AN EVALUATION OF SUPPLY CHAIN MANAGEMENT IN E-MARKETPLACE

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E-Commerce Metrics for Net-Enhanced Organizations: Assessing the Value of e-Commerce to Firm Performance in the Manufacturing Sector

(Kraemer, 2002)

The article talks about the measurement of e-commerce capabilities in internet enhanced organizations. In the article the author has given four dimensions to measure the manufacturing in e-commerce units. It is Information, supplier source, customization and transaction. The data from 260 manufacturing firms were divided into high It intensity and low IT intensity.

This formed the base of the research. In the research conducted out by them they found that that there was a relationship between e-commerce and the firm performance which are inventory, turnover and revenue indicating that the metrics that they had used were value for capturing the e-commerce effects. The data was collected from the survey from the employees and the management about the manufacturing units and their capacity.

The outcome of the survey from all the companies were measured against the metrics that the base of the research had been made and it was found out that e-commerce has an association with high cost of the goods sold for manufacturing traditional companies and an association with low cost of goods sold with technology companies. The result bring out the fact that for an e-commerce company to grow and for the firms to support them there needs to be an alignment with the e-commerce companies capabilities and the IT infrastructure that they have to be profitable.

The hidden key to e-commerce success

Fred Ricker and Ravi Kalakota (Fred R.Ricker, 1999)

The article *'The Hidden key to E-commerce* "talks about the process of e-fulfilment and how the virtual inventory system of amazon has been a success. The author has talked about the process in 3 phases. The first phase being the e-corporation, the next phase being the communities and the last phrase being the e-supply chain. The author also talks about order fulfilment planning, production execution, a distribution planning. The author has linked all of these in a process which follows the order

There are also five fulfilment strategies to be followed. They are the distributed delivery centre, Partner fulfilment operations, dedicated fulfilment centres and build to order. They are characterized into their characteristics, major strengths, potential weaknesses and management challenges. For the first three

fulfilment strategies a proper inventory system, managing partnerships and having a proper routing system and making the consumer warehouse into a consumer oriented method to reach them faster are the challenges that they pose respectively. The last two have challenges related to third party and making the entire flow of materials in such way that theory follows an order. All of these should try to follow the Just-in-time inventory system to be successful.

The author has also cited '*Technology Challenges*' ' *The Data-Sharing Challenges*' and the' *Adaptability Challenges*' in order to show that technology just does not support order fulfilment but it creates them.

The Role of Mass Customization in Enhancing Supply Chain Relationship in B2C E-Commerce Markets

(Merrill Warkentin, 2000)

The authors in '*The Role of Mass Customization in Enhancing Supply Chain Relationship in B2C E-Commerce Markets*' talks about the role of Information in managing supply chain management relationships and how it connects the business and the consumer market in a synchronized way. The author has described the three dimension supply chain management. Generally, supply chain management comprised of three measurements - the genuine physical dispersion of substantial merchandise with inbound and outbound coordination's frameworks, the trading of cash or instalment, and the trading of data between different financial players. The physical dissemination or "merchandise exchange "dimension has been drastically adjusted by the presentation of online trade for computerized products and by the presentation of across the board worldwide logistics frameworks for hard products. The money trade measurement has turned into a part of the data trade measurement as firm's direct solely computerized instalments. The data measurement has experienced the most critical reengineering with the advancement of completely new market models empowered by mechanical improvements. As compared to the traditional Supply chain which consists of suppliers, producers, wholesalers, retailers and consumers. The author also discusses the Disintermediation in Supply Chain. This consists of the suppliers, producers, wholesalers, retailers and the consumer and the flow of command in this is from the supplier to the producers and then to the consumer directly as compared to the other model where it follows in a flow from the suppliers to the consumers.

Finally this paper describes the rise of new commercial centre models and the resulting new players and data flows. The hypothesis of data quality dimensions of completeness, exactness, cash, timeliness, precision, dependability, consistency, and significance are connected to these commercial centre models. Porter's Five

Forces Model is reexamined in light of the developing supply chain condition. The ubiquitous presence of electronic open convention technologies is driving new monetary relationships and new market opportunities for data use. These new data flows, if legitimately used, can empower new efficiencies in the administration of the supply chain, give new opportunities to give more noteworthy incentive to the consumers by encouraging the dynamic making of significant worth webs, and positively affect the general economy.

