

The Impact of e-Supply Chain Management Systems on Procurement Operations and Cost Reduction in the Electronics Manufacturing Services Industry

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ABSTRACT

The article examines the effect of e-supply chain management systems in the operations and business models in the North American electronics manufacturing services (EMS) industry. A causal and descriptive research study was conducted based on a survey applied to thirty-six individuals in EMS firms in order to determine the impact of e-SCM on their key supply chain operations and business models. Results of the research revealed that e-SCM had a positive effect in the operations and business models of the EMS industry as these showed that the profits of the firm increased and internal communications was improved due to the implementation of e-SCM. The research also showed that e-SCMs have many technical issues such as problems with process automation and transmission of supply chain data, e-procurement effectiveness, integration with existing systems and the monitoring of inventory systems and the purchasing process. The research also shows how social media and the internet has affected the business models of the EMS by improving communications and operations in the overall supply chain.

KEYWORDS

Business Models, E-Business, Electronic Manufacturing Systems, E-SCM, Social E-Business, Social Media, Supply Chain Management

BACKGROUND

The electronic manufacturing services (EMS) suppliers are used by many companies as a strategic way to reduce time to market, decrease costs, improve quality, and improve overall customer satisfaction. Many manufacturers are developing closer relationships with their suppliers by using e-supply chain management systems (e-SCM) (Valverde & Talla 2012) and with the use of internet technologies such as social media. This business-to-business approach not only provides the lenience of exchange in information, but also allows industries such as EMS to increase the accuracy and efficiency of business transactions processing.

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In most of the organizations, information systems are used to provide cost savings by allowing the company to reduce inventory; streamline business processes and operations; integrate billing and payments systems into supply chain management; and improve customer service. The business functions supported by eSCM technologies and applications are extremely varied and include manufacturing/production, sales and marketing, finance and accounting, although there is still little empirical research evidence available concerning the stages and processes involved in implementing e-commerce solutions within organizations, and tracking the products using a model designed to apply e-commerce.

EMS industries have utilized the advent of the Internet as an advantage to promote their products well and to have a real-time connection with their customers. The changing environment of the business market, with its focus on costs, quality, flexibility and technology to meet the competitive challenges is causing major changes in inter-organizational business relationships and many manufacturers are developing closer relationships with their suppliers and customers with the application of e-commerce. This business-to-business approach not only provides the lenience of exchange in information, but also allows industries such as EMS to increase the accuracy and efficiency of business transactions processing.

The main purpose of this research is to investigate the following research question: Did e-SCM impact positively efficiency, satisfaction, quality and performance of North American EMS industry? This study is of significance to the EMS industry as it would provide a different view on the positive effects of e-SCM to its supply chain.

In the first stage of the study, a comprehensive literature review will isolate the body of knowledge available in E-business for EMS, social media and e-business and identify any additional information gaps (Perry, 1998). Identified information gaps will be documented as open research issues (Yin, 1994). The second part of the literature review will expand to cover some of the trends in IT cost reduction and will highlight how e-SCM systems could play a defining role in supporting such initiatives.

After a literature review, the research methodology will be justified and explained. The results of the study will be presented and analyzed in order to address the research objective. Finally, recommendations for improvement to the implementation of e-SCM strategies in the EMS industry will be documented.

This study is only limited to North American manufacturing industries in the EMS. This study will only conduct its research within those concerned in the industries. The outcome of this study will be from the primary data gathered from the result of the questionnaire survey and interview that will be conducted by the researcher. The conclusion and recommendation will only apply to EMS manufacturing industries that engage in e-SCM and those industries, which plan to engage in the online field sometime in the near future.

LITERATURE REVIEW

The literature review will start with an overview of the EMS industry, later the effect of information technology (IT) and internet in the supply change management will be examined and its impact in the EMS business model will be discussed. The literature review will end by outlining some key considerations with regards to platform security.

The electronic manufacturing services (EMS) industry started over 30 years ago when companies were formed to manufacture designs created by governmental agencies such as the Department of Defense (DOD) and NASA. During the 1980s, a handful of contract manufacturing companies or board stuffers were formed each year. Many of these companies started with one or two surface mount technology or SMT lines, accepting contracts from companies that had an overflow of work (ILO 2000, 2011).

To this end, SCM has emerged as a key competitive factor and companies such as Dell and Cisco have shown the economic power of a well-run supply chain. The pursuit of supply chain prowess

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