

Automotive Network eXchange
as it relates to
Electronic Commerce

by

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Abstract

Electronic commerce (EC) is the buzzword at many expositions and conferences this year. Business-to-business EC is growing at a staggering pace. EC is proving to save millions, if not billions, in time and money. In the automotive arena, the Big Three are joining efforts to create one of the largest TCP/IP electronic commerce networks called the Automotive Network eXchange (ANX). This research paper analyzes the foundation of ANX, takes an in-depth look at it and examines other innovators in the EC arena.

Automotive Network Exchange as it relates to Electronic Commerce

This year alone, there will be about \$20 billion in electronic commerce (EC) worldwide. Four-fifths of this business will be company-to-company transactions. More and more companies source parts and services to save time and money. In the consumer market, approximately \$4 billion will be spent in cyberspace. Dell Computers <<http://www.dell.com>> sells \$5 million worth of computers, 15 percent of its business, over the Internet. (Stokes, 1998).

Selling in cyberspace is a rapidly growing field. More and more companies are looking to the Internet. “This new form of trade promises to be a major engine of both global and U.S. economic growth. Ira C. Magaziner, senior advisor to President Clinton for policy deployment, predicts ‘It will have the same kind of transforming effect as the Industrial Revolution’”(Stokes, 1998). Not only are companies such as Dell looking into the vast potential of electronic commerce, but also the automobile giants.

Purchasing departments in the automotive field are undergoing a major change. Once dominated by purchasing police where orders can take on the average of six weeks, it now can be done in a matter of days. “Purchasing is quickly becoming less of a tactical department focused on getting what’s needed today and more of a strategic department focused on how best to get what will be needed tomorrow” (Frook, 1998). For example, the Big Three along with thirteen suppliers have created the Automotive Network eXchange (ANX). ANX is an electronic commerce program developed through the Automotive Industry Action Group (AIAG) (Saccomano, 1998). This research paper analyzes the foundation of ANX, takes an in-depth look at it and examines other innovators in the EC arena.

Background

The Automotive Industry Action Group (AIAG) is the automobile industry’s supply chain management forum <<http://www.aiag.org>>. Manufacturing Assembly Pilot (MAP) is the blueprint for supply chain management used by AIAG. “MAP details supply chain costs and the potential savings through the improvement in material management and information technology.” The mission of this group is to save at least \$1 billion a year or \$71 per vehicle through improvements in production and information systems (Anonymous, 1998). Support for this group includes research participants such as General Motors <<http://www.gm.com>>, Chrysler Corporation <<http://www2.chryslercorp.com>>, Ford Motor Company <<http://www.ford.com>>, and 13 suppliers.

AIAG followed the supply chain of the seat assembly. This is one of the most complex supply chains in the automotive industry. After much evaluation, AIAG found poor information management as the prime culprit for problems in material management.

“Lead times to receive an order, process it and send it on to the next supplier averaged one week at each level (or “tier” in the industry parlance) in the supply chain. By relying on electronic data interchange and streamlining some business processes, the MAP participating companies were able to cut the lead time from one week to one day” (Anonymous, 1998). Upon these findings and actions, AIAG/MAP concluded this same approach could be used for other supply chains. MAP estimated \$825 million in premium freight costs could be cut by \$82.5 million, and auto suppliers could reduce their total inventory of \$31.25 billion by \$585 million (Anonymous, 1998).

Based on these savings, the Big Three and thirteen suppliers created ANX. This was just the beginning. “The objective of the auto makers’ effort was to provide a standards-based, industry-wide automotive business-to-business network to reduce the cost and complexity of having specialized networks for each partner and to enable electronic commerce to occur throughout the industry with total security. The network is run by a third party, with the initial funding of \$10 million coming from GM, Ford, and Chrysler, because they believed they would all benefit from a shared, secure and standard way to conduct business-to-business activities. And they believed that the existence of the network would accelerate the realization of the benefits of electronic commerce and create opportunities that had not been foreseen” (Shulman, 1998).

ANX In-Depth

ANX <<http://www.anxo.com>> is “a TCP/IP network comprised of trading partner subscribers, certified service providers, and network exchange points allowing for efficient and secure electronic communications among subscribers, with only a single connection.” Trading partners utilize the ANX to communicate with other trading partner(s). “A trading partner may elect to have a single desktop device or their entire network connected to the ANX. A trading partner can also use the ANX to create a virtual private network (VPN) interconnecting its own individual corporate sites” (Automotive Industry Action Group, 1996). Trading partners consist of suppliers and dealerships who conduct business with any of the Big Three or with other trading suppliers such as OEMs.

