Chapter 21
Challenges and Trends Towards an Effective Application of ERP and SCM Systems in SMEs

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ABSTRACT

Small and medium-sized enterprises (SMEs) are considered as both the backbone and the main driving force of economic development and innovation. Technology is playing an increasingly significant role in the success or failure of SMEs. The purpose of this chapter is to present international trends and challenges on the field of ERP and SCM systems, thus to: (a) record background information on legacy and current supply chain IT systems for SMEs, (b) discuss the importance of both ERP and SCM systems and the complementarities of ERP and SCM systems, (c) present survey conclusions of ERP and SCM systems adoption in various industries and countries, mainly in Europe and reveal the most prominent trends and barriers, (d) identify the technologies that are used to provide integrated view of information for SMEs, with emphases on both technological and organizational dimensions and recommendations to SMEs and (e) provide future trends, possible future areas of work and conclusions. Contemporary SMEs must carefully examine integration approaches and their technological and organizational issues such as hidden integration costs and management of change considered with human organizational concerns, cultures and business objectives. Application Service Providers, Web Services and Service Oriented Architecture as well as ERP and SCM application’s maturity and open source software solutions, especially for SMEs requirements, are amongst the anticipating future trends in the field.

DOI: 10.4018/978-1-60566-892-5.ch021
INTRODUCTION

Business executives, especially in small and medium sized enterprises, experience a period of changes and new trends. Those trends incorporated in the wider context of globalization have led to the search for more effective methods of coordinating materials and information flow in the domestic and external company environment. A key to this coordination is the orientation towards closer relations with all levels of supplies and partners (Meatzer, DeWitt, Keebler, Min, Nix, Smith & Zach, 2001). Today, individual businesses no longer compete as stand-alone entities but rather as supply chains (Christopher, 2000).

A strongly integrated supply chain, combined by cooperation-boosting technologies, constitutes a shared chain of values, which provides increased efficiency, lower costs and more satisfied clients. The appropriate use of information technology (IT) tends to constitute the size of a modern business of minor importance, since major importance is attributed to the level of product and service provision, through a well organized and integrated framework of information systems. SMEs are progressively realizing the importance of analytical IT applications in order to improve their business performance. However, SMEs executives are continuously facing tough decisions in order to incorporate the most suitable software solutions based on their needs and to achieve a greater degree of data integration and incorporate business intelligence capabilities. (Economides & Terzis, 2008).

The primary objective of this article is to present international trends and challenges on the field of ERP and SCM systems, thus to: (a) record background information on legacy and current supply chain IT systems for SMEs, (b) discuss the importance of both ERP and SCM systems and the complementarity of ERP and SCM systems, (c) present survey conclusions of ERP and SCM systems adoption in various industries and countries and reveal the most prominent trends and barriers, (d) identify the technologies that are used to provide integrated view of information for SMEs, with emphases on both technological and organizational dimensions and recommendations to SMEs and (e) provide future trends, possible future areas of work and conclusions.

SMEs are mainly characterized by flexibility, as they have only a few managerial levels, they tend towards innovation and differentiation (especially in terms of quality) and more frequent and quick internal communications, decision-making and procedures. On the other hand they are generally more vulnerable than large enterprises because they usually have limited resources in terms of facilities, limited skilled technical capacities, products/services, they have few customers and a weak experience in understanding the expectations and demands of the new knowledge economies.

IT AND SCM CHALLENGES FOR SMEs

The technical definition of SMEs varies from country to country but is usually based on employment, revenue (assets) or a combination of the above two characteristics. More specifically, according to the new European SME definition every SME is a non-subsidiary, independent firm with between 10 and 250 employees (European Commission, Enterprise and Industry Publications, 2005). The number of employees varies across countries. While the most frequent upper limit designating an SME is 250 employees, the United States considers SMEs to include firms with fewer than 500 employees. Small firms are generally those with fewer than 50 employees, while micro-enterprises have at most 10, or in some cases 5, workers.

Furthermore, financial assets are also used to define SMEs. Based again on the new European definition (European Commission, Enterprise and Industry Publications, 2005) the turnover of medium-sized European enterprises (50-249