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The Future Of EDI

by Ken Vollmer

for Application Development & Delivery Professionals



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It's Time To Take A More Holistic Approach

by **Ken Vollmer**

with Mike Gilpin and Sander Rose

EXECUTIVE SUMMARY

Firms first introduced electronic data interchange (EDI) in the commercial sector in the 1980s to support document exchange in the transportation sector. EDI systems have since achieved critical mass in many other sectors including manufacturing, retail, healthcare, and banking. While EDI systems have seen many improvements, firms rarely addressed EDI integration needs holistically across the full range of application and process integration challenges they face. The advent of comprehensive integration solutions (CISes) is changing this situation, and firms are now able to address their EDI needs along with their application and process integration requirements in one solution. Application development and delivery professionals should review their EDI capabilities and upgrade them as needed to provide a holistic and complete integration environment, to capture the cost advantages of taking this more integrated approach.

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NOTES & RESOURCES

Forrester interviewed more than 20 vendor companies, including Axway, Crossgate, EasyLink, GXS, Hubspan, IBM, iWay, Liaison Technologies, Microsoft, nuBridges, Oracle, Progress Software, SAP, Seeburger, Software AG, SPS Commerce, Sterling Commerce, Tibco Software, and Vitria Technology. In addition, Forrester has spoken with more than 300 clients in the past two years related to their EDI programs.

This document is also supported by a Q4 2009 survey of more than 300 global users of EDI technology.

Related Research Documents

["The Forrester Wave™: Comprehensive Integration Solutions, Q4 2010"](#)

November 9, 2010

["The State Of B2B Integration"](#)

July 12, 2010

["2010 Update: Evaluating Integration Alternatives"](#)

January 12, 2010

EDI IS DEAD, LONG LIVE EDI

EDI is one of those legacy technologies that continue to thrive despite predictions over the past decade of its imminent demise. So much for the conventional wisdom. In fact, EDI remains a valuable solution for exchanging selected information between a wide range of business partners in many sectors including manufacturing, healthcare, retail, consumer packaged goods (CPG), insurance, distribution, and retail. And while this technology has changed, it is still as widely used as ever. Forrester expects that EDI will continue to play a leading role in supporting agile business operations for the foreseeable future.

Just What Is EDI Anyway?

EDI is the electronic exchange of standard business documents between established business partners. The sender transforms the documents from their own proprietary application format into a standard message format (ANSI X12, EDIFACT, etc.), then transmits those messages to the other party, who then transforms them from the standard back into their proprietary application format. Purchase orders and invoices are the most commonly exchanged documents, with others widely used including electronic payments, advanced ship notices, insurance verifications, inventory status, and many others. EDI systems consist of three main components:

- **Standard message formats.** These are the published open standards defining the format of EDI documents. For example, ANSI X12 (widely used in the Americas) provides guidelines for more than 300 standard business documents and also supports industry-specific variations like UCS (grocery and retail) and VICS (retail and CPG) that provide additional message format details used in these sectors. Similarly, the UN/EDIFACT standard (widely used in Europe) supports variations like ODETTE for the European automotive sector. These standards undergo scheduled upgrades guided by standards bodies in order to maintain their industry relevance.
- **Document transport.** In the early days of EDI, there were a limited number of alternatives for transporting electronic documents. Value-added networks (VANs) function as electronic post offices, widely deployed by firms to exchange documents with thousands of trading partners via a single link. Firms also used file transfers to support individual point-to-point exchanges. Since the arrival of the Internet, some firms have adopted the AS1 or AS2 protocols that rely on SMTP and HTTP/HTTPS, respectively, to transport documents sent as S/MIME attachments, bypassing VANs in most situations.
- **Deployment channel.** The last component of EDI systems is the means of deploying the technology to support the movement of documents. The main options are relying on a VAN or other third-party service provider, using on-premise software to support direct (AS1/AS2-based) communications, full/partial outsourcing of EDI support to a managed services provider, or a hybrid approach that combines aspects of two or more of the other options.

Why Does EDI Persist?

Before EDI, the only way to move documents was the mail or a courier service. There were no electronic options, and fax technology was not yet a practical solution. So when EDI message formats and VANs brought the first effective support for electronic document exchange, EDI deployments quickly expanded from the transportation sector to many other industries. While originally limited to the largest firms in these sectors, a large number of SMBs have since adopted EDI as well.