A Method for Transparent Admission Control and Request Scheduling in E-Commerce Web Sites – by Sameh Elnikety, Erich Nahum, John Tracey and Willy Zwaenepoel.

(Sameh Elnikety)

The paper speculates the rather latest trends in inventory control in multiple tiered e-commerce web sites. The author acquaints us with the 3 tier structure of e-commerce websites, that is front end web server, application server and back end database. The main issues addressed by them is overload, volume of requests (demand) exceeds their capacity to process the same, and the responsiveness, aspect which is about meeting demands in adequate time.

Therefore, the objective of the paper is to find a solution that controls admission of inventory to minimize the variations in the aforementioned issues. The author introduces a proxy, called a gatekeeper, which helps create a transparent flow of orders from application server to database. The author also goes on to talk about how admission control helps, limit overload and how scheduling helps facilitate overall trade. By defining Request scheduling and admission control, he adapts to the practice of precedence by size of shortest job first (SJF) Policy. The gatekeeper, so introduced helps provide a Transaction processing benchmark, a locking option and various client workload metrics and methods that help the E-commerce websites effectively understand the inventory requirement.

After thorough, experiments the data in varied products and services offered in the E-commerce industry and through a thorough graphical data analysis, the author summarises and concludes that admission control and scheduling help provide persistent performance and improved peak output throughout crisis. It also reduces the response times through preferential scheduling using the shortest job scheduling.

Structuring E-commerce Inventory - Karina Mauge, Khash ohanimanesh, Jean-David Ruvini

(Karina Mauge)

The article sheds light on the varied gaps on the listing of products that they so offer on their websites. It refers to the ambiguity that persists when there is a large spread listing, quoting and trading of C2C marketplaces such as eBay and Amazon. These online retailers have a long tail inventory of millions of items. Owing to such nature of the magnitude and variability of products, then they should paired as value pairs (properties) or same kind. However, this rarely happens. The author hopes to resolve the same through the research paper.

The author primarily describes all the issues faced by improper structures adopted by the e-commerce websites, such as the unsupervised property extraction, and property name synonym, both of which greatly hinder work speed and ease of business. The unsupervised property extraction leads to redundancy of similar items, or the listing of properties with popularity information. The objective of the study is to identify objects that are semantically related cross schemas. This needs to eliminate all the gaps and the fall-through in every search or listing of a product which yield the same product with distantly unrelated information.

He then proposes the probabilistic model, the implementation and experimentation of which helps provide Precision, and recall in both synonym discovery and unsupervised property extraction, The model works on the basis of a set of standards to be defined or specified when listing or initiating the purchase of the product in case. The author concludes by proposing the same probabilistic model as an algorithm to achieve maximum entropy based clustering with specific data sets and tables for all properties.

E-Business and Supply Chain Management: An Overview and Framework - M. Eric Johnson, Seungjin Whang

(M. Eric Johnson)

The authors provide a rather abstract yet, detailed insight into how the E-Business and Internet has taken inventory and production management by an angular change. The internet has helped accelerate the supply chain integration. The author opens with the benefits of internet such as reduction in procuring of indirect materials, and handling value added services like transportation, warehousing, customs etc. The paper then categorizes the study in three aspects

- E-Commerce
- E-Procurement
- E-Collaboration

The paper then discusses how each of these has changed and has been facilitated to reach greater heights through, the usage and up gradation of internet to suit the same. e-commerce saw growth from "brick and mortar" model to a more customer oriented which was based on customer types, logistics and service quality. Quoting examples of many business and businesses processes that both succeeded and failed with the usage of internet, he sheds light on the most effective use of the internet to suit business.

Through the article of E-Procurement we come to realise of dynamic markets and auction theory. The E-procurement then helps us integrate not only supply and demand, but various industries and has led to significant scientific and informational development. Moreover, the introduction of E-bidding has helped modulate and interconnect individuals from various geographic locations. Moreover, the E-procurement tools have also helped us optimize tools to facilitate dynamic supplier selection.

The E-Collaboration aspect of the paper, deals and reflects with the synergy created by compiling, analysing and clubbing of resources. Many e-collaborative practices like the collaborative innovation, product design, information integration, etc. have greatly benefitted respective industrial giants like DiamlerChrysler, General motors and Lufthansa. In Conclusion, the author talks how most companies entered the e-commerce business to capitalize on the quick money concept, but eventually came to know of the economies and the benefits that accrued to them In course of their internet transactions. The author concludes on the positive note that, Internet has proven to be huge boon for the industry and eventually in time to come, would become a necessity.

