organisation’s management assumes is that if the same people who previously dealt successfully with a certain activity are reassigned to the new one which has a relative resemblance to the old one, then they stand a reasonable chance of repeating this success. Life is unfortunately not predictable enough and many times, the experienced employees are either still busy with the old project, or maybe they have been reassigned to another urgent activity that they cannot discontinue, or even maybe they have left the company. The situation in which the know-how of the company is synonymous to the know-how of specific employees, and by this, know-how is actually replaced by know-who, is the basis on which this article attempt to deal with.

Project management is a subject that has been thoroughly researched and documented, and methodologies have been developed to enable the optimisation of the procedures associated with it. One of the well documented developments has been referred to in the literature as New Product Development (NPD), has been characterised as maintaining a balance between order and disorder; its orderly aspect essentially consisting of a staged process, aiming at progressing through it in a controlled way, considering as early as possible all factors likely to happen, and intending to minimize incompatibilities otherwise discovered at latter stages of the design; and is disorderly aspect referring to its innovative aspect. This article will therefore analyse the project performance process and attempt to associate it with the knowledge needed as well as the knowledge created at the different project phases by the various people involved with them.

This correlation would of course be valuable both to the organization management who needs to know of its capabilities before committing to a new project, and to the competence centres supplying people to the projects tasks, as these would return from them with additional experience, enriching the knowledge base of the competence centres.

The project-based firm can usually be found in the development and production of capital-intensive, engineering-intensive and IT-intensive, business-to-business products, networks, constructs and systems. They are often produced in multi-firm alliances, as a one-off or in small customised batches for specific customers and markets. Examples include global business networks, aircraft engines, civil airliners, power stations, off-shore oil platforms, mobile telephone systems and large civil engineering projects. This article deals with a matrix organization, in which the project organizations are responsible for the projects while they draw the necessary professional capabilities from the applicable competence centres.

**LITERATURE REVIEW**

The competitive environment of high technologies industries is typically associated with rapid change and substantial uncertainty, and demands continuous improvement in R&D capability. The knowledge intensive nature of Research & Development (R&D) led many scholars to emphasize Knowledge Management (KM) as an important means of R&D innovation (Parikh, 2001, as cited in Suh, Sohn, & Kwak, 2004, p. 5; Thomond, Lettice, & Herzberg, 2004; Thomond et al., 2004). Others have also found a positive effect on NPD performance for companies that strongly implement KM methods (Liu, Chen, & Tsai, 2004). Roth (2002) argues that performance measurement of KM is emerging as a possible mechanism to support improvement in highly complex NPD environments (Roth, 2002). The characteristic of value and goal for R&D organizations is the creation of potential for future business. As such, the ultimate purpose of KM in these organizations would be to facilitate NPD through knowledge creation (Hoegl & Schulze, 2005). It is essential for KM to address effective knowledge flow among individual employees of the organisation, as well as knowledge collaboration across orga-
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