



Architecture of the networked company

Systematic Steps To Success

Shaping collaboration between enterprises is often more challenging than building internal relationships. In translating the vision of networked processes into practice success is more likely to be achieved by a well-structured approach which includes all relevant elements. For this purpose the Institute for Information Management at the University of St. Gallen in Switzerland has developed an architecture for networked businesses in cooperation with nine prestigious companies that systematically implements a vision on three levels: strategy, process, and system.

After initial faltering, networked businesses are now coming into their own. But the emerging picture is very different from the one many stock market speculators painted just a couple of years ago. Because it's not the dot-com startups that are reshaping the economy, but the older, more established businesses. Dubbed "clicks-and-mortars", these companies are able to draw on industry expertise, established customer and supplier bases, and the much-hyped Internet infrastructure to create an economy of networked processes.

The U.S. company Avnet (Marshall Industries) pioneered the networked-business approach. Back in the late 1980s, Avnet operated as a conventional electronic components wholesaler, buying in chips and antennas and then reselling them to electronics companies (cellular phone manufacturers and so on). Then, in the early 1990s, Avnet began using the Internet to deliver services that tied in directly with its customers' processes as well. So, alongside a multi-vendor product catalog and a range of electronics-specific content, Avnet now offers its customers an array of additional services, including selecting and evaluating antennas, designing and testing an antenna in a new device, instructions for assembly, and one-stop costing. On the manufacturing side, Avnet not only helps its customers plan their parts re-

quirements and maintain their article master data, but it also handles both warehouse management and product/service billing. Today, Avnet's main competitive advantage lies not in the price of its electronic components, but in the end-to-end support it provides for its customers through a multi-channel solution (the Web, call centers, and field service).

Avnet is just one of many companies to have convincingly shown what businesses of the information age are capable of. Not only do they focus on the customer process and deliver tailored services to support as many of the customer's tasks as possible, but they follow the one-stop principle and successfully combine all the available sales channels to do so. The networked company concentrates on a small number of products and services and buys in services from third parties to complete its offering.

Nevertheless, what the successful examples of this approach also show is that, although it's undoubtedly the e-business strategy that points the way, it is essential to adopt this strategy in a series of small steps. After all, each step requires a business solution (including a profitability calculation), a business-to-business collaboration process, and an open infrastructure. This is where the architecture devised by the Institute for Information Management at the University of St. Gallen comes into play.

Business architecture

First of all, customer focus must replace product focus. It's not products that customers need, but solutions to tasks like building a house, transporting goods, or setting up a bank transfer. From the customer viewpoint, the supplier is not just a seller of goods or services, but a personal assistant helping him or her complete a specific task. As such, the supplier gradually evolves to specialize in various customer processes – just as Avnet now specializes in the development and manufacture of electronic devices.

Any strategy for building a networked company must answer three key questions:

- Customer segments. Which customers and which customer employees (roles) are you aiming to reach?
- Customer processes. Which of the processes assigned to these roles have the greatest potential? Which products and services could you bundle to make an attractive, integrated Web offering?
- Positioning in the business network. What role(s) could your company realistically play in the business network? Who functions as the service integrator, orchestrator, and aggregator? Which players can achieve critical mass?

Process architecture

Once you've redesigned your internal processes, you need to coordinate the external ones. Because business-to-business processes have remained pretty much unchanged since the division-of-labor economy came into being, there is enormous potential here. Networked processes eliminate disruptive media breaks and link up all the services that are relevant for the customer in the business network in real time. But there are three challenges to meet on the way to achieving this goal:

- Redefinition of process services to dovetail with the requirements of customer processes. As well as supplying individual services (such as procuring a specific electronic component), networked companies must support their clients by also offering bundled services.
- Collaboration processes. While integrated internal processes leapfrog departmental boundaries, collaboration processes break down barriers at business-to-business level. Standards for collaboration scenarios are already being developed (see, for example, Rosettanet.org,

ebXML (a modular suite of specifications that enables enterprises to conduct business over the Internet), CPFR (Collaborative Planning, Forecasting and Replenishment), and SCOR (Supply Chain Operations Reference model).

- Redistribution of tasks. Web services are highly specialized Internet services that make it possible to outtask aspects of a business process. Currently, the majority of these solutions are for the areas of e-payment, e-fulfillment, and e-logistics.

Information system architecture

Net-based collaboration augments database-based integration and will ultimately give rise to a message-based collaborative business infrastructure. In future, this infrastructure will ensure that business-to-business transactions run almost as smoothly and securely as internal transactions do today. Providing a hub for all applications that participate in a collaboration process, the collaborative business infrastructure consists of middleware (application integration software such as that supplied by webMethods, and SAP's Exchange Infrastructure), technical Web services for participant identification and so on (directory services from Microsoft.NET, Sun Liberty, and UDDI), and process-specific modules such as SAP Advanced Planner & Optimizer and i2's Rhythm suite.

Last, but not least, the information system architecture chosen for a networked business must take account of the software and market powers that will likely set the standards for business-to-business communication in the future.

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