Chapter 6 Supply Chain Technology—Managing Information Flows
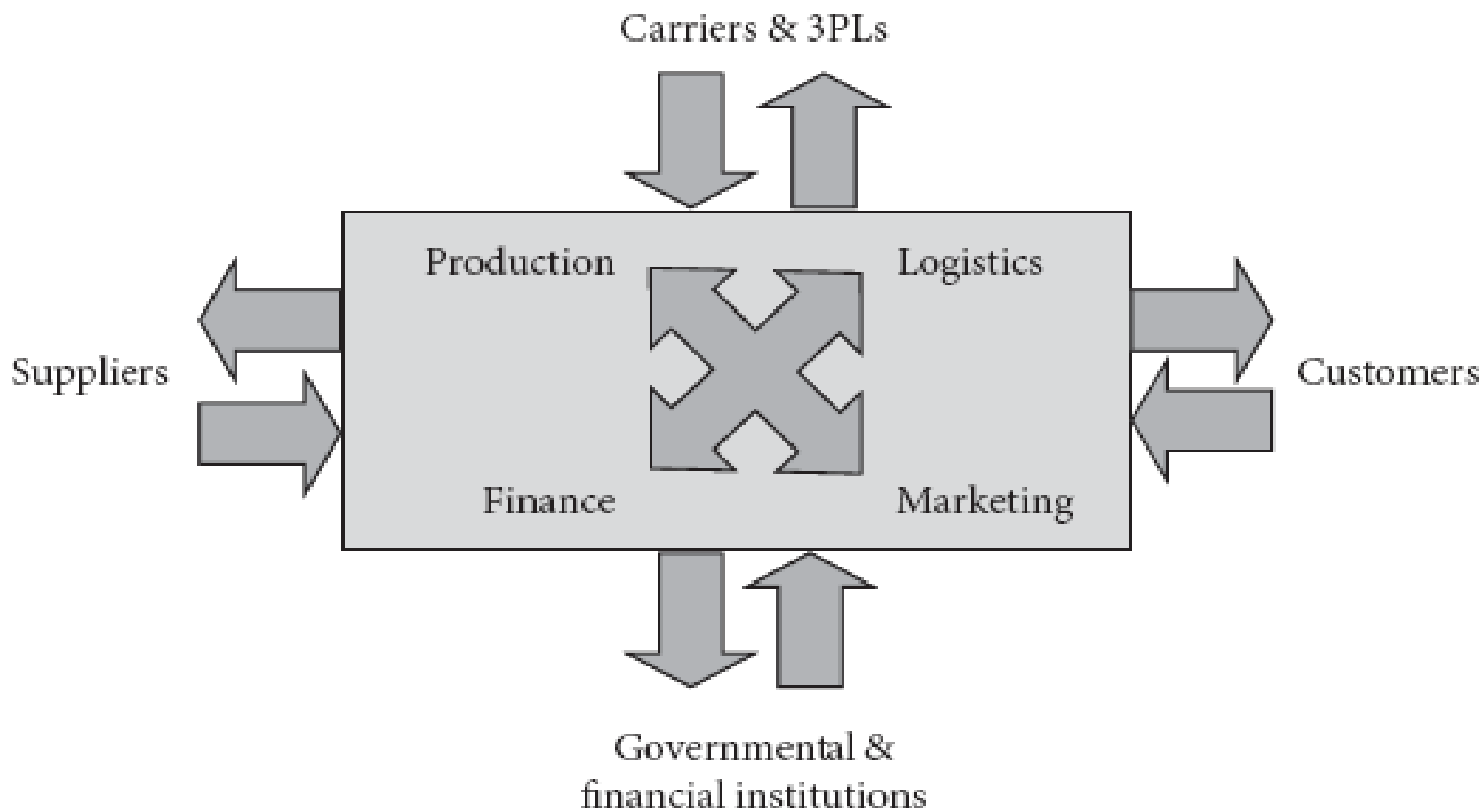
Information Technology and Supply Chains

- ☐ Information, along with materials and money, must readily flow across the supply chain to enable the planning, execution, and evaluation of key functions.

- ☐ Each participant in the supply chain needs relevant information to make effective forecasts and operational decisions.

