

Exact Software North America's Electronic Data Interchange

[Progression Series 7.6]



Table Of Contents

Introduction	1
Defining Electronic Data Interchange (EDI).....	1
Defining Important Terms and Concepts.....	1
The EDI Market.....	1
Document Standards	3
Industry Specific EDI Requirements	3
The Retail Model: Get it on the shelves!.....	3
The Automotive Model: Keep the Assembly Line Moving!.....	4
Types of EDI Solutions Available	5
Type 1 - Translator-Only Solutions	5
Type 2 - Customized or Third Party EDI Solutions.....	5
Type 3 - Integrated EDI Solutions.....	6
Exact Software North America's EDI Solution	6
The Data Flow.....	7
The Translator.....	7
Exact Software North America's EDI: The Base Module	7
Exact Software North America's EDI: The ASN Sub-Module	8
Exact Software North America's EDI: The Automotive Sub-Module	8
Exact Software North America's EDI: The Bar Code Interface File	8
The Integrated EDI Solution.....	9
Evaluating Exact Software North America's EDI Solution.....	9

Table Of Contents

Additional Exact Software North America Services to Promote EDI Success	11
Implementation Consulting, with Training Included.....	11
Telephone Installation Training.....	11
Reseller Training Opportunities.....	11
Direct End-User Support.....	11
How To Get Started	11
Appendix	12
Footnotes.....	14

Defining Electronic Data Interchange (EDI)

EDI is a buzzword heard throughout the business world, but rarely defined. Put simply, EDI is the computer-to-computer exchange of business documents in a standardized electronic form. Documents such as purchase orders, invoices, shipping notices, shipping schedules, and order forecasts are among the many transactions that EDI handles.

There are many sets of EDI standards that cover a variety of industries and geographical areas. In the United States, the primary standard is called ANSI ASC X.12, usually referred to simply as "X12." There are many other standards that are used throughout the world, such as EDIFACT. While EDIFACT is used mostly in Europe, it is also starting to be used in the United States as well.

Within each standard, there are often industry-specific sub-sets that have been adopted in order to meet the needs of specific industries. Some of the X12 sub-sets include UCS (grocery industry), VICS (retail), and AIAG (automotive).

It is important to understand that these standards and sub-sets are very broad in scope. They are more like general guidelines, giving each company the freedom to design an implementation of EDI that meets their particular needs. This means that every trading partner (a company that uses EDI) must either be big enough to force their trading partners to comply with their standards, or they must have software that is flexible enough to handle all the varied implementations which will come their way.

"EDI is the computer-to-computer exchange of business documents in a standardized electronic form."

Defining Important Terms and Concepts

It is critical to understand the key terms used in this White Paper. If you are not already familiar with the concepts and terms of EDI, please refer to the Appendix to this document.

The EDI Market

Many industries are EDI driven, meaning that EDI is, or is becoming, the primary means of conducting business. In order to meet this need, companies must plan their EDI implementation program well. A strong financial/distribution/manufacturing system with built-in EDI capabilities will be a primary requirement for successful businesses. Markets such as retail, manufacturing, automotive supply, and warehousing are especially focused on providing a strong EDI supplier chain.

As can be seen by Figure 1, on page two. The Exact Software North America's Progression Software is in a prime position to help drive new business in these markets. EDI is a "must have" by most companies in these industries. Once a company requires their suppliers to become EDI-ready, 55 percent to 62 percent of them are given only 90 days to implement an EDI solution¹. If a company's major customers are requiring EDI compliance as a condition of doing business, these companies will look to their software providers for solutions to this demand. There are many types of EDI solution strategies that will be discussed in detail below.

Exact Software North America has been, for many years, the recognized leader in manufacturing and distribution software. With a superior EDI software offering, Exact Software North America is a natural choice for companies in these industries. With Exact Software North America's EDI module, orders, forecasts, and shipping schedules can easily and accurately be integrated into Progression. Outbound documents, such as invoices and Advance Ship Notices (ASNs) can also be generated without the need to re-enter data.

Large companies depend on EDI because it improves efficiency and reduces overhead. In other words, it saves them money. It has been estimated that 90% of the Fortune 1000 companies use EDI as part of their business operations². In the past, these benefits often did not transfer to the vendors for these trading partners, who were required to be able to receive and generate EDI documents. With Exact Software North America's EDI module, smaller companies can now recognize the same benefits with a rapid ROI. Once Exact Software North America's EDI is in place, it will quickly pay for itself. Afterward, it will be generating money for the bottom line, because of the increased efficiency, reduced overhead, reduced cycle times averaging 40%³, and increased customer satisfaction. In fact, many companies can set themselves apart from their competition by instituting a successful EDI program. Even though many large companies are the consumers of the products Exact Software North America's users provide, only 6 percent of the estimated 10 million U.S. companies are EDI capable. EDI growth is expected to quadruple to \$3.2 billion dollars by 2001⁴.