Establishing EDI links to hundreds or thousands of trading partners was no small task, and many firms struggled with their early implementation efforts. However, once they were in place they worked very well and required a minimum of maintenance. Consequently, EDI systems became the de facto standard for the exchange of standard business electronic documents in many sectors. Once these firms had a system in place to support EDI with their trading partner communities, they resisted moving to solutions that came later, as those newer solutions never provided a compelling reason to switch the whole community — leaving EDI as the dominant standard.

BUT NOTHING STAYS THE SAME FOREVER

While newer alternatives are unlikely to replace EDI systems in the vast majority of firms that use it, EDI will still undergo some change. In fact, some significant changes have already occurred. Forrester's December 2009 Global EDI/B2B Online Survey highlighted the areas likely to remain stable and those likely to spawn new EDI variations.

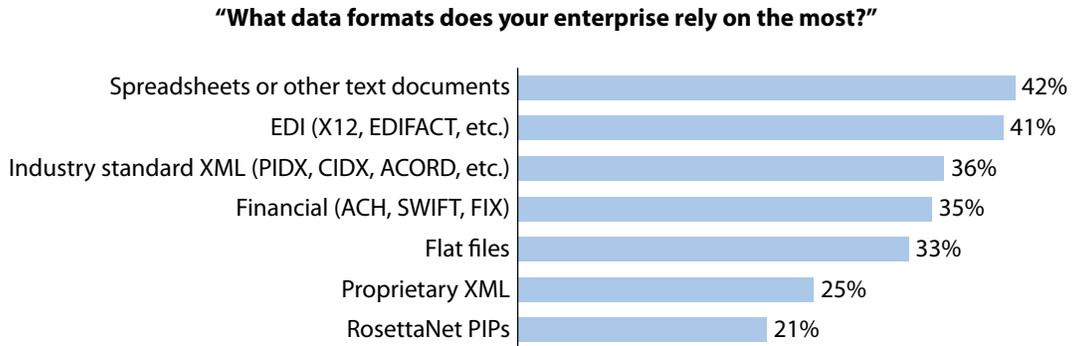
Message Formats Are Expanding

The days of EDI message formats dominating the B2B world are past. Survey results indicate that the most common message format (42% of the total) is now spreadsheets and other text documents. EDI comes in a close second (41%); followed by industry standard XML like PIDX, CIDX, ACORD, and HL7 (36%); financial formats like ACH, SWIFT and FIX (35%); flat files (33%); proprietary XML (25%); and RosettaNet PIPs (21%) (see Figure 1).

While EDI is no longer the most dominant message format, that does not mean the volume of EDI transactions is declining. In fact, a review of the EDI volume statistics captured during our most recent Forrester Wave™ on B2B service providers indicates that the annual volume of global EDI transactions exceeds 20 billion per year and is still growing.¹ But today B2B exchanges support a wider range of message formats going well beyond standard EDI business documents. In particular, the ability to exchange spreadsheet documents has been a significant advance for those enterprises trying to coordinate complex processes with business partners.

So while firms continue to expand the number of message formats they use in supporting new requirements like these, traditional EDI message formats continue to play a key role and will do so for the foreseeable future.

Figure 1 Most Commonly Used Electronic Message Data Formats



Base: 300 senior IT managers from North America, EMEA, and Asia Pacific regions

Source: December 2009 Global EDI/B2B Online Survey

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Source: Forrester Research, Inc.

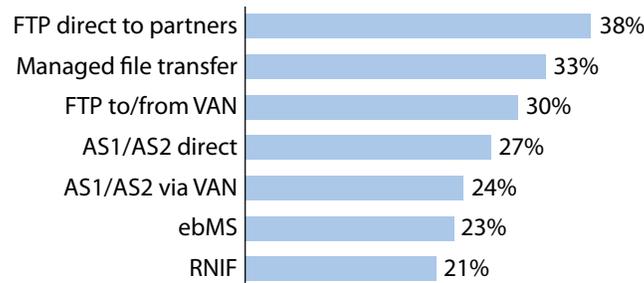
The Number Of Transport Options Is Also Growing

Just as the number of message formats has grown, so has the number of transport options. In particular, the Internet-based AS1 and AS2 protocols have been widely implemented, and a significant number of the respondents in our recent survey are using them (see Figure 2).