- ☐ Existing supply chain information technologies support timely, cost-efficient sharing of information between suppliers, manufacturers, intermediaries, logistics services providers, and customers.
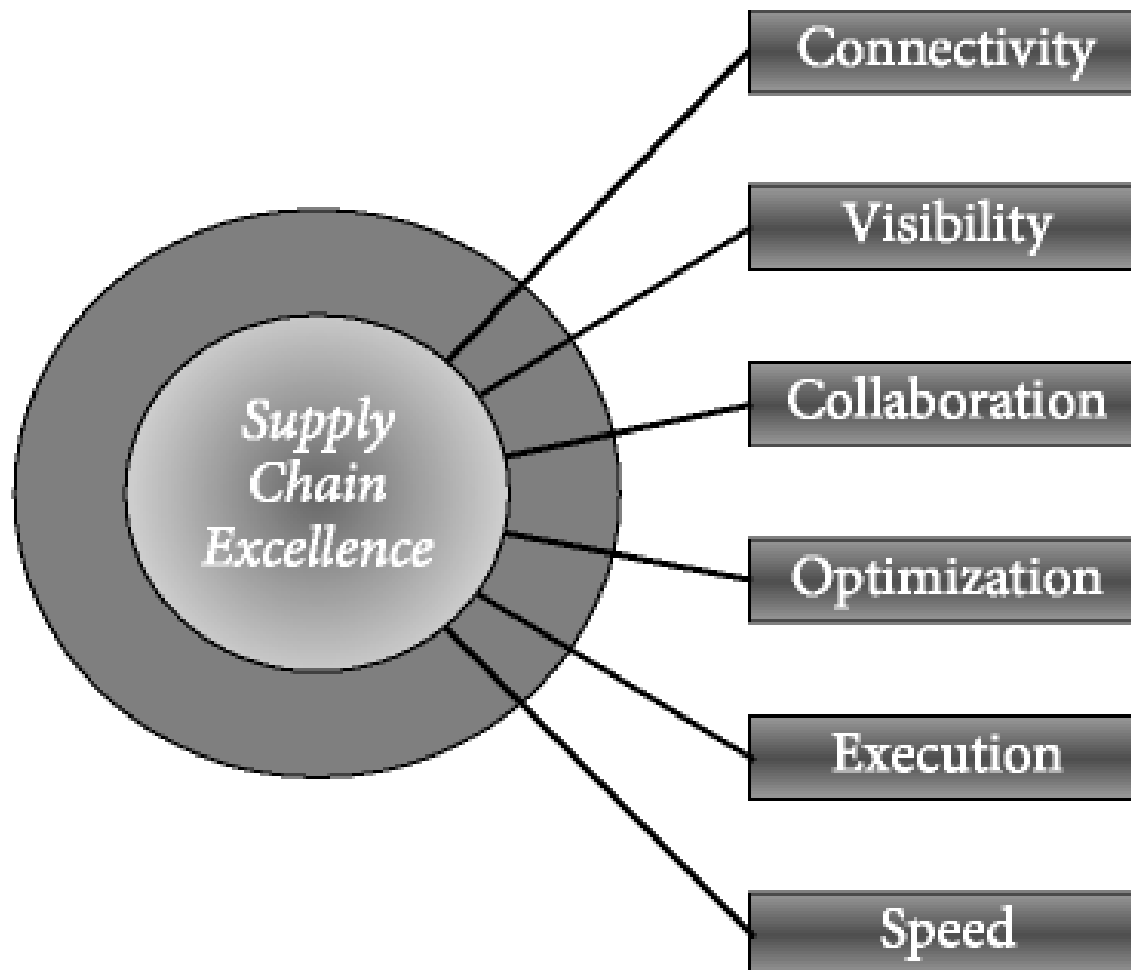
The Need for Information

☐ Information is the lifeline of business, driving effective decisions and actions. It is especially critical to supply chain managers because their direct line of sight to supply chain processes is very limited.

☐ A wide variety of information is needed for a supply chain to perform as anticipated.

☐ The seven R's - right customer, right place, right time, right quantity, right quality, right condition, right price

☐ Information must be accessible, relevant, accurate, timely, and transferable.

Figure 6-1 | Supply Chain Information Flows

Carriers & 3PLs

Suppliers

Production   Logistics

Finance   Marketing

Customers

Governmental &
financial institutions

Six Drivers of Supply Chain Excellence

10 Golden Rules for Success

- Secure the commitment of senior management.

- Remember that it is not just an information technology project.

- Align the project with business goals.

- Understand the software capabilities.

- Select partners carefully.

- Follow a proven implementation methodology.