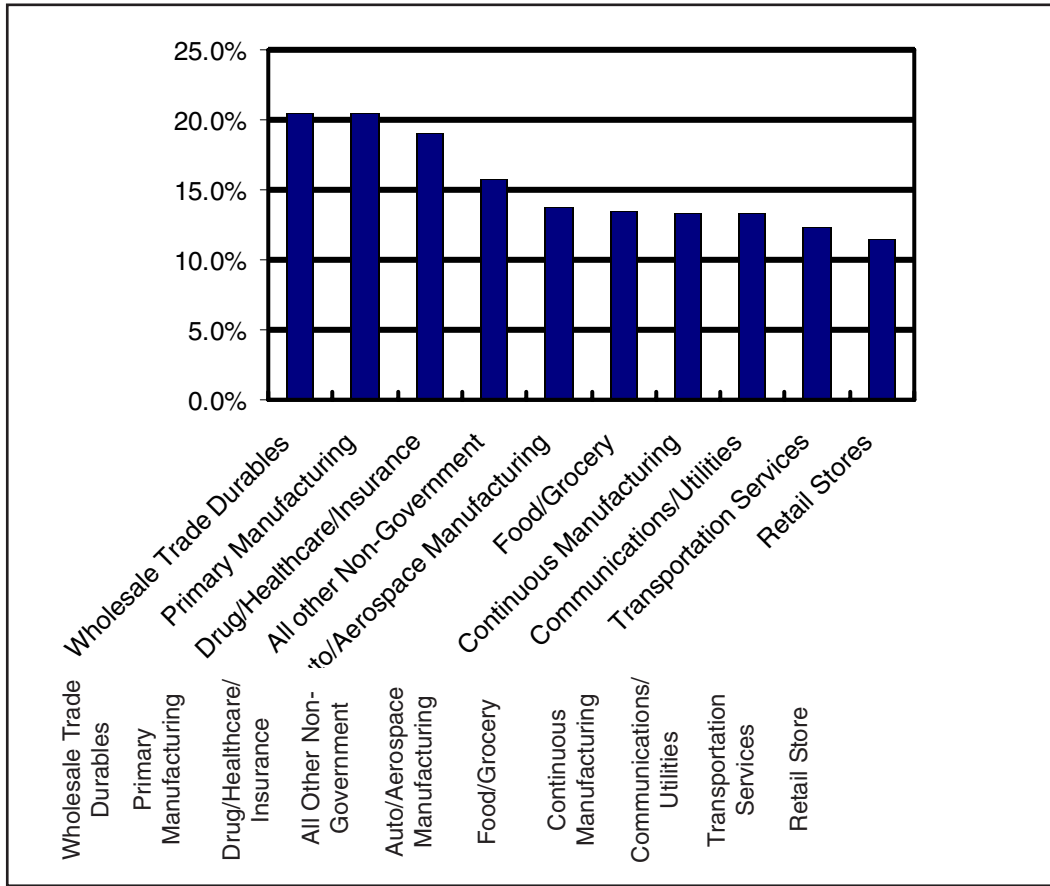


Figure 1: Top 10 EDI Growth Industries⁵

Note that while these industries listed in Figure 1 represent the "high growth" EDI industries, most other industries are or will shortly be bringing EDI into its business practices. With the prevalence of computers and financial software, it is a natural growth path. Table 1 shows the results of a study which details the planned growth of new trading partners within companies that are currently using EDI.

Number of Trading Partners

	1-10	11-25	26-50	51-100	>100
Now	72%	16%	6%	2%	4%
Within 2 years	32%	38%	17%	5%	7%
Within 5 years	19%	32%	26%	12%	11%

Table 1: Trading Partner Growth⁶

As can be seen by both Figure 1 and Table 1, EDI growth is demonstrated in two ways:

- By the number of companies beginning new EDI programs
- By the number of new trading partners that current users of EDI project adding over the next five years

With many stand-alone or "homegrown" EDI solutions, this growth can represent a considerable drain on resources since every trading partner has their own mapping standards. Exact Software's EDI solution comes pre-mapped to each trading partner's standards. For users of Exact Software North America, we have taken the growing pains out of this growth!

Document Standards

As noted above, there are many different EDI standards that may be used. Figure 2 shows how an ANSI EDI transmission is formatted. This information is intended only to demonstrate how the document is structured. Interchange Control Header (ISA) and Functional Group Header (GS) data, provided by the trading partner, will assist the user in properly configuring the translator to recognize the trading partner and its transaction sets.

Each enveloping structure provides a level of information necessary to successfully transmit and process EDI documents. The communications envelope contains the information used to successfully move the document through whatever Value Added Network (VAN) is being used. The Interchange and Functional Group envelopes provide information to the recipient. This is used by the translator to identify the trading partner. The Transaction set envelopes identify the types of transactions being used. Within this envelope are the actual documents, such as orders and invoices, which are being sent or received.

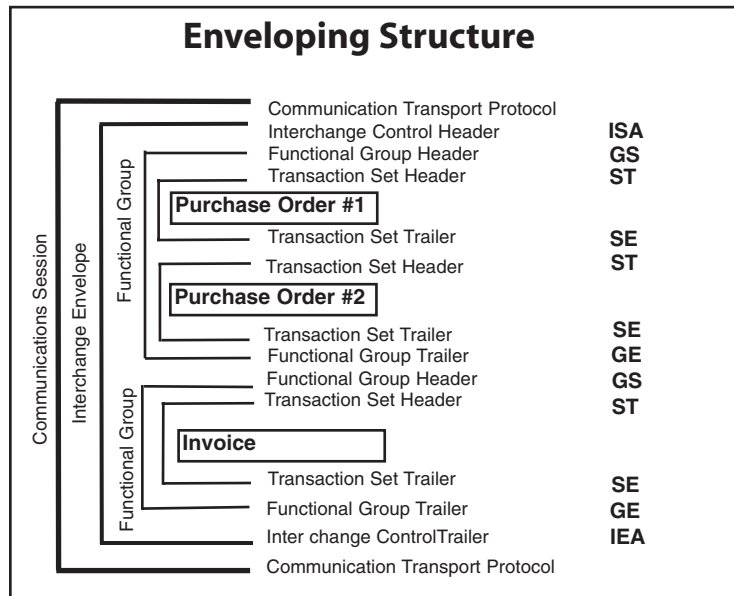


Figure 2: Structure of an ANSI Transmission

Industry Specific EDI Requirements

There are many different models of electronic commerce covering industries as diverse as trucking, medical, and academic institutions. This paper will concentrate on two common models: Retail and Automotive. Each one approaches EDI with different needs. Retail is a broad-based industry where production is geared to keeping consumer stock on store shelves. Often, ordering is dependent on consumer demand. Purchase orders are generated based on Point-of-Sale information. In the Automotive industry, the driving force is “Just In Time” (JIT) inventory control. In order to reduce costs and increase efficiency, automotive manufacturers have adopted a system where receiving is so tightly timed that many parts are received only minutes before they are needed on the assembly line. To meet the needs of these diverse industries, different EDI documents are used. Each model will be discussed in detail below. Note that Exact Software North America supports both of these models in its EDI software.

