

An E-Logistics Model for Effective Collaborative Commerce

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ABSTRACT

Collaborative Commerce (C-Commerce) is the name given to commercial relationships carried out over a collaborative framework to integrate enterprises' business processes, share customer relationships and manage knowledge across enterprise boundaries. This is a business strategy that leverages the extensive reach of the Internet. C-Commerce places emphasis on supply chain involvement where members of the supply chain work together to design, build, market and deploy products and services. Collaborative commerce is the next generation of E-commerce framework. E-logistics is the mechanism of automating the logistics processes and providing an integrated, end-to-end fulfillment and supply chain management service to the players of logistics processes. This paper attempts to design an integrated framework for an E-logistics model that it can be effectively employed for C-Commerce.

Keywords: Collaborative Commerce, E-Logistics

1. INTRODUCTION

Collaborative Commerce (C-Commerce) is the name given to commercial relationships carried out over a collaborative framework to integrate enterprises' business processes, share customer relationships and manage knowledge across enterprise boundaries. The ultimate aims of C-Commerce initiatives are to maximize return on intellectual capital investment, business agility and the quality of the customer experience. C-Commerce is a business strategy that leverages the extensive reach of the Internet. C-Commerce places emphasis on supply chain involvement where members of the supply chain work together to design, build, market and deploy products and services. This helps to accelerate the business pace, creates barriers to entry in a particular industry, it enhances customer loyalty, and enables new business models. It is far more crucial than basic B2B e-commerce that is designed to construct a virtual link for a pre-defined community of trading partners to buy or sell goods and services. Even after the fall of the dot.com era, corporate strategies and venture capitalists are embracing C-Commerce as the next generation of e-commerce and an evolution of the traditional supply chain process [1].

There are major driving forces that led to the development of c-commerce. They include expansion of global communications, cost efficiency and economies of scales, customer anticipations of cheaper and better products along with faster delivery and fast access to information, high-speed communication networks. Additionally, some of the driving forces incorporate high-speed communication networks, affordability of business applications, quick deployment, and standardization of technology [2].

The three ingredients for effective C-Commerce are (a)

Managing supply chain, (b) Leveraging technology, and (c) Adapting business models to current market environment. There are six critical factors identified for any organization to successfully evolve from E-commerce to C-Commerce [4]. These factors are:

1. Desire and capacity for fundamental change
2. Internal capabilities for collaboration
3. Tolerance for managed risk
4. Organizational agility
5. Effective implementation
6. Disciplined approach to performance measurement

Today, collaboration is the key factor enabling companies to transcend traditional constraints and perform competitively in a dynamic, increasingly complex business environment [3].

2. NEXT GENERATION E-COMMERCE

Collaborative commerce is the next generation of E-commerce framework. E-commerce is different in the sense that it primarily deals with transaction involving order placement, fulfillment, and payment delivery whereas C-commerce provides dynamic, web-enabled exchange of intellectual capital within enterprise and trading partners to optimize product development, supply chain operations, and manufacturing processes [5].

The Figure-1 above represents how C-Commerce brings people together to make real time decisions across organizational boundaries. It also unites the enterprise in a single secure environment.

2.1 Stages of C-Commerce Evolution

With the birth of the Internet, companies started to do commerce on line with storefront models, from there,

companies started to use the Internet to help make their internal processes better so that they can provide better products and customer service and increase profits by lowering transaction cost using Internet technologies like EDI. The next evolution was the use of the Internet by companies to connect to their suppliers. This allowed for lower inventory cost, better customer service - getting the product there at the right time, and increase in efficiency and productivity from both ends [6].

2.2 Enablement of Multi-Dimensional Collaboration

Web services allow organizations to participate in multi-dimensional collaboration where organizations can collaborate with several partners at a time. This increases inter-enterprise processes and supply-chain velocity. C-commerce is vital in streamlining business process and bringing cost efficiencies and revenue potential for today's organizations, and with the use of Web services integration among business processes is faster and better [7].

2.3 How Web Services Redefine C-Commerce?

So far, we are in a very early stage in the evolution of web business. We have been able to overcome the issue of the standardization of enterprise application programming interfaces around the web, and have managed to undertake tremendous business-to-business exchange transactions over the web, albeit with high integration costs. Web Services promise to revolutionize this process.