- Take a step-by-step approach for incremental value gains.

- Be prepared to change business processes.

- Keep end users informed and involved.

- Measure success with key performance indicators (KPIs).

Data Collection and Synchronization

□ Data must be collected and synchronized so that it can be used by skilled individuals in the planning and execution of supply chain processes.

□ Data collection of relevant information is needed at every point in the supply chain.

□ Data synchronization focuses on the timely and accurate updating of item information within and across enterprises.

□ Functional expertise in each organization will be enhanced by access to the synchronized data.

Supply Chain Execution

- Supply chain execution tools and suites carry out key tasks from the time an order is placed until it is fulfilled. This order-driven category of software focuses on the day-to-day activities required to buy, make, and deliver the materials that flow through the supply chain.

Supply Chain Event Management

- Supply chain event management tools collect data in real time from multiple sources across the supply chain and convert them into information that gives business managers a clear picture of how their supply chain is performing.

Enterprise Resource Planning (ERP)

☐ ERP systems are multimodule application software platforms that help organizations manage the important parts of their businesses.

☐ ERP systems branch out to include supplier relationship management, customer relationship management, and other supply chain components, the connections between SCIS and ERP grow stronger.

☐ ERP system provides a mechanism for supply chain members to efficiently share information

Related Tools

☐ Supply chain collaboration tools help users integrate their information technology systems with those of trading partners to streamline and automate supply chain processes.

☐ Data synchronization applications provide a platform for manufacturers, distributors, and retailers to aggregate and organize item-related data.

☐ Spreadsheets and database software provides managers with handy, portable tools for gathering, consolidating, and analyzing supply chain data.
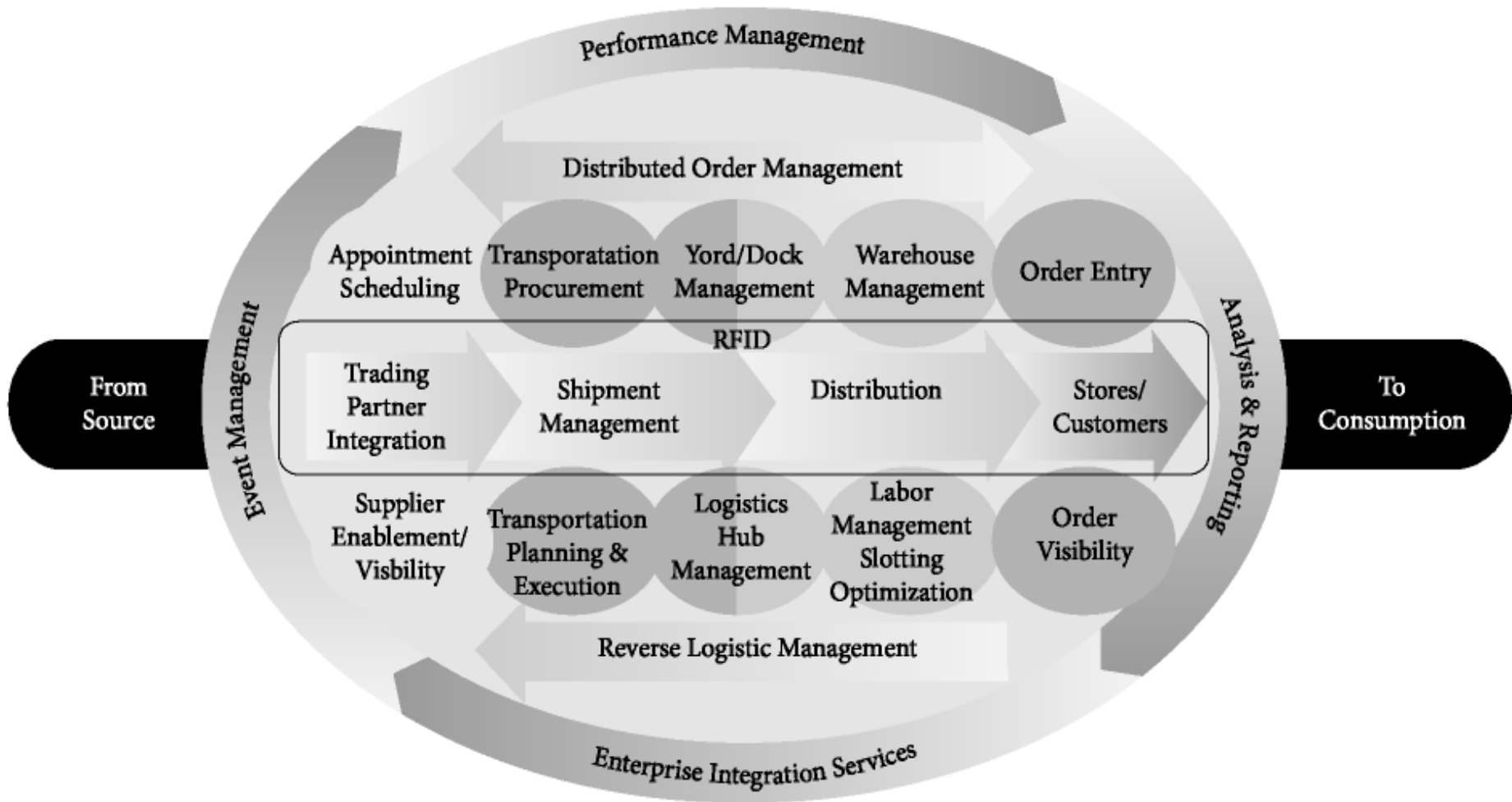
Table 6-1 — Supply Chain Event Management Opportunities

