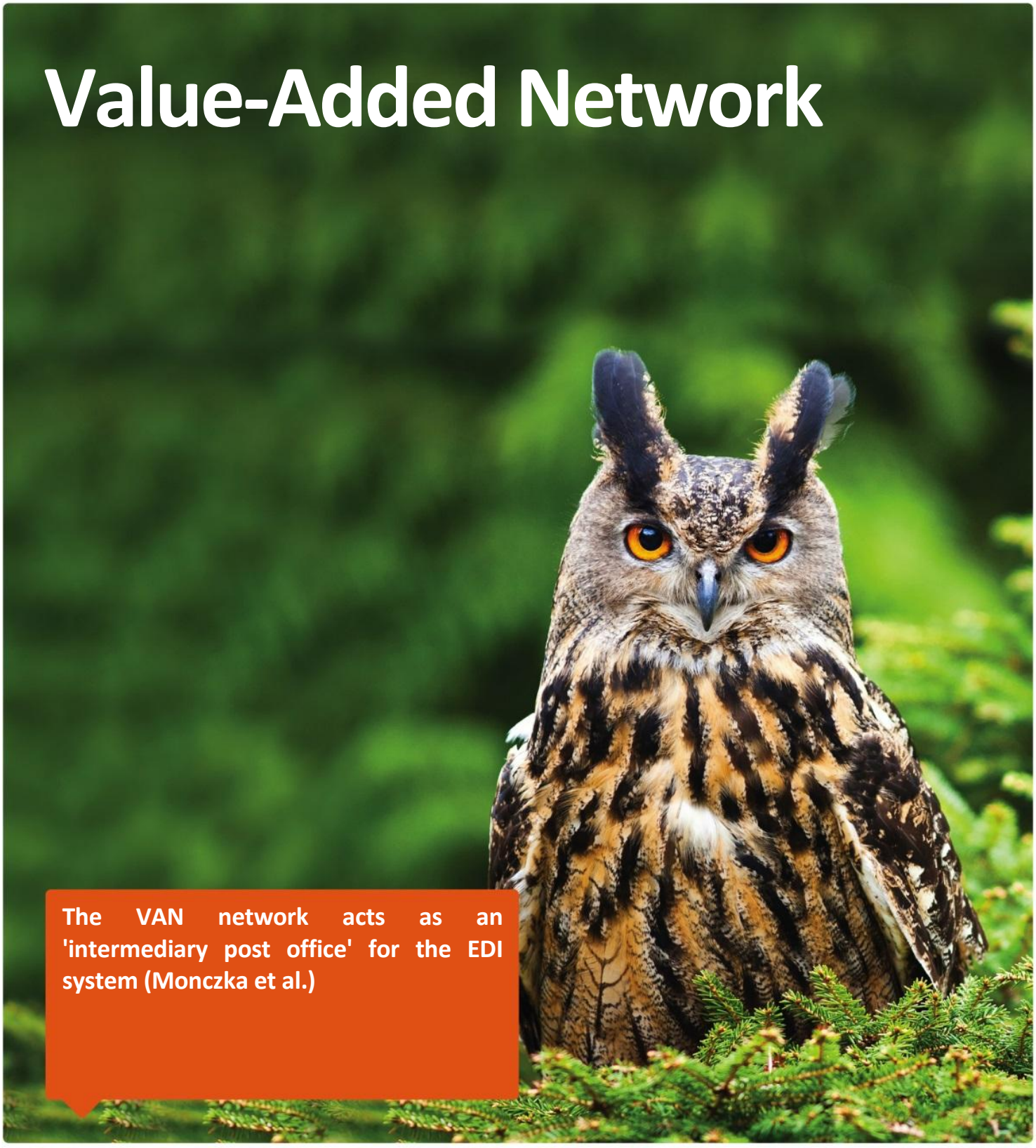
Value-Added Network



The VAN network acts as an 'intermediary post office' for the EDI system (Monczka et al.)

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Introduction

Traditionally, VANs have been central to the use of EDI solutions (Sommer, 2003; Williams and Frolick, 2002) where EDI is defined as the "technique based on agreed standards, which facilitates business transactions in standardised electronic form in an automated manner directly from a computer application in one organisation to an application in another" (Lysons and Farrington, 2006: 188).

An EDI transaction is the process of transmitting a single electronic document which consists of the following (Monczka et al., 2009: 683): (1) A standard form (EDI standards), which includes the basic rules of formatting and syntax agreed upon by the users in the network. The American National Standards Institute ACSx12 series of EDI standards and the United Nation's EDIFACT (EDI for Administration, Commerce and Transport) are the two most widely used and recognised standards; (2) Software which translates the organisation-specific database information into EDI format ready for transmission; (3) A mail service (EDI network) for transmitting documents.

The VAN acts as an intermediary post office for the EDI system (Monczka et al., 2009). It is mainly large firms that use EDIs to transact with trading partners because of the costly VAN needed to support mailboxing, protocol conversion, standard conversion, implementation assistance, auditing and other value-added services (Fu et al., 1999). Since the mid-2000s EDI technologies have been gradually replaced by e-Business technologies which can link customers and suppliers into back-office business applications and therefore integrate the corporate value chain (Sommer, 2003). Rather than relying on proprietary VANs, many companies found that the continuing development of standard Internet protocols and infrastructure were more appropriate in the context of e-Business. Technologies based on open de facto standards such as HTML, PERL, ASP, JAVA and C++ could provide organisations with the means of developing interoperable business relationships with their customers and suppliers (Sommer, 2003).