The Retail Model: Get it on the Shelves!

While many documents are used in the retail industry, the three main documents are orders (850 or 875), invoices (810 or 880) and ASNs (856). The primary driving principle of this model is that stock (finished goods) is being depleted in retail store locations. Inventory at the store level must be replenished to acceptable levels quickly, but without overstocking. In order to meet these needs, the order, invoice and ASN are crucial documents to support.

The Order is the beginning of the transaction. An 850 (or 875 for some grocery trading partners) is prepared based on Point-of-Sale data collected by the retailer. When the pre-determined reorder points are reached, a purchase order is issued, generating an EDI order. An EDI order contains a great deal of information. Included in an order is bill-to and ship-to information, terms, summary and line item level charges and allowances, reference codes, pricing, quantities, and items. Some orders break the ship-to information down by line item. For example, a line item of 40 widgets will contain sub-detail lines indicating that 15 are to go to the Columbus distribution center, 5 are to go to San Francisco, and the remaining 20 are to go to Dallas.

After the data has been sent, ASNs can be generated. The ASN is a document that gives the customer information on what shipments have been sent, the carrier used, the items on the shipment, and how they are packed. There can be a maximum of five levels to an ASN, depending on the trading partner's requirements. These are the Shipment Level, Order Level, Item Level, Tare (or pallet) Level, and Pack Level. With the ASN transmitted to the customer, the receiving dock can simply enter the shipment or scan the bar code labels on the pallets or boxes and know precisely what has been sent. Many distribution centers use an automated routing system to scan a label on the box and then route it to other trucks that will take the items to their ultimate destination.

There are two types of ASNs (illustrated below). The first type, Standard Pack (Figure 3), assumes that all pallets and boxes contain the same item. The item is the third level of the ASN and pallet and box numbers are listed as detail under the item. For Pick and Pack ASNs (Figure 4), all boxes and pallets may contain mixed items. Note that the item level is the fifth level in this style of ASN, since it is distributed to the various boxes and pallets.

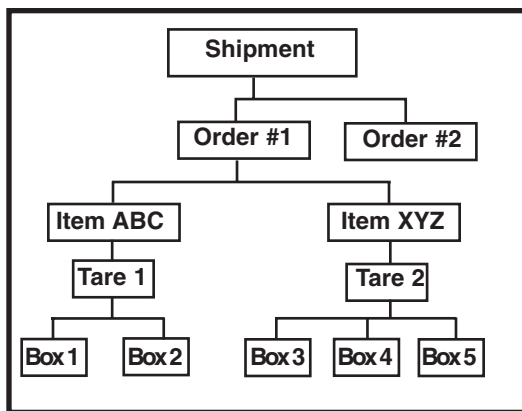


Figure 3: Standard Pack ASN

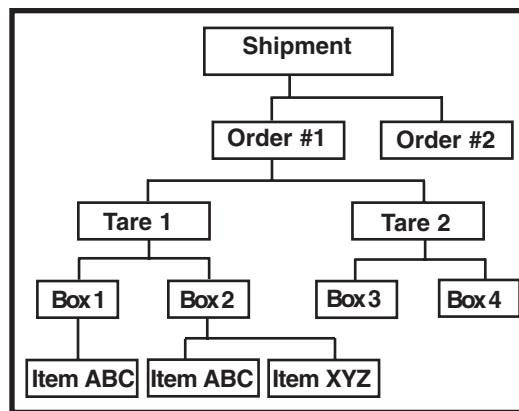


Figure 4: Pick and Pack ASN

Please note that not all trading partners use all ASN levels.

Once the order has been processed and invoices printed, EDI invoices may be created. Either 810s (or 880s in the grocery industry) may be created. These invoices contain most of the information that was in the 850/875, but, in addition, also contain quantities shipped and billing information. These invoices are then transmitted to the trading partner so that the data can be integrated into their Accounts Payable system. Having electronic invoicing such as this can result in much faster payments, because the data does not have to be re-entered into Payables.

The Automotive Model: Keep the Assembly Line Moving!

As mentioned earlier, the driving force behind the automotive industry is keeping the assembly line moving. In order to cut costs and avoid overstocking parts, the industry has gone to "Just in Time" (JIT) inventory. The concept is that parts needed for the assembly line are delivered to the dock and transferred to the line at just the point in time they are needed. With this model, there is a huge risk that if a supplier fails to deliver accurate inventory on time, the whole production line will have to shut down. This would represent a tremendous cost. In order to help prevent this from occurring, the 830 document is transmitted weekly to update the planned orders. The 862 document, which is similar to the 850 in the retail industry, releases items for shipment. Once the items are shipped, an ASN is transmitted indicating what has been shipped.

The Planning Schedule (830) is the beginning point in the Automotive EDI cycle. This document forecasts item requirements into the future. While most of the automotive industry transmits daily, weekly, and monthly forecast data, weekly forecast projections for 13 weeks at a time are the most common. The auto makers transmit these 830 documents on the weekend, providing updated information on their projected needs. This then allows tier one or tier two suppliers to plan their manufacturing accordingly.

