

Electronic Data Interchange (EDI) in the supply chain: impact on customer satisfaction.

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Abstract

Electronic data interchange EDI is the computer-to-computer exchange of structured business information. This information typically takes the form of standardized electronic business documents, such as invoices, purchase orders, bills of lading, and so on. The purpose of this study is to identify the impact EDI might have on supply chain and typically on customer satisfaction keeping in mind the constraints the organization might face. This study included 139 subject matter experts (SMEs) who participated by responding to a survey that was distributed. 85% responded that they are extremely for the implementation while 10% were neutral and 5% were against the implementation. From the quality assurance department, we have got 75% from the clients agreed to move on with the change whereas 10% stayed neutral and finally 15% were against the change. From the legal department where 80% of the answers were for the implementation and 10% of the participants stayed neutral whereas the last 10% were against it. The survey consisted of 40% male and 60% female (sex-ratio (F/M=1,5), who had chosen to participate. Our survey also contained 3 categories in terms of technical background where 80% are from technical background and 15% were from non technical background and 5% had some average technical background. , this study examines the impact of EDI on customer satisfaction which is the primary hypothesis and justifies the importance of the implementation which enhances the customer satisfaction.

INTRODUCTION

Electronic data interchange (EDI) seems the most important application with a far reaching impact on the way business is done. It is usually defined as the exchange of structured electronic documents between computer systems of two or more organizations [1,2].

EDI exchanges may move within or between firms[3].Electronic data interchange (EDI) is a rapidly growing technology, even though it has been widely available since the beginning of the 1980s. The number of registered EDI users, according to EDI Yellow Pages International, has shown impressive gains in the past several years, well in excess of a 50% annual growth rate. Among the many benefits of EDI are: faster processing speed, greater accuracy, reduced costs, competitive advantage, improved operations, security, tracking and control, intra and intercompany communications, and customer service [4,5,6,7,8,9].

Customer service is defined as “a process for providing significant value-added benefits to the supply chain in a cost effective way”. The last “process” definition is particularly applicable to inter-organizational customers. An effective way to evaluate customer service, therefore, is by way of the performance and outputs of the various logistics processes in the distribution of products. The process view has a good amount of literature support [10,11,12,13,14].

The purpose of this study is to identify the impact EDI might have on supply chain and typically on customer satisfaction keeping in mind the constraints the organization might face.

METHODOLOGY

A study was conducted on the EDI impact on customer satisfaction by distributing surveys to business owners and stake holders asking them to provide feedbacks regarding the outcomes gained by implementing EDI.

The proposed answers were divided into three categories:

- Related to reporting department in which clients showed the positive impact toward since reports will be generated electronically and clients can receive them via email on a selected day and time that can be set up during development phase.
- Related to the quality assurance department where clients can be comfortable about the data generated on the reports and can be confident to take future decisions based on the current data.
- Related to legal department where meeting the service level agreement (SLA) with the government is considered critical due to the fact that the organization might be subject to penalties in case of missing the SLA.

RESULTS

The below graph represents different departments from which our (SMEs) are from.