	1. DECIDE WHAT YOU WANT TO KNOW AND MEASURE.	2. DECIDE WHAT ACTIVITIES AND INFORMATION YOU NEED TO BE TOLD ABOUT.	3. DRIVE TOWARD RESOLUTION OF PROBLEMS TO THE APPROPRIATE SYSTEMS.
	MEASURE	MONITOR/NOTIFY	SIMULATE/CONTROL
Orders	• Customer-satisfaction levels across products	• Late deliveries or notifications of past-due dates	• Choose alternative transportation modes or alternative suppliers
Shipments	• On-time shipments • Carrier pick-up performance levels	• Late arrivals of shipments • Projected carrier pick-up behind schedule	• Notify carrier of lateness • Choose alternative carriers or alternative modes of transportation
Inventory	• Inventory levels and adherence to safety-stock levels	• Stock-outs • Inventory below safety levels	• Determine alternative source of inventory • Increase orders to suppliers
Manufacturing	• WIP levels by family	• Delays in production • WIP build-ups	• Choose alternative manufacturing solution • Push WIP into finished goods
Financial	• Order to cash cycle time	• Payments pending • Late payments • Late invoicing	• Remind suppliers of payments • Renegotiate pricing

Source: "Tackling Uncertainty: Improving Responsiveness with Supply Chain Event Management" (Cambridge, MA: Sapient Corporation, 2002).

Figure 6-7 | **Supply Chain Software Suite**

Performance Management

Distributed Order Management

Appointment Scheduling — Transporatation Procurement — Yord/Dock Management — Warehouse Management — Order Entry

RFID

Trading Partner Integration — Shipment Management — Distribution — Stores/Customers

Supplier Enablement/Visbility — Transportation Planning & Execution — Logistics Hub Management — Labor Management Slotting Optimization — Order Visibility

Reverse Logistic Management

Enterprise Integration Services

Event Management

Analysis & Reporting

From Source

To Consumption

Source: Manhattan Associates, Inc.

Software Options

☐ Commercial software

☐ In-house solutions
- choose between single vendor suites, applications from multiple vendors, consider licensing versus on-demand purchases

☐ Solutions Packages
- determine what types of applications are needed and how they should be purchased

Purchase Options

- ☐ Software vendors
  - ■ installed on the buyer's powerful client-server systems
  - ■ downside is high capital investment and complex deployment associated with conventional licensed applications

- ☐ Application Service Providers
  - ■ ASP owns and operates the software application and its servers that run the application with access via the Internet.

Data Standardization

- ☐ Coordinating and sharing information across the supply chain can be a significant challenge.

- ☐ EDI provides interorganizational, computer-to-computer exchange of structured information in a standard, machine-processable format.

- ☐ XML is a robust, logically verifiable text format based on international standards. It provides a flexible way to create structured, common information formats and share both the format and the data via the Internet, intranets, and other networks

Asking the Right Questions

- ☐ Who will lead our implementation effort?

- ☐ How will technology support our business needs and processes?

- ☐ What is the status of our existing data?

- ☐ How well does our existing system integrate with suppliers and customers?

- ☐ What external issues must our systems address?

