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# Print media distribution: A Look at infrastructure, systems, and trends

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# PRINT MEDIA DISTRIBUTION

A LOOK AT INFRASTRUCTURE,  
SYSTEMS, AND TRENDS

TWYLA CUMMINGS

WITH BERNICE LEMAIRE



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SECTION ONE

PRINT MEDIA  
DISTRIBUTION:  
THE BIG PICTURE

# DISTRIBUTION IN THE UNITED STATES

**L**ONG BEFORE THE FORMATION OF THE U.S. Postal Service, products and materials were transported from one place to another with several stops along the way to their final destination. Prior to 1900, stage coaches, ships and trains were the most common means for the movement of products. With these modes of transportation, it was not uncommon for a person or business to wait weeks if not months for the arrival of a product ordered from a manufacturer or retail outlet. Given the minimal competition during this era, this was an accepted practice for businesses and consumers.

## **A CLOSER LOOK AT DISTRIBUTION**

Distribution and shipping of products is a critical function that intersects and supports all industries. It is a process that has changed dramatically over the past 100 years. Prior to 1900 products and information were commonly distributed via:

- *Land.* Shipment and travel on land was done by horseback, mule or by stagecoaches and wagons. In 1860, the Pony Express was established to deliver messages and mail to remote parts of the country not accessible by telegraph or train. Although this service had a short lifespan its existence made a significant impact on the transportation industry.<sup>1</sup>
- *Rail.* Developed in the early 1800s, rail technology emerged during the last half of the 19th century. Prior to this time economic development had been closely tied to enhancing waterway transportation systems. Most early rail lines were local and often served in a feeder capacity for water and highway carriage.<sup>2</sup>
- *Water.* A variety of water vessels including flatboats, barges and steamboats were used as a means to transport people and products.

These transportation modes were slow and expensive.<sup>3</sup>

- *Telegraph.* Western Union was established in 1851 and provided coast to coast communications over telegraph lines. In 1871 Western Union launched its Money Transfer Service. After a long history as a communications provider, Western Union discontinued its telegram service in 2006. However, the company is still a major player in the global money transfer business.<sup>4</sup>

Throughout the years, technological developments have led to major shifts in the market positions of the various forms of distribution. Newer technologies typically offer speed, flexibility, and cost advantages over earlier transportation and distribution systems; therefore, as these technologies evolve, the focus shifts to these newer modes.<sup>5</sup> Because of advances in our technological landscape and the physical development of roadways and highways there are more options for the distribution of information, people and products. The developments in physical distribution are directly related to the increase in competitive approaches by product manufacturers. Expanding products into new markets, getting products to market faster, and reducing costs all require a continual cycle of development.

In addition to rail and water, today information and products are transported via various physical and electronic means. The most common methods include:

- *Roadways.* In 1956 the development of the contemporary highway network began and since that time it has yielded enormous benefits to our nation. Additionally, as the highway system expanded and improved in quality, the number of employment opportunities in this area steadily increased. Whether classified as short haul, long haul, less than truckload (LTL), or full truckload (FTL), motor freight and trucking represent a major part of distribution.
- *Air.* Since the first manned aircraft flight in 1903, the development of commercial aviation has continued to expand. Today airlines account for a major portion of the transportation of mail and other cargo.
- *Facsimile.* Prior to e-mail the facsimile was a common method to quickly send documents to another person. Fax machines are still used today for documents not available in digital form or when the capability to scan and attach the document is not an option.
- *Telephone.* Since its invention in 1876 the telephone has been a key means of communicating information from one individual to another. With advancements in technology and the advent of the cellular tele-

phone this capability has expanded. Today telephones are commonly used for functions such as teleconferencing, which allows meetings to be held without the expense and sometimes inconvenience of meeting face-to-face.

- *Internet.* The World Wide Web is an enabler for sending all types of information quickly and to an international audience at any time of day or night. A major component of Internet distribution is e-mail communication. Gone are the days when the only option available for sending certain types of documents was to put them in an envelope or box for mailing or shipping. Documents or scanned images can be attached to email messages and sent over the Web, allowing recipients to either read them on the screen or print them on their own printers.

Effective distribution of products in the U.S. relies heavily on the transportation and communication industries. There has been tremendous growth in each of these industries that has changed the way in which products were formerly delivered to the end user and how information was shared.