Thirty-eight percent of respondents use FTP, making it the most common transport option, followed by more controlled managed file transfers at 33%, and FTP to/from VANs at 30%. Usage of AS1/AS2 direct to partners follows at 27%, and AS1/AS2 via VANs at 24%. ebXML Message Service (ebMS) and the RosettaNet Implementation Framework (RNIF) came last with 23% and 21% of respondents using them, respectively. So an environment once dominated by FTP direct and FTP to/from VANs is now much more diverse. We are now entering a period of stability in transport options with no new alternatives on the horizon.

Figure 2 Most Commonly Used Transport Options

“What percentage of your B2B traffic uses the following transport options?”



Base: 300 senior IT managers from North America, EMEA, and Asia Pacific regions

Source: December 2009 Global EDI/B2B Online Survey

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Source: Forrester Research, Inc.

Deployment Channels Are Also Undergoing Change

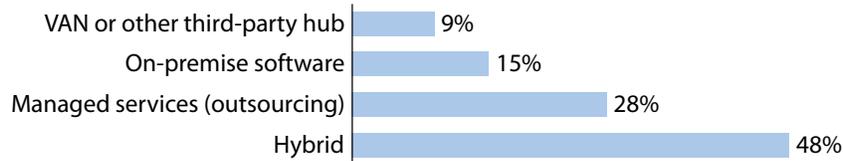
Our survey indicated considerable variability in how enterprises choose to deploy EDI. Only 9% have adopted the third-party hub approach, while 15% rely exclusively on on-premise software, and another 28% outsource their EDI operations to a managed services provider. The managed services option has been a popular choice for many firms since the earliest days of EDI, with providers like EasyLink, GXS, nuBridges, Sterling Commerce, and others having more than 20 years of experience in providing fully managed EDI operational services for their clients that decided to outsource support for this activity.

However, the largest group overall (48%) relies on the “hybrid” approach. This alternative combines two or more of the above options. The most common hybrid approach is for organizations with large trading partner communities to communicate with a group of their most active trading partners via direct communication (either FTP/MFT or AS1/AS2), while relying on a third-party service provider to handle communication with the balance of their trading partner community (see Figure 3).

None of these alternatives is likely to achieve dominance in the next three years. When asked about future plans related to their deployment channel choices, the survey respondents gave a diverse set of answers: 32% indicated that they plan to focus more on software solutions (FTP/MFT and AS1/AS2), 25% indicated they plan to focus more on managed services, and 21% indicated they plan to focus more on third-party services (VANs and B2B service providers for communications support only). Just over 20% indicated that they had no plans to make changes in their deployment channel (see Figure 4).

Figure 3 EDI Deployment Channels

“What approach does your enterprise use for the transport of EDI/B2B documents?”



Base: 300 senior IT managers from North America, EMEA, and Asia Pacific regions

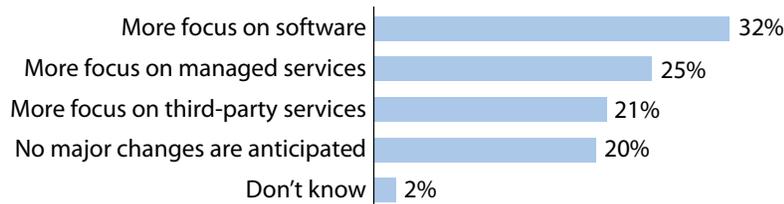
Source: December 2009 Global EDI/B2B Online Survey

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Source: Forrester Research, Inc.

Figure 4 Anticipated Deployment Channel Changes Over The Next Three Years

“Do you anticipate any significant change in your approach to document transport during the next three years?”



Base: 300 senior IT managers from North America, EMEA, and Asia Pacific regions

Source: December 2009 Global EDI/B2B Online Survey

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Source: Forrester Research, Inc.

MORE CHANGE IS ON THE HORIZON

There has already been a significant level of change regarding EDI over the past several years, particularly for transport options and deployment channels. Key business and technical issues will lead to even more change over the next few years as organizations move to bring EDI processing into an environment that can support a more holistic approach to all types of integration needs.