Supply Chain Management: More than a new name for logistics – Martha C. Cooper, Douglas M. Lambert

(Martha C. Cooper, 1997)

In the year 1986, the council of logistics management, defined logistics management as "the process of planning, implementing and controlling the efficient cost effective flow and storage of raw materials in process inventory, finished goods and related information flow from point of origin to point of consumption for the purpose for the purpose of conforming to customer requirements". The term supply chain management is a new term and even though researchers and educators use the term supply chain

management and logistics synonymously they are not. The original use of the term emphasized on the reduction in inventory both within and outside firms. It can be seen that SCM is nothing but logistics taken across inter-organizational boundaries. There has been a need for internal integration of business operations in the supply chain that goes beyond logistics. In addition to these internal functions, external organizations need to be included in order to reduce the time – to – market on new product introductions. It's always better to get the supplier involved in the production development process and in some cases second tier suppliers as well. The integration between the business processes is what is known as Supply Chain Management. Including logistics to Supply Chain is not Supply Chain Management. There is no need for a term like SCM if it only includes logistics. in this article SCM includes the scope, integration within the organization objectives and the evolution towards a combined SCM. While some authors have addressed the entire supply chain, others have focusssed on parts across or within firms. The new SCM concept includes three parts: the business process, the management parts and the structure of the chain. Many are using logistics and SCM as synonyms and academics are just following and leading. To conclude it has been said that there is definitely a need for integration of both internal and external business activities and a lot of research is to be done in order to expand boundaries of SCM.

Article: The Impact of Agile Manufacturing on Supply Chain Dynamics – Peter McCullen

(McCullen, 1999)

Supply chain poor response has been well known and the most noticeable has been the cyclical boom and bust behavior of the material flows down the supply chain. The result of this phenomenon is that most of the businesses have a period of slack followed by frenzied activity with resources stretched to the limit. The purpose of this paper is to review these principles and show how their application has improved the dynamic performance of global chain supplying complex engineered systems and components. The material flow principles are of great fitting with the modern SCM concepts for the improvement of competitive performance. Supply chain has also been described as a network of organizations that are involved through upstream and downstream linkages in the different processes and activities that produce value for the ultimate consumers. The transactions can be described as serial interactions. A set of material flow principles have been demonstrated for improving SCM. The agile manufacturing has improved supply chain demand by 50%. It also admirably demonstrates time scale over which global supply chain improvement takes place.

Article: Chaos Theory – Implications for Supply Chain Management – Wilding Richard

(Richard, 1998)

The term chaps in general means something in a random order or something in a disturbing order. Chaos is also used as a metaphor to describe how there can be a large effect on the system due to a small change. This is from the popularization of the butterfly effect. Chaos as term for the usage of amplification can also be an over simplification and thus it can lead to a misunderstanding. They might be linked but are also distinctly different. The paper has demonstrated that a simple supply chain management can lead to a chaotic system. It contributes to uncertainty experienced within the supply chain. In some supply chains, the contribution may be small unlike a few others. In order for logisticians to master, they will have to use quantitative techniques. The application of the chaos theory to supply chain management will definitely create a revolution like it did in a few fields in science and thus traditional viewpoints would be challenged and a greater understanding would be gained.

Analysis

As time is passing by, e-commerce is getting very popular. They are emerging in almost every industry and they support the exchange of goods and services of different kinds. Studies have proven that in the future e-commerce would dominate the market place but once it is seen beyond the publicity, it can be seen that these marketplaces are not doing very well. The supply chain is largely neglected and managed very poorly. These basic logistics management is hampering the turnover and revenues more than what was expected. In this paper a survey and discussion on EM's and their performance is shown. The investigation included international journals both small journals and big journals, conference papers and popular articles which are not published. Some of the keywords that was searched for are "electronic marketplace", "Electronic SCM" etc. researchers have said that EM's would dominate the marketplace, but if seen beyond the publicity, it can be seen that most of the companies are floundering and the number of orders are much less and the number of members are much more. Wise and Morrison have named three fatal flaws of EM's (Morrison, 2000). These flaws are

- The value proposition offered
- Consumers take advantage of the competitive buyers bidding process.
- These are anti buyer supplier relations

From a theoretical standpoint, the relationship between EM's and SCM appears more problematic than what was expected. Supply chains aim to reduce the number of suppliers, whereas EM's promote competition and they support transaction based partnership. Talking from a logistical standpoint, EM's and SCM are not compatible; the prior is of a higher degree.

