

Information Logistics

Business administration and information systems research invent new terms and concepts not only to denote new phenomena but also to convey a new perspective on problems that are known in principle. The concept of information logistics links the functions of business logistics and information management. It focuses on vertical coordination within firms and horizontal coordination within and beyond the boundaries of the firm. In a conceptual perspective, information logistics is a crucial element of a revised model of the firm. In an interorganizational perspective, information logistics refers to emerging telecommunication infrastructures.

Information logistics is part of comprehensive business logistics which encompasses logistics of goods, services and personnel as well as financial logistics.

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The flow of goods and finances is represented in information systems, and the coordination of business transactions, e.g. inter-organizational logistics chains, is supported. Within the framework of information management, information logistics focuses the production, acquisition and distribution of information. Meta-information such as directories, data dictionaries or repositories fosters an easy access to corporate and external information as well as distributed knowledge. Information systems and infrastructure management raise questions of design and strategic evaluation of logistical infrastructures: how does the usage of global telecommunication infrastructures contribute to the attainment of strategic goals and what are the new roles of the company within interorganizational networks and new cooperative forms of business alliances? While some intermediaries are replaced by electronically mediated forms of coordination, especially electronic markets, numerous new intermediaries set up or extend their business.

Information Logistics as a Management Task

The concept of information logistics focuses on the functions of control and coordination of intra- and inter-organizational information flows. The optimization of these information flows is meant to improve the coordination of business process chains and transactions in and between firms. Goals of information logistics are:

- enhanced performance and
- customer service as a result of better access to distributed information;
- better monitoring and coordination of activities;
- closer inter-company relationships and
- development of inter-company cooperation.

Information logistics is thus a complex management task: It combines the vertical dimension of coordination and integration between the different layers of management hierarchies (thus supporting non-routine tasks and integrating sales information into the MIS) and the horizontal dimension of coordination along the value chain (e.g. from R&D to production and marketing or the logistic chain in the transport of persons and goods). The latter comprises feed-forward and feed-back coordination mechanisms:

- feed-forward* information - ahead of delivery - enables speedier delivery, enhanced distribution, and earlier adaptation by the customer;
- feed-back* information from the point-of-sale supports adaptation of distribu-

tion) represent the main flows of economic production and consumption and - at the same time - fields of interaction between companies, the public sector, and finally private households. Increasingly, information logistics is becoming essential for the coordination of flows of goods, for example tracking and tracing information become an integral part of the logistics service. Financial logistics within the banking system is virtually information logistics; the exchange of money has been replaced by the exchange of financial information. While the electronic data exchange within the banking system is well advanced, the informational integration with the customers shows considerable deficiencies, however, third parties have begun to provide data exchange and clearing services. This development poses a major challenge to the traditional role of the banks. The logistics model shows the firm as an active node that encompasses a set of functions which are linked among themselves and with external functions. Logistical infrastructures provide the backbone for these links. The logistics model supports interorganizational transaction and communication analyses. It facilitates a better integration between the model of the firm and market models.

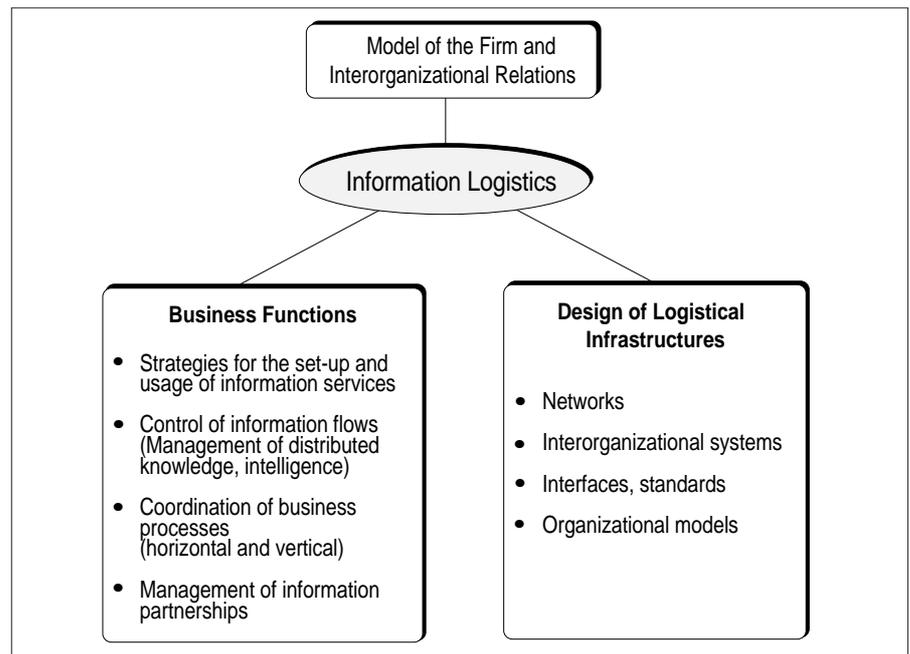


Figure 1: Facets of information logistics

tion, inventory, production planning (more efficient delivery from production to POS) and feed-back on quality (e.g. OTIS uses elevator maintenance information and statistics for pre-emptive repairs and R&D).

