**TABLE 12.2 CONCEPTS AND CHALLENGES IN SUPPLY CHAIN MANAGEMENT**

| CONCEPT/CHALLENGE | DESCRIPTION |
|---|---|
| Visibility | Ability to monitor suppliers, orders, logistics, and pricing |
| Demand forecasting | Informing your suppliers of future demand |
| Production scheduling | Informing your suppliers of the production schedule |
| Order management | Keeping track of orders to your suppliers |
| Logistics management | Managing your logistics partners based on your production schedule |

### THE ROLE OF EXISTING LEGACY COMPUTER SYSTEMS AND ENTERPRISE SYSTEMS IN SUPPLY CHAINS

Complicating any efforts to coordinate the many firms in a supply chain is the fact that each firm generally has its own set of legacy computer systems, sometimes homegrown or customized, that cannot easily pass information to other systems. **Legacy computer systems** generally are older enterprise systems used to manage key business processes within a firm in a variety of functional areas from manufacturing, logistics, finance, and human resources. **Enterprise systems** are corporate-wide systems that relate to all aspects of production, including finance, human resources, and procurement. Many large Fortune 500 global firms have implemented global enterprise-wide systems from major vendors such as IBM, SAP, Oracle, and others. Generally enterprise systems have an inward focus on the firm's internal production processes, and only tangentially are concerned with suppliers. More contemporary cloud-based dedicated B2B software that can be integrated with existing enterprise systems is growing in importance. Companies such as IBM, Oracle, and SAP have developed SaaS (software as a service) or on-demand cloud-based supply chain management systems that can work seamlessly with their legacy offerings. Cloud-based supply chain management revenues are growing at 25% annually, although many firms prefer to maintain their own supply chain management systems on their private clouds rather than use shared public cloud services (Chao, 2015; Accenture, 2014).

**legacy computer systems** older mainframe systems used to manage key business processes within a firm in a variety of functional areas

**enterprise systems** corporate-wide systems that relate to all aspects of production, including finance, human resources, and procurement

## 12.3 TRENDS IN SUPPLY CHAIN MANAGEMENT AND COLLABORATIVE COMMERCE

It is impossible to comprehend the actual and potential contribution of B2B e-commerce, or the successes and failures of B2B e-commerce vendors and markets, without understanding ongoing efforts to improve the procurement process through a variety of supply chain management programs that long preceded the development of e-commerce.

**Supply chain management (SCM)** refers to a wide variety of activities that firms and industries use to coordinate the key players in their procurement process. For the most part, today's procurement managers still work with telephones, e-mail, fax machines,

**supply chain management (SCM)** refers to a wide variety of activities that firms and industries use to coordinate the key players in their procurement process

face-to-face conversations, and instinct, relying on trusted long-term suppliers for their strategic purchases of goods directly involved in the production process.

There have been a number of major developments in supply chain management over the last two decades that set the ground rules for understanding how B2B e-commerce works (or fails to work). These developments include just-in-time and lean production, supply chain simplification, adaptive supply chains, sustainable supply chains, electronic data interchange (EDI), supply chain management systems, and collaborative commerce.

## JUST-IN-TIME AND LEAN PRODUCTION

**just-in-time production**
a method of inventory cost management that seeks to reduce excess inventory to a bare minimum

**lean production**
a set of production methods and tools that focuses on the elimination of waste throughout the customer value chain

One of the significant costs in any production process is the cost of in-process inventory: the parts and supplies needed to produce a product or service. **Just-in-time production** is a method of inventory cost management that seeks to reduce excess inventory to a bare minimum. In just-in-time production, the parts needed for, say, an automobile, arrive at the assembly factory a few hours or even minutes before they are attached to a car. Payment for the parts does not occur until the parts are attached to a vehicle on the production line. In the past, producers used to order enough parts for a week or even a month's worth of production, creating huge, costly buffers in the production process. These buffers assured that parts would almost always be available, but at a large cost. **Lean production** is a set of production methods and tools that focuses on the elimination of waste throughout the customer value chain. It is an extension of just-in-time beyond inventory management to the full range of activities that create customer value. Originally, just-in-time and lean methods were implemented with phones, faxes, and paper documents to coordinate the flow of parts in inventory. Supply chain management systems now have largely automated the process of acquiring inventory from suppliers, and made possible significant savings on a global basis. Arguably, contemporary supply chain systems are the foundation of today's global B2B production system.

## SUPPLY CHAIN SIMPLIFICATION

**supply chain simplification**
involves reducing the size of the supply chain and working more closely with a smaller group of strategic supplier firms to reduce both product costs and administrative costs, while improving quality

**tight coupling**
a method for ensuring that suppliers precisely deliver the ordered parts, at a specific time and particular location, to ensure the production process is not interrupted for lack of parts

Many manufacturing firms have spent the past two decades reducing the size of their supply chains and working more closely with a smaller group of strategic supplier firms to reduce both product costs and administrative costs, while improving quality, a trend known as **supply chain simplification**. Following the lead of Japanese industry, for instance, the automobile industry has systematically reduced the number of its suppliers by over 50%. Instead of open bidding for orders, large manufacturers have chosen to work with strategic partner supply firms under long-term contracts that guarantee the supplier business and also establish quality, cost, and timing goals. These strategic partnership programs are essential for just-in-time production models, and often involve joint product development and design, integration of computer systems, and tight coupling of the production processes of two or more companies. **Tight coupling** is a method for ensuring that suppliers precisely deliver the ordered parts at a specific time and to a particular location, ensuring the production process is not interrupted for lack of parts.

## SUPPLY CHAIN BLACK SWANS: ADAPTIVE SUPPLY CHAINS

While firms have greatly simplified their supply chains in the last decade, they have also sought to centralize them by adopting a single, global supply chain system that integrates