Chapter VII

Market of Resources as a Virtual Enterprise Integration Enabler

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ABSTRACT
The search for increased competitiveness and efficiency during the last decade resulted in several organizational approaches that presented flexibility as a main characteristic. Some of these approaches rely on dynamically reconfigurable partnerships in permanent alignment with the market and strongly supported by information and communication technology, with the agile/virtual enterprise (A/VE) organizational model as a leading example. Several technologies and valuable applications have been developed to support some of these emerging models, however, the full potential of the A/VE model requires an environment coping with its requirements, and the Market of Resources concept is defended as a solution for virtual enterprise (VE) integration. The chapter discusses the requirements for the A/VE model and introduces the global structure and functionalities of the Market of Resources.

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INTRODUCTION

The combination of the shorter life span of new products, increasing product diversity over time, rapid technological developments, increased technological complexity, market globalization, frequent changes in demand, uncertainty, and strong competition, are challenges of the actual worldwide economic context. Competitiveness is a main requisite of enterprises, whose satisfaction requires the definition of new organizational concepts, with extremely high performance, being strongly time-oriented while highly focused on cost and quality and permanently aligned with business opportunities.

One of the most widely discussed area in recent business literature is that of organizational networked structures as the basic principle to achieve flexibility and quick response in a highly complex and competitive environment (Bradley, Hausman, & Nolan, 1993; Byrne, 1993; Davidow & Malone, 1992; Handy, 1995; Miles & Snow, 1986; Naisbitt, 1982; Naisbitt & Aburdene, 1985; Toffler, 1985). Several models have been proposed since the “Virtual Factory” concepts suggested in 1990 by Peter Drucker (1990), which include the concepts of virtual organizations, virtual enterprises, extended enterprises, knowledge networks, agile enterprises, agile manufacturing, and other developments gaining increasing interest.

The need to keep a close alignment with the market environment in permanent change implies the high dynamics of the organizations’ structure reconfigurability, introducing a new concept of dynamically reconfigurable global networked structures, traduced by the A/VE organizational model. In its BM_virtual enterprise architecture reference model (BM_VEARM), Putnik (Putnik, 2000a; Putnik, Cunha, Ávila, & Sousa, 2004) presented “fast adaptability” or “fast reconfigurability” as the main enabler of business alignment and the main requirement for competitiveness.

Two critical factors against this concept of dynamically reconfigurable global networked structures, i.e., against reconfigurability dynamics and networking, can be identified:

- The transaction costs, i.e., the firm reconfiguration cost, associated with the partners’ search, selection, negotiation, and integration as well as permanent monitoring and the evaluation of the partnership performance
- The preservation of firm’s knowledge on organizational and management processes, as it is the firm’s competitive factor

The efficient implementation of the A/VE model requires tools to overcome the networking and dynamics disabling factors.

The main tools suggested in the BM_VEARM (Putnik, 2000a) for managing, controlling, and enabling networking and dynamics, overcoming the two critical factors against networking, are as follows:

- The Market of Resources is the environment for enabling and management of efficient configuration, and assuring virtuality, at low transaction costs and reduced risk of knowledge leakage.
- The broker or organization configuration manager is the main agent of agility and virtuality, acting either between two operations of the A/VE (off-line reconfigurability, providing agility only) or online with the operation (online reconfigurability, providing virtuality and a higher level of agility).

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