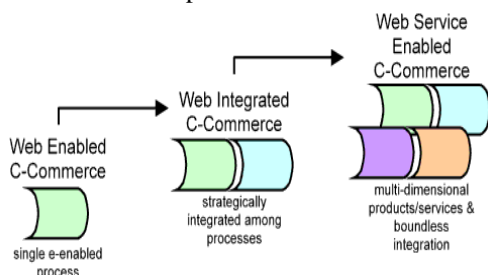


Figure 2

In the figure above, we can see the three stages of c-commerce, from bottom-left to top-right:

First stage of C-Commerce - web enabled c-commerce, a one dimensional, single e-enabled business process that allows certain internal data to be visible to external trading partners, and vice versa. Typically, this meant implementing a web presentation of the data, and allowing partners access to it. This is a limited form of c-commerce, with very limited value, saving only labor cost. Typical applications would be displaying demand for production materials, showing sales forecasts to suppliers, or presenting bills electronically.

Second stage of C-Commerce - B2B exchanges in markets such as steel, auto parts, chemicals or airline equipment. Buyers, sellers and suppliers are integrated

through a web portal. In this stage, each enterprise can reconfigure its supply chain through the marketplace to leverage aggregated buying power and eliminate brokerage fees and middlemen.

The first two stages of C-Commerce have never reached the critical mass required for mass adoption by all industries, because of the cost of integration.

Third stage of C-Commerce - will be built on Web Service as a core integration engine to deliver seamless process integration, seamless customer satisfaction integration and seamless product design integration. It is a plug and play sort of C-Commerce rather than a hard-wired, integration driven effort. A new study by strategy consultants Roland Berger provides an in depth look and guide for the current development of business-to-business (B2B) E-Commerce in the consumer goods industry. Last year both manufacturers and retailers began to invest heavily in B2B initiatives such as the GlobalNetXchange and Transora. For leading industry CEOs and senior executives the key question is how will Internet exchanges affect relationships with their retail customers. Customer relationship management and supply chain processes are, for many consumer goods companies, major sources of differentiation and competitive advantage [8].

3. LATEST GENERATION OF SUPPLY CHAIN MANAGEMENT

The latest generation of supply chain management is Web-Centric. It is characterized by the marriage of the Internet and the supply chain and has resulted in the birth of electronic business (e-business) applications. These Internet enabled, e-business applications have Internet integrated all branches of the supply chain and emerged as the most cost effective means of supply chain operation [9]. E-business applications (e-procurement, e-commerce, and e-collaboration applications) change the supply chain from a linear, rigid chain into a dynamic chain based on an information hub called an ERP (Enterprise Resource Planner), as shown in Figure 3 below.

The Spoke and Wheel Internet-Enabled Supply Chain

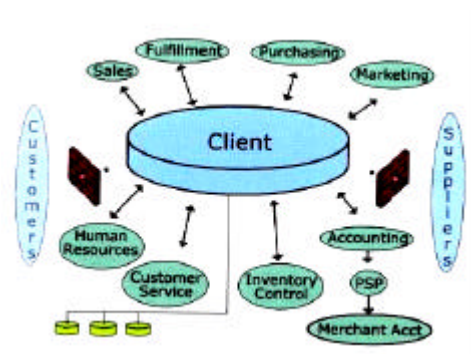


Figure 3

When it comes to logistics, the challenge has always been how to deliver products to customers as quickly and safely as possible. Logistics is concerned with the flow of materials in the supply chain, from source through the industrial process to the customer, and then on to re-use, re-cycle, or disposal. By coordinating all resources, logistics have to ensure that service level agreements with customers are honored. Efficient logistics can result in cost savings, which can be passed on to the customer, often resulting in increased business [10].

4. E-LOGISTICS

E-logistics is the mechanism of automating the logistics processes and providing an integrated, end-to-end fulfillment and supply chain management service to the players of logistics processes. Those logistics processes that are automated by e-logistics provide supply chain visibility and can be part of existing e-commerce or workflow systems in an enterprise [13] [14] [16] [18].

The typical e-logistics processes include Request For Quotes (RFQ), Shipping, and Tracking. As shown in the following diagram, e-Logistics interacts with the business process manager in an e-commerce server such as B2B (business to business) or B2C (business to consumer) server, as shown in the Figure 4..

