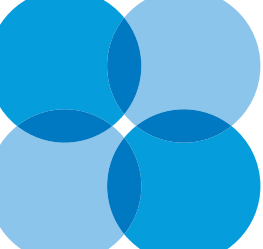




## The State of EDI in the Automotive Supply Network and Future Directions

Near the end of the first decade of the 21st Century





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In the context of the Automotive Supply Network, EDI (Electronic Data Interchange) is a framework for handling business and financial transactions between Automotive Manufacturers (OEMs) and their suppliers, their suppliers' suppliers, and the entire Supply Chain.

Automotive EDI has been around since the 1970s, longer than we have had airbags and anti-lock brakes, for about a third of the entire history of the Automotive Industry. In conventional wisdom, the Automotive Industry probably has implemented Manufacturing EDI more thoroughly and more successfully than any other industry. We have made great progress, but EDI now is not where we expected it to be. In addition to progress, the past decades have brought surprises, frustrations, and confounded assumptions.

The "ideal" of EDI is to provide a common global transaction system, and to promote efficiency and competition. EDI has had a big impact, but we are well short of the ideal. Assumptions about EDI and the directions of our EDI efforts have changed.

### EDI Still Not Universal

Automotive OEMs and their Tier One Suppliers have adopted EDI globally, nearly universally. In Western Europe, the industry has approached this ideal largely because of early pressure from OEM(s) in the 1980's, but new implementations stalled in the late 20th Century among lower-tier suppliers in North America. New implementations remain stagnant.

What we call "Traditional EDI" works well for OEMs and large suppliers, due to economies of scale, but Traditional EDI is complex and expensive. In 1996, the North American OEMs made an effort to push Traditional EDI through the entire Supply Chain. Many Tier Two and Tier Three Suppliers resisted due to considerations of cost and complexity (or, some might say, due to perceptions of high cost and complexity). In addition, as the North American Automotive Industry Action Group (AIAG) pointed out in the January/February 2003 issue of its magazine Actionline, Data Managers had other priorities during that period, e.g. especially the Y2K situation.

### Web EDI

At that time, many Tier Ones made accommodations for their lower-tier suppliers. Proprietary and in-house alternatives to Traditional EDI became available. Many Tier Twos and Tier Threes were able to use certain EDI functions or EDI-like functions without committing to full-blown Traditional EDI. In Europe, ODETTE provided a web-EDI standard known as e-Forms and any non-compliant suppliers were requested to comply with an e-Forms solution.

These developments coincided with, and were aided by the explosion of internet functionality, and the World Wide Web. So, we now call this whole category of EDI alternatives, "Web EDI."

[A note on jargon: Our term "Web EDI" can be misleading. Even though Traditional EDI began before the www came into play, Traditional EDI can use the Web. But we still say, "Web EDI" when we talk about alternatives to Traditional EDI.]

The many variations of Web EDI vary in functionality. Often they do not communicate fully with Traditional EDI, or with ERP systems, or with each other. As a result, a large segment of Auto Manufacturing is not fully connected with the global EDI framework. And, a good-sized (though not reliably measurable) segment still is not really even automated. The Chinese automotive industry provides numerous examples.

Please bear in mind that integration is extremely important. EDI's effectiveness is not just in transmitting data, but also in providing useful, usable data for back-end business systems. If EDI and back-end business systems cannot talk together, we have not reached our real goal.

This situation falls short of the ideal common Supply Chain communication system. And, based on our experience in the past ten years, we probably never will achieve that ideal. Rather than continuing toward the original goal of commonality, we expect that more alternatives will emerge.

## Not Multiple EDI Transaction Standards

Even within Traditional EDI, multiple standards persist. We are stalled far short of the ideal of a single global standard. For example, General Motors uses automotive subsets of the EDIFACT standard globally, but most other North American OEMs, including Asian Transplants, use the AIAG's automotive subset of ANSI ASC X12. German OEMs use the VDA standard, and much of the rest of Europe has classic ODETTE or the ODETTE subset of EDIFACT.

In practice, any supplier who works with (say) Ford, GM, VW, and PSA must work in four separate EDI standards. And even when different OEMs use the same standards, each OEM has its own distinct EDI "flavor." Each flavor often behaves very much as a separate standard. This has created excess mapping and back-end business system integration costs.