Near the time of actual shipment, the automotive manufacturers issue a Shipping Schedule (862). This document, structurally similar to an 830, commits certain items to ship. At this point, orders are created so that the product can be packaged and shipped.

The final step is to create and transmit ASNs back to the trading partner. ASNs are critical for the automotive industry because shipments are so tightly integrated with production. Heavy fines are levied against vendors who provide late or inaccurate ASNs.

Types of EDI Solutions Available

With a basic understanding of EDI, it is now time to look at the type of solutions available to small and midsize companies to meet their customers' (trading partners) EDI requirements. Each of these solutions needs to be reviewed for both effectiveness and return on investment. Many times, companies investigating EDI solutions look only at sticker price without asking themselves what benefit they will get from the solution and how it will impact their business processes.

Jeffrey Brooks, in his research on the business impact of EDI⁷, makes a case for modeling EDI Software decisions based on several factors. One set of factors, which he calls Quantitative Factors, includes Financial Rewards, Operational Efficiency, Service Capabilities, and Competitive Advantage. Other factors, grouped under the heading of Qualitative Factors, include Justification, Education, Differentiation, Participation, Communications, and Segmentation. Each of these issues will be addressed in more detail later in this paper. For now, it is important to remember that EDI is more than a simple software purchase or a hoop to jump through. It represents a fundamental change in the way a business is run -- a change which can significantly increase the strength of your company!

Type 1 - Translator-Only Solutions

This solution, which is perhaps still the most common solution to a company's EDI needs, involves purchasing an EDI translator and running it as a stand-alone piece of software. Inbound documents are processed through the translator. Once the data is processed, a report can be generated detailing the data that was received. Conversely, outbound documents can be entered in through a data entry screen within the translator. The data is processed through the translator and transmitted back to the trading partner.

This type of solution has several negative aspects. A translator-only approach to EDI has been called by some "fancy fax" or "rip and tear" EDI. Companies spend from about \$500 to \$20,000 for a piece of software that provides no more benefit than a fax machine. All inbound documents, such as Orders or Planning Schedules, must be printed and then hand-keyed into a financial or manufacturing system. Outbound documents create more work and increase the possibility of error because, instead of faxing or mailing an invoice generated out of your financial system, a clerk must re-enter all the data from the invoice into a translator-based screen. If ASNs are required, this data entry must be done a second time. In addition, outbound documents require information not generally kept in an accounting system, such as Terms Code Qualifiers, Ship-to Qualifiers, etc. These must either be hard-coded into your data entry screen, requiring the services of a company or individual with the expertise, or the operator must make the appropriate decisions at the time of data entry, another source of potential errors.

With the complexities of EDI documents, it should be clear that they were not meant to be manually processed. EDI is meant to be "machine-friendly" not "user-friendly." The translator-only solution has no real benefits except that it minimally meets your trading partner's requirements to do EDI (although many trading partners are now demanding that companies prove that outbound documents are being created electronically and not by hand). Weigh this benefit against the following negatives: increased probability of errors compared to traditional non-EDI practices, increased processing time due to the re-entry of all documents, employee frustration because they must work with the EDI data directly, and the possibility of fines because of late or inaccurate ASNs.

Type 2 - Customized or Third Party EDI Solutions

This class of EDI solutions can potentially remove many of the negatives of translator-only solutions, depending on the sophistication of the design. Yet a customized solution introduces other problems which may have a significant negative impact on your company. Depending on your EDI needs, many person-hours are necessary to create an EDI solution. This development time can cost as much as \$50,000 to half a million dollars. In addition, customized solutions tend to hard code much of the EDI requirements. This means that as you add new trading partners or as existing trading partners add documents or change their requirements, more money must be spent maintaining the EDI system. If there are changes in the software with which you are integrating, there can be a signifi-

cant cost in re-writing your EDI system to the new data model. In addition to these concerns, your company may spend a great deal of time debugging the software. Since it is a customized solution, your company has no choice but to be the one and only beta site every time code is changed.

Third party solutions do answer some of these concerns because they may be selling their software to multiple sites and can, therefore, distribute some of their development costs. Yet third party vendors, especially if they are not using the financial packages source code, must attempt to replicate all the business rules necessary to produce valid accounting system data. This can be a source of potentially severe data corruption. In addition, third party vendors are not privy to the design meetings of the financial software company. Therefore, their upgrades may be significantly delayed.

Type 3 - Integrated EDI Solutions

Integrated EDI solutions are the cream of the crop for small to midsize companies with a significant volume of EDI traffic. Written as an integral part of the entire financial system, these solutions can provide a quick ROI, increasing customer satisfaction, while at the same time decreasing costly data entry errors. It is estimated that EDI can reduce overall error rates caused by data entry by 50 percent⁸. Inbound documents, such as customer POs, are processed through the translator and integrated directly into Order Entry. Outbound documents such as invoices or ASNs are generated directly from the accounting data and are transferred to the translator to be converted to raw EDI format and transmitted back to the trading partner. There is little, if any, data entry in this solution. Most importantly, due to the increases in efficiency and reductions on overhead, this type of solution will allow companies to grow and expand their business without adding additional resources to the back office.

Integrated EDI solutions are also easy to maintain. Because they are a vendor-provided solution, they are designed from the ground up to be a true part of the financial system. Audit controls for EDI transactions are tied to the same business rules as their manual counterparts. Database synchronization is never an issue since the financial software vendor is providing the EDI integration as well.

