Chapter XVI

A Systematic Model to Integrate Information Technology into Metabusinesses: A Case Study in the Engineering Realms

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This article presents a framework to link effectively different information technologies in order to coordinate a metabusiness, an innovative organizational model. The information technologies needed to create this new organizational environment are presented, as well as a systemic model based on a technology-service-process-production taxonomy. A case study addressing a major engineering company in Brazil, now playing the role of an integrator within a metabusiness, is analyzed, in order to validate the proposed model. Some conclusions in this realm are presented addressing the main obstacles and hurdles to accomplish a metabusiness, as well as the solutions to overcome them.

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 of the 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...
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 at 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 being very important in their realm, these 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 metabusiness 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 metabusiness 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 a metabusiness that wisely use information technologies.

Some trends are forcing companies to be engaged in a metabusiness, 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 metabusiness; 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).

The main objective of this paper is to integrate effectively different Information Technologies into a metabusiness to adequately coordinate a major project or enterprise and present how this can be actually done by presenting a case study addressing the Brazilian engineering realm.

**THEORETICAL FRAMEWORK**

**Data–Information–Knowledge**

“Data” means a set of discrete and objective facts concerning events. Therefore, it can be understood as a structured record of transactions within an organization (Davenport & Prusak, 1998).
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