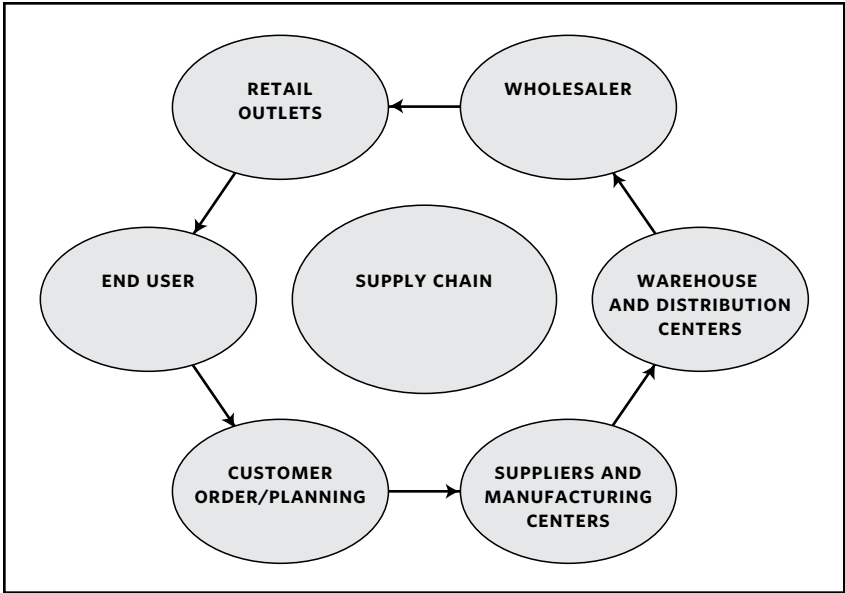
The Office of Management and Budget (OMB) classifies all U.S. industries by the North American Industry Classification System (NAICS). Introduced in 1997, NAICS replaces the 1987 Standard Industrial Classification (SIC). In this classification the transportation industry is listed under code 481-484, which covers air, rail, water, and truck transportation. The communication industry is best categorized by code 515 where the focus is on broadcasting, and code 517 which focuses on telecommunications.<sup>6</sup>

The U.S. benefits from the existence of a highly developed and extensive transportation network. As an integral part of national production and distribution systems, an adequate transportation network is necessary to provide a means of servicing domestic and international markets. As the economy increases and expands the demand for transportation and services also increases.<sup>7</sup>

#### **DRIVERS OF SUCCESSFUL DISTRIBUTION SERVICES**

Integral to any effective distribution process is the management of an effective supply chain. The supply chain (Figure 1.1) is comprised of suppliers, manufacturing centers, warehouses, distribution centers, and retail outlets. It involves the use of raw materials, work-in-process (WIP) inventory, and finished products.





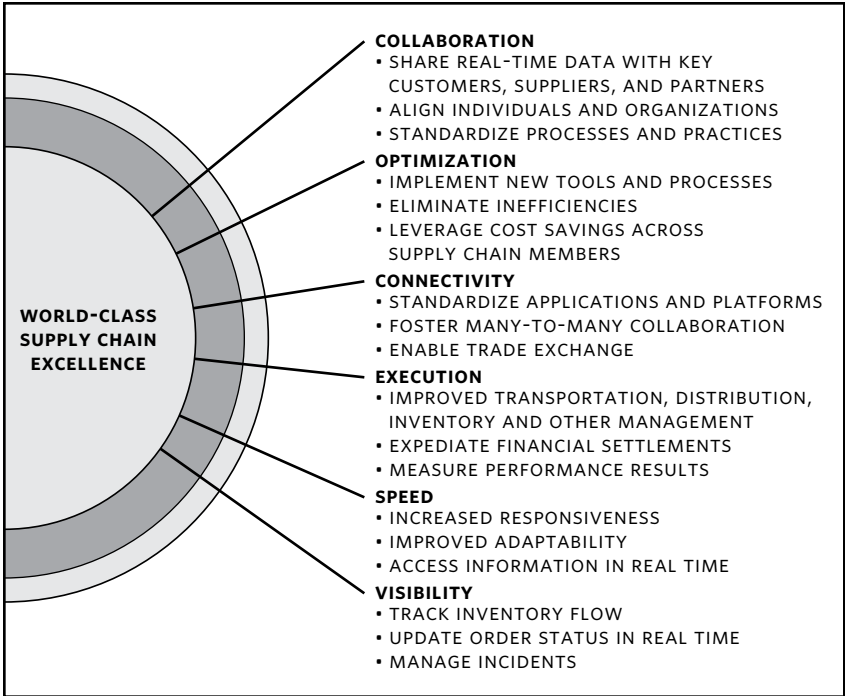
**Figure 1.1** *Supply Chain Network*

Supply chain management is a set of approaches used to efficiently integrate suppliers, manufacturers, warehouses, and stores so that merchandise is produced and distributed in the right quantities, to the right locations, and at the right time in order to minimize system-wide costs while satisfying service-level requirements.<sup>8</sup>

The management of the supply chain is critical because it

1. provides a mechanism for cost reduction and increasing profitability,
2. allows for the formation of strategic partnerships between suppliers and distributors, and
3. establishes a formal process with defined plans to accomplish logistical goals.