Exact Software North America's EDI Solution

Exact Software North America is dedicated to providing a high-end EDI solution that meets the challenges of the electronic commerce marketplace. Exact Software North America's Electronic Commerce Services (ECS) division is comprised of a group of electronic commerce professionals whose entire focus is providing flexible EDI solutions which are both sophisticated and easy to use. ECS maintains a staff of programmers and support personnel with many years of practical EDI experience. ECS also provides knowledgeable pre-sales assistance to help answer the concerns of potential users of Exact Software North America's EDI.

Exact Software North America has made a major investment in developing ECS because we are convinced that electronic commerce is not merely an add-on bit of functionality. Rather, Exact Software North America is committed to the understanding that EDI is evolving into the de facto mode of business in the years to come. Electronic commerce is reshaping the entire business landscape.

Years ago, people did their banking by visiting a local branch office between the hours of 9 AM and 4 PM. With their checkbook or passbook in hand, transactions occurred one-by-one at the teller's station. People's spending habits were based on the idea of limited access to their savings. Cash was a limited commodity because the banks provided limited access.

Then came the ATM Machine! Suddenly cash was available 24 hours a day, 365 days a year. At first, people's spending habits did not change. But gradually, people began to depend on the availability of money at any time. Today most of us would have a crisis if ATM machines were to disappear. We would object to the notion that transactions must be done by hand, during limited hours. Our lifestyles have adapted to the new possibilities that ATMs created.

The world of commerce is in just such a transition. Companies and industries are just now starting to exploit the advantages that EDI has to offer them. Exact Software North America is determined to not simply follow the curve, providing mere "compliance" to EDI requirements. We intend to be innovators of EDI. By listening to the needs of our clients, Exact Software is committed to providing creative and progressive electronic commerce solutions. Exact Software North America does not see EDI as a problem to be solved, but rather an opportunity to grasp. The EDI solution outlined below is not a completed package. Indeed EDI is a continuously evolving and growing system of transactions. This is only the beginning!

NOTE: THERE ARE TWO DEVELOPMENT TRACKS FOR VERSION 6.5x AND VERSION 7.x EDI MODULES. IT IS IMPORTANT TO CHECK WITH EXACT SOFTWARE NORTH AMERICA TO SEE THE AVAILABILITY OF AN INDIVIDUAL SUB-MODULE!

The Data Flow

Exact Software North America's EDI solution consists of the following components: a translator, the base EDI Module, the ASN Sub-Module, the Automotive Sub-Module, and the Bar Code Interface System. The concept of modularizing EDI came as a result of the realities of implementing EDI solutions in the field. Every business is unique and will be dealing with a unique collection of trading partners, each of whom will have their own EDI requirements. Rather than creating an expensive EDI Module that contains documents and functions not required by an individual Exact Software North America user, the sub-module concept allows users to pick and choose those components of EDI that will meet their particular needs.

The Translator

The translator is a critical piece to the success of any EDI system. It handles the communications requirements of EDI, does validation checking, generates Functional Acknowledgments when documents are received, and, most importantly, converts EDI data in its raw form to and from an interface file appropriate to the transaction. Without a reliable translator, EDI cannot work.

Recognizing this, Exact Software North America has selected two of the best selling EDI translators to integrate with the EDI Module: GENTRAN: Director for Windows by Sterling Commerce, Inc. of Dublin, Ohio and STX for DOS by Harbinger, Inc. of Ann Arbor, Michigan. Both translators work with Versions 6.5x and 7.x of Exact Software north america EDI. Each translator is a recognized leader in the industry. Both translators are also sold directly by Exact Software North America through our standard business partner channel, giving our clients "One Stop Shopping." In addition to sales, Exact Software North America's ECS also supports both translators in-house, giving our clients the best possible assistance in resolving any issues which might develop.

Exact Software North America's EDI: The Base Module

Figure 5 shows the EDI Module as a rectangle in the center. In reality, the Exact Software North America's EDI module is composed of the Base Module and a collection of Sub-Modules. Each of these are represented by a different shade of gray arrows. The Base Module is the heart of the Exact's EDI solution. It is a required component that contains the base integration logic, cross-reference files, and the standard system tools used through all other modules. Four documents are supported in the base module: inbound ANSI orders (850), inbound UCS (grocery) orders (875), outbound ANSI invoices (810), and outbound UCS (grocery) invoices (880). The Exact Software North America's EDI system does not create Functional Acknowledgments as these are automatically generated by the translators.

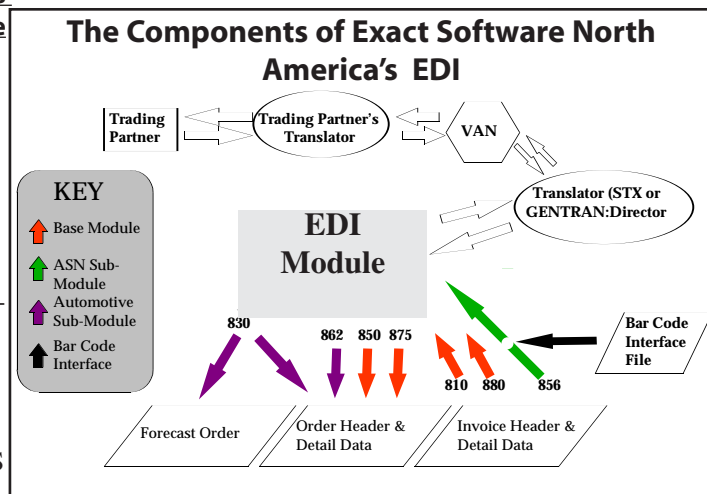


Figure 5 EDI Work Flow

Inbound orders are received from the trading partner by the translator. Using the translator, all or a selected group of documents may then be converted to the intermediate flat file that the EDI module uses to generate orders. Once this is done, the user will select a menu option in the Exact EDI Module to integrate the inbound orders (in Version 6.5x, this is a separate menu option, in Version 7.x there is one menu option that allows you to integrate all or selected transaction sets). The integration process reads the flat file and then processes each document, checking the validity of the incoming data against the Exact Software's data. Any inbound data, which is not validated, is written out to the Exception File. An Audit report may then be run so that the user can see exactly which items, if any, need to be reviewed manually. In addition, EDI data is written out to the Capture File. This file contains a copy of the inbound data, making it available for use in outbound documents, such as invoices and ASNs. After

this step is completed, the orders are in OE and are ready to be picked.