An electronic marketplace can be described as a historically evolved institution which allows consumers to come and meet the suppliers through the internet, online. This is possible after the evolution of the telecom services, weakening of time and space restrictions and cyberspace has come to a new point.

Theoretically, there are a lot of factors that could be problematic between EM's and Supply Chain Management. A product with high description can be more complex as it is acquired through more lines of department and at a higher cost, and speaking of it from a logistical point of view, the two (EM's and SCM) are not compatible at all, but it can be said that different EM's require different types of SCM. These can be distinguished in the following categories:

- Stakeholder way divides EM;s into buyer-oriented, seller-oriented and neutral;
- Vertical and horizontal
- Open and closed EM's
- Market mechanism (aggregation and matching)
- Manufacturing, operating inputs; spot and system sourcing.

Conclusion

It can be concluded by said that some empirically tests needs to be done in the future. These tests are:

- The choice of EM is depending on the perspective of SCM

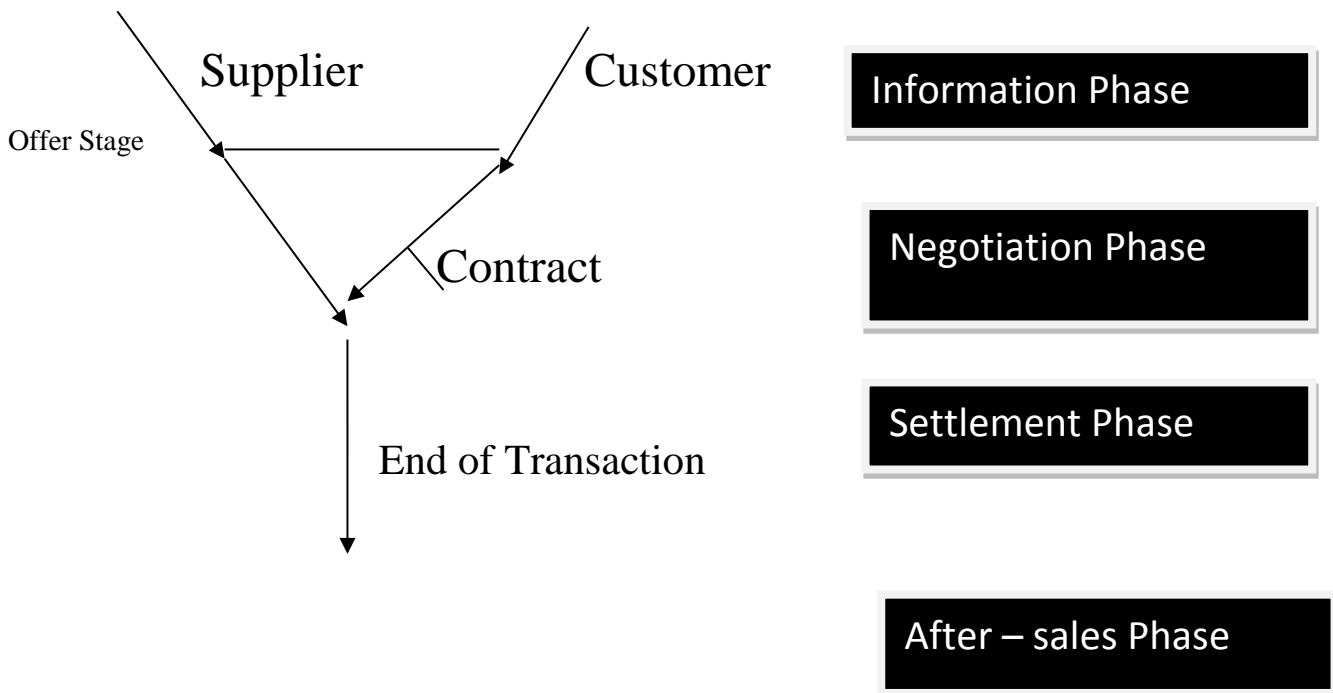- Type of EM relationship (transactional-oriented, information sharing)

Information Phase

Negotiation Phase

Settlement Phase

After – sales Phase

Fig.1 Phases of market transaction

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