A study on trends and issues in distribution logistics and transportation analyzed the six drivers necessary for achieving logistics and supply chain management excellence.<sup>9</sup> These drivers (collaboration, optimization, connectivity, execution, speed, and visibility), shown in Figure 1.2, are the key components of a successful supply chain. The research results noted that firms are facing some of the biggest challenges today in terms of transportation, logistics and supply chain. Their ability to make good decisions across all of these drivers will determine their success in the long term.



**Figure 1.2** *World-Class Supply Chain Excellence*<sup>10</sup>

Across all industries several factors must be considered in order to have an effective and cost-efficient distribution operation. These factors include:

- Establishing long-term trucking contracts for protection against rate increases. This strategy can be accomplished by membership in trucking associations such as IDW (Independent Drivers Worldwide), or by working with 3rd-party vendors to transport product.
- Establishing and maintaining strong internal communications between the distribution department and other related organizational units (customer service, for example).
- Establishing and maintaining effective customer communications to ensure that the distributor understands each customer’s needs and requirements.
- Building solid relationships with carriers, such as the USPS, UPS (United Parcel Service), and FedEx.
- Maintaining the physical distribution environment:
  - addressing storage limitations and securing off-site storage where necessary, and

**HIGHLIGHT 1.1**  
**THE WAL-MART WAY:**  
**A MODEL FOR EFFECTIVE DISTRIBUTION**

Wal-Mart, which has more than 80 U.S. distribution centers, prides itself on its distribution operations. These distribution centers serve thousands of U.S. Wal-Mart stores. The majority of Wal-Mart's merchandise goes through a distribution center before being shipped to a store. The typical center is approximately 1 million square feet in size and, as with many of its stores, operates 24 hours a day, 7 days a week.

Wal-Mart uses a procedure known as "cross-docking" to replenish inventory in its distribution centers: goods are continuously delivered to Wal-Mart's distribution centers and from there are dispatched to stores without ever sitting in inventory. This system limits inventory costs and decreases lead and storage times.<sup>11</sup>

In April 2004, Wal-Mart began receiving supplier cases and pallets of product with Radio Frequency Identification (RFID) tags in an effort to prevent inventory shortages. This had an impact all the way back through the supply chain, requiring suppliers to get better visibility into their own pipelines, adopt leaner and perhaps just-in-time (JIT) methods, and coordinate procurement, manufacturing, and logistics.<sup>12</sup>

Founded less than 50 years ago, the Bentonville, Arkansas, company is one of today's largest profit-making enterprises in the world.<sup>13</sup> Wal-Mart now has over 4,000 U.S. stores.<sup>14</sup> Processes such as cross-docking and RFID are vital to the continued effectiveness and growth of its distribution center operations.

- incorporating and monitoring safety programs and procedures.
- Developing an understanding for how economic and environmental factors can impact product distribution to allow for proactive strategies such as the development of a disaster plan or one for long-term financial planning.

Distribution of printed materials in some cases is similar to the distribution of consumer and industrial products. In a simplified workflow, a printer manufactures the product and delivers it either directly to the customer, to a mail house, to a distribution center, or to the end-user of the product. In the consumer world, distribution centers ship to a large number of outlets. Wal-Mart

often comes to some people's mind when they hear the term "distribution." Wal-Mart has the most sophisticated logistics management system among all retailers in the world, and the core of its system is the distribution center.<sup>15,16</sup> Wal-Mart's distribution model is further illustrated in Highlight 1.1.

#### **CHAPTER SUMMARY**

Distribution of products and information has a long history in the U.S. Technology has advanced the distribution industry providing faster, flexible and more cost-effective transportation options for manufacturers, distributors and consumers.

Effective distribution operations require the understanding and management of a logical supply chain function. Additionally, distributors must consider several factors to ensure that the most cost-effective processes will be incorporated.

A popular example of the ideal distribution system is the one used by Wal-Mart, which has incorporated cross-docking and RFID to effectively turn over and manage its inventory and shipments to the numerous retail stores in its network.