Outbound invoices are created from invoices that have been printed. When this program runs, the invoice records are processed into an outbound flat file in a format specific to each trading partner's requirements. Exact provides a "format" for each integrated outbound document, which allows the data to be formatted as required by the trading partner. Information is available from invoice data, the EDI cross-reference files, from the Capture File. Once the flat file is generated, the user runs the translator and selects the menu option which converts the flat file into a raw EDI format. When this is done, the documents are ready to transmit back to the trading partner.

Exact Software North America's EDI: The ASN Sub-Module

The ASN Sub-Module creates one document: the Advance Ship Notice (856). This is one of the most complex documents in EDI as it can have up to five levels of detail. ASNs are required for the automotive industry and many retail trading partners. The purpose of an ASN is to inform the customer about shipment details. Some of the information on an ASN includes carrier information, pallet and box bar code data, what items have been shipped, and how those items have been packaged. For more information on ASNs, please see page four. Exact Software North America's EDI can create both pick and pack as well as standard ASNs. During invoicing, the user selects the ASN Creation menu option (in Version 7.x, all or selected outbound transaction sets are created with one menu option). ASNs are generated for those trading partners who require them. If an ASN is set up as Pick and Pack, a data entry screen is displayed allowing the user to distribute the shipped quantities into the appropriate boxes and/or pallets. If the ASN is formatted as Standard Pack, no user intervention is required.

Once the ASN flat file is generated, the user runs the translator and selects the option to create a raw EDI file from the flat file. At this point, the ASNs are ready to be transmitted. It is important to note that many trading partners have strict requirements on maximum time limits from the point when the shipment leaves the dock to when the ASN must be transmitted. The ASN Sub-Module has been designed to allow maximum flexibility in creating ASNs so that the trading partner's requirements can be met.

Exact Software North America's EDI: The Automotive Sub-Module

The Automotive Sub-Module comprises two inbound documents: the Planning Schedule (830) and the Shipping Schedule (862). The Planning Schedule is used to provide the automotive vendors with forecast data on what their trading partners' requirements will be. Exact Software captures thirteen weeks of forecasting information. The Shipping Schedule informs the vendor of items that are actually released to ship. Both of these documents are critical to making sure that the Exact Software North America users can provide the automotive industry with the needed items in an accurate and timely basis.

The Planning Schedule is integrated into Exact Software North America's Master Scheduler Module. Once the flat file has been created in the translator, the user will select Phase I of the Planning Schedule Integration. This process moves the data into the 830 Holding File. Once this has taken place, the user has the option of editing the data that has been received. To do so, the user runs the 830 Hold File Data Entry program. This screen presents the data in a line record presentation. The user can view data for each item for which a forecast has been created. There is one field for each of the thirteen weeks tracked by the system. For each week the user can view the current week original data, the current week modified data, the prior week original data and the prior week modified data. Only the current week modified data can be edited. Once the data is correct, the user runs Phase II of the Planning Schedule Integration. This process creates forecast orders in the Exact Software North America's Master Scheduler Module. One forecast order is created for each item and each week. All previous forecast orders created by the EDI Module are deleted, so that there are no duplicate entries in the system.

The Shipping Schedule is integrated in much the same way as an Order. The only major difference is that the processing is broken down into two phases, just like the Planning Schedule Integration, allowing the user the option to edit shipping quantities prior to creating orders in OE.

Exact Software North America's EDI: The Bar Code Interface File

This system is not so much a sub-module as it is an enhancement to the ASN Sub-Module that allows the ASN system to interface with a third-party bar code data collection system. These systems collect data at the point of package and usually generate UCC 128 bar code labels (sometimes called "compliance labels"). These label numbers are required on most ASNs.

If the Exact user runs a software package that has been written to interface with this file, then the data collected at the point of packing, such as the UCC 128 label code and items packed, can be used by Exact Software North America to build a fully populated ASN. This is especially valuable for Pick and Pack environments because the scanned bar code data makes the need for manual entry of the Box and Pallet information unnecessary.

The Integrated EDI Solution

Exact Software North America is dedicated to providing you with a robust electronic commerce solution, encompassing all facets of your EDI from the orders coming in to the ASNs and invoices going out. Bar Code integration and the elimination of duplicate data entry tasks are part of the overall goal of streamlining your supply chain and creating new efficiencies in your business processes. Exact Software North America's solution is not an awkward add-on or an inefficient, customized system. Exact Software North America's EDI is an integrated and fully functional part of the Exact Software solution, and of your organization. Exact Software North America has put its EDI to the test by using objective, industry standard criteria to gauge its ultimate value and usability for its users.

Evaluating Exact Software North America's EDI Solution

Jeffrey Brooks, referenced earlier in this paper has proposed a number of criteria for evaluating an EDI solution's impact on a company. The following page contains a chart that uses his factors and definitions. We've used this criteria and applied Exact Software North America's EDI Module to that analysis.

