Distribution of Media and Information

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12.1 Introduction

What was the world's largest private company in the eighteenth century? As mentioned in ▶ Chap. 7 Intellectual Asset Management, it was the Thurn and Taxis postal firm, which ran the postal monopoly in the Habsburg territories of Central and South-Eastern Europe. And in the late nineteenth century? Western Union, with its telegraph monopoly in the USA. Similarly, for most of the twentieth century, the telecom company AT&T was the world's largest business firm, with almost two million employees. What are the common elements? These companies were distribution networks for information. It seems that this activity, through several centuries, has been big, important, and profitable.

This chapter will therefore discuss the role of such distribution as a central activity in the information sector, with its especially rapid technological innovation and change.

We will cover in this chapter:

- The architectures of distribution networks;
- The economics and analytical tools of distribution;
- Wholesale and retail distribution and their trends;
- The impact of distribution on content.

At the end of this chapter, you will have an added understanding of distribution and the managerial prowess to operate this function or to collaborate with it. This will be useful in many endeavors. There are few examples of a company or non-profit organization whose products and services do not require some form of distribution to users or other producers.

12.1.1 The Definition of "Distribution"

First, let's define the term. "Distribution" must be distinguished from "marketing," "logistics," or "packaging." *Distribution* is concerned with moving the product or service to the customer, while *marketing* deals with developing a market for the product. *Logistics* is the management of the flow of products and inputs in support of distribution. And *packaging*, such as the assembly of content by a cable channel, TV network, or music label, is the creation of a branded steady flow of a media product. That content package is then distributed.

12.1.2 The Myths of Media Distribution

The three legs of media are distribution, content, and technology devices. Within media firms, the distribution function is usually considered less prestigious than content production, yet it is an essential skill in an environment of glut, globalization, and multiple platforms. Indeed, we will end up concluding that it is effective distribution that gives a media firm the edge over its competitors. To reach that conclusion requires an analysis of several prevailing myths.

12.1.2.1 Myth #1: "Content Is King"

"Content is king" is a cliché in the media sector. It is based on the belief that content is scarce and difficult to produce, while distribution is a fairly pedestrian logistics operation and business activity. But is it possible that, in actuality, "distribution is king"? The relative power of the elements in a value chain is based on the relative scarcity prevailing in that stage, and the market power of its providers. We will observe that distribution, given its fundamental economics, is typically conducted in much more concentrated markets by very large firms, compared to content production, which has much lower entry barriers and is not inherently concentrated. Distribution firms often leverage their strength in their own particular stage of distribution into a role in content creation and content aggregation.

12.1.2.2 Myth #2: Technology Breaks Up Market Power in Distribution

New technology creates new and powerful methods of distribution: broadband Internet, fiber optic networks, mobile wireless, and additional cable and satellite channels. More advanced distribution technology means indeed fewer technical bottlenecks, but not less market power by a distribution company. Technical advance is supposed to overcome traditional market power in distribution. But as we shall see, technology has raised the economies of scale of distribution networks, and hence reduces the number of players and raises their market power. Therefore, distribution markets become more rather than less concentrated.

12.1.2.3 Myth #3: E-distribution Leads to the Disintermediation of Retailing and Wholesaling

The notion of "disintermediation," in which manufacturers can deal directly with customers and leapfrog retailers, or wholesalers, or both, has been popular. But in fact, retailers and wholesalers are needed and fulfill several essential functions. New types of distributors arise but the function itself does not disappear. On the contrary, the new distribution intermediaries are more powerful and central than ever.

12.1.2.4 Myth #4: Electronic Distribution Is Very Different from Physical Distribution, and as a Result Everything Changes

People often make a big distinction between electronic and physical distribution, between the delivery of "bits" versus that of "atoms," but in reality, there are great conceptual, structural, and organizational similarities between these two types of distribution. In particular, both electronic and physical distribution are organized around *networks* whose "architecture" is based on similar principles even if the technical nature of their components differ. Thus, changes in the competitive position of the major distributors are usually not inherent in the technology but in the inability of existing distributors to modify and adapt.

12.1.3 Distribution Networks

To discuss the nature of distribution in the media and information sector, we will start by looking at the central structure of distribution—networks.

Networks are systems for the distribution of products, raw materials, people, energy, and information. A network is a set of nodes that are interconnected by links, among which there is a flow of products or signals.[1]

Examples of *physical* distribution networks, with their key technological breakthroughs and successful commercial introduction, are:

- Ships and barges (steamships, 1807, by Robert Fulton);
- Railroads (1830, by George Stephenson);
- Pipelines (1870s, Rockefeller's Standard Oil Co.);
- Airlines (1930s, Juan Trippe's Pan American).

Some networks are not made up of physical infrastructure at all, but exist as "virtual" relational systems among people. "Old boy" networks, or networks of political supporters, are examples.

Before the nineteenth century, information was available mostly only as a physical product, such as letters or newspapers, and could travel no faster than people or animals (such as horses or carrier pigeons). For example, a piece of correspondence sent from New York to Chicago in 1800 took six weeks to arrive.[2] By 1857, with the advent of the railroad the same letter would get to Chicago in two days.[3] Even this was still painfully slow, from today's perspective.

Human beings have always searched for ways to speed up the physical delivery of information by moving to non-physical signaling. Early attempts included signals by drums, torch, or smoke. In 1810, Napoleon enlisted the inventor Claude Chappe to help run his empire and army by creating a semaphore telegraph. A message could be sent from Paris to Brussels at a peak speed of 100 miles per hour with the use of hilltop relay towers which signaled coded letters by way of changing the configuration of two long arms. However, the Chappe System had a low capacity, could only be used in good weather and daylight, and was limited to military and official use.

New technology generations of information distribution followed each other almost every decade. After a scientific and engineering phase, they spread widely.

- 1840s: telegraphy;
- 1880s: telephony;
- 1900s: wireless radio telegraphy;[4]
- 1920s: radio broadcasting;[5]
- 1940s: television broadcasting;
- 1960s: cable TV distribution;

1 Castells, Manuel. *The Rise of the Network Society*. Malden: Blackwell Publishers, 2000, 470.

2 Pred, Allan R. *Urban Growth and the Circulation of Information: The United States System of Cities, 1790–1840*. Cambridge, Massachusetts: Harvard University Press, 1973, 176.

3 Chandler, Alfred D. Jr. *The Visible Hand: The Managerial Revolution in American Business*. Cambridge Massachusetts: Harvard University Press, 1977, 85.

4 A World of Wireless. "Early Days of Wireless." Last accessed July 7, 2010. ► http://home.luna.nl/~arjan-muil/radio/history/history-frame.html.

5 A World of Wireless. "Radio Days." Last accessed July 7, 2010. ► http://home.luna.nl/~arjan-muil/radio/history/history-frame.html.

- 1970s: communications satellites;
- 1980s: mobile cellular wireless;
- 1980s: packet data networks;
- 1990s: the Internet;
- 2000s: fiber-based broadband networks.

What these technologies have achieved, among other impacts, is to accelerate the speed of distribution as well as its scope. Whereas in the past the range of a media activity was local or regional, it became national and increasingly global.

12.1.3.1 Case Discussion

Bertelsmann's Media Distribution

The German firm Bertelsmann is one of the world's most diversified, internationalized, and largest media companies. It is deeply rooted in several media operations whose distribution is being transformed. Adapting to these changes and formulating a fundamental strategy of moving forward will be Bertelsmann's key to success.

The Bertelsmann company was founded in 1835 as a publisher of hymn books in Germany, with an anti-liberal theological perspective. It became a medium-sized book publisher located in the small town of Gütersloh. The firm grew large, and in time became Nazi Germany's largest supplier of propaganda books. After World War II, a transfer of control was mandated to the owner's young son Reinhard Mohn, who in the 1950s and 1960s successfully took the firm into book clubs and magazines. Later, ownership was transferred to the Bertelsmann Foundation, controlled by the Mohn family. The firm moved into music, film, and TV.

In 2017, Bertelsmann had 119,000 employees (about 40,000 in Germany), and was active in 50 countries. Bertelsmann's structure is highly decentralized. In 2017 revenues amounted to approximately $20 billion. Of this, 37.6% came from TV (the RTL Group, including its film company UFA and the British TV producer Freemantle), 28% from outsourcing business services (Arvato), 14% from magazines (Gruner + Jahr), 13.5% from books (PenguinRandom House), and 7.3% from printing (Be and others). Penguin Random House, created by a 2013 merger of Bertlesmann's Random House and the UK publisher Pearson's Penguin Group, is the world's largest general-interest book publisher, putting out approximately 9000 new book titles per year. Random House's presence is strongest in the USA, the UK, Spain, and Germany.

