

**Survey on the Implementation of  
Electronic Data Interchange (EDI) in Canada**

**Respondent Report**

**by Yvan Lauzon and Carla Botting**

**EDI Council of Canada**

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Dear Respondent,

The number of companies using Electronic Data Interchange (EDI) is growing significantly. It is very important for the EDI Council of Canada and the EDI Institute in Montreal to be able to accurately assess the implementation process in an effort to monitor each industry sector.

Hence, the Council and the EDI Institute, with the cooperation of the major Value Added Networks (VAN), have conducted surveys on EDI usage and implementation issues. The results of two simultaneous surveys are included in this report.

With 753 respondents (241 in Quebec, and 512 in other provinces) and a completion rate exceeding 40%, this first nationwide survey has made possible a comprehensive overview of EDI implementation in Canada with respect to this new way of doing business.

According to this survey, a minimum of 1650 Canadian firms (company names) use EDI to exchange documents with their trading partners.

Ms. Carla Botting and Mr. Yvan Lauzon are the authors of the following Respondent Report. I would like to thank them for their important contribution to the understanding of EDI in Canada.

Yours truly,

**Nigel Wood**  
Technical Director  
EDI Council of Canada (EDICC)

## ABOUT THE AUTHORS

Mr. **Yvan LAUZON** is the EDI Coordinator for the Quebec Department of Communications. He also teaches Information Systems Automation at the University of Montreal since 1987.

Ms. **Carla BOTTING** is a student in the Faculty of Management at the University of Manitoba. She has acted as Project manager for this EDICC special project.

## ABOUT THE SURVEY

Mr. Lauzon produced a very successful survey in 1990 on EDI implementation in the province of Quebec. The simplicity of the questionnaire and the methodology used (recall, free respondent report) probably explain the very high response rate obtained.

The EDI Council of Canada and the EDI Institute in Montreal, with the cooperation of the major Value Added Networks, decided in May 1992 to conduct surveys on EDI usage and implementation issues. These surveys would use a similar questionnaire and methodology to the 1990 edition developed under the responsibility of Mr. Lauzon.

Hence, a survey with a bilingual questionnaire was conducted in Quebec by the EDI Institute, in collaboration with CEFRIO and the Quebec Department of Communications. This survey had 241 respondents with 202 EDI users and 39 non-EDI users.

Another survey with an English questionnaire (24 identical questions) was conducted in the rest of Canada by the Council. This survey, managed by Mrs. Carla Botting with the collaboration of Mr. Lauzon, had a total of 512 respondents with 430 EDI users and 82 non-EDI users.

From these two initiatives 753 questionnaires were returned; 632 from EDI users (84%) and 121 from non-EDI users (16%).

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## **SPECIAL THANKS**

**We would like to thank all of the respondents and the following contributors:**

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## SUMMARY

Since the early 1980s, EDI has been a part of the Canadian business landscape. It started out in the food and pharmaceutical sector then spread to transportation and automotive manufacturing.

With 753 respondents and a completion rate exceeding 40%, this first nationwide survey makes possible a comprehensive overview of EDI implementation in Canada with respect to this new way of doing business.

According to this survey, a minimum of 1650 Canadian firms (company names) use EDI to exchange documents with their trading partners. Nearly 85% of those EDI users are located in central Canada (Ontario 53% and Quebec 32%). Considering other surveys completed previously by university professors or firms like the EDI GROUP and GARTNER GROUP, the growth of EDI in Canada should reach 25% to 30% a year. This might explain why 57.7% of present EDI have used EDI for fewer than 2 years.

Today, the food industry is the most EDI-intensive sector with 23% of users, followed by the clothing and textile industry (9.6%), automobile manufacturing (6.1%) and the chemical and petroleum industry (6.1%).

Almost two-thirds (63.5%) of EDI users implemented EDI as a result of a "suggestion" from customers and 14% as a result of a "suggestion" from suppliers. Only one-quarter implemented EDI on their own initiative. EDI is being mandated for implementation mostly by large firms in Canada.

EDI is used for a wide range of transactions, however the most common type is the purchase order (80%) and invoicing (42%), followed by transportation documents (24.5%) and financial EDI documents (5.5%).