Factor	Definition	Justification
Quantitative factors		
Financial Rewards pricing and discounts	Dollars from cost savings, favorable	Because Exact Software North America's EDI is an integrated solution, overhead is cut rather than increased. These savings can then be passed on to customers.
Operational Efficiency	Faster, simpler processes and transactions, such as ordering and invoicing.	For the most part, order entry is capable, except in special circumstances. This provides fast throughput, allowing shipments to be processed and delivered in far less time than by other means. Issuing invoices in a rapid manner through EDI provides for quicker payments.
Service Capabilities	Twenty-four hour access to information such as inquiries, improved timeliness and accuracy and fast turnaround.	Because data can be integrated by one person or by unattended operations, Exact Software data is up to the minute, allowing planners and buyers to accurately anticipate demand.
Competitive Advantage	Increased revenue from doing what the competition cannot do.	As stated earlier, only about 6 percent of U.S. companies have any EDI capability at all, and of those companies, many of them do not have an integrated EDI solution. Exact Software North America users have a prime opportunity to distinguish themselves from their competition by promoting the benefits.

Factor	Definition	Justification
Quantitative factors		
Justification	What the new electronic commerce will do for the unify company and why the company should invest in it.	In addition to the above benefits, Exact Software North America's EDI Module can unify operations within a company and create synergy by integrating the business workflow.
Education	How the new business process works and how it will improve the business.	Exact Software North America offers a number of training programs that are tailor made to the user's needs. See below for a detailed explanation of the EDI training programs.
Differentiation	How different the new process is in comparison to the competition.	Besides the <i>fact</i> of having an integrated EDI solution, the changes which are instituted as a result of departmental synergy can create a ripple effect of benefits which will extend far beyond the actual EDI processes themselves.
Participation	Who are the individuals involved in making the new electronic commerce successful and what are their responsibilities.	Because of the integrated nature of EDI, people who may not be in routine contact with each other will, by necessity, be required to define and plan their interactions, thus causing greater corporate communication and cooperation.
Communications	What materials are used to create awareness of the initiative, technical documentation, policies and procedures, and support.	Exact Software North America stands by the user such as providing excellent documentation as well as training/consultation services to help the users understand how EDI will affect them.
Segmentation	How different marketing messages are required to get the message out to everyone.	Using all the benefits and advantages listed above, the users' marketing departments will have ample material to create targeted messages to provide new and larger business opportunities.

In addition to these benefits outlined by Jeffrey Brooks, there are several other factors that make Exact Software North America's EDI solution the choice of several EDI users.

- The ability to understand or read elements in an ANSI ASC document is helpful, but not necessary because Exact Software North America's EDI Solutions converts the data to and from the Exact format for the user.

- Exact has already prepared mappings for the most common trading partners. If your company is trading with other trading partners, Exact Software North America will develop those mappings at a cost-effective additional charge.
- In addition to the service provided with the hardware and software, Exact Software North America has several other services for EDI clients that add to the value of the integrated Exact Software North America's EDI solution. These services are discussed in greater detail below.

Additional Exact Software North America Services to Promote EDI Success

Exact Software North America recognizes that EDI is a new world for many people. Most people's professional preparation did not include any material on electronic commerce. In fact, even today, many universities do not even treat the subject of EDI with more than a passing discussion. In order to compensate for this lack of knowledge, Exact Software North America's ECS provides a number of opportunities to help prepare the Exact community to thoroughly understand EDI and its implications for their businesses.

Implementation Consulting, With Training Included

A successful EDI implementation begins with a thorough understanding of the product. ECS offers a two day "hands on" implementation and training program. A qualified EDI consultant will go on-site and assist the end users in installing and configuring their EDI Module and translator. Exact Software North America's implementation program does not follow a predetermined agenda. Each session is different, as it is adapted to the needs of the particular client. In fact, the client's own trading partners are used as examples, which gives the user real-life examples to use as future reference. This program provides the ability to implement far more trading partners than can be done simply by reading the manual. The expertise of the consultants translates into giving the client a solid foundation from which to build their EDI platform. EDI consultation from Exact Software North America helps ensure a rapid and successful deployment of EDI with a minimum of errors.

Telephone Installation Training

If on-site training is not selected, another training option does exist. Exact Software North America's ECS can provide a telephone installation training program. This program will allow the user to go through most of the installation issues and get a good start on configuring the EDI Module. This option also must be pre-scheduled through ECS.

Reseller Training Opportunities

ECS offers opportunities for Exact Software North America's business partners to learn about electronic commerce technologies. It covers the breadth of Exact Software North America's EDI products and also includes practical information on how to successfully market EDI as part of a total solution system. Please contact ECS for further information.

Direct End User Support

While a Exact Software North America business partner may be prepared to offer superior support of the other modules, it may not be realistic for the business partner to support EDI. In order to accommodate such situations, Exact Software North America offers direct end user support for EDI. This support plan is separate from any other end user plans, in that it only applies to the EDI Module, Sub-Modules, and supported translators. Exact Software North America's users who sign up for this plan will have toll free access to ECS' support staff. This plan does not cover any modifications to the EDI module or other modules that interface with EDI made by any third party software provider or end user.

How to get started

For more information on how to put the power of Exact Software North America to work in your front office and mission critical back office, call Exact Software North America at 800.468.0834, ext. 550.