Radio-Frequency Identification (RFID)

- RFID is an automatic identification method. RFID tags consist of a microchip and a printed antenna that can be packaged into many forms, such as a label, or imbedded in between the cardboard layers in a carton or product packaging.

- Unique product identification information, in the form of a universal electronic product code (EPC) identifying the manufacturer, product category, and individual item, is stored on these 96-bit tags.

- RFID technology costs must continue to decline to make product tagging economically feasible; equipment issues such as reader range, sensitivity, and durability must improve; the case for supplier return on investment of RFID mandates must be made; and consumer privacy issues must be resolved.
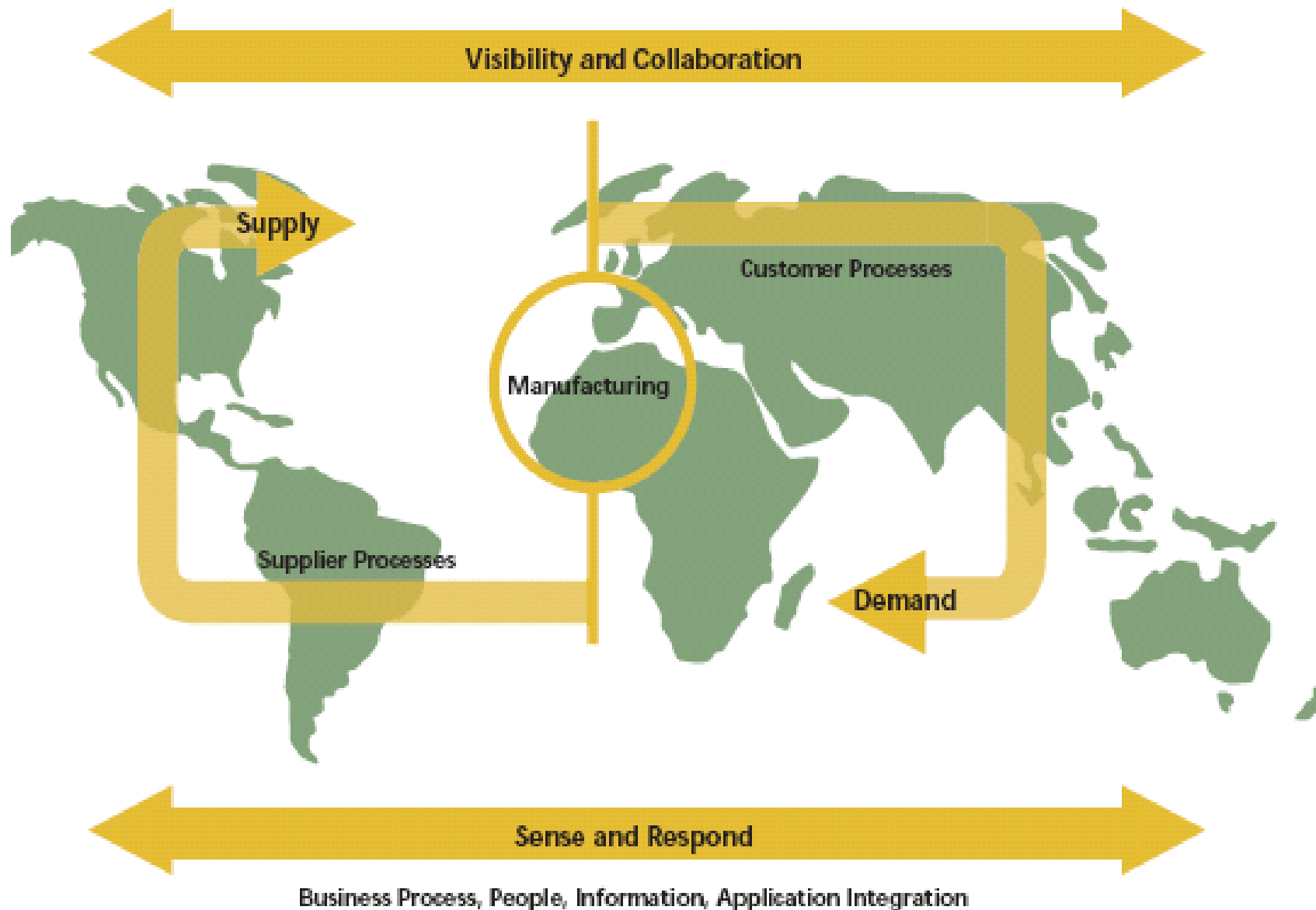
Adaptive Supply Chain Networks (ASCN)

☐ These integrated, flexible networks of companies, technology tools, and processes focus on customers and their changing requirements. An effective ASCN can sense and respond to changes in real time, allowing the network to prevent or minimize supply chain problems.

