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Some issues and perspectives for agile integrated long supply chain management*

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Abstract

This research work attempts to investigate technologies, systems and paradigms for the effective management of agile integrated long agile supply chains. More specifically, this paper reviews some of the integrated agile supply chains complexities and discusses in detail the drivers forcing changes from the traditional supply chains to the long integrated supply chains. Furthermore, it presents some existing tentatives in agile integrated long supply chains management and briefly discusses two developed approaches for modeling and evaluating agility in integrated long supply chains.

Key words: Agility, long supply chain, fuzzy logic, multi-agent

1. Introduction

In the existing hotly competitive environment, companies/enterprises/organizations are interesting by the following question: How to provide the desired products and/or services to customers faster, cheaper, and better than the competitors?. Managers have come to realize that they cannot do it alone; rather, they must work on a cooperative basis with the best organizations in their supply chains in order to succeed. Moreover, the emerging global economy and the advent of IC technologies have significantly modified the business organization of enterprises and the way of doing business. New forms of organizations such as extended enterprises, virtual enterprises, long supply chains etc. appeared and are quickly adopted by most leading enterprises. It is more and more noticed, "Competition in the future will not be between individual organizations but between competing supply chains" [1].

More and more business opportunities are captured by groups of enterprises in the same supply chain (networked enterprises). The main reason for this change is the global competition that force enterprises to focus on their core competences (i.e. to be what you do the best and let others do the rest). According to the visionary report of Manufacturing Challenges 2020 conducted in USA, this trend will continue and one of the six grand challenges of this visionary report is to ability to reconfigure manufacturing enterprises rapidly in response to changing needs and opportunities.

Existing in both service and manufacturing activity sectors, generally speaking, a supply chain includes the transition and transportation of material from raw form through several stages of manufacturing, assembly and distribution to a finished product delivered to the retailers and/or the end customers [2]. In addition to the

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