Definition

A value-added network (VAN) is "a private telecommunications network linking organisations in a supply chain together, enabling them to share information and electronic documents". VANs can be used by organisations sharing data using electronic data interchange (EDI) (BuyIT & CIPS: Electronic Invoicing and Payment: 19).

Successful Application

EDI using VANs is better suited to larger organisations and can be used in purchasing environments characterised by the considerable amount of transaction documents and the large number of supplier and administrative activities which substantially increase purchasing cycle lead times (Lysons and Farrington, 2006). For small and medium enterprises, the alternative to a VAN is to use the Internet or an extranet. These options enable SMEs to link into a secure EDI without incurring the costs of a proprietary VAN system (Lysons and Farrington, 2006). Before implementing an EDI system with a VAN, organisations should also evaluate other technology options to select one that may be more suited to their needs and 'future-proof'. It is possible that VANs will become obsolete in the near future as web-based technologies and standards become more widespread (Lysons and Farrington, 2006; Monczka et al., 2009).

Steps to Successful Application

1. Decide whether a VAN or web-based EDI solution is the most appropriate option and whether financial resources are sufficient to implement and maintain the system, and to train employees. If the former is chosen, the following steps illustrate its use.
2. Company A creates a purchase order using its own internal business software.
3. EDI software translates the order.
4. Company A sends the purchase order to company B using a third-party VAN.
5. Company B receives the purchase order, translates it from EDI to its proprietary format and will then usually send an acknowledgement to company A.

Lysons and Farrington (2006)

Hints and Tips

- Implementing EDI and a VAN will require a significant change in organisational processes and policies. Some general principles of change management need to be applied to this organisational upgrade (Burnes, 2009).
- Implementing EDI and a VAN requires software maintenance, employee training, and a strategy to promote the system and its applications (CIPS: Guide to buying telecommunications; Killen and Kamauff, 1995).
- Electronic information exchange needs to be aligned so that it supports the organisation's wider strategies (Killen and Kamauff, 1995).

Potential Advantages

- A VAN offers fast transportation of EDI documents between businesses in the supply chain (Williams and Frolick, 2002).
- VANs provide functions such as message transport and tracking (Williams and Frolick, 2002).
- VANs can add value to the basic carriage of calls through computerised operations (CIPS: Guide to buying telecommunications).

Potential Disadvantages

- VANs can be more expensive to operate than direct networks because of the service fees incurred (Monczka et al., 2009).
- VANs are often unsuitable for small and medium enterprises because of the resources and costs implicated in the setup and maintenance of these networks (Williams and Frolick, 2002).
- VAN providers have been forced to modify their pricing structures in recent years to compete with more reasonably priced Internet solutions (Lysons and Farrington, 2006; Williams and Frolick, 2002).

Performance Monitoring

- Cost-benefit analysis: evaluation of the return on investment (ROI) of implementing EDI and VAN technologies, assessment of whether alternative web-based solutions are more cost-effective (CIPS: Guide to buying telecommunications; CIPS: Procurement's role in the generation and capture of value in supply chains).
- Cost per transaction: a measure of the value of EDI (Lysons and Farrington, 2006).
- Lead times pre- and post-adoption of EDI and VAN technologies (Lysons and Farrington, 2006).

Case Studies

- In the early 1990s DSGi, a consumer electronics retailer, was handling 90,000 invoices per annum for merchandise. In 2009 the company handled 700,000 invoices while employing the same number of accounts payable staff. This became possible with the EDI and its automatic matching process. Since EDI was implemented, DSGi's annual sales increased from £1.4bln to £3.5bln.
- Ford Motors (Australia) encouraged its brakes supplier PBR Ltd to adopt EDI. This decision helped to save time from a faster trading cycle, eliminate paper use, streamline business processes and increase productivity and profitability due to greater standardisation of routines and structured EDI messages (Ratnasingam, 2006).
- By 2000 EDI was used widely in manufacturing, finance and retail. For example, Sears and Target, the US retailers, required suppliers to use EDI in order to engage in business transactions with them, and the Federal Acquisition Streamlining Act of 1994 (FASA) required all agencies within the United States government to use EDI (Free encyclopaedia of e-Commerce).

Further Reading/References

Web Resources

- Article on good data exchange and e-Commerce http://www.supplymanagement.com/news/2000/good-data-exchange-is-key-to-e-commerce/?locale=en
- EDI and the new AS2 internet standard http://www.supplymanagement.com/news/2003/edi-and-as2-can-live-together/?locale=en
- VANs and EDI http://www.computerworld.com/s/article/98155/VANs
- Selection of EDI and technology resources http://www.ithound.com/browse/it-systems-management/enterprise-application-integration-eai/electronic-data-interchange-edi

Books

- Purchasing and supply chain management, Lysons and Farrington - Good coverage of EDI and VANs.
- Purchasing and Supply Chain Management, Monczka - Excellent resource on purchasing, SCM and technology.
- Supply Chain Redesign: Transforming Supply Chains into Integrated Value Systems, Robert B. Handfield, Ernest L. Nichols Jr. - Good chapter on technology, EDI and VANs.

- Cases on Electronic Commerce Technologies and Applications, Mehdi Khosrow-Pour - Case studies in e-commerce and technology.
- Making Supply Chain Management Work: Design, Implementation, Partnerships, Technology, and Profits, James B. Ayers - Practical perspectives on EDI and VANs.

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- Free encyclopaedia of e-Commerce. Electronic Data Interchange (EDI: Advantages of EDI, how EDI works, security issues, the future of EDI. [online] http://ecommerce.hostip.info/pages/384/Electronic-Data-Interchange-EDI.html.
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Video

Basics of EDI
https://www.youtube.com/watch?v=es9bEJbmGMQ&feature=player_embedded

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