BMG Music Entertainment (Bertelsmann Music Group) used to be one of the world's top five major music companies. It comprised a number of record labels, for example RCA, Arista, and Columbia. Bertelsmann was also one of Europe's largest radio companies. In 2004 it merged its music operations with those of Sony, but then sold its share to Sony several years later, and much of its music publishing to Universal Music Publishing. Its BMG Rights Management still holds the rights to about 100,000 songs, for which it handles the marketing and artist management.[6]

For many years, "media clubs" were a key sales channel for Bertelsmann's music and book publishing. Direct Group's media clubs, both general and special interest, had 32 million members in 22 countries. But this declined to 15 million customers in 16 countries. But they are still the world's largest.

Bertelsmann is a major European online video company, through the RTL Digital Hub, which includes Broadband TV, StyleHaul, as well as the online advertising service SpotXchange.

Bertelsmann Physical vs Electronic Distribution

Figure 12.1 shows how dominant Bertelsmann's physical distribution was at the turn of the century—books, magazines, music CDs, films—and how rapidly it was being transformed into electronic distribution, primarily digital in nature.

What are Bertelsmann's main distribution challenges?

In a 2012 article, Germany's major news magazine *Der Spiegel* criticized Bertelsmann for having had "a lost decade" and for being far behind competitors in terms of online operations, including in comparison to German media firms like Axel Springer AG. *Der Spiegel* argued that Bertelsmann's problems started when it focused on the buyback of shares from the Belgian firm GBL instead of investing in future-oriented online activities.

Each medium faced its particular distribution challenges.

The questions that Bertelsmann's management thus had to face include:

- What impact has the trend to broadband communications on Bertelsmann's distribution and operations?

6 Sony Music. "Sony Music Entertainment." 2010. Last accessed July 7, 2010. ► http://www.sonymusic.com.

- How has Bertelsmann's content production benefited from its distribution activities?
- What is the impact of the move to broadband (high capacity Internet) communications on Bertelsmann?
- How are the supply chains of Bertelsmann's several business units being affected?
- Will the challenges of digital network distribution force Bertelsmann to become a partly content-based company? Will it force Bertelsmann to become much more of a technology company?

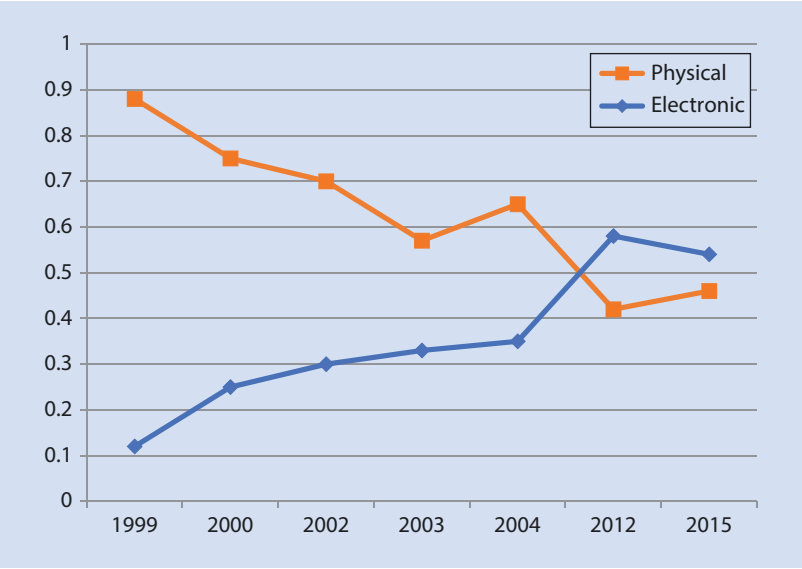

Fig. 12.1 Bertelsmann physical vs electronic distribution

12.2 The Economic Characteristics of Distribution Networks

How is the distribution of media and information products different from distribution more generally?

12.2.1 Economies of Scale

The design of a network will be determined by the "economies of scale" of its technology on the supply side. In addition "network effects" (discussed below) exist on the demand side and strengthen scale economies.

Of the economic factors that shape distribution in the media industry, perhaps the key factor is the characteristic of high fixed cost, low marginal cost. Studies have often shown economies of scale (cost-elasticity with respect to size) of 5–10% in the telecom industry. Similar economies of scale have also been identified in other markets for the telecom long distance[7] and for the cable TV market.[8]

The consequences are advantages of a large size and high market share on the supply side of distribution services. There are also advantages to early entry. This explains why distribution network industries are almost always highly concentrated, meaning there are only a few companies providing distribution services in a market. For instance, in the USA, there exists four national package delivery systems: the traditional postal service USPS, as well as UPS, FedEx, and DHL. There are only three or four major national airlines left,

7 Denny, Michael, et al. "Estimating the Effects of Diffusion of Technological Innovations in Telecommunications: The Production Structure of Bell Canada." *Canadian Journal of Economics* 14, no. 1 (1981): 24–43.

8 Noam, Eli. "Economies of Scale and Regulation in Cable Television." In *Video Media Competition: Regulation, Economics, and Technology.* Ed. Eli Noam. New York: Columbia University Press, 1985, 93–120.

after a period of consolidation, upheavals, and bankruptcies. Most nations have only one or two national airlines.

In most countries, there is one dominant wireline telecom company, (though there may be one to two rival long-distance or business-oriented transmission networks), and three to four mobile wireless providers. There is typically one local cable provider regionally, and one or two direct broadcast satellite (DBS) providers.

The Internet, too, is becoming concentrated in its distribution role. Typically, there are only two serious infrastructure networks for broadband: incumbent wireline telecom companies, and incumbent cable providers if they exist. Mobile telecom operators may add two or three platforms but at a lower speed. In some countries, independent companies use the infrastructure of the telecom firms to provide digital subscriber lines (DSL) Internet service on top of it. This is like several bus companies using a single highway. But this competition is among bus companies, not among road systems, and if the single Highway Authority also operates its own bus service, this inevitably creates problems for the competitors and leads to some form of regulation.

Looking beyond infrastructure, we also observe that the number of distributors for content products is small. In the USA there are six main Hollywood film distributors and three music distributors. These distributors are strong in most other countries too. In Japan, there are three major Japanese film distributors, Toho, Shochiku, and Toei, plus the Hollywood firms. In India, the prominent film distribution companies are Rajshri Productions, Yash Raj, and Eros.[9]

Economies of scale do not mean that smaller firms cannot survive. The large firms often become inefficient, and their costs rise. Inefficient monopoly operations may offset the advantages of scale. The implication for a new entrant, where the incumbent's costs have crept up, is to challenge the latter on price. This was indeed how in telecoms in the 1980s, new entrants such as MCI (U.S.), Mercury (U.K.), or DDI (Japan) took on the established national monopolists AT&T, BT, or NTT. In time, however, the much larger incumbents got their costs under control and could re-asset their larger scale economies. The lesson for entrants therefore is to use price and cost advantages only as the opening wedge, and soon shift to product features and differentiation.

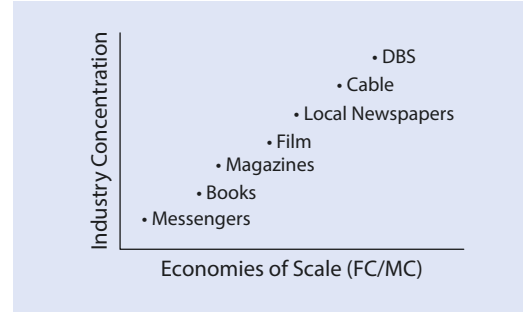

Fig. 12.2 Economics of scale in media industries (schematic)

The design of networks (the "architecture") is based on the relative cost of transport links vs nodes. The market structure of distribution networks is not determined by the absolute cost of distribution but by the relative cost ratio of fixed versus marginal cost (or fixed versus total cost) that determines market structure. The higher the ratio of fixed costs to marginal costs (FC/MC), the greater the economies of scale. Where that ratio is highest, economies of scale are highest, and with them the market concentration. Figure 12.2 schematically illustrates this relationship. FC/MC is high for industries such as local cable TV and for broadcast satellite. FC/MC is intermediate for magazines and book distribution, and there the market concentration is intermediate. FC/MC is low for bicycle messenger services. Most of the cost is the labor of biking to the destination, not in the bike itself. Thus, entry barriers and market concentration are low.

