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Information technology combinations decision model for supply chains information systems integration

Dissertation

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Summary

The growing necessity to satisfy a more demanding customer in a scenery where deadlines and costs must be constantly reduce to maintain competitiveness, simultaneously with increased uncertainty about demand, has been leading organizations to collaborate to such a level competition is between supply chains rather than among isolated enterprises (Davenport *et al.*, 2004).

Inter-enterprise coordination is a core issue in supply chain management. Companies invariably need to electronically exchange information and integrating such information into each member information system. The traditional solution consists on providing interfaces that allows the access of providers and clients to the necessary data for management (Weske, 2007). However, because of the large number of diverse information systems, the data format (syntax) of each exchange (message) and the meaning (semantics) of both of them usually differs from company to company, or sometimes even within the same company if more than one software product is used as information system (Glazner, 2006; Hohpe *et al.*, 2004; Themistocleous, Irani & Love, 2004; Weske, 2007).

In such environment the information systems integration is a recognized problem. This problem, among other factors, is aggravated by the selection complexity of a combination of technologies to support, to the greatest possible extent, the supply chain performance.

This investigation proposes the bases of a decision support model based on compensatory fuzzy logic, in order to assist the selection of technological combinations to integrate information systems in a supply chain.

In order to so, theoretical definitions are given about main supply chain characteristics, about the use and role of information technology in the integration of this supply chains, and also regarding information systems integration and enterprise application integration technologies. Later a model proposal is explained, together with a general idea of the employed decision making approach, that include multi-criteria and compensatory fuzzy logic elements. After that are described finding and insights derived of the application through a case of study of a software prototype that use the model proposal. And finally, conclusions and recommendations are discussed.

Although stronger practical results are desirable, it can be said that the technological combinations assessment process proposed by the model contributes to the development of a global integrated IT infrastructure that responds to the supply chain strategic objectives.

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