An Information Logistics Model of the Firm

Together, the three layers of logistics (logistics of goods, finances and informa-

Information Partnerships and Infrastructures for Information Logistics

Information logistics also encompasses the design of requisite information networks. Specialization on core competencies and globalization of business activities require better access to distributed information. Therefore, various forms of information partnerships have been initiated by independent firms in order to share:

- information, for example, about customers,
- IS infrastructures, and
- expenses for distribution and development.

Rosenbluth Travel Agency is an example of a successful set-up of a global information network combining telecommunications infrastructure and services with a cooperative network of 34 travel agents in 37 countries. In response to the deregulation in the American market for passenger travel and the introduction of computerized reservation systems (CRS), flight tariffs became highly differentiated. In this situation, Rosenbluth offered a comprehensive analysis of tariffs and flight schedules, including the tracking of orders until the actual flight date, matched against customer profiles. Rosenbluth

- aries, which primarily provide transport services, or VANS which provide routing, processing, translation, protocol conversion, and gateway services.

Logistics service can be interpreted as composite services, i.e. combinations of service components which will increasingly be provided by a number of different vendors. New services like CIL (Computer Integrated Logistics) are emerging that support the configuration of service components and cover a wide range of coordination mechanisms from tight cooperative coupling to electronic auctions.

Management implications

The diffusion of these infrastructures for information logistics fosters restructuring and reallocation of business functions and activities. A major management

the participating restaurants to the customers and charge the customers.

In all these cases, careful management has to ensure that the functional advantages of distribution and specialization are not annihilated by increased transaction costs, such as administrative costs, costs of information exchange and integration or costs of opportunistic behavior. The monitoring facilities of advanced information systems as well as the combination of horizontal and vertical coordination are essential for the management of interorganizational logistics and in general the management of interdependencies. The cited measures have to be complemented by social mechanisms of trust-building and governance in the interorganizational realm.

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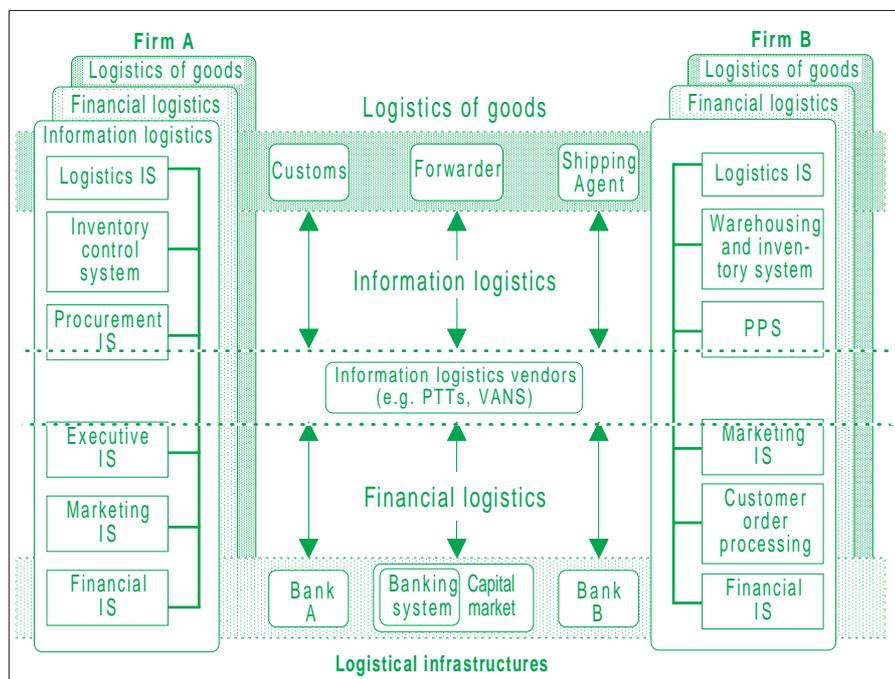


Figure 2: Firms as active logistical nodes

acts as an information broker and provides additional 24-hour assistance for their customers. In order to be able to provide this service globally and to gain so-called network externalities, Rosenbluth has set up a global network of cooperating travel agents who share information and provide local services, Rosenbluth International Alliance (RIA).

The development of interorganizational information logistics infrastructures will be characterized by a mixture of industry knowledge and technology. The vendors of information logistics services therefore can be distinguished into two groups:

- Firstly, cooperative networks of enterprises (or business partners), which share a pool of integrated services, such as on-line database access, e-mail, and services based on EDI, like product- or marketing databases.
- Secondly, communication intermedi-

task therefore is the (re-)definition of the role of the firm within interorganizational networks. The dynamics of the telecommunication markets, such as the appearance of new players and frequent redefinition of markets, is an illustrative example for the changes information logistics evokes. Lower coordination costs are a prerequisite for vertical decentralization and disintegration. More efficient coordination enables companies to develop innovative (inter)organizational forms and information systems, such as concurrent engineering, continuous replenishment, distributed development of new garment designs. "Dining-out" is a logistics service for restaurants which do not have their own home-delivery service. Customers can order from a wide variety of menus from different restaurants. Order processing is coordinated by "Dining-out" whose employees then deliver the meals from