Respondents were asked to state their opinion, in order of importance, of EDI's principal benefits, problems and factors of success. A majority of them believed that the most significant benefits of EDI implementation was the reinforcement of ties with a business partner, improved customer service, reduction of errors and increased reliability of information. Problems encountered during implementation of EDI seemed to be much less significant to respondents than the anticipated benefits. The greatest difficulties encountered while setting up EDI were, by rank: trying to integrate EDI with computer applications, difficulty in understanding EDI technology, EDI user training and partner involvement. Lastly, the success of EDI implementation depends on the involvement of top management, followed by the understanding of EDI technology, the carrying out of a pilot project with a partner already using EDI, good user training and a quality EDI implementation team.

The most commonly used processing platform is the microcomputer, with 65% usage. 83% of the respondents use Value Added Networks (VANs). Four such VANs have more than 85% of the Canadian market. Lastly, the survey identified the need for good assistance and support in this sector to help organizations obtain optimal implementation.

## INTRODUCTION

### **Context of the Survey**

Given the increase in international trade and the US-Canada-Mexico Free Trade Agreement, EDI has become a necessity in Canadian business. From multinational corporations to small businesses, Canadians are finding out that emphasis must be placed on efficiency and profitability in order to stay competitive. Strategic alliances, reinforced ties with business partners and better customer service have become the rule rather than the exception.

Fortunately when used to full advantage, EDI can provide significant avenues to solutions to these problems. EDI has been growing nationwide, allowing Canadian firms to be competitive with a fast and cost efficient exchange of business documents amongs themselves.

Since the early 1980s, Electronic Data Interchange (EDI) has been a part of the Canadian business landscape. One of the first Canadian EDI transmission was between Drug Trading and Proctor & Gamble. EDI started out in the pharmaceutical and food industries, then spread to automotive manufacturing, transportation, and is rapidly developing in other industrial sectors.

The EDI Council of Canada (EDICC) from its inception in 1984, attempted to accurately assess the implementation process in an effort to monitor each industry segment.

Consequently, in June 1992, the Council in close cooperation with the EDI Institute in Montreal and major vendors of EDI services, decided to conduct a survey. Clearly, the objective was to obtain as accurate a picture of the present use of EDI in Canadian firms, given in the time and resources available.

### **Objectives of the Survey**

The survey was designed to profile efficient EDI users and determine the following:

- The number of Canadian firms using EDI;
- EDI implementation status, including typical applications, implementation process and types of trading partners;
- the relative importance of EDI in terms of overall volumes and types of transactions;
- in the opinion of the person in charge of managing an EDI implementation: EDI benefits, problems and factors of success;
- the present technology base including: translation software, communication methods, processing platforms, and other related technologies used;
- the level of assistance required by EDI users.

## SURVEY METHODOLOGY

### **Questionnaires and Target Respondents**

In the spring of 1992, a survey questionnaire was completed. Next, in June a bilingual version was mailed by the EDI Institute of Montreal to Quebec-based organizations, while an English-only version was mailed by the EDI Council and major EDI vendors to organizations elsewhere in Canada. These two versions were very similar, prompting the same basic questions with only two exceptions, thereby allowing for a joint analysis of the data.

Overall, questionnaires were sent out to 1852 Canadian firms (580 in Quebec) most likely to be EDI users. Sampling was done on the basis of customer lists from major vendors of EDI services as well as from membership lists of the EDI Council of Canada and the EDI Institute in Montreal. A follow-up was carried out in July, and the deadline for responses was August 3.

### **Response Rate**

Of the 1852 sent out, 61 had wrong addresses, leaving 1791 as maximum potential respondents. Of this total, 753 were returned, representing a response rate of 42.1%. 632 were current EDI users.

To enhance your appreciation and understanding of this report, we use the expression "respondent" to refer to those 632 EDI users (84%), whose status range from pilot project stage to EDI implementation underway, through to implementation completed. Conversely, the expression "Non-users" applies to the other group of 121 (16%). However, the term "all respondent" applies equally to all 753 respondent firms.