Certified service providers (CSPs) are the principle component of the ANX. These CSPs provide the majority of the ANX infrastructure. A CSP is a provider of Internet Protocol (IP) network service that has been awarded ANX certification by meeting specific performance requirements set by an ANX Overseer <<http://www.anxo.com/whatis.htm>>. Examples of these stringent performance requirements are as follows: A minimum latency of 125 msec from network edge to network edge, a minimum of 10 packets lost for every 10,000 sent, and a network availability of 99.5 percent (Pappalardo, 1998).

Not every Internet Service Provider (ISP) can be a CSP. The success of ANX is highly dependent on the CPS’s quality and reliability. Therefore, AIAG feels reliability varies greatly among ISPs and there are no mature or common security standards for them. As a

result, only three ISPs have been able to pass the stringent performance requirements. They are Ameritech, Bell Canada and Electronic Data Systems (EDS) (Pappalardo, 1998).

The last major component that makes up the ANX is exchange points. Exchange points provide the connection facility for CSPs. "An ANX Certified Exchange Point Operator (ANX CEPO) is a provider of ATM-based network services to interconnect ANX CSPs. ANX Certification implies their exchange points has demonstrated 100 percent compliance to ANX Service Quality requirements for (1) interoperability, (2) performance, (3) reliability, (4) business continuity and disaster recovery, (5) security, (6) customer care, and (7) trouble handling" < <http://www.anxo.com/whatis.htm>>. Most of the automotive industry data traffic will route through this exchange point initially. ANX has created an exchange point in the Southeast Michigan.

Other Innovators

There are other companies who are looking at EC such as General Electric (GE) <<http://www.ge.com>> and TRW <<http://www.trw.com>>. GE's Supply Net is very similar to ANX. GE Supply Net gives Internet users a secure environment to access a national inventory database. Inside Supply Net there is a full menu of ordering, tracking, and estimating <<http://www.ge.com/supply/aboutge.html>>.

Currently less than 10 percent of GE's sales are via EC. GE's goal is to increase EC usage more than 25 percent by the year 2000. Doug McConnell, GE Supply's national sales manager states "Electronic commerce frees time for our sales resources to focus on creating value in other areas for the customer. To say things like 'hey, you've got three different types of conduit being stocked here and we could standardize to one type and eliminate extra stock.' That's what, in the end, will differentiate us from others in the marketplace and will create customer preference for us" (Srikonda, 1998).

GE Supply's primary market are industrial users and commercial/industrial construction companies. Dave Benson, GE's manager of information systems states "Those industrial customers, in many cases, have for a long time understood the advantages of using electronic commerce or using integrated systems. As a supplier, you want to be able to provide them with some of these capabilities or match their capabilities" (Srikonda, 1998). GE feels offering cutting edge technology such as EC will encourage potential customers to choose them as their primary electrical distributor.

TRW Inc. is a major maker of automobile airbag systems. Jeff Wincel, director of purchasing for the \$1.7 billion company, feels Internet purchasing is on the horizon. "Wincel's department buys about \$1 billion worth of supplies per year for plants in the United States, Mexico and Europe. With that type of clout, he's lined up about 25 suppliers to develop TRW-specific Intranet pages that accurately reflect corporate contracts. 'As we further pursue our Internet buying strategy, we plan to negotiate

national and regional contracts that include provisions for setting up our pages' Wincel says" (Frook, 1998).

GE and TRW are just a few companies looking to use EC. GE Supply is currently working on another company-wide order and distribution management system that is targeted to be online later this year. TRW expects to continue leveraging its weight in order to force its suppliers to create a Web EC strategy.

Conclusion

ANX will ultimately connect more than 10,000 automotive businesses. However due to delays, about 40 auto manufacturers and suppliers will not be testing the network until November 1,1998 (Pappalardo, 1998). This delay has not stopped the 'talk' at conferences and expositions. "The sheer size of the U.S. auto industry and competitive pressure make the automotive sector a bellwether for other industries that are searching for ways to improve their supply chain" (Saccomano, 1998).

As Armstrong landed on the moon and said "One small step for mankind", EC is one gigantic step for company-kind. EC is on the verge of changing the way ordinary purchasing business is done. Purchasing police are out as the world of cyberspace is explored and utilized. The automotive industry will be one of the main driving factors into the development and usage of EC.

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