The trend of this cost ratio is to rise. Electronic networks are becoming more expensive in their required upfront investment, and less expensive in their marginal cost of bit transport. Fiber, cable, and wireless networks have a high FC/MC ratio.

With the FC/MC ratio generally higher for electronic than for physical distribution, the implications are for higher economies of scale in e-distribution and hence of a greater market concentration of service for electronic distribution. For the physical distribution of media products, too, fixed costs rise while marginal costs decline. Companies such as FedEx and DHL create complex national and international distribution networks with higher

9 ISSUU. "Indian Film Industry: Distribution Sector." November 2, 2008. Last accessed July 25, 2011. ► https://issuu.com/gbijumohan/docs/indian_film_industry_-_distribution_and_exhibition.

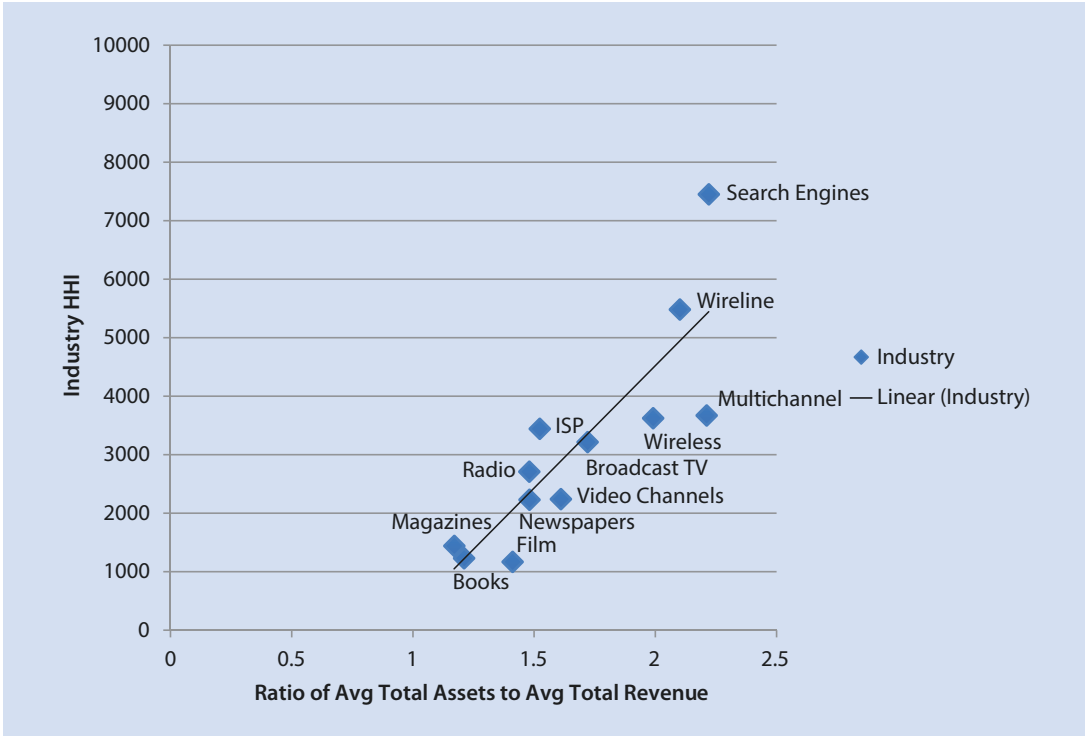

Fig. 12.3 Capital intensity and media industry concentration (Average 30 Countries)

fixed costs and relatively low marginal cost. This shift to a higher FC/MC ratio leads to national systems of physical distribution. Physical distribution by Netflix (DVDs) or by Amazon.com (packages) are other examples. The largest firms have a cost advantage when scale is high.

One can see this relation of fixed (capital) cost to operational (marginal) cost in Fig. 12.3.[10] Here, the average market concentration (the so called HHI concentration index) is graphed on the vertical axis for 13 media industries, averaged across 30 countries' concentration figures. The horizontal axis shows the capital intensity—the ratio of total assets to total revenues. As one can see, there is a strong correlation: industries that are capital intensive are more concentrated.

12.2.2 Network Effects

Networks tend to have a fundamental economic characteristic: the value to a user of connecting to a network depends on the number of other people already connected to it. These interrelations are known as "network effects," "network externalities," "spillover effects," or "demand-side economies of scale". The larger the network's reach to others, the more value it provides to its users. A large size of participants encourages third parties to develop special applications. Examples are the wide range of software products for computers using the Microsoft Windows operating systems, of tools for eBay, or of apps for the Apple iPhone.[11]

Network effects were described by the inventor of the Ethernet, Robert Metcalfe as a "law" according to which the total value (V) of the network to all users (n) increases and accelerates as the number of users increases, as defined by:

$$V = a\,n(n-1) = a\,(n^2 - n)$$

a is a scaling parameter. For example, if the value of a network to a single user is \$1 ($=a$) for each other user on the network, then a network size of 10 users has a total value of \$90 (10^2–10). The

10 Noam, Eli. Who Owns the World's Media? New York: Oxford University Press, 2016

11 Goolsbee, Austan D. "Why the Network Effect is so Striking." *Financial Times*. September 27, 1999, 14.

average value is then $9. If the network grows to a size of 100 users, its total value is $9900. The average value for a user rises from 9 to 99, about tenfold. A tenfold increase in the size of the network leads to a hundredfold increase in its value. Therefore, according to Metcalfe, the network value rises by roughly the square of the number of its terminals $V = a\,n^2$.

There are specific business implications to network effects:

- A small separate network is less attractive to users and hence less competitive, all other factors held equal.
- A larger network can charge a higher price since the ability to users is higher.
- Interconnectivity to large networks is important to a small network, because this raises its value to customers. Where the interconnectivity becomes essential, such as by small telecom operators into large incumbent networks, it has generally led to regulated access rights under some pricing rules.
- Correspondingly, the control to access to a large base of users can be a company's greatest asset.

12.2.3 The Role of Government

For the free flow of Information a well-functioning system of distribution without gatekeepers is essential. Government's role is to encourage the creation of distribution infrastructure and to protect against dominance by a handful of distribution companies through which commerce and information flow. Governments thus might impose anti-monopoly restrictions on distributor power and on the vertical integration of production with distribution. Or, they might establish regulatory policies such as common carriage for telecom and "net neutrality" for the Internet. Or, governments will own the distribution platforms themselves, providing affordable access to all.

Often, governments will provide subsidies to establish a widespread distribution system that reaches all parts of a country and society. This applies to railroad, highways, telecom networks, and TV. In other cases, governments seek to control information through a control over such distribution facilities.

12.2.4 Price Deflation

The prices for electronic distribution have dropped enormously. These trends create a fundamental instability in the competitive distribution of network industries. More capacity is offered at lower prices and with the equilibrium competitive price at near marginal cost, that is very low. As prices drop, many competitors fail and markets then consolidate.

12.2.5 The Vertical Integration of Distribution with Production

It can be cheaper to combine distribution with production, or of wholesaling with retailing, when there is a complementarity of the two functions in a chain. This is known as "synergies" or as "economies of scope." However, the statistical evidence for economies of scope tends to be inconclusive. Where these synergies are modest or non-existent, the purpose of vertical integration is not efficiency but market power over distribution or production.

In media, there have been many instances of vertical expansion. Hollywood studios have extended their operations into TV networks. Telecom companies have moved into video and online content. Cable companies have entered both telecom service and content production. All of them have also expanded into the Internet business. The benefits of vertical integration of production and distribution may be that integrated firms are closer to the end users. This creates a feedback loop that may strengthen the production process and lower transaction costs. Changes in consumer demand can then be dealt with faster. This can benefit companies whose product lifecycles are very short.[12]

Companies have extended this argument to distribution across multiple platforms and distribution channels. By owning several such platforms they could fine-tune the release of a media product. However, most coordination advantages of vertical integration can also be achieved by contracts among the two companies in a vertical chain

12 Madhok, Anoop and Thomas Osegowitsch. "Vertical integration is dead, or is it?" *Business Horizon* 46, no. 2 (2003): 25–34.

rather than in-house vertical integration. This can mean coordination with other products too.

