Chapter 101

Perspectives of Big Data Analysis for Knowledge Generation in Project Management Contexts

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ABSTRACT

Knowledge generation for Project Management (PM) is a critical modern issue. Projects are a complex, inter-related set of tasks that aim to provide a service or product in a controlled, managed way. In these scenarios, there is a continuous producing of data and information, which is a potential situation for Knowledge Management (KM) interaction. This chapter evaluates aspects and factors on how it is possible to process data and information, in order to generate applicable knowledge to improve project management. A specific consideration is to understand the observation of contexts of huge amounts of data—known nowadays as Big Data—and its potential knowledge generation for project management, as presented in the final study case. A better comprehension on how knowledge management practices, applied to Big Data contexts, can improve project management processes is the main objective in this chapter.

BACKGROUND

This chapter main objective – to study how Big Data analysis can improve project management through knowledge application – encompass several concepts from different areas. The work of establishing their practical relationship, consolidating knowledge and project management, will be done specifically in the next section. The last section of the chapter applies this conceptual framework for a case study evaluation that will exemplify the intended connection.

Projects Strategic Decisions and Demands for Knowledge

According to PMBoK (2013), projects are ways to achieve organizational strategic goals. This simple affirmation is important because configure projects in this strategic level, as being a relevant part of the overall coordination planning for any organization.

Strategy is a discipline oriented to coherently propose future positions for one organization in its social, business and competitive environment. A strategy is usually materialized through a set of consistent decisions, expressed in a base that constitutes the organizational strategic plan. Strategic planning is a continuous study of organizational resources, capabilities, perspectives and competencies, with addition of determination of internal and external aspects, aiming to monitor and design implementable actions to reach established goals (Kotler & Keller, 2005; Porter, 2008; Mintzberg, Ahlstrand & Lampel, 2009).

Strategic planning, as the main strategic process, is a "knowledge demanding" process – Jamil et al. (2012) –, which needs, for its success, among many other contents:

- External business environment study, considering data and information from competitors, suppliers, customers, legal aspects, business rules, market reactions to events, etc. (Porter, 2008).
- Internal business environment analysis, observing corporate resources, its correlated control and management perspectives, competitive advantage positioning, etc. (Mintzberg, Ahlstrand & Lampel, 2009).
- Data and information about a market history, as a "knowledge base of best practices", which can be revoked for simulations, business models and dynamic studies for competitive design (Choo, 2005; Nonaka, 2008).
- Definition of measurements and methods to measure, or "indicators", as financial quantitative demonstrations, reputation, performance and many other factors that can be set by strategy staff and followed through a plan execution for strategic monitoring (Kaplan & Norton, 2007).

It is opportune, from the definitions pointed above, to notice the importance of data, information and knowledge sources. This fact is fundamental to comprehend how Big Data contents, as announced in the following text, are relevant for internal, external and historical studies to serve as bases for strategic planning.

Among typical strategic planning tasks conducted during the phases of project, planning and execution, there are: definition of strategic goals and correspondent ways of monitoring; intermediate and final results evaluation; project resources management methods and goal reaching perspectives. In all of these cases, strategic planning and execution demands data, information and knowledge to plan, review, modify and adapt business positioning. The "meaning" or "sense" about competitive scenarios which will result in more precise strategic propositions are affirmed by various authors as intermingled with structured knowledge availability (Choo, 2003; Kearns & Lederer, 2003; Prado, 2006).

Project Management and its Relation to Knowledge Management

As affirmed in the seminal reference from Project Management Institute (PMI, 2014), projects are "temporary group of activities designed to produce a unique product, service or result". As an additional conceptualization from the same source, project management is "the application of knowledge, skills and techniques to execute projects effectively and efficiently. It's a strategic competency for organizations,

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