### **EDI Usage in Canada**

Taking into account the client base of Canadian EDI vendors and the data resulting from this survey, we can say with confidence that **the number of firms currently using EDI in Canada is somewhere between 1600 and 1700**. For purposes of this report, the number of "EDI capable firms" in Canada (i.e. distinct company or government department name) was assumed to be 1650.

This is a conservative number since we could not evaluate precisely the number of EDI user organizations making use of other communication links such as "point-to-point" links. This is all the more true given that regional offices of an organization are excluded.

Taking into consideration other surveys by university professors or firms like the EDI GROUP and GARTNER GROUP, the growth of EDI in Canada should reach 25 to 30% a year.

### **Statistical Analysis Remark**

Since two or more responses were likely for some questions (i.e. processing platform), relative percentages were used. In those cases, the cumulative percentage does not total exactly 100%.

## CHARACTERISTICS OF THE RESPONDENTS

### **Geographic Distribution of Respondents**

Geographically, 85% of the respondents were from the provinces of Ontario and Quebec. Over half (53%) were from Ontario, followed by Quebec with 32%. The concentration of respondents in those two provinces can probably be explained by the large number of head offices located in Toronto and Montreal and their surrounding areas. The Western provinces represent about 11% and Atlantic provinces 4%.

### **Industry Segments**

The food industry is by far the most EDI-intensive industry segment, accounting for over 23% of the total responses. Implementing EDI generates significant benefits for this industry. Suppliers have assurance that deliveries to their customers are made on time without errors, saving the data entry and paperwork formerly needed to handle orders. In Quebec, the food industry represents 32%. Provigo, with more than 250 EDI partners, is the biggest EDI implementation in Canada.

The food industry is followed by the clothing and textile industry (9.6%), the automotive manufacturing industry (6.1%), and the chemical and petroleum industry (6.1%).

### **Ranking of Firms**

More than half of the respondents are producers or manufacturers (54.4%), distributors (32.6%) are in second place, retailers (5.0%) are next, while wholesalers have 3.6% and carrier/transporter are last with 3.6%.

### **Company Size**

EDI is used by a wide variety of organizations. Small companies with under 49 employees represent 24.5%; medium-size companies (50 to 499 employees) account for 47% and the largest organizations represent 28.5% of the 753 respondents. The size of the organization has no bearing on whether EDI should be implemented. The underlying reason for this might be the wide range of technological solutions available to the average Canadian firm. Microcomputers make EDI implementation comparatively inexpensive.

## **Questionnaire Respondents**

Respondents come from four corporate levels. A total of 11% are top management, 60% are middle management, 26% are professionals and 3% are clerical.

Of the respondents, more than half (50.1%) are in the area of information systems and computers, 12% are in either accounting or finance, 8.6% in administration and 8.4% specific to EDI. It indicates the center of interest for EDI would still tend to reside in the technology area, rather than the operational or business area.

## **STATE OF EDI IMPLEMENTATION**

### **Actual Status of EDI Activities (Question #1)**

Over half (52%) of all the 753 respondents have already completed the implementation of EDI in their organization. A further 27.5 % of the respondents have the implementation process underway, while 11.2% are currently testing EDI with a pilot project. Please note that some respondents choose more than one situation.

### **How long have you been engaged in EDI? (Q.#4)**

EDI is a fairly recent application of technology in Canada. However EDI did not start to flourish until EDICC was formed in 1984. Since then EDI has grown more than 25% every year.

This provides the rationale for the largest number of respondents having fewer than two years of trading with their business partners (57.7%). So, 42.3% of respondents have been involved with EDI for more than two years.

### **Why begin using EDI? (Q.#5)**

Almost two-thirds of EDI users (63.5%) implemented EDI at the request of a customer or client. More than one-quarter of the respondents stated that the decision to implement EDI was made internally or by the recommendation of an affiliated company. It must be noted that five times more companies implemented EDI in response to pressures from customers than those which implemented EDI in response to a supplier (14%). This confirms the fact that HUBs start EDI with their own suppliers, because they have more bargaining power to exercise. EDI is started more often by an edict than voluntarily.