But there are also drawbacks to vertical integration. One is the often-underestimated difficulty of integrating these very different operations and cultures. There are also costs due to being a "captive" producer or distributor. Take for example Disney, a film producer integrated vertically with one of its distribution operations, the major TV network ABC. As mentioned before, Disney TV Productions should sell its programs to the highest bidder rather than be locked into offering it to its own sister-company ABC. Likewise, the ABC network should aim to buy the program that best fits its needs, whether produced by Disney or not. Furthermore, synergies are not always positive but can be negative. For example, at one time traditionalist "pro-family" activist groups launched a boycott against Disney films, despite the company's strong family-friendly brand image, as a protest against the ABC network's allegedly pro-gay content and HR policies.

12.2.5.1 Case Discussion

Bertelsmann—Vertical Integration

Bertelsmann's distribution has often been vertically integrated with content production:

- Music: Bertelsmann's numerous music labels (production) were tied to "media clubs" and the major music group BMG (distribution);
- TV: RTL, UFA, Fremantle, and CLT (production) were tied to the broadcasters RTL, M6, and Antena3 (distribution);
- Film: UFA provides both production and distribution;
- Books: Penguin Random House with numerous other publishers and imprints (production/distribution); RHPS, VVA, TBS, and GBS (distribution).

Beyond its own book distribution operations, Bertelsmann offers distribution services to other book publishers. It also distributes the works of independent music labels and film producers.

- In contrast, Bertelsmann's role in the distribution of magazines, where its publishing house Gruner + Jahr is a major European presence, is limited.
- Bertelsmann's various media operations—Random House, RTL, Gruner + Jahr, and the Direct Group—deploy entirely separate distribution systems.

12.3 Network Models

Distribution systems, whether physical or electronic, use similar major types of "architecture," also known as "topology". There are several basic models.

12.3.1 Distribution Architecture #1: The Non-sharing Network

One extreme is the "non-sharing" model. Every producer deals directly with every customer or every retailer (Fig. 12.4).[13] This structure suffers from the high cost of providing all these links and connections between every participant, and each of these links may well be under-utilized. For example, every producer (Level 1) is directly connected with every retailer (Level 2). If there are 10 producers and 1000 retailers, there would be 10,000 distribution links.

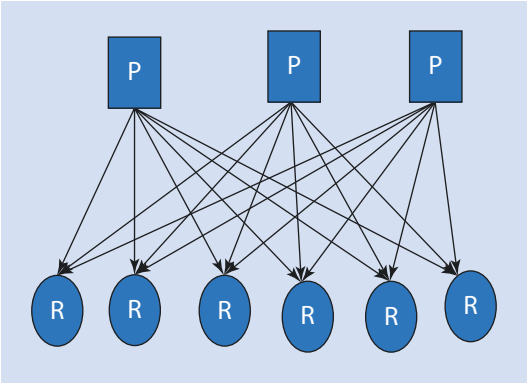

Fig. 12.4 Non-sharing model of producers to retailers

13 Figure based on Ross, David Frederick. *Distribution, Planning and Control.* Norwell, MA: Kluwer Academic Publishers, 2004.

12.3.2 Distribution Architecture #2: The Bus and the Ring

The other extreme is to have only one single distribution line that connects to everyone, running from one user to the next. Examples are a freight rail line that connects several towns, or an Ethernet network that links the various computer and printers in an office. If there are 100 participants strung out along that line, there would be 99 links among them. This lowers the number of links but it may also create congestion and vulnerability. If a single link fails, much of the entire system will go down. Forming a ring by connecting the two ends of the string reduces that danger somewhat since the transmission could go in the opposite direction and still function. Figure 12.5[14] shows such a ring of a fiber network around the continent of Africa, with drops to various countries.

12.3.3 Distribution Architecture #3: Tree-and-Branch

This topology contains one distributor and multiple consumers (Fig. 12.6).[15] The flow of information or of products is one-way; it starts with a wide pipe which then splits into increasingly narrower pipes. This is the fundamental architecture of broadcast TV, cable TV, or newspaper distribution, and also of consumer electronics and other physical products. It is also the basic distribution mechanism for water, gas, and electricity.

The tree-and-branch architecture does not provide horizontal connections among users. Nor can a user connect to another producer except by joining another tree-and-branch system. And each producer must create its own distribution network. Thus, this type of network is basically a one-way distribution medium.

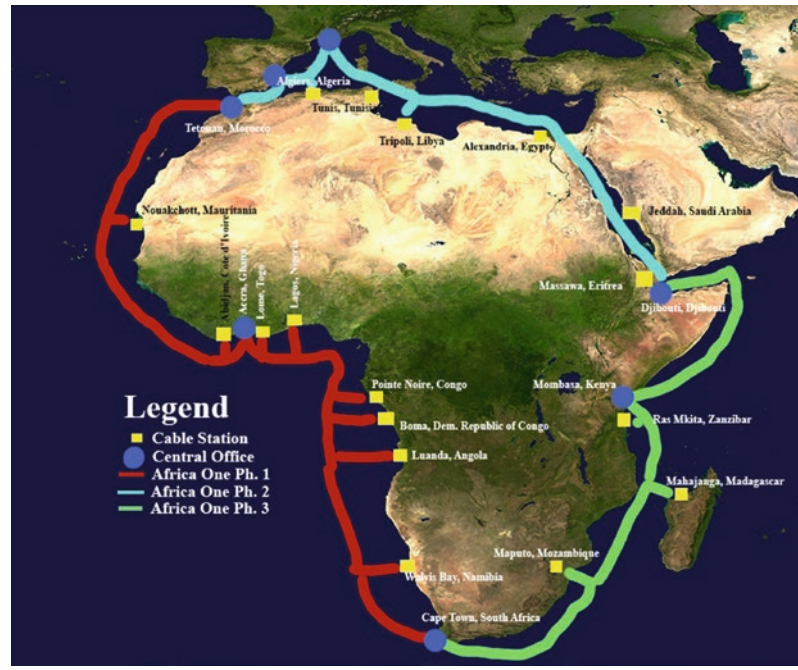

Fig. 12.5 Distribution model #2: The Bus or The Ring–Fiber network ring around Africa

14 OAfrica. "Looking Back: Africa ONE (intended to be Africa's first fibre ring)." May 21, 2011. Last accessed June 26, 2017. ► http://www.oafrica.com/broadband/looking-back-africa-one-intended`-as-africas-first-fibre-ring/.

15 Graph based on Laubach, Mark. "Residential Area CATV Broadband Internet Technology." *The Internet Protocol Journal* 1, no. 3 (December 1998): 13–27.

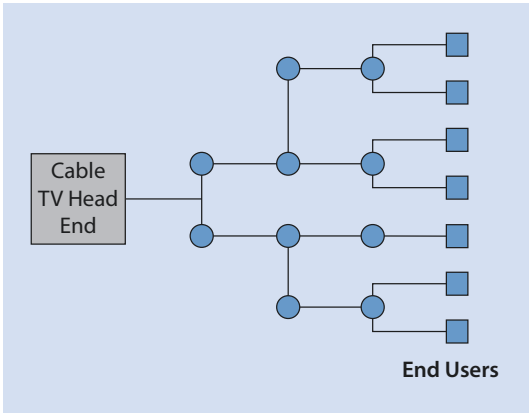

Fig. 12.6 Distribution model #3: tree-and-branch

12.3.4 Distribution Architecture #4: The Star

In a star distribution model, there is a "switching" node (S) (Fig. 12.7). Instead of every producer having an individualized distribution relation with every consumer, there is an intermediary in the middle that deals with multiple producers and serves numerous consumers.[16]

In a star distribution, the number of links with *n* participants is *n*. Thus, if there are 100 participants, the number of links is 100, plus an intermediary node. This is a vastly smaller number than what is required for model #1 (everyone directly connected to everyone), where it would be 4550. And an extra user is much cheaper and easier to accommodate: adding a 101th user would require in Model #1, as many as 100 new links, but with Model #4 (the star) only 1 new link. Model #1's incremental cost for users is not only high, but also rising, whereas it is low and constant for the star architecture model. Average cost, too, is rising for Model #1 but is declining for the star, Model #4.