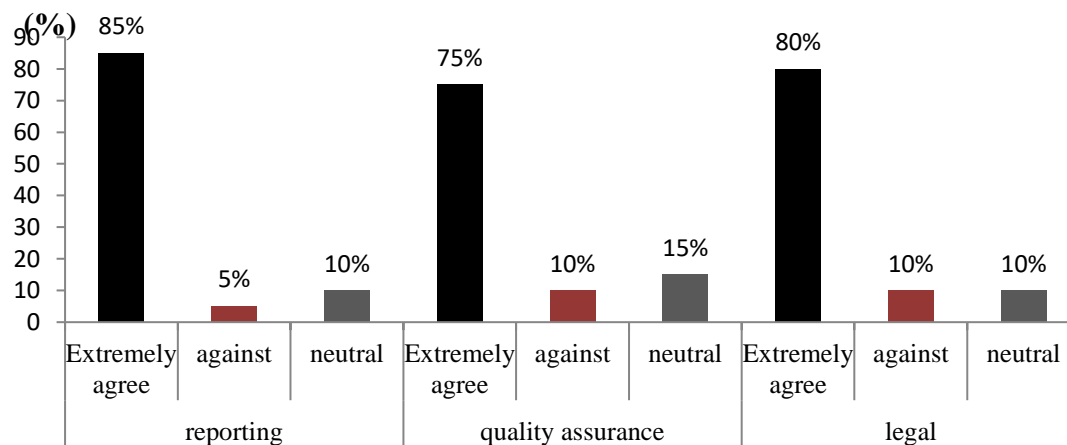


Figure 1. Distribution of subject matter expert by departments

As far as reporting department is concerned about the study we are performing, among the 139 subject Matter experts (SME) in our survey, 85% responded that they are extremely for the implementation which will allow fast transmission of reports within department while 10% were neutral and 5% were against the implementation. Most clients who are opting for the implementation expressed their need for this requirement and has to be implemented as soon as possible and this is due to the fact that EDI (in their opinion) will make the work at the reporting department effective and efficient and will help the department understand the needs and help for future decisions based on current data which is generated in an advanced method.

While the 10% were neutral because of their non familiarity with the EDI tool so they could not confirm or deny the interest and requested more details about EDI before taking a final decision.

The remaining 5% were totally against the new implementation due to privacy issue so they preferred to stick to the current system even with the slow process and the manual intervention of people yet they were feeling data to be secure and safe.

Concerning the quality assurance department, we have got 75% from the clients were for the implementation since they look at it from a quality stand point because of the move from manual to automation processes whereas 10% stayed neutral stating that this tool has to be tested in a different environment before full deployment into production and finally 15% were against EDI implementation since they were satisfied with the current level of quality they are having.

At last not least, the survey was handed out to people from the legal department where 80% of the answers were for the implementation and explained that it will allow the department to meet the service level agreement (SLA) they have with the government to avoid any fines and penalties due to that matter. The 10% of the participants stayed neutral either due to non familiarity with the new system or preferred to improve the current one using other ways whereas the last 10% were against EDI implementation because participants were worried about the gap time between the new implementation and the current one if they miss the SLA and the company might face penalties. They suggested that the government would need to suspend any fines until the new functionality is tested and fully deployed with no issues.

The second graph shows the percentage of both male and female in the survey of our study.

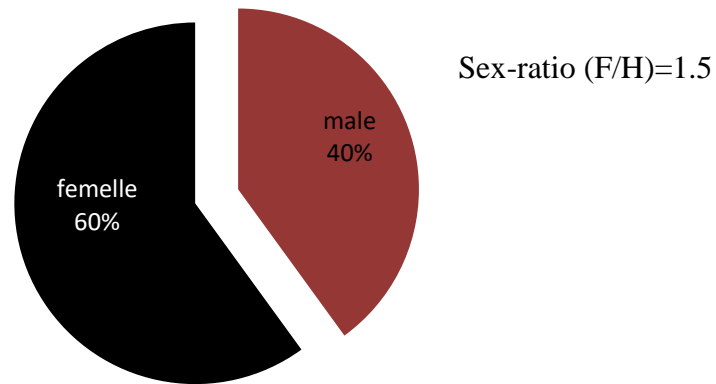


Figure 2. Distribution of participant by sex category

Our clients consisted of 40% male and 60% female (Sex Ratio (female/male) = 1,5), who had chosen to participate in the survey. Females showed more interest to understand this new technology in the company and wanted to know more about it unlike males who showed less interest. We found that females had more participation than males because in the company we have more women than men and also the people with technical background were more men than women.

The graph provides the three categories we have based on in terms of technical background.