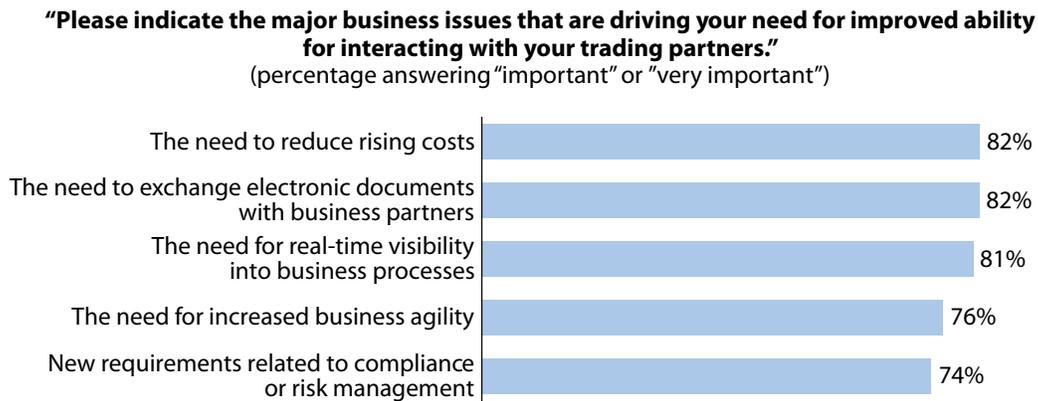
Key Business Issues Are Driving The Need For Improvements

We asked survey respondents to identify the main business drivers influencing their needs to improve interactions with their external partners (see Figure 5).

Two closely related issues tied for first place, with 82% of respondents citing the need to reduce rising costs (for the business) and the need to exchange electronic documents with business

partners. Manual document exchange is still prevalent in many firms, bringing higher operational costs. Moving to electronic documents saves both time and money. The need for real-time visibility into business processes also scored high (81%), highlighting the need for improved visibility into B2B operations. The need for increased business agility came in fourth, with 76% of respondents indicating that this was a major issue for them. Lastly, 74% of respondents cited the need for better solutions for supporting compliance and risk management for B2B exchanges.

Figure 5 Key Business Issues Driving The Need For Improved B2B



Base: 300 senior IT managers from North America, EMEA, and Asia Pacific regions

Source: December 2009 Global EDI/B2B Online Survey

58057

Source: Forrester Research, Inc.

The Primary Technical Problems With Existing B2B Systems

In addition to the business drivers, several technical issues are also creating pressure to upgrade EDI/B2B systems (see Figure 6).

The most significant technical problem, affecting 66% of respondents, was the difficulty that organizations face when they have to integrate their inbound/outbound EDI transactions with other applications. The main reason for this is that so many organizations use separate tools for EDI integration and application/process integration. The second biggest issue, at 63%, was difficulty in effectively responding to new business requests. This arises from difficulty in creating, testing, and implementing new partners or new transaction sets. The third issue was difficulty in managing partner communities, at 59%. This problem increases as the size of the partner community grows. The fourth and fifth most common problems, both cited by 58% of respondents, were difficulty in supporting smaller, non-EDI-capable partners, and the inability to effectively support process improvement efforts.

Figure 6 Technical Problems With Existing EDI/B2B Systems

“Please indicate the most serious technical problems with your existing EDI/B2B system.”
(percentage answering “important” or “very important”)



Base: 300 senior IT managers from North America, EMEA, and Asia Pacific regions

Source: December 2009 Global EDI/B2B Online Survey

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Source: Forrester Research, Inc.

What's The Answer? Look To A CIS To Meet Future EDI Needs

Most enterprises still address integration challenges piecemeal. One group attacks application integration, while another works on process integration, and yet another deals with B2B. To make matters worse, each group uses different tools. This has to change!

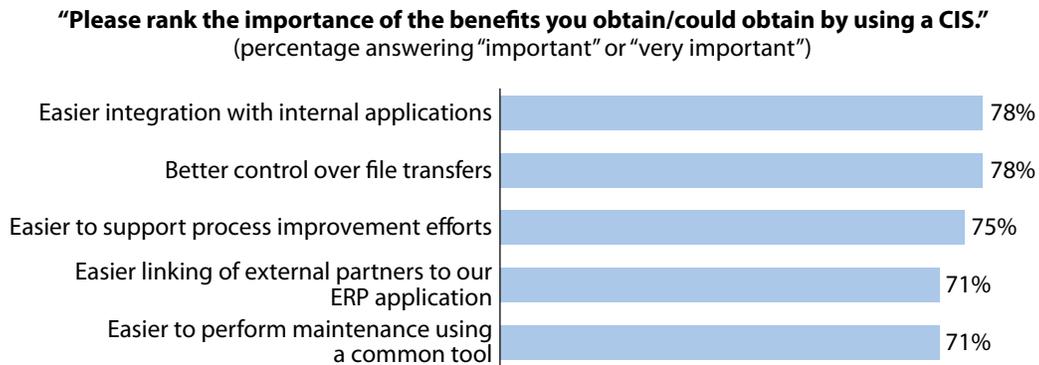
CIS products offer the ability to address each of these problem sets using a common tool set.² Not only do these solutions provide a more agile approach to integration, but they also maximize the effectiveness of developers and reduce overall maintenance costs. Our survey highlights several advantages provided by CIS solutions, many of which address specific business and technical drivers mentioned above (see Figure 7).