The star, too, has potential problems. It is not quite as vulnerable as the "party-line" shared network, which goes down for many users every time a single link fails. But the star architecture is still dependent on the reliability of the central node. Take it out and nobody connects to anybody. A second fundamental problem is that the users of the star may be widely dispersed geographically and each link to the central node would be long

16 Ross, David Frederick. *Distribution Planning and Control*. Norwell: Kluwer Academic Publishers, 2004, 80.

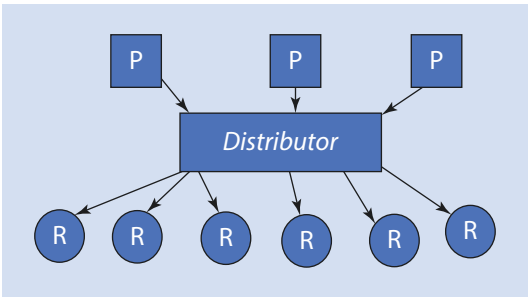

Fig. 12.7 Star distribution

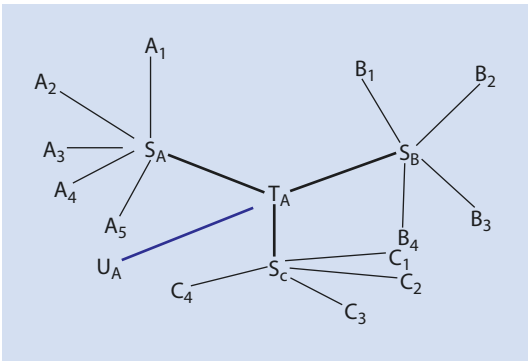

Fig. 12.8 Multi-star distribution

and expensive. To deal with this problem, stars are typically arranged in a multistar hierarchy, a "star of stars." In Fig. 12.8, T_A is a node of links from sub-stars S_A, S_B, etc. And T_A may be linked to a higher level node, U_A, which links the T level of nodes.

Examples of a multi-star are telecom networks. They are also common in transportation. For example, in the airline industry, several major airports are the central "hubs" and the individual routes are "spokes" to other cities. Thus, if air travelers wanted to go from Palermo, Italy to Montpellier, France, they would most likely fly first to Rome (a hub city), hence to Paris (another hub) and then to Montpellier.

Hub-and-spoke requires fewer links required to connect the same number of points. It has a higher "load factor" because flows are concentrated in fewer links. On the other hand, they require more switching (airport connections), which can be expensive and slow, and create vulnerable bottlenecks. If a snowstorm closes O'Hare airport in Chicago, dozens of other cities cannot be reached anymore.

A single level star in transportation was, in its early pure design, the Fedex package distribution

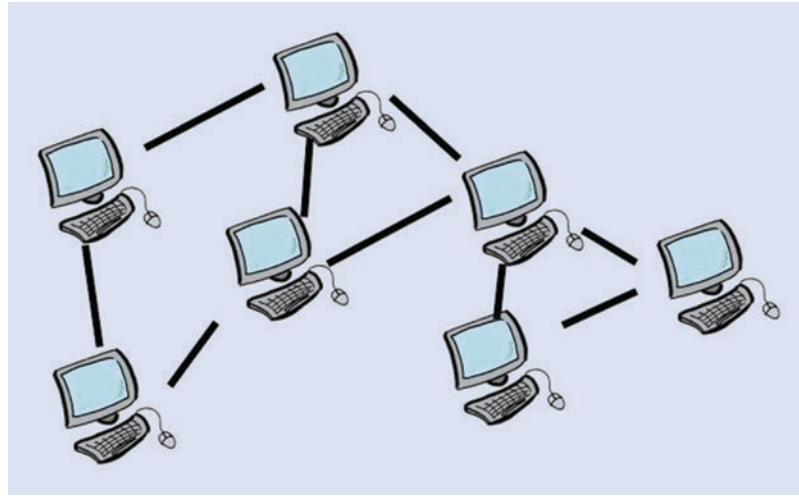

Fig. 12.9 Distribution Model #5: Mesh network

system. Every night planes from each city served by Fedex fly to Memphis, Tennessee, arriving close to each other in time, then unload their packages which are then sorted in a central facility, reloaded into the airplanes that then fly back at dawn to their original departure cities. Hence a package would travel from Los Angeles to San Francisco via Memphis—a distance of 3500 miles instead of 350. The economic logic is that minimizing the distance traveled for a package was a secondary consideration. More important was to reduce the number of individual inter-city flights and of sorting operations (i.e. of nodes). If there were 100 cities served by Fedex, its system required 100 flight routes and one node (Memphis), whereas a system of every-city-to-every-city required 5049 flight routes (but no central node).

12.3.5 Distribution Architecture #5: The Mesh

A mesh network is a network topology in which each node relays or stores the product or data and cooperates in the distribution process (Fig. 12.9). The item moves ("hops") along from node to node until it reaches its destination.[17,18] The best example of a mesh network is the Internet itself, where information travels from one router to the next. In the physical world, mesh networks are less common. An example might be the informal system by which college students buy and re-sell textbooks for their courses or hold them for friends and siblings for future use. Electronic mesh networks became possible as transmission and storage dropped in price and enabled content distribution without the classic intermediaries.[19]

Applications include live streaming and video-on-demand.[20] Mesh P2P distribution became popular because of its technological innovativeness, partly due to its community spirit and outlaw whiff.

12.4 Analytical Tools for Distribution Management

Managers must understand the tool kit for analyzing distribution. These tools derive from multiple research disciplines. We will discuss them now.

17 P2PFoundation. "Mesh Networks." Last accessed June 26, 2017. ► http://wiki.p2pfoundation.net/Mesh_Networks.

18 Kay, R. "Mesh Networks." *Computerworld*. August 10, 2009. Last accessed June 26, 2017. ► http://www.computerworld.com/article/2550305/mobile-wireless/mesh-networks.html.

19 Bauwens, M. "The Political Economy of Peer Production." *CTheory*. December 1, 2005. Last accessed June 26, 2017. ► http://www.ctheory.net/articles.aspx?id=499.

20 Shen, Z., et al. "Peer-to-Peer Media Streaming: Insights and New Developments." *Proceedings of the IEEE* 99, no. 12 (December 2011): 2089–2109.

12.4.1 The Network Analysis Tools of Sociologists

Sociologists have developed a "social network analysis" as the study of the structure of relationships.[21] A social network is a type of map that illustrates how individuals (nodes) are linked to each other through relationships (links). Some nodes (people or organizations) are particularly "central," or "influential," with a high multiplier by connectivity to many others. "Social capital" refers to the value of one's relationships and networks, and how one can leverage these connections to accomplish a goal.[22] A business application exists when financial institutions use such network analysis to chart the interactions of a customer and trying to spot fraud when they encounter unexpected interactions. Social sites like Facebook use it to recommend potential friends. Network operators, whether electronic or physical, can use it to optimize the capacity structure of their networks. Another application is for marketers to identity "influentials" who have a multiplier effect and to target them.

12.4.2 The Network Analysis Tools of Lawyers: Essential Facilities

Lawyers focus on problems in distribution such as bottlenecks and market power. With a bottleneck facility, one firm controls a link that is necessary to others, whether users or providers. When there is a bottleneck in an "*essential facility*," it often becomes subject to regulation. An example is the regulation of the local telephone companies' "last mile" of the network, in order to assure access to users, content providers, and rival operators.

12.4.3 Network Analysis Tools of Electrical Engineering

To electrical engineers, network analysis addresses, among other things, the question of how much information (bits) can be squeezed into a pipe, and how networks must be configured. A major building block is "Shannon's law" (1948). Claude Shannon was a celebrated electrical engineering theorist at Bell Labs and MIT, often described as the "father of information theory." Shannon's law shows the theoretical capacity of a communications channel, in bits per second, to be a function of bandwidth of the channel (measured in "Hertz"), and the ratio of the power of the signal (measured in "Watts"), and the interfering "noise" that the signal must overcome. The relation of the latter two is called the "signal-to-noise ratio."

$$\text{Capacity}(\text{bps}) = \text{bandwidth}(\text{Hz}) \log_2\left(1 + \frac{\text{signal power}}{\text{"signal noise"}}\right)$$

For example, how many bits can be sent over a typical telephone line? Suppose it is a voice quality phone line with a bandwidth of 4 kHz and the signal's strength is 1000 Watts (a lot) but the channel's "noise" (unwanted hiss and hum) is 1 Watt in strength?