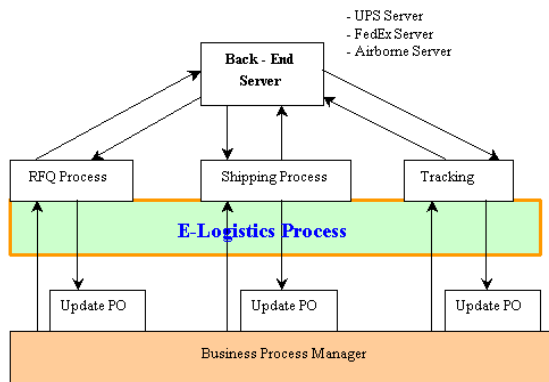


Figure 4

The business process manager invokes the RFQ process to get the basic services such as obtaining the quotes in an e-logistics process. Whenever a response is obtained, the purchase order (PO) will be updated. The shipping process is also invoked by the business process manager and will update the corresponding PO upon

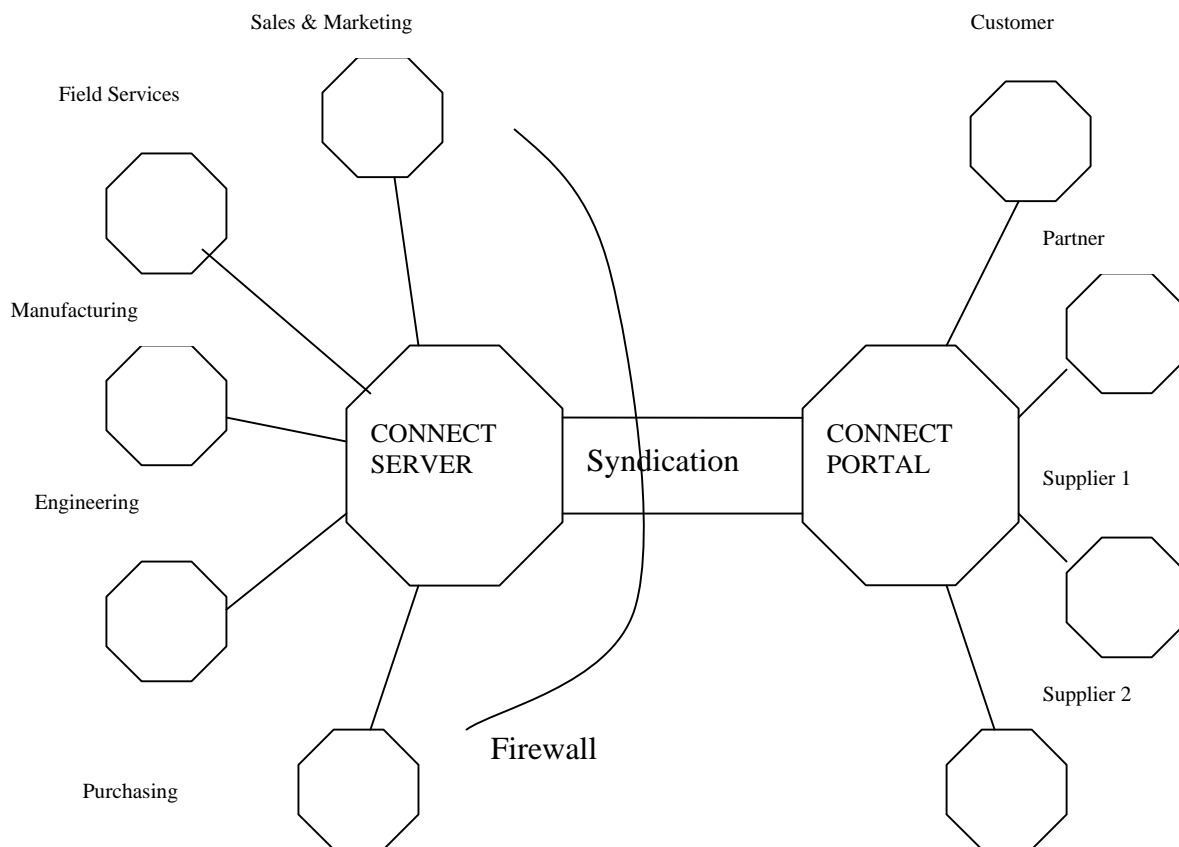
completion. Along with the shipment of goods, a tracking number will be given to the customer and that tracking number will be bound to the PO number in the processing e-commerce system. Customers can track their shipment with the help of that number. The interaction diagram of e-logistics and business process manager shown above represents the high-level view of ELPIF.

5. CONCLUSION

Because the Internet extends around the world, it offers the perfect information sharing channel for logistics. With it, customers can buy and pay for materials, direct their delivery, and trace an order every step of the way. Organizations realize that a strong supporting logistics or electronic logistics (e-logistics) function is an important organizational offering from both the commercial and consumer perspective. The implications of e-logistics models and practices cover the forward and reverse logistics functions of organizations. They also have direct and profound impact from an environmental perspective. This paper tries to come out with a framework to implement C-commerce with the active help of E-logistics.

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**Figure 1**