☐ ASCNs help meet the growing need for supply chain connectivity and collaboration. Connectivity provides visibility.

Adaptive Supply Chain Networks

Adaptive Supply Chain Networks

Plan and adapt to network-driven demand based on business objectives
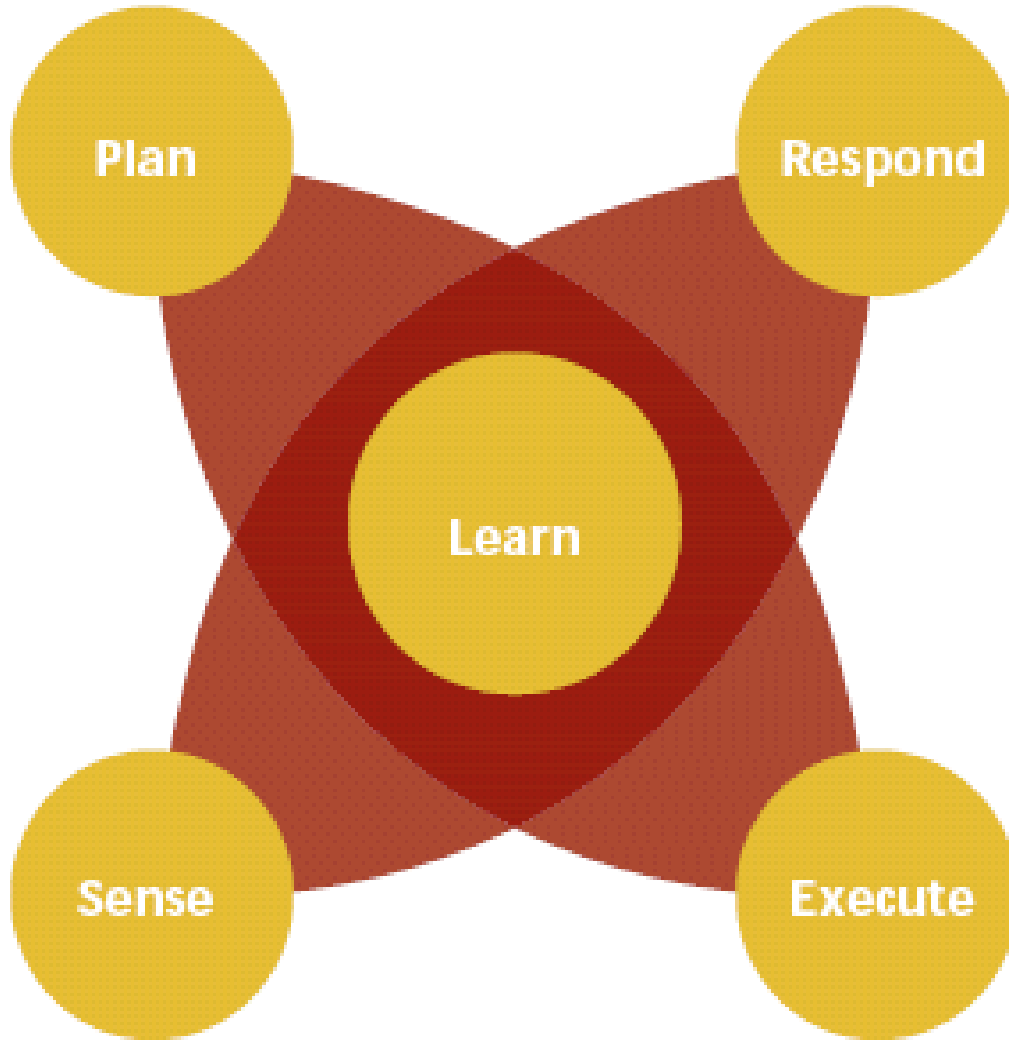
Collaborate on and respond to internal, demand and supply deviations across the business network

Plan

Respond

Learn

Sense

Execute

Sense the deviations caused by internal and external events in real time and alert the appropriate people

Execute a supply chain network based on available or anticipated supply network and logistics resource capabilities