The equation tells us

$$C = 4000\text{Hz} \times \log_2\left[1 + \frac{1000\ \text{Watts}}{10\ \text{Watts}}\right]$$
$$= 4000 \log_2(100) \approx 4000 \cdot 4.6 = 18,400\ \text{bps}$$

This translates into about 4.6 bits that could be transmitted per Hertz of bandwidth. (This, however, is the theoretical limit, under conditions of perfect engineering. The usual practical figure achieved by engineers is more around 3 bits per Hertz or less)

Looking at the Shannon equation, we can make several observations:

- The stronger the signal power, and the lower the interference ("noise"), the more information can be put on a transmission link.
- Bandwidth is a substitute for signal power. One can get the same information transmitted with a less strong signal if one can use more bandwidth. This is especially important for mobile wireless applications, since lower power requirements mean a longer-lasting battery.

21 University of Twente. "Network Theory and Analysis." Last accessed June 26, 2017. ▶ https://www.utwente.nl/en/bms/communication-theories/sorted-by-cluster/Communication%20Processes/Network%20Theory%20and%20analysis_also_within_organizations-1/.

22 Miller, Gray. "What Is Social Network Theory." *LoveToKnow*. December 5, 2008. Last accessed July 7, 2010. ▶ http://socialnetworking.lovetoknow.com/What_is_Social_Network_Theory.

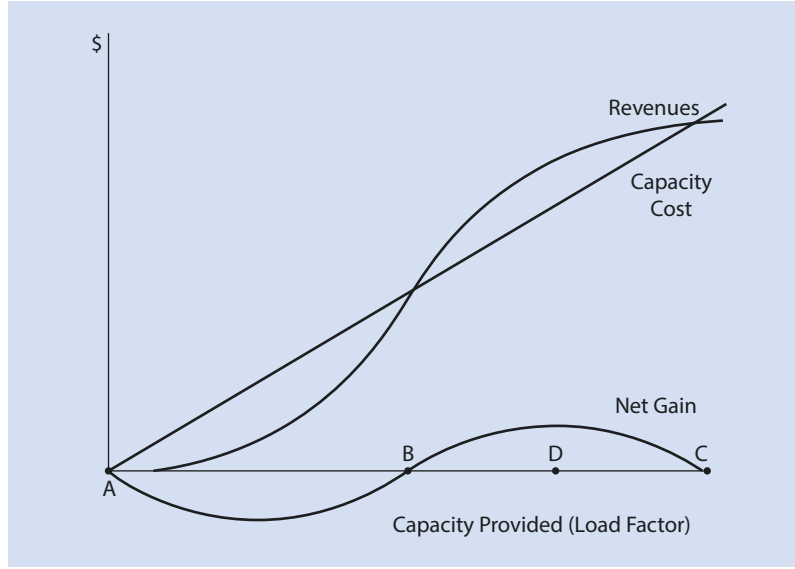

Fig. 12.10 Capacity cost, revenues, and net gain

12.4.4 Network Analysis Tools of Statisticians: Operations Research

Operations research (OR) uses mathematics, statistics, and models to aid in the design of operations. OR was derived from work on logistics by the military during World War II and afterward. It includes techniques such as linear programming or queuing theory.

Examples of OR in media applications include:

- The optimal routing of distribution of newspapers to retailers;
- The design of a factory producing smartphones with an efficient flow of components;
- The construction of a telecommunications network with low congestion;
- The planning of the production schedule for a soap opera.

12.4.5 Network Analysis Tool of Operations Research: Queuing Theory

The planning of capacity in a distribution system needs to consider congestion. Waiting lines (queues) are formed when users seek a service that has limited capacity. Waiting lines for service are formed in many operations of distribution and production:

- Customers in a movie box office lane;
- Calls to a cellphone service representative;
- Phone orders to an online merchant;
- Installation orders for cable TV;
- Packets in a transmission channel;
- Music artists time in recording studio.

In each case, reducing wait times will increase service quality but will also raise operating costs. Reducing service quality (and thus increasing waiting time) will lower operating costs but will lead to a loss of users who will go elsewhere.

Queuing models approach the behavior of "arrivals" as a probabilistic process. The firm will look at the "load factor." The load (or traffic) factor r is the ratio of arrival rate λ to service rate μ . As the load factor rises, the wait increases at an accelerated rate.[23] This can be rephrased as the question: how much of a capacity (i.e. service level) must a firm provide optimally? Figure 12.10 shows how an increased service level (added capacity) raises the cost of providing it. (The diagonal line) At the same time, the company's revenues from serving customers as the service quality level rises, increases from zero (at Point A). At capacity level B, costs and benefits are equal, and net gains (the lower curve) move from negative to zero and beyond to positive. After a certain point, however, the impact on additional business declines because customers are satisfied enough and the extra service level makes little dif-

23 Lesso, William G. "Operations research." *Access Science*. March 5, 2001. Last accessed June 26, 2017. ► https://www.accessscience.com/content/operations-research/470410.

ference to them. Eventually, at Point C, the added cost has eaten up all revenues. In-between B and C lies the optimal capacity D.

12.4.6 Network Management

These analytical tools and others are being used in "network management" which is a set of actions to allow a network to operate efficiently and effectively. Underlying network management is the basic fact that the capacity of a distribution network is limited and that, to assure proper operations, its use must be carefully deployed. This involves a scaling of the network, the matching of the capacities of the various elements, the prioritization of certain types of traffic, quality control, cost consideration, pricing, and profit maximization.

A major issue is the architecture of the distribution network. Balancing the mix of the nodes and transport links—the distribution network architecture—is a management decision. An airline hierarchy has two to three tiers. A railroad hierarchy has three to four tiers. TV broadcasting has three; cable TV content distribution has about six levels. If the cost of the transport links is high (relative to the cost of nodes) the manager will try to reduce them as much as possible. There will be fewer links, more nodes, and a greater hierarchy. For example, for rail networks track is very expensive to build and maintain, but switches are cheap relative to the track. There would be a high level of hierarchy. Similarly, cable TV has expensive lines but relatively cheap neighborhood and curbside splitter nodes. Thus, where links are relatively expensive, the optimal distribution system will be multi-layered and strongly hierarchical. In contrast, if the cost of transport links (per unit of traffic) is relatively cheap in comparison to the nodes, there will be fewer nodes and less of a hierarchy.

In electronic distribution, the trend of transmission has been to drop in price faster than for the switching node. In consequence, the architecture has been moving to longer electronic transport segments and to fewer and simpler nodes. The resulting network arrangement has been called the "dumb network": a transport network of powerful pipes, but with limited nodes (intelligence) to route, steer, and control traffic.

A second task of network management is to match capacity with needs, to even out the load, and to prevent periods of substantial slack in the system followed by periods of congestion. Responses by managers of distribution systems to even out traffic load include:

- Adding capacity by new construction or leases;
- Prioritizing certain types of traffic;
- Rerouting;
- Setting usage caps (rationing);
- Lowering the quality of service;
- Raising prices;
- Permitting inter-customer trading.

For example, as smartphone use spreads, the mobile network capacities reach bottleneck conditions, with providers running out of bandwidth at certain times and locations. This slows down (and at times blocks) usage. Networks have therefore tried to reduce the traffic of the heaviest users. Studies show that 10% of users account for 90% of traffic. Mobile carriers instituted caps for data usage, both in order to price-differentiate between light and heavy users, and to reduce the latters' usage. The largest US telecom company, AT&T, started in 2012 to slow down the transmission speed of the top 5% of the heaviest data users (consuming more than 1.5 GB) beyond a certain point. Similarly, ISPs such as AT&T or Comcast instituted a data cap on Internet traffic. Comcast set a 250 GB monthly limit. When exceeded, the company quietly "throttled" that user's speed.

A third issue of network management is service quality differentiation. Generally, a distribution network will offer a better service grade for a higher payment. This is true for airlines, the postal service, or Internet service. It is partly based on the higher cost of delivering the higher quality. And it is also one way to price-discriminate against users with a low price elasticity. Providers of the Internet and other data transmission services have been offering their customers different grades of quality of service (QoS) which is important to some types of users who require, and are willing to pay for, a guaranteed service grade with a certain transmission speed and reliability parameters for delay (latency), jitter, dropped packets, error rates, and so on. To assure such service level guarantees, the network providers would, for example, reserve capacity for such users. The other users would then get a service quality level based on "best effort," which means they are served by the network resources left over after the needs of the guaranteed QoS customers have been satisfied. Unless

the network was "over-providing" by having excess capacity, those customers get a lower service grade. Of course, they also pay less.

