EDI ENHANCES JIT OPERATIONS

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Good morning and welcome to my presentation on "Electronic Data Interchange". My presentation today will be divided into two parts. First, I will discuss what the nature of Electronic Data Interchange (EDI) is, how the transactions are formed, what the history of Electronic Data Interchange has been, and what the future offers for Electronic Data Interchange.

As a member of the Automotive Industry Action Group (AIAG) and the ANSI X12 Standards setting committees, I have had a significant amount of experience in the formulation and development of Electronic Data Interchange Standards that are being proposed for national usage.

During this presentation, I will discuss how these Standards are formed, why the Standards are formed in the way that they are, and why the use of these Standards would benefit the users.

In the second part of the presentation we will talk about the nature of the Standards, what characteristics the Standards have, and what these characteristics mean to the eventual users of the Standards. For example, characteristics such as uniformity, flexibility, machine readability, instantaneous communications, efficient transactions and so forth, —— all have dollar and cents benefits to those organizations which use Standards. Because of the dollar and cents benefits, EDI is becoming widely used and is projected to become much more widely used in the near future.

It is important to all of us, who are providing computer services or tailoring computer software to business activities, to understand the role of Electronic Data Interchange and to understand where the benefits from Electronic Data Interchange may be garnered. This is the topic of this presentation.

Electronic Data Interchange is a means of sending transactions from one computer to another. This is more than simply networking, where we may be sending transactions between two computers using the same operating systems and using the same software. In Electronic Data Interchange, we are sending transactions between all kinds of computers (different types), all different types of operating systems, all different types of software that are in use in business today. Often this includes the use of a public network.

The example on the slide shows that you can send Electronic Data to your trading partner. With a buyer, in one case, you can send a purchase order; and, he may send back an invoice to you, when he has delivered the material which you have ordered. With a customer, you may receive a purchase order and send back an invoice to your customer. So, the transactions from your point of view may be inbound or outbound transactions. You'll see on the graphic that is depicted on the slide, that we are assuming direct computer to computer hook-ups. That is, my computer has an auto-dial modem; your computer has an auto-answer modem; and, when I dial your telephone number it rings your computer; and, the two computers talk to each other. I send you transactions and you send me transactions. This is the way that Electronic Data Interchange is being done widely today.

The next slide we see an alternative means of Electronic Data Interchange where I do not talk directly to my suppliers or buyers. Instead, I send (all of the documents I wish for them to receive) to a third party network.

This third party network is like the United States Post Office. They have electronic mailboxes and I may send as many purchase orders in one transmission to the third-party network as I wish. I may send five purchase orders to five different suppliers. At the same time I can send invoices to my customers, I can send requests for quotes to my suppliers and so forth.

When the transactions reach the third party network they will be broken down and put into the various supplier's and customer's mailboxes; and, later when those suppliers and customers inquire against their mailboxes, they will see by transactions and they will be able to respond to them much the way they would if they had arrived in the morning mail --- except much sooner, the same day that I sent them. By the same token, my customers and buyers will send transactions back through the third party network to me; and, I have a mailbox on the third party network. So if some of my customers send me purchase orders and some of my vendors send me quotation responses, they will all wind up in my mailbox on the third party network. And, I will periodically be able to dial up the third party network and get those transactions out of the mailbox. Can you see how this is starting to resemble the post office?

In this slide we are showing the interaction of several different industries. As you can see, by the dinosaur in the lower left-hand corner, that we don't expect industries or corporations, which remain out of the Electronic Data Interchange game indefinitely, to prosper. We expect that they will be bypassed because they don't have the capabilities to conduct business in the way that business will be conducted in the future --- with electronic trans actions. This also shows that any kind of transactions, electronic or paper generated transactions, are not limited to a single industry or do not follow industry lines. Whereas we often say the automobile industry uses material releases and advance shipping notices, those transactions are not solely the property of the automobile industry. The aviation industry uses material releases. All industries use shipping notices when shipments have been made. Sometimes they are called shipping manifests; and, these transactions can cross industry lines. A single corporation may be selling in the electrical industry, the aerospace industry, the photographic industry, the tobacco industry, the retail industry and the automobile industry --- all at once, depending on what it is they make and what they do. Fabric industries, for instance, may make sales to all of those industries. So these transactions the Fabric Industry would be receiving and sending back out are not limited by industry; and, neither do we limit the Electronic Data Interchange transactions to a single industry. These are, in fact <u>all</u> industry transactions.

The history of Electronic Data Interchange started with various industry groups. For instance, the transportation industry had a need to transmit and receive bill of ladings and shipment information. The volumes that the rail industry had in terms of high volume, low value transactions were so great that they had to get them done efficiently. They couldn't afford the $27 or $34 per transaction that was going on in the paper generated arena. So, TDCC came up with some Standards and started employing those for electronic data communications of freight bills. UCS is sponsored by the retail industry; and, the retail industry, of course, has many small suppliers of garments, fabrics, tools, toys, items that are sold in retail stores. So, they came up with a Standard especially supported by the grocery industry. At the same time, the aerospace industry came up with Specification 2000 and the Government started a Standard they refer to as CALS. And European industries started using a standard which they refer to as ODETTE. The warehousing industry started sending purchase orders and invoices in a Standard which they called WINS; and, the Automotive Industry Action Group started a standard for themselves.

Electronic Data Interchange is traced back earlier in history than you may think. Aerospace began in about 1958 to use an early form of what is now known as SPEC 2000 as a way for airplane manufacturers to sell parts to the airlines which maintain the airplanes. This standard has grown over the past 30 years and is now known as Specification 2000. It is widely used among those people who supply components and sub-components in the Aerospace Industry or who order these components.

The Auto Industry began in the early, mid-sixties to begin to order parts for their assembly lines through what they call "material releases". In the early days each division in the automobile industry was pretty independent and provided a material release format that each would send out to all of their suppliers. In each of these material release formats were usually fixed, eighty column records. Chrysler for some reason uses 146 column record. But in any event, they are sending out these fixed records saying in Record A we'll tell you what the part number is, and we'll tell you how we want it shipped, and in Record B we'll tell you the date and quantities to ship in first week, and in Record C we'll tell you the dates and the quantities to ship in the second week. And these were pretty effective, because computers were simple enough in those days. You couldn't afford to send a lot of data back and forth. This worked; they could talk to their big suppliers, the steel suppliers, the glass suppliers and so forth. This was pretty effective; but, one of the problems with these kind of fixed record standards is that you have to allow a field large enough for all your numbers. So if you can order a million parts, you must have a seven position field for "quantity". If the next guy coming along only orders 15 parts, he uses two positions of the seven position field and there are five zeros taking up space and taking up telephone time, considered a valuable resource. The Auto Industry Standards were somewhat inefficient in that they were transmitting a lot of spaces and a lot of zeros along with the real live data that they were transmitting. Each of the auto companies had these fixed records. General Motors had theirs; Ford had theirs, even by division they had fixed records for different purposes; and, then on the outbound side, they would expect the suppliers, (when they shipped some material for the assembly line) to send an advance shipping notice, so that the Company would be forewarned that this material was on the way and they could prepare the shipping dock for receipt of shipment.

So these Standards grew up for various reasons and, of course, ANSI is the American National Standards Institute for setting such standards and their X12 Committee has been designated as the Committee to set Standards for Electronic Data Transaction Sets. X12 Committee does not set Standards for the protocol of the modems that will be talking to each other. That's done by X25 and they do not set Standards for log-on records and envelopes that will be around the records. That's done by X400. What X12 does is specify what the transactions will have inside and what kind of data there will be what form the data will be in, how the data will arrive, how the users may interpret the data. Anyone who wishes to, may become a member of the ANSI Organization. Whether or not you are a member, you may also attend the Quarterly Standard Setting Meetings, which are held May, August, November and February, a week at a time. At these meetings, sub-committees are formed. There's a Goverment Task Force, a Materials Management Task Force, a Purchasing Task Force, a Financial Transactions Task Force and then there are some other groups that control the syntax, languages and so on. You may join any of these task forces or sub-committees. When you attend the Standard Setting Meetings, you will have your voice heard. Standards are set by consensus of all those that are participating in the Standards Setting arena. If you become a Committee Member in the Standards, you may receive voting packets and until you vote affirmative on a transaction set, it cannot be accepted.

The people who provide the transaction sets for voting will also provide responses to all of the NO votes. When you do vote NO on a transaction set you are expected to give a reason why you voted NO.

In any event, about four years ago, ANSI got more serious about setting electronic data standards and they have since that time defined several transaction sets such as request for quote, quotation response, purchase order, purchase order acknowledgement, purchase order change request, purchase order change acknowledgement, invoice, payment application, material release, just-in-time delivery schedule, advance shipping notice, stock status, inquire stock status response and several others. All of these transactions can be sent back and forth between what we call "trading partners".

ANSI only controls National Standards and there is another Standard that is being developed called the EDIFACT Standard. This Standard has been proposed in the United Nations and accepted as a world-wide Standard; and it, like ANSI, is under development by committees around the world which are proposing that a purchase order should look like this and so on and so forth. The syntax at this point between ANSI and EDIFACT is not the same. But, there are some movements afloat especially, within ANSI, to have changes made in either the ANSI, or the EDIFACT, or both Standards in order to bring the syntax differences together.

Since most of the Standards were originally patterned after the work that was done by TDCC, the ANSI National Standards, the AIAG Standards and the UCS Standards all look very much alike; and, they are very much variable record. The advantage of being variable record is that the data elements do not have to be in the fixed length but can be of whatever length is necessary to transmit the needed information. So, in my earlier example, if I am to order 1,553,723 items I need seven positions in quanitity volume to transmit that order number. If you are ordering 15, you only need two positions. I send seven positions you send two positions. How does the user, who gets the information on the other end, know that this is the only number of positions that I'm sending? We'll go into that in a minute and we will see what the Standards look like. The reason we are able to do that is that we are sending variable standards. The theory is that we will save 20 percent of the data bytes, which are currently being sent in fixed records standards, by sending them in variable record standards.

As you can see by this slide, this is a sample slide of some of the industries which are getting extremely serious about using Electronic Data Interchange with their members. They are going to their local associations, national associations. They're adopting the ANSI X12 Standards by and large internally; they're learning how to use the ANSI X12 Standards and starting to demand that their trading partners begin to use the ANSI X12 Standards. The Automobile Industry, of course, has been demanding this for quite some time. The Chemical Industry recently has been very strong in this in demanding similar usage. The Retail Industry now is beginning to start up and demand some usage of these transaction sets. There is an indication that, while there are approximately 5,000 or 10,000 companies using EDI today, there is a prospect of roughly a million companies that will begin to use EDI. We expect that most of them will probably have Electronic Data Interchange installed in their organizations like a FAX machine in the near future.

What does an ANSI X12 Electronic Data Transaction look like? This slide shows in a paper transaction, which you are all probably familiar with. This one happens to be an invoice. On an invoice we have basically two pieces of

information. We have header information and we have what we call detail or line item information. Since line item information can repeat with line 1, line 2, and line 3, we say that the line item information can loop. That is we can have that information once for line 1; we can have some more information of the same type for line 2 and so forth.

On this slide we see the data comparison between data that is maintained in electronic form and data that is maintained in a paper form. This is a small sample of the data that you might see in Electronic Data Interchange transaction. This is what is known as a data segment. Electronic Data Interchanges are broken down into three levels.

