Information Technology for Relational Business Ecosystems: A Case Study in the Brazilian Engineering Industry

LUIZ ANTONIO JOIA, Rio de Janeiro State University, Brazil

Objectives

In 1994, the Sloan School of Management at MIT inaugurated a multi-year research and education initiative called “Inventing the Organizations of the 21st Century”, headed by Thomas Malone, Director, Center for Coordination Science. One of the key activities of this initiative has been developing a series of coherent scenarios of possible future organizations. The Scenario Working Group considered a wide variety of possible driving forces, major uncertainties, and logics that might shape 21st century organizations. Two scenarios were then created addressing the size and the modus-operandi of the future organizations: “Small Companies, Large Networks”, as the ones found in Northern Italy (Textile Production in the Prato region of Italy), and “Virtual Countries”, as more mergers and acquisitions are turning up worldwide (e.g., Exxon and Mobil) (Laubacher & Malone, 1997).

Nowadays, one of the greatest challenges of management is to deal with new organizational forms, i.e., the ones that challenge traditional notions of structure, coordination and control, such as the companies derived from the “Small Companies, Large Networks” scenario. When all the tasks and processes of an enterprise are centralized in just one company, it is far from difficult to organize and manage the knowledge accrued from a project. However, a lot of different players can be now involved in major projects.


Notwithstanding and very important in their realm, this research just tap on how to coordinate an enterprise encompassing a lot of different companies, in different places, with different - although important - duties. It is paramount to understand how the information and communication technologies can leverage and strengthen the coordination skills among the players of a major project involving a lot of subcontractors, suppliers, and other firms.

A relational business ecosystem is a quasi-firm created...
through digital links among several companies, in such a way that it is almost impossible to know exactly its boundaries (Keen, 1991). A relational business ecosystem is also independent of its organizational structure, as each node has its own structure that can be changed without interfering in other nodes’ structures.

“The organization is its formal structure” and “Structure follows strategy” (Chandler, 1962) are two hypotheses challenged by relational business ecosystem that wisely use information technologies.

The main objective of this paper is to integrate effectively different information technologies in a relational business ecosystem to adequately coordinate a major project or enterprise, and present how this can actually be done presenting a case study addressing the Brazilian engineering realm.

From this case study, the paper aims to discuss some issues and concerns and see how these findings are generalizable from Brazil to other countries in a global context of knowledge management.

Theoretical Framework

This study analyzes the role and impact of the information technologies in three branches of a relational business ecosystem: its degree of reach, its degree of range and its degree of structuring (Haeckel & Nolan, 1993). These three parameters are considered vital to establish the coordination of a relational business ecosystem.

The degree of reach of the relational business ecosystem addresses if and how the involved companies are linked within the relational business ecosystem in order to transmit data and information among themselves. It must answer the following question: “Whom must I be connected with?”

The degree of range of the relational business ecosystem addresses the type of transactions developed within the relational business ecosystem, and the way the companies are working together, in order to set up a workgroup environment. It must answer the following question: “Which transactions must I develop with my peers?”

Finally, the degree of structuring deals with the ability that the companies have to extract knowledge from the data and information retrieved and shared by them. It must answer the question: “How can these data and information make sense, so as to create knowledge and intelligence?”

Figure 1 depicts the degree of reach, range and structuring concepts.

Hence, different technologies such as EDI (electronic data interchange), EDMS (electronic document management Systems), workflow systems, Internet/intranet/extranet and mainly WBI (Web-based instruction), just to name a few, are integrated to leverage the relational business ecosystem’s coordination skills.

In a relational business ecosystem, the integrator keeps the core competency of the business, outsourcing most of the other productive processes. The integrator is in charge of managing dependencies and restraints among the players and their due processes, coordinating the transactions among the involved partners.

Some trends are forcing companies to be engaged in a relational business ecosystem, such as the globalization of the economy and the terrific pressure on firms for increased adaptability, innovation and process speed; the awareness of the value of specialized knowledge, as embedded in organizational processes and routines of the nodes of a relational business ecosystem; the awareness of knowledge as a distinct factor of production; and cheap networked computing which is at last giving us a tool to work and learn with each other (Prusak, 1997).

Methodology

We draw on organizational literature on coordination science and knowledge management to identify the challenges associated with dispersed and non-coordinated pro-