A still more sensitive issue is whether, within a given quality and price level, some types of uses or users would get priority over others. The debate over this issue, as applied to the internet, is part of the battle over "net neutrality." The US government adopted in 2015 net neutrality rules mandating ISPs to treat all Internet traffic the same, regardless of its origination, destination, content, or volume. In 2017, under a new FCC chairman, these regulations were abolished again. Net neutrality rules and principles will continue to be subject to tough legal and political battles.

12.5 Wholesale Distribution

The wholesale stage of distribution is arguably the central element in the distribution chain. It is the link between production and retailing. Typically, a wholesaler will distribute the goods and creations of multiple and competing producers to multiple and competing retailers. Conversely, both producers and retailers may also transact with competing wholesalers. But there are also various forms of exclusivity arrangements at each level.

Wholesalers fill numerous functions:[24]

- Selling to retailers and promoting the product;
- Maintaining an assortment of products, often from multiple producers;
- Bulk breaking of large shipments from producers into smaller quantities;
- Value-added processing;
- Physical transportation and shipping;
- Warehousing;
- Provision of marketing information;
- Order processing;
- Logistics services;
- Assumption of ownership and risk;
- Managing the import transactions and paperwork;
- Managing exports especially for smaller producers;
- Aggregation of the flow of orders, and flow management;
- Aggregation of the flow of payments;
- Compensation of various parties;
- A role in the financing of production;
- A role in the financing of retailers.

Of course, not all wholesalers engage in all of these functions. And some of them may also be undertaken by the producers or retailers, or not at all. Different product lines have different practices. Unlike the retailing and production stages which tend to have well-defined core responsibilities, the wholesale stage is an aggregate of intermediary functions that varies greatly. Typically, too, wholesaling does not have the visibility of retailers and of brand name producers. (Media industries are an exception.) In consequence, the role of wholesaling is often under-appreciated or even denigrated as one of an unproductive "middleman" one must strive to cut out. Yet the very fact that this wholesale stage exists in almost every product line, industry, and country strongly suggests the presence of a value-added function that is economically efficient. We will now discuss wholesale distribution for several major media industries.

12.5.1 Film Wholesale Distributors

At the business end, the functions of film distributors are numerous:

- Promotion and advertising of films;
- Physical delivery of a film to theaters;
- Often, exhibition in own theaters
- Negotiations with domestic and foreign outlets such as film theaters, TV networks, and online video providers;
- Delivery of film to TV and cable networks;
- Storage of film on website for downloading and streaming;
- Transmission of film to third-party websites for downloading and streaming;
- Production of home video copies and their delivery to video stores;
- Collection of rentals and license fee payments from the various retail channels;
- Accounting for revenues and distribution of payments to the various participants;
- Licensing of related merchandise;
- Protection of the copyrights.

The major film distributors also frequently produce their own films and subsequently distribute it. They often provide financing to independent productions. As a condition to assuming part of

24 Ross, David Frederick. *Distribution Planning and Control*. Norwell, MA: Kluwer Academic Publishers, 2004, 67.

the financial risk they have a major voice in shaping of these films in terms of content and talent.

Who are those major distributors? After an early tumultuous stage in the early twentieth century, a handful of film companies emerged that still dominate the "Hollywood" distribution: Universal, Paramount, Columbia/United Artists (now Sony), Warner Brothers, and 20th Century Fox. They were joined in the 1930s by Disney. RKO and MGM fell by the wayside. This left six firms, which has been the case for over 80 years now.

Before a film opens, the distributors must create an audience for it, by marketing through advertising and other promotion. For a Hollywood movie, this averages about $40 million per film on advertising.[25] Because of the financial and organizational effort, the distributors must be selective. Many filmmakers say that making a movie, hard as it is, is not nearly as difficult as getting it distributed.

Within the USA, the major distributors also handle films produced by independent and foreign filmmakers. Distribution is a major problem for independent film productions, which have grown over the years. In 2018 there were 3901 feature length submissions and 8,740 shorts to the Sundance Film Festival in Park City, Utah.[26] To serve independent film makers there are also independent distribution companies that concentrate on niche or low budget films. But they, too, are choosy. Independent film producers can also self-distribute their movies, but that is not easy in financial or logistic terms.[27]

Theatrical distribution of a major Hollywood film is expensive and requires much planning. One decision is to pick the opening date. It needs to fit the season and avoid clashing with competing releases that vie for the same target audience, or with major sports events. (On the other hand, a big sports event at the weekend might fit the release of films that appeal to viewers who are uninterested in sports and seek an escape.) Advertising costs also vary.

Next, the film distributors must line up theaters for a national release. In the US, this takes about 1500–3500 theaters (and a proportionally similar number in other countries). Films are then promoted by national advertising campaigns on TV, the Internet, and print media. The attention of critics and the word-of-mouth is at its peak.

A second major way to distribute films is through the rental or sale of physical or electronic copies for use at home. A film's home video version is usually released four to six months after the film's end of the theatrical run,[28] though that window has been shortening. The studios' distributors spend relatively little on the marketing of most videos and the stars rarely publicize them. Most of the public awareness of such a release is the afterglow of the film's original marketing push. And because that buzz depreciates over time there is an incentive to get movies into home video and video-on-demand distribution relatively quickly.

To export a film abroad, the distributors ship the prints or hard drives after dubbing or subtitling them with other languages, plus some editing to conform with local rules on content. For the Disney film *Gone in 60 Seconds*, for example, the cost of foreign prints, shipping, translations, and customs clearance for Disney's distribution arm Buena Vista was $12.7 million.[29]

The actual physical shipment is often subcontracted to third-party providers. One company, Technicolor, beyond its role in printing and copying thousands of copies of a film, has also a major distribution role in physical delivery to over 36,000 screens in the USA and 2800 in Canada.

12.5.2 Book Distributors

The number of new book titles is staggering. In the USA alone, there were over 338,000 published in 2015. The major growth was in self-published books, where more than 700,000 were issued in the USA in 2015,[30] an increase of 375% in five years.[31] At the same time, more than 13 million previously published books are still available through many sources. On the other hand, book sales peaked in

25 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

26 Carr, David. "New York 'Little' Films Grow Big." *New York Times*. May 12, 2005. Last accessed June 17, 2017. ► http://www.nytimes.com/2005/05/12/movies/new-york-little-films-grow-big.html.

27 Marich, Robert. *Marketing to Moviegoers: Independent Distributors*. Burlington, MA: Elsevier Focal Press, 2005.

28 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

29 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005.

30 Bowker. "Self-Publishing in the United States, 2010–2015." March 24, 2016. Last accessed April 5, 2017. ► http://media.bowker.com/documents/bowker-selfpublishing-report2015.pdf.

31 Piersanti, Steven. "The 10 Awful Truths about Book Publishing." *Berett-Koehler Publishers*. September 26, 2016. Last accessed February 20, 2017. ► https://www.bkconnection.com/the-10-awful-truths-about-book-publishing.

2007 and have either fallen or been flat in subsequent years, according to the Association of American Publishers (AAP). There are about 3000 listed publishers in the USA. By another definition there are over 30,000 entities issuing books. Few books succeed in terms of circulation. Of the numerous titles, in a recent multi-year period, about:

- 10 titles sold over 1 million copies;
- 67,000 books sold 1000–5000 copies;
- 203,000 sold 100–1000 copies;
- 948,000 titles sold less than 100 copies.[32]

All of these thousands of publishers, tens of thousands of books stores and other outlets, millions of titles, and hundreds of millions of customers are linked by a very narrow distribution system. In the USA the major book wholesalers/distributors are few in number and dominated by Ingram and by Baker & Taylor. In the UK, they are Gardners and Bertrams. A wholesaler serves publishers who want to outsource warehousing and logistics. Publishers use wholesale distributors for several reasons, in particular the cost and effort of reaching thousands of retail stores. Several major publishers have distribution operations themselves, which may also serve other publishers. Such large operations include Bertelsmann's wholesale operations in the USA, UK, and Germany. Conversely, several major large publishers have reduced their wholesale distribution operations. HarperCollins (owned by News Corp) shifted its front list distribution to R. R. Donnelley, the largest US printing company. There are also small specialized distributors.

Distribution is not just a delivery operation for packages. It means holding an inventory, which must be optimized. There are large seasonal fluctuations in book sales and hence distribution. Late summer is the peak season for textbooks. It accounts for 60% of McGraw-Hill's revenues.[33] The Christmas season is big for books suitable for gifts. Summer is the time for the sale of light reading.