### **Types of Trading Partners (Q.#3)**

A total of 44% of respondents are currently trading with retailers, most likely following pressures from them. Producers and manufacturers are the second largest number of trading partners (38.6%) followed by distributors (30.7%).

## **Types of Business Transactions (Q.#2)**

EDI is used for a wide range of transactions, however the most common type is the purchase order, currently used by 80% of respondents. Another transaction commonly used is the invoice with 42% of respondents. In fact, the most common application for EDI in Canada is for purposes of procurement. This is no surprise, given that EDI has the ability to report and track data and status. This is also no surprise since purchasing is the first step in the business cycle and the first step usually to be computerized.

Such transportation documents, as bill of lading, are the third most exchanged document (24.5%) and financial EDI documents like credit and debit notes (5.5%) are next.

## **Volume of Documents Exchanged (Q. #6, #7, #8, #9)**

The number of documents transmitted via the respondent supplier is quite low, in fact 88% of the respondents said that less than 10% of their documents are transmitted or received through EDI. It has also been found that 76% of the respondents transmitted via EDI less than 10% of their documents to all their clients (EDI capable or not). This demonstrates once more that the EDI implementation process is just starting.

## **EDI IMPLEMENTATION ASSESSMENT**

### **Principal Benefits of EDI (Q.#10)**

Respondents were asked to state their opinion, in order of importance, of EDI's principal benefits. A majority believed (1) **the most significant benefit of EDI is the reinforcement of ties with a business partner**. The relationship is strengthened by allowing companies to discuss ways of helping each other rather than discussing price changes, which can now be done automatically via EDI, as well as error checking and correction. Other significant benefits are: (2) improved customer service, (3) reduction of errors (4) increased reliability of information and (5) fewer delays.

### **Principal Problems Encountered when Setting up EDI in your Organization (Q.#11)**

In the opinion of the respondents, the problems encountered during implementation are much less significant than the benefits stemming from the implementation once it is operational. The greatest difficulties encountered while setting up EDI, by rank: (1) trying to integrate EDI with computer applications, (2) difficulty in understanding EDI technology, (3) lack of EDI-user training and (4) partner involvement and (5) technologies seldom used within the organization.

### **Success Factors for EDI Projects (Q.#12)**

Successful implementation of EDI depends on a number of factors. Respondents ranked the (1) commitment and involvement of top management in the project as the most important, followed by (2) the understanding of EDI technology, (3) the carrying out of a pilot project with a partner already using EDI, (4) good user training and (5) the quality of the EDI implementation team.

## **TECHNOLOGICAL ENVIRONMENT**

### **Means of Communication (Q.#13)**

The most prevalent means of communication in EDI is by use of a third-party EDI network or VAN (Value Added Network); 82.7% of respondents are currently use this system. EDI market surveys done in Canada demonstrate that as opposed to firms in the United States, most Canadian firms are using a VAN. This high score could also be partly explained by the fact that EDI VAN vendors actively participated in the mailing of the questionnaires.

While the number of respondents using VANs is large, it must not be overlooked that almost one-quarter of the respondents are using a point-to-point link. A point-to-point link is more widely used by companies operating in the same metropolitan area. Since it is local there are no communications charges, but those companies have to maintain a telecommunication architecture.

### **Third-Party Networks (Q.#14)**

General Electric (GEIS) is used by close to half of all the Canadian respondent organizations. This is not surprising since GEIS is currently the largest company in the world offering EDI third party network services. The next three EDI networks are close in terms of market share (number of users). They are Information Network (IBM Canada), Ordernet (Sterling Software) and TradeRoute (Telecom Canada). Those four vendors represent more than 85% of the entire Canadian EDI VAN market. It is important to note that 16.9% of EDI users in Canada are currently using more than one VAN.

### **EDI Translation Software (Q.#15)**

EDS Canada, a General Motors' affiliate, has the largest number of users in Canada using software like EDI Asset, EDI Expert and EDI Junior. EDS Canada represents 31% of the Canadian EDI translation software market. The second EDI translator software provider is Sterling Software (EDI 400, Gentran, Microtran, Quicktran, Protran, Metromark,...), followed by Supply Tech (STX-12), EDI Inc (Telink), General Electric (EDI PC), ACS Premenos (EDI/400) and IBM Canada (DataInterchange /MVS).