At the higher level you would have what we call transaction sets. A transaction set would be an entire invoice with all of its header information, all of its line information, all of its totaling information. An invoice would be a transaction set. Within a transaction set we have what we call data segments. Data segments are discreet strings of data that have a related meaning. For instance, we have some data segment information in the N1 Record. The N1 is the Name Record or the Name and Address Block, N1, N2, N3 and N4. So we have name and address information in those four data segments. We may have, for instance, a code specifying what the address is. For instance, an ST would be "Ship To" address. Then we may have another code specifying what kind of identification number we are using in this "ship to" segment. For example an 01 code indicates that we are using a DUNS number. Then the following data element is the DUNS number itself. So now if three data elements have ST, (which is "ship to") or SF, (which is "ship from") and I have 01 which means I am using a DUNS number, then I have the DUNS number itself and finally I may have the Company name itself printed out there. I do not need to have the Company name. All of this information strung together is a data segment, its the name segment. Within the data segments we have data elements. Data elements are the little pieces of information that make up the data segments. So the ST, which indicates what kind of address this is, is a data element. The 01 is another data element. The DUNS number itself is the third data element; and, the name of the Company is the fourth data element. So, in the example I have given, we have four data elements in an N1 segment.

These segments are transformed into something that looks like what we have on this slide. You will notice that the data has been squashed together and does not have any leading zeros and does not have any unnecessary spaces in it. You will also notice that there are funny little asteriks in between each data element. These are called data element "separators". We need data element separators because we do not know the length that each data element will be. Its going to be various lengths. We use the data element separator to tell us that we are at the end of that particular data element. We know from the Standards that the first data element tells us the segment identifier so that we know what segment we are dealing with, then we have an asterisk and the next one is a data element and tells us some data; that's the first unit of data. Asterisks are typically not used in this application but are only used for graphic purposes. Usually, some characters, sometimes unprintable, are used. Tilde is a common character, tilde is frequently used to indicate the end of a data element. And then you will notice at the end of the line is the NL which we call the data segment terminator. The NL stands for the mainframe configuration new line but that again can be any unprintable character which terminates the data segment. So within the Standards there aren't any standard syntax elements for data element separator and the data segment terminator. They may be determined by the sender of the

message at the time that he sends the message. In any event this is what an ANSI X12 transaction looks like.

In order to send transactions through third party network, so that it can be found, all of this transaction information has to be enveloped. We will envelope similar transaction sets within an inside envelope called a functional group envelope. We can gather together, say if we are sending invoices, many invoices (and each invoice is a transaction set). But, all of the invoices taken as a group can be a functional group envelope of invoice transactions; but, within a functional group, all of the transactions must be the same. Then we may take many functional groups together to create an interchange envelope which is a complete transmission. And, that transmission like an envelope can be sent out. So I can send a transmission to Company A,B, C and I may have both purchase orders, purchase order change requests, and invoices. I can send those out to the third party network and the network can see all of those transactions because of the envelope structure and put them in A, B, and C mailboxes.

During the same transmission, I can also send other transactions to one of my other vendors or one of my other customers and put them in their mailbox. They will also be enveloped with set envelopes around them and then group envelopes around those and finally the transaction envelope around that. Again the enveloping is a Standard.

All of this Electronic Data Interchange business is very interesting. It keeps all of us on the Standard Setting Committees kind of busy. But the real issue for the user of Electronic Data Interchange is how can I benefit from communicating these transactions faster. Certainly the benefit is there if you don't have to wait for the mailman to come in the morning with your purchase orders, so that you can fill your purchase orders, since he may have been holding on to them for two or three days. Certainly, you're going to pick up a day or two days of mail delivery time. That's nice, but that's not what you're really looking for. In addition to that you want to be able to get that data integrated into your operational systems quickly and get the operational systems moving with that data in them. How do you do that? That is the essence of Electronic Data Interchange. It's not just bringing the data in the door and setting it down in the corner. It's getting the data in the door, internalizing the data in the operational system, and then using the data to make business decisions or process business transactions and get your business out of the way quicker, faster and more efficiently.

This slide shows some of the internalization that needs to take place when data transactions are received or sent from customers who may send you purchase orders and receive invoices back from you. You may send them shippers as well and you can send them electronic mail. On the vendor side, which is the lower box, you can see that the transactions are the same but they are just reversed because now you are the customer and the vendor is the vendor; and he will be sending you the invoices and the shippers and you will be sending him the purchase orders and the purchase order change requests; and, he'll be sending you the acknowledgements. But in every case, whether you're talking to your customers or your vendors, you wind up moving the data into your applications. And, this dotted box on the right hand side of the screen shows the various applications which might be receiving some of this data. You might move some of the material release data into your scheduling; you might move the purchase order into your order entry system; you might move the invoicing data into your accounts payable system and so forth. We will see in a minute the savings that can be made if you can move these items using EDI. That concludes the discussion of what is Electronic Data Inter-

change and what are the ANSI X12 Standards. Do I have any questions to this point. We'll allow 10-12 Minutes for questions.

Moving on to part II...

The goals of part two of the discussion are to show the attendees seven characteristics of the ANSI X12 Standards and how each one of these characterisitics can provide them with an internal savings or efficiency that should improve their competiveness, if properly implemented within their business situation. And, we have some real life examples that depict this actually happening.

This first slide shows that the Standards promote a uniformity among industries and a uniformity among businesses. In the early days as was mentioned, the Aerospace Industry went off and did their own thing. The Auto Industry was even worse than that, they didn't go off and do their own thing. Rather, each automotive manufacturer went off and did his own thing. There wasn't any uniformity. And even today, with ANSI X12 Standards on the horizon and some available for use, the Auto Industry is still clinging in some quarters, and will continue to do so for several years, to their fixed record standards. And where they have the fixed record standards, people who provide software for that environment need to provide a system for Ford, another system for GM, another system for Chrysler and so on and so forth. When the ANSI X12 are adopted, Ford, GM and Chrysler will still say we don't want to use the same data elements as the other guy uses. Our business is different somehow. However, they will use the same construction of the data. So now we can simplify our software a little bit by saying we don't know what kind of information Chrysler is going to send us but we do know that, if it is name address information its going to come in an N1 segment. If it's part number information it's going to come in a segment that begins with an LIN. If its quantity, if its forecasting information, its going to come in an FST segment. So we have introduced a great deal of uniformity. Uniformity is not only introduced throughtout the Automotive Industry and beneficial there but this uniformity is continuing to be introduced throughout all of the industries. The Department of Defense for the Federal Government has said that they will use CALS as an internal structure to control their data processing development. But when they go outside of the Defense Department into the public industry to buy material for the Defense Department, they will in the future begin to use ANSI X12 as their communication standard, recognizing that the industry in general is using that standard; and, they will coordinate with that.

At first, in the early days, we may have had a trading partner who had a great big HP computer and they may have said, well we have an inventory system and you can inquire into our inventory system here. Take an HP terminal; set it up in your office; buy a modem and you can hook that HP terminal into our computer and inquire into our data system. Well that's fine except for one thing, this isn't my only customer. I may have 100 such customers and they may all want me to get their own brand of terminal. They may all have their own inventory stock status system, which I have to learn how each one of them works; and, then if I want to do some stock status order entry with any one of them, I have to go into their systems. This was fine in the early days when their wasn't anything better; but, this causes me to have to coordination problems with many different systems in my office.

By the creation of the ANSI X12 Standards, and across the Industry Implemen-

tation Guideline, we now have a single way in which data can be transmitted. It allows us to buy a single computer system which will be able to send and receive those transactions to all companies that we will be communicating with in the future, regardless of what industry they may be in. That is the benefit of uniformity. I do not need to learn different packages or purchase a different package for each different trading partner that I have.

