Chapter XI

Market of Resources as an Environment for Agile/Virtual Enterprise Dynamic Integration and for Business Alignment

Maria Manuela Cunha
Instituto Politécnico do Cávado e do Ave, Portugal

Goran D. Putnik
Universidade do Minho, Portugal

A. Gunasekaran
University of Massachusetts, USA

ABSTRACT

We are assisting to a shift from traditional “self-centred closed-enterprises” to “global open-enterprises,” corresponding to the recent Agile/Virtual Enterprise (A/V E) model. This new organisational model, where market information concerns information about resources to integrate an A/V E, although reinforced by the ability to use more globally distributed resources and by lower transaction costs provided by information and communication technologies, claims for a wider support environment, able to assure better quality and better response at lower time. This corresponds to the concept of Market of Resources, proposed by the authors as an environment for A/V E dynamic integration and for business alignment. The chapter describes the main functionalities of the Market of Resources, with a special focus on the specification of its creation, operation and maintenance.
INTRODUCTION

Since the beginning of the nineties, we are assisting to the development of new concepts of enterprises that, supported by the advances in information and communication technologies, helps them to remain competitive and to answer to a more demanding and more global market. Several factors determine the competitiveness of the enterprise, being the most important requirements for competitiveness, the adaptability to environmental change and, as a consequence, fast or dynamic reconfigurability. The paradigms satisfying those requisites are the Agile and the Virtual Enterprise ones, which, in the context of the present work, will be designated as the Agile/Virtual Enterprise (A/V E) model, corresponding to the Virtual Enterprise model offering the characteristics of the Agile Enterprise.

The requirements of adaptability and reconfigurability imply the ability of (1) flexible and almost instantaneous access to the optimal resources to integrate in the enterprise; (2) design, negotiation, business management and manufacturing management functions independently from the physical barrier of space; and (3) minimisation of the reconfiguration or integration time.

According to several definitions (Davidow & Malone, 1992; Byrne, 1993; Preiss, Goldman, & Nagel, 1996; Camarinha-Matos & Afsarmanesh, 1999; Browne & Zhang, 1999; Putnik, 2000; Cunha, Putnik, & Ávila, 2000), virtual enterprises are defined as “agile” enterprises, i.e., as enterprises with integration and reconfiguration capability in useful time, integrated from independent enterprises (resources providers), in order to answer to a market opportunity. After the conclusion of that opportunity, the enterprise either reconfigures itself or is dissolved and another virtual enterprise is integrated, due to new market opportunities. Even during the operation phase of the virtual enterprise, the configuration can change, as the need for readjustment or reconfiguration facing unexpected situations can happen at any time, raising the importance of the integration dynamics.

The resource is the entity that can contribute or add value, providing either a product (component, assembly) or an operation and can be primitive or complex (a meaningful combination of primitive resources). A resource “is (a view of) an enterprise object which is used to realise, or to support the execution of, one or more processes and it is the subject of control” (Putnik, 2000).

A concept of Market of Resources, as the institutionalised environment assuring the accomplishment of the competitiveness requirements for Agile/Virtual Enterprise dynamic integration is proposed. The Market of Resources, defined as a concept in the author’s previous work, consists of a “virtual” market as the institution offering an electronically delivered intermediation service, between the set of resources registered in the Market (candidate resources for A/V E integration), organisations looking for resources to integrate in an A/V E and Brokers.

Offer and demand are usually matched under several different circumstances, from unregulated search to oriented search, from simple intermediation mechanisms to the market mechanism, all of them with the possibility of being either manually performed or automated. The Market of Resources is an intermediation service
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