### **Processing Platform (Q.#16)**

The most commonly used processing platform is the microcomputer, with 65% usage. Mid-range and mainframe platforms are used by 23.1% and 15.1% of the respondents. Some companies with mid-range and mainframe computers prefer to use microcomputers for EDI pilot projects. Some prefer to continue to use those microcomputers when implementing EDI, as the micro can act as a front end for EDI transmission.

### **EDI Standards (Q.#17)**

For nearly a decade now, there has been controversy surrounding the decision to use a domestic EDI standard such as ANSI-X12, UCS... or an international EDI standard like EDIFACT.

Currently, the EDI standards used in the domestic market, in example ANSI-X12 (75%) and UCS (23%), are used by respondents at least twenty-five times more than the international standard EDIFACT (3%). This international standard tends to be more common in certain specific markets like custom documentation. With the development and globalization of markets, it will be interesting to watch the change in the future.

### **EDI Integration (Q.#18)**

In EDI literature, there are differing opinions surrounding the identification of the key steps in the use of EDI technology. For some authors the key steps are: (1) simplification of trade, (2) standardization of transactions, (3) automation and (4) integration. For others it is (1) transmission of data, (2) internal integration and (3) inter-enterprise integration. No matter how we look at it, integration of EDI with data processing systems is an essential part of the process. In point of fact, full integration is when full EDI benefits are achieved.

The following aspects of the EDI process have been implemented by the respondents: invoicing (47.5%), purchasing (31.9%), production (13.4%) and inventory management (16%).

### **Other Information Technology (Q.#19)**

Some 95% of respondents stated that they used a fax machine. Electronic mail has also become much more popular with Canadian businesses. Most VANs offer an electronic mail system, which can explain why 48% of Canadian companies using EDI are also using this form of information technology. It is interesting to note that those two technologies are often identified as competitive with EDI by the media.

Bar coding, an obvious complement to EDI, is used in 45% of the organizations surveyed. It is particularly helpful for inventory control purposes.

## EDI IMPLEMENTATION ASSISTANCE

### **Employee Training (Q. #20, #21)**

Some form of implementation assistance has been received by employees of most companies. Some 73% of respondents take advantage of a training introduction to EDI; 63% receive training in EDI concepts and 57% training in implementation of EDI. Only 35% of respondents have received technical training. In fact this part of implementation is viewed as relatively unimportant. EDI is no longer a new application of technology. It is simply perceived as a new way of doing business.

There are many forms of information resources offered to companies in Canada. The types most commonly used by employees are magazines and newsletter articles (57%), books (48.5%), and EDICC courses (32%).

### **Assistance that Should be Set Up (Q.#22)**

Respondents were asked to state their opinions on the types of assistance that should be set up to encourage rapid implementation of EDI. The five most important types of assistance would be: (1) technical support via telephone, (2) implementation guide by industrial sector, (3) directory of EDI users, (4) formation of sectorial user groups and (5) symposium by industrial sector. Those results indicate very important sectorial assistance needs instead of general information needs.

### **Trading Partner Agreements (Q.#23)**

Almost half of the respondents (48.5%) stated they did not use an EDI agreement with their trading partner. A small percentage (12.7%) are using a model proposed by the Legal and Audit Committee of the EDI Council of Canada or a French language model prepared for the Province of Quebec which has a specific legal basis, "Droit Civil du Québec" (Civil Code).

A "home-made" agreement is used by 38.8% of the respondents. The comments of respondents reveal that most of these agreements were developed on the basis of the standard models described earlier.

## CONCLUSION

With the globalization of the economy and a lingering recession, it becomes mandatory to focus on competitiveness.

Electronic Data Interchange (EDI) is one of the most promising information technologies in enhancing the efficiency of firms by allowing rapid and economic transmission of business documents.

With only 1650 EDI users out of more than 800 000 companies, EDI is just starting in Canada. The same situation is occurring in all the other industrialized countries (i.e. United States: 26 000 EDI users out of more than 6 250 000 companies).

Will EDI develop the way fax machines have ? Only time will tell.

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