The second characteristic is flexibility. When you go with a communications standard that has fixed formats and it says that the quantity field is seven characters long and I want to order three billion quantities I can't do it in one quantity field, I don't have enough spaces to do that. ANSI X12 standards are more flexible than that. They say the quantity field can be up to 16 characters long but you can only use as many characters as you need. So, if you only need two or three characters, you just use those. The Standards are flexible and we don't have to be as concerned with the length size of the fields. The standards do specify a minimum and maximum length for each standard, so that the fields can't go on and on forever. They all have a specific ending length. The Federal Government came up with an interesting problem. When they send out a Purchase Order or a Request for a Quote, they need to tell their suppliers about 2,500 different clauses that the Federal Government and Congress has imposed on their purchasing such as: you need to buy products that are made in America, that you need to buy products from companies that have a minority representation, that you need to buy products that meet certain specifications. There are over 10,000 such clauses in the purchasing practices of the US Government; and, it is not unusual to see 1,500 or 2,000 of these clauses applied to a single purchase order. Well, because of the flexibility of the standard, they say you may have clauses, you may have reference numbers in here, and each clause is assigned a reference number. If the standard says we don't care how many reference numbers you put in there, then you can put 2,000 reference numbers in there for that single purchase order line item.

Think about describing a telephone pole for example. What is a telephone pole? Is it a stick of wood? No, it's basically a tree trunk that is oh so big around and is so tall. We have to specify how tall that's going to be, we have to specify what kind of wood its going to be made out of; what kind of decay inhibiting solution the wood is going to be soaked in for how long, how much weight the wood is going to gain, where the holes are going to be drilled, how many cross members are going to be put on, how many little nitches (for the guys to climb up the pole), where those nitches are going to be located. It can take you five or six pages to describe a telephone pole.

The ANSI X12 Standards are not limited to their descriptive length so they can accommodate comments and more comments on a purchase order of that length so they are flexible. Because the standards are flexible, they can cover all the idiosyncrasies of the various industries and yet can be tailored to each trading associate. So the flexibility allows the Standards to be used across all industries. If the Standards were less flexible than many, many industries, perhaps all industries would say: Hey, we can't use the Standards; you'll just have to get some other Standards, because it doesn't match our industry. The ANSI X12 Standards are very flexible.

The next characteristic of the Standards is machine readability. The real benefit of Electronic Data Interchange is that a transaction is generated in Computer A and without having been printed out on hard copy is sent to Computer B and is internalized in Computer B, (Let's say into the Order Entry System) without anybody having to sit down and type in all the detail of the

"ship to" name and the "ship to" address and making errors perhaps and putting in wrong quantities, sometimes inverting numbers, etc.. When Electronic Data Interchange is working efficiently, those things don't happen. Those operator keypunch errors do not get introduced into the transaction set on the other end.

It has been estimated that 70% of the material that is inputted into one computer and outputted by another computer; and, about 70% of the information that is outputted by a computer is inputted by another computer. So how much time are we wasting in our business if we continue to dump these long reports and all these forms, print out all this hard copy, run over to another computer, give it to an operator, have the operator sit down and batch this data back into the second computer when we have an alternative. We have a way of sending that 70% of the data from this computer to that computer in a matter of seconds or minutes and having it already in there without typographical errors. It allows us not only to save on the existing transactions but it allows us to dream up more complex transactions which we would never attempt with manual entry; but, now we can attempt the transactions because we have the computer doing the entry and it takes only seconds. We would never have attempted to put the "ship to" addresses in for all of the Chevrolet repair facilities in the United States, all of the little bump shops that could buy parts to repair cars, because there are tens of thousands of them. And all the time that the operators are entering these addresses they could be entering them incorrectly and the parts may be shipped to the wrong spot. With Electronic Data Interchange, we don't enter the names and addresses. The dealer enters his own name and address. He enters the name and address, we get electronically into our own computer. We don't have to spend time putting it in and we can send the part to him.