TERM	DEFINITION
Advantis	Advantis is a VAN. It also goes by the name IBM or Sears Network.
Async	This is a abbreviation for Asynchronous Communications. It is the standard for modem communications that is most widely used in the computer industry. This will work with any VAN. It will not work with trading partners that are direct connect.
Bar Code	A machine readable pattern of alternating lines of parallel bars and spaces representing numbers or letters. When read by a scanner, the bar code is translated into computer readable data.
Bisync	Bisynchronous communications is a modem protocol that is used when doing a direct connect. You may also do Bisync communications with VANs as well, although this is not required. This protocol includes conversion between ASCII and EBCDIC character sets. In order to do Bisync communications, you must have specific hardware in the PC. Specifically you must have a Cleo AllSync board.
Cleo AllSync Board	This is a board that is installed into a PC that includes a built-in bisync modem. It is used when bisync communications are required.
Direct Connect	Instead of using a VAN, some trading partners, specifically Wal-Mart, and sometimes Kmart and Target, will require that their vendors connect directly into their computer to send or receive documents. This is known as a direct connect trading partner. These trading partners will require Bisync communications.
Document	An individual EDI transaction, such as an 850 (purchase order) or an 810 (invoice).
EDI	Electronic Data Interchange. EDI is the exchange of electronic business documents between trading partners in a standardized format.
EDIFACT	EDIFACT stands for "Electronic Data Interchange For Administration, Commerce and Transport." It is the European standard for EDI, similar to ANSI ASC X.12, which is the North American standard.
EFT	EFT (Electronic Funds Transfer) is the financial side of EDI. While a trading partner is not able to actually generate a transfer of money through EDI, a remittance advice may be created. An authorized financial institution can then create the monetary transaction using the information in the 820. The standards of EFT are still evolving.
Element	An Element is the smallest unit of information in an ANSI ASC X.12 document. Elements may be anything from an address line, a name, a code, or a number. Elements are grouped together into larger units called segments. Understanding or reading elements in an ANSI ASC document is helpful, but not necessary due to the fact that Exact's EDI converts the data to and from the Exact's format for the user.
GEIS	GEIS (General Electric Information Service) is a VAN.
GENTRAN	A family of translators which may be used with Exact Software North America's EDI. GENTRAN is a product of Sterling Commerce. GENTRAN: Director for Windows is supported by Exact Software North America.
IBM	IBM is a VAN that merged with the Sears Network to form Advantis.
Mapping	Guidelines showing the segments and elements used within an EDI transaction. Since each trading partner configures their mapping guidelines differently. Exact ECS requires this information for new trading partners. Most of the common trading partners are already configured. New ones will be done at an additional charge.

TERM	DEFINITION
Ordernet Services	Ordernet Services is now called the Sterling COMMERCE: Network.
SDQ	An SDQ is a segment that is found in ANSI ASC X.12 850 documents and others. It stands for "Ship Destination Quantity". It identifies the number of items that must be sent to a location. Its significance in this context is that EDI purchase orders may specify multiple ship-to locations per line item. Since Exact Software North America supports only one ship-to location per sales order, Exact Software North America EDI sorts all the order information and creates one Exact order per ship-to location.
Sears Network	Sears Network is a VAN which merged with IBM to form Advantis.
Segment	A segment is a group of logically connected elements within an ANSI ASC X.12 document. Segments begin with a code which identifies the type of segment, i.e. N1, N2, SDQ, etc. Understanding or reading segment data in the ANSI ASC document is helpful, but not necessary due to the fact that Exact Software North America EDI converts the data to and from the Exact format for the user.
Sterling COMMERCE: Network	Sterling COMMERCE: Network, formerly Ordernet Services, is a VAN owned by Sterling Commerce.
Sterling Commerce	Sterling Commerce is a company that operates a VAN called Sterling Commerce Network. It also distributes the family of translators known as the GENTRAN product line.
STX	STX is a DOS-based translator written by Harbinger, Inc. of Ann Arbor, Michigan. This translator is supported by Exact Software North America.
Supply Tech, Inc.	This is the company that has written the STX Translator. This company was purchased by Harbinger, Inc.
Trading Partner	General Use: Any company that is sending or receiving EDI documents. Specific Use: Those companies that the Exact Software North America EDI user is doing business with via EDI.
Translator	A translator is a program that converts data back and forth between a raw EDI format to a predictable file format used for integration. It also validates the EDI structure. Many translators include communications programs, data entry screens, and print routines.
UCC	UCC stands for Uniform Code Council. The UCC administers the Uniform Code Standard (see UCS), the Universal Product Code (see UPC) and the VICS EDI standards.
UCS	UCS stands for Uniform Communication Standard. This standard is widely used in the grocery industry. It is a subset of ANSI ASC X.12.
UPC	UPC stands for Universal Product Code. It is a part code administered by the UCC. The UCC assigns the first 6 digits of the UPC number. Digits 7-12 are assigned by the vendor.
VAN	A Value Added Network (VAN) is an electronic mail delivery system that stores and delivers electronic documents. Users dial in to their mailbox via modem, retrieve any documents waiting to be received and send any documents which need to be transmitted.
VICS	VICS stands for Voluntary Industry Communications Standards Committee. This standard is used by retail manufacturers and textile industry representatives for the development of Inter-Industry standards of electronic documents. It is a subset of ANSI ASC X.12.

Footnotes

¹Premenos Corporation White Paper, *Grow Your Business with EDI*.

²Premenos Corporation White Paper, *Grow Your Business with EDI*.

³The EDI Group, Ltd., 1994.

⁴Frost and Sullivan, 1995.

⁵The EDI Group, Ltd., 1995.

⁶Morell, Jonathon A., et. al., *Lessons for Supply Chain Integration*. EDI World, February, 1997, p. 45.

⁷Brooks, Jeffrey E., *Marketing An Electronic Commerce Initiative*. Electronic Commerce Advisor, January/February, 1997, pp. 11ff.

⁸The EDI Group, Ltd., 1994.



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