Two benefits tied for first place as 78% of respondents cited easier integration with internal applications and better control over file transfers (often critical to improving compliance and risk management) as key benefits. Seventy-five percent of respondents applauded improved support for process improvement, while 71% said that it was easier for them to link external partners to their ERP system. Another 71% indicated that it was easier to perform maintenance using a common tool set.

To understand how these benefits play out, consider this example: A large US-based manufacturer recently implemented a CIS to consolidate its integration processing capability. The new solution processes inbound and outbound EDI transactions, performs data transformations based on internal application needs, and orchestrates processes to retrieve data from or insert data into the organization's ERP system. This tightly integrated system enabled the manufacturer to reduce the order to cash cycle time for the enterprise by more than 20%.

Addressing integration needs holistically is a key integration best practice going forward, and application development teams should ensure that they have a CIS tool at their disposal to help make agile integration a reality.

Figure 7 Benefits Of A CIS



Base: 300 senior IT managers from North America, EMEA, and Asia Pacific regions

Source: December 2009 Global EDI/B2B Online Survey

58057

Source: Forrester Research, Inc.

RECOMMENDATIONS

UPGRADE TO A B2B SYSTEM THAT’S PART OF A CIS

Organizations that plan to upgrade their EDI/B2B capabilities should put CIS tools that include a broad range of integration features covering B2B, BPM, EAI, MFT, and more, at the top of the shortlist. Application development professionals should work closely with enterprise architecture and integration competency center teams to ensure that their EDI solution has the features and flexibility needed to support an agile enterprise.

- If the organization chooses direct support of EDI operations, then install the CIS on premise.
- If a managed services provider handles your EDI support, make sure that the vendor includes CIS capabilities in its managed services offering that deliver the same level of integration benefits available from an on-premise CIS implementation.

WHAT IT MEANS

EDI SUPPORT TEAMS WILL BECOME MORE MAINSTREAM

Consider the following hypothetical but representative scenario: Jim Smart has been an EDI coordinator at XYZ Corporation, a retailer, for the past five years. He and two other coordinators handle the daily operational issues related to purchase orders, invoices, advanced ship notices, electronic payments, and vendor-managed inventory X12 transactions. He also handles most of the transaction data mapping.

In the past, Jim's company used a standalone EDI product for several years, and his team functioned more or less in isolation from the rest of the IT group. Recently however, his organization moved to a CIS product to meet its integration challenges more holistically. This solution enables teams to address B2B, application, and process integration, all within a common tool set.

This ensures that B2B transactions can be easily combined with application integration and BPM activities that have a B2B component. Jim's team also now has frequent contact with the staff of the integration competency center about how to further improve the integration of B2B activity with mainstream company processes. Jim's team also finds that its skills are now transferable to a wider range of integration projects, and management is considering consolidating the team with the integration competency center.

ENDNOTES

- ¹ Refer to the Excel spreadsheet (line 95) that is the foundation for the scoring. See the October 29, 2009, "[The Forrester Wave™: B2B Service Providers, Q4 2009](#)" report. This figure actually understates the total volume of EDI transactions as it only includes those messages going through service providers. The EDI transactions being handled via direct FTP/MFT and AS1/AS2 direct are not included in the 20 billion number.
- ² Forrester evaluated 15 leading comprehensive integration solution (CIS) vendors against 137 criteria that reflect the requirements of application development and delivery professionals. We found that Oracle, IBM, TIBCO Software, and Software AG lead the pack with the best overall combination of architecture, integration server, application development, business process management (BPM), and business-to-business (B2B) support features. Progress Software, Vitria, SAP, Axway, Microsoft, and Seeburger are also Leaders based on the overall strength of their integration solutions. Additionally, Sterling Commerce (IBM), iWay Software, Active Endpoints, inubit, and Microgen all scored as Strong Performers based on their unique strengths in the integration arena. For specific details related to CIS products, see the November 9, 2010, "[The Forrester Wave™: Comprehensive Integration Solutions, Q4 2010](#)" report.

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