Machine readability allows 70% of computer posting quickly and allows for more data caputure. The benefits of this are reduced clerical effort and reduced material handling. How does it reduce material handling you ask. Let's take this example. In the old days General Motors would come to me and they would say I want to buy five million steering shafts from you. I'm going to install some in Buicks and some in Oldsmobiles. So I would send them five million shafts and they would take them to some warehouse located half way between Lansing and Flint (where Oldsmobiles and Buicks are made); and, as they needed steering shafts in Lansing they would be sorted out of the warehouse and sent to Lansing. And, as they needed steering shafts in Flint, they'd be sorted out of the warehouse and sent to Flint. With the advent of Electronic Data Interchange, Buick and Oldsmobile begin to order their own steering shafts. Now I am not sending the shafts to General Motors (one location) I am sending some shafts to Buick and some shafts to Oldsmobile. This means they do not need that interim warehouse. The shafts don't stop there, we don't have a truck line taking them to the intermediate warehouse and leaving them there, forklift trucks putting them away and then other forklift trucks taking them down and sending them out. With Electronic Data Interchange, I now can note the specific factory which I want the steering shafts sent to. I may not have been able to know that with non electronic capabilities in the past. I have saved a truck ride load and unload, a lift here a lift there. I've saved a lot of material handling costs. Now with the Just-in-Time environment that the Auto Industry is attempting to adhere to, we save even more time. Now what we are trying to do is send the material not only to that factory but to that specific spot on the factory floor, where the material is going to be used to be built on to the car. Even within the manufacturing factory we no longer have forklifts storing the material, picking it up and moving it around. So we have reduced material handling.

The fourth characteristic of Electronic Data Interchange is Instantaneous Response. We now are looking at an industry where, as the cars come out of the paint shop, they're assigned a VIN number the VIN number is hourly broadcast to the supplier who put the seats, dashboards, headliners and fenders on the cars. These suppliers can either pick from inventory the specific sequence that the material is going to be sent to the assembly line for building into that car. Because they know the sequence that the cars are going to be built in, they know that they send a blue cloth seat next and then they send a red leather seat and a brown cloth seat, and a blue vinyl seat. They go on to the truck, come off of the truck in that sequence, and go onto the assembly line into the cars in the sequence that the supplier has packed them. This is called "line sequencing". Huge savings in inventory reduction. The automobile companies no longer store four or five hours of seats on site, try to pick the seats out of their storage and put them into the sequence for the line. The truck shows up at the loading dock, the seats are taken right off of the truck and put right into the cars without stopping. With the ANSI X12 Standards, the information is sent in efficient transmitted transactions which are batched, unnecessary data is removed. That is, the zeros and the spaces are dropped and the data speeds are increased so we send more data, less air time. And, we're more efficient.

The sixth characteristic of Electronic Data Interchange is Organized. Once we start to try to communicate with ten or 11 trading partners, it gets complicated. We're trying to dial the phone up; we're trying to send these transactions to these guys; those transactions to those guys; and, it gets very confusing. With mailboxing and third party networks, we can make a single call and get economies of scale and send all of our transactions up to the third party network and have them mailboxed for us (of course there is a fee for that). Thereby, we reduce our electronic equipment and our operational complexity. We actually have companies in the Auto Industry, that have 50 to 60 modems standing there answering the phones all day long. Thousands and thousands of calls coming in that can be reduced.

Finally, the seventh characteristic is Affordability. With the Standards being uniform and the state of the art of the technology progressing rapidly we now have an increase in the availability of systems which support the ANSI X12 Standard. Because we have more systems which are available we have better communication systems. The price of the hardware and even some of the pricing of the software is coming down and you can get more and better data now at a lower cost than ever before. EDI systems are very affordable at this time.

In summary, Electronic Data Interchange is a new opportunity for a business to gain benefits in both customer service and productivity. Once the tangible business benefits of EDI are understood, the use and growth of EDI throughout all industries will be phenomenal.