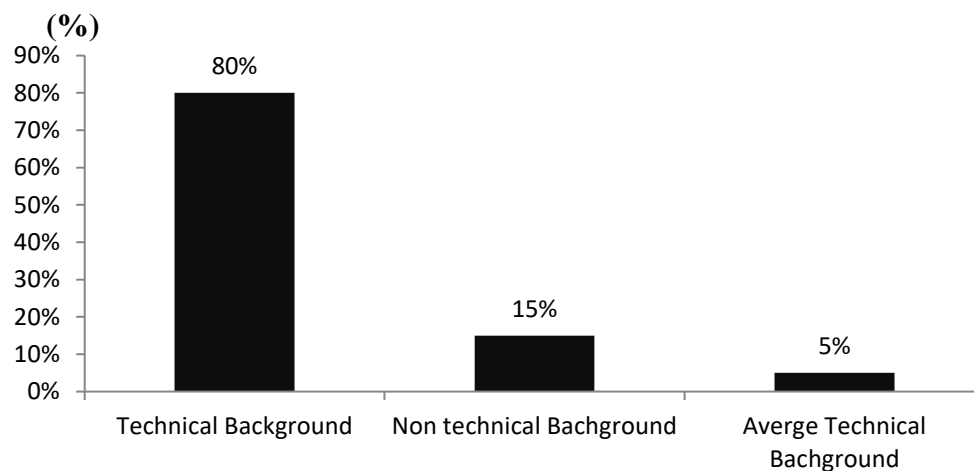


Figure 3. Repartition of Subject Matter Expert by Technical Background

Our survey also contained 3 categories in terms of technical background meaning that people had education or years of experience in the IT or software development field. 80% of the participants are from technical background and 15% were from non technical background and 5% had some average technical background gained through interactions with IT department so they had a chance to be familiar with that world.

The last figure describes the flow of info within departments from the inbound when the company receives the files from the vendors to internal data conversion and finally ready to go out the door to the final client.

DISCUSSION

This study is showing how EDI can have a high impact on customer satisfaction due to benefits can offer in terms of faster transmission of info and/or reports. Another study performed in Spain came to that:” EDI systems have three immediate effects on the quality of inter-organizational communications: 1) faster transmission; 2) greater accuracy, and 3) more complete information about the transactions [6]. The speed of transmission helps shorten lead times. Purchase orders arrive faster and, if submitted in a format that the computer understands, order processing times and costs are reduced. Direct computer-to-computer or terminal-to-computer linkages eliminate the need for re-keying the order when it is received [7]. Because manual order entry has been shown to result in significant error rates –for example [8] found an error rate of 35%– suppressing this manual step not only reduces direct labor costs, but also reduces the indirect costs associated with data errors [9]. In industries where the products are physical goods, shorter lead times allow buyers to purchase more frequently and in smaller lot sizes, thus reducing inventory costs” [10].

Our study conducted concluded that EDI provides great customer satisfaction regarding time saving since the data will be shared electronically. Same result was found in a study done in Spain where the conclusion was: The relative advantage of EDI over traditional exchange processes not only involves transaction cost reduction for the channel members, but also permits greater servicing of the channel's customers in the output market. The quick response to customers' needs permitted by EDI creates a competitive advantage for the downstream channel member [11]. In highly competitive output markets, the potential for that competitive advantage has a significant impact on the likelihood of adoption of new technology [12,13].

EDI is not only a new technology for channel members. It is a fundamental change in the way they do business with each other. [14] have argued that the internal structures that are created to facilitate exchange processes reflect the demands of the channel's environment. When competition is intense in the output market, channels tend to formalize information processing [15], and increase efforts to improve logistics and other systems directly related to cost control [16]. For example, [17] study of the highly competitive insurance industry demonstrated the importance of channel efficiency in

the delivery of the core product. The formalization of communication and ordering through EDI, therefore, provides a possible response to competition in the output market. If the level of competition in an industry is nontrivial and constant, variance in firm level adoption of EDI should reflect differences in the perceived efficiency and service producing characteristics of the system.

Another study was done in Tennessee USA came to same result showing the positive impact EDI is having toward the customer satisfaction:” EDI is another weapon in the IT arsenal. It is already providing unsurpassed levels of customer service to its users, e.g., in transportation/logistics and finance [18,19,20,21]. It is obvious how EDI can lead organizations to high customer satisfaction and customer loyalty especially within a world of competition where technology is moving fast and people are becoming addicted to it. Therefore, organizations have to be up to date with today’s change and provide the customer with the best quality of service to be able to survive. Customer is the most important element in any company and losing it can be a disaster for that reason, looking for keys and factors to keep it satisfied is a must not a choice.

CONCLUSION

EDI implementation is a very important step stone toward customer satisfaction. IT companies are urged to move on with the change which requires immediate action plan. However the move needs special attention and instruction within the supply chain to assure successful implementation and great results to reach high customer satisfaction. We were able to identify the need each organization is having which is EDI and we are urging the initiation of EDI use and making employees aware about the prominent role this technology is playing in the operations world.

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