Within the EDI community, we go back and forth with discussions and judgments about which standards may be obsolete, but ideas about obsolescence conflict with other ideas about practicality and time-testedness.

Although we have made a global commitment to EDIFACT's automotive subset, we are not making significant progress toward that goal. Pushes to EDIFACT will occur with stances such as the VDA organization freezing the VDA standard by not allowing any extensions/updates or any new messages to be developed support this global commitment.

## XML

With the rise of the internet, XML arrived with great promise. XML brought new ways of thinking and new ideas. Most Traditional EDI messages now are available as XML messages, but justification for moving legacy-traditional day-to-day EDI over to XML is a tough business case. When businesses think about the operational aspects of making such a move, internal impact outweighs data format.

XML adoption will come as new initiatives and new processes are introduced in the industry. So far, we have seen this put into action in aftermarket and quality, and for catalogues. For instance, the STAR (Standards for Technology in Automotive Retail) initiative in the US implemented XML over two years ago. Europe has implemented QDX (Quality Data Exchange), a quality program using XML, and a set of XML messages for electronic catalogues called BMEcat (Standard for the Exchange of Electronic Product Catalogues).

## Multiple Communications Protocols

The "plumbing" for EDI, the hardware and technology, is a diverse mixture rather than any approximation of ideal commonality. For example, much North American EDI data moves through HTTP and FTP protocols, while European EDI uses other protocols such as OFTP X.25 and ISDN. So a supplier might have to use several different communications protocols in dealing with different OEMs.

And again, we seem to be stalled. There is no substantial movement toward global protocol commonality in recent years. This topic is subject to the same debates about obsolescence as the topic of standards, but it is a hollow debate. Lack of progress is a fact. For whatever reason, the ideal remains out of reach.

## 21st Century Sourcing Practices

EDI works (or worked) well in a 20th Century Auto Manufacturing environment. When OEMs and suppliers have close geographic and cultural ties, EDI enormously facilitates lean manufacturing. However, when sources are distant and cultures diverge, other considerations begin to overwhelm the sorts of ordering and planning efficiencies that EDI can provide.

The logistics of moving components through intercontinental JIT supply chains, simply to keep production running, can outweigh Just-In-Time theory. This is not the sort of problem EDI by itself can solve. We need to combine EDI with new Logistics, Inventory, and Manufacturing solutions in new ways.

## Summary

EDI is essential in 21st Century Auto Manufacturing, but it has fallen short of its ideal of commonality in three areas:

- EDI implementation is far from universal;
- Multiple EDI Transaction Standards continue in use;
- Multiple EDI Communications Protocols continue in use.

Based on real-world experience over the past ten years, it probably is unrealistic to expect real commonality anytime soon. We seem to have reached a point of vastly diminished returns in our efforts toward commonality. Diversity seems to increase, rather than diminish.

## Direction for EDI

1. We may embrace the current diversity in EDI Implementation, Standards, and Technologies by concentrating on solutions that accept diverse input and provide diverse output, with flexible, practical, broad connectivity. Such products already exist, and this is a promising field for further development. It appears certain that this approach will yield much greater returns than continuing to push for the traditional ideal of global commonality.
2. We may provide relatively simple, relatively inexpensive EDI (Web EDI) for lower-tier suppliers, as long as we make sure that our simple approach integrates fully and communicates properly, and that it can expand as lower-tier users demand higher functionality and complexity. This approach probably will serve suppliers in China and Eastern Europe very well over the next few years.
3. Simplify Communications. Globally, we may embrace EDI over IP where security, service and operational impacts are managed for trading partners. Immediately, IP based EDI could benefit Europe by offering a less complex and cheaper solution for OFTP X.25 and ISDN.
4. We must now combine real application systems (Logistics, Inventory, and Manufacturing) globally with current EDI practices. Such a combination is necessary for dealing in a truly global marketplace where long distance cross-cultural sourcing has introduced new challenges. Existing efforts at combining other disciplines with EDI show success. or in providing specific compliance and security implementations.

This appears to be a much better choice than pursuing proprietary Web EDI systems that only talk to themselves. The capability to connect with multiple back-end business systems and the rest of the Supply Chain is crucial. This is a promising area for further investment and development.

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