With IT systems, the management of book wholesale inventory management has become more integrated with retailing. Computerized inventory control means retail stores might find a copy in another store of its chain. Or, a publisher might go to one chain and ask them to return books which they then ship to another.[34] Distributors can also become retailers. With print-on-demand, a distributor can offer books directly to readers. That is a delicate issue since it means competing with one's own retailer customers.

12

12.5.2.1 Case Discussion

Bertelsmann—Book Publishing Wholesale Distribution

Bertelsmann and Pearson establish in 2013 the world's largest consumer-oriented ("trade book") publishing company, Penguin Random House. The joint venture is based in New York and is 53% owned by Bertelsmann and 47% by Pearson. In its main three markets (the USA, the UK, and Germany) Bertelsmann relies on its own distribution operations through vertical integration. Its book distribution in Germany is often handled by its own distribution arm VVA. In the UK, Penguin Random House owns TBS and GBS, among the country's largest book distributors. In the USA, book stores and libraries can obtain Random House books through independent distributors such as Ingram and Baker & Taylor. Taking a further step, Bertelsmann owns Random House Publisher Services (RHPS) which distributes RH books and also those of several other publishers. RHPS operates huge warehouses in Maryland and Indiana. The Maryland operation picks, packs, and ships an average of a million books a day, including many international shipments.

Random House considers distribution one of its core competencies. It was named Amazon.com's "Distributor of the Year" in 2009. It ships titles for several dozen smaller publishers to thousands of retail book stores. The company used to distribute only its own new and backlist books (8000 new titles a year) issued by its nearly 100 imprints in North America. Most of those books were shipped as bulk ("full-pallet") orders. It then instituted changes in its business and operational model of book distribution by bringing down its price—and cost—of servicing small orders, and this required the building of an advanced picking and handling facility.

We conclude that Bertelsmann has been successful and innovative in the wholesale distribution of physical books. Online distribution activities for print and digital books will be discussed further below.

32 Donadio, Rachel. "Backlist to the Future." *The New York Times*, July 30, 2006.

33 Maloney, David. "By the Book Distribution." *Modern Materials Handling* 58, no. 4 (April 2003): 33.

34 Fiscus, James. "Changes in book distribution drive up prices, reduce sales." *Science Fiction Chronicle* 23, no. 2 (February 2002): 32–35.

12.5.3 Magazine Wholesale Distribution

Magazine publishers usually enter into multi-year contracts with third-party distributors for national, regional, or market-by-market newsstand distribution services. After leaving the printing plant, the magazine products are moved to regional national and regional wholesalers who then distribute to retailers of various sizes. But single copy sales have greatly declined in recent decades. Most magazines, especially those that are not consumer-oriented, are sent instead by mail to subscribers, with the postal service as the distribution system for the publishers.

Curtis is the largest national magazine distributor in the USA, with $1.5 billion in revenues and a 32% share of national distribution for single-copy magazine sales.[35] The second largest, Source Interlink, accounts for 30% of the single-copy distribution market. Source Interlink has also acquired magazines itself. Together, the top two distributors control almost two-thirds of national distribution. There are only two or three other national magazine distributors in the USA.

Regional wholesales magazine distributors operate in their geographical markets. But within those regional markets, concentration is high.

12.5.4 Music Distributors

There are two levels of intermediaries between the music artists and the user. The first is the label, which is the creation/production level. The labels are often part of a music group that functions as the distributors, the second level. The three major music groups (Universal, Sony, and Warner) are all distributors, but smaller independent distributors also exist, such as Alliance, Passport, Independent National Distribution, and The Orchard. The distributors (the wholesale stage) market and ship worldwide to retailers. They also promote the music by sending it to DJs, clubs, television and radio stations, and special events.

Labels and distributors used to be separate entities. But in the 1980s, the largely independent system of distribution became a problem for the major labels because their nation-wide promotions required full coordination of record releases, tours, and radio airplay. They therefore integrated in the 1970s vertically into national and international distribution. Today, the major music groups own many specialized labels around the world. Labels come and go[36] and market shares fluctuate, with the popularity of star performers. The global and regional market shares of other music companies are small. The major distributors are the core of the global music business (■ Table 12.1).

The three major music group firms are vertically integrated into "music publishing" (copyright ownership and licensing), as well as production and distribution. They are (or were in the past) also integrated into other media activities such as film and TV, consumer electronics, and print, to enable cross-promotion. Sony and Universal (UMG, owned by Vivendi) are integrated into various other media operations. This was also true in the past for CBS, RCA, Warner, and Bertelsmann.

12.5.4.1 Case Discussion

Bertelsmann—Music Distribution

BMG (Bertelsmann Music Group) used to be one of the world's five major music companies. BMG's global market share was 21.5%. Labels included RCA, Arista, J Records, Jive, and Zomba. Artists included Christina Aguilera, Britney Spears, Justin Timberlake, and Elvis Costello. In 2005, BMG merged with Sony's music group to form Sony BMG Music Entertainment, the world's largest music firm. But Bertelsmann sold in 2012 its 50% share of the joint venture to Sony.

Bertelsmann also sold its music publishing (rights licensing) business to Universal. Subsequently, however, it built up a new music rights management operation, with the PE firm KKR. It held the rights to over one million songs, and it markets them to record labels, film studios, and TV networks. Bertelsmann was thus one of the biggest music rights companies in the world.

35 Curtis. "Overview." Last accessed April 11, 2011. ► http://www.curtiscirc.com/1_about/index.html.

36 *Vivendi's Universal Music Group*: Labels include MCA, A&M, Mercury, Island, Polygram, Polydor, London, Wing, Deutsche Grammophone, Verve, Geffen, Motown, Def Jam, Decca, and BMG Music Publishing.

Sony Music Group was created out of CBS Records, RCA and the Bertelsmann Music Group (BMG). Its labels include CBS Records' Columbia and Epic, and RCA records' Ricordia and Ariola.

Warner Music Group has the music labels WEA, Warner, Atlantic, Reprise, Elektra, Asylum, Atco, and Maverick. In 2003 Warner Music was sold to an investor consortium including Edgar Bronfmann, and taken public in 2005. It is now owned by Access Industries (Len Blavatnik). The percentage of "other" companies is remarkably small for most of the world's regions, typically around 25%. The exceptions are Japan and the rest of Asia. However, the music style or artists are much less global than the above share of business would suggest. Music distribution is much less diversified internationally than music content.

Table 12.1 Global and regional market shares of the music group majors (2013)

	Sony	Vivendi (UMG)	Warner Music	Others	Industry Concentration (HHI Index)
North America	23.6	34.9	17.6	23.9	2085
Europe	22.2	38.4	17.3	22.1	2267
Asia (excluding Japan)	18.5	22.8	13.4	45.3	1042
Japan	21.3	17.4	10	23.3	1162
Latin America	30	23.7	8.9	37.4	1541
Australasia	24.4	31.6	17.8	26.2	1911
Africa	24.2	36	7.9	31.9	1944
World	22.9	32.2	16.1	28.8	1820

12.5.5 Consumer Electronics Distribution

Manufacturers bring their products to ports for shipment to export markets. This initial part of the supply chain is its most inefficient part.[37] Once imported to their destination country, typically by huge container ships, consumer electronics shipments are put in large warehouses. These warehouses are run by a variety of operators: the manufacturing company itself, specialized wholesalers, general logistics providers, or the large retail chains. Compact high value consumer electronics are often air freighted from Asia to the USA and Europe, especially for new releases. The electronics industry accounts for around 40% of the value of the entire international air cargo industry.

12.5.6 Wholesale Distribution: Trends

12.5.6.1 Trend 1: Retail and Wholesale Functions Are Merging as Large Retail Chains Emerge

The large retail chains deal directly with manufacturers/producers, and this reduces the role of wholesalers. What seems to be emerging is a replacement of the three-stage system by a two-stage one. The vertical convergence of retailer/wholesaler, together with the horizontal concentration in the retail level, leads to very powerful distribution intermediaries between producer and consumer.

12.5.6.2 Trend 2: Increasing Market Concentration in Wholesale Distribution

Wholesale distribution was always concentrated for film, music, books, and magazines. Online media distribution adds still further to this market concentration:

- Economies of scale are enormous;
- It is easy to expand distribution platforms and models across countries and across products.

12.5.6.3 Trend 3: Expansion into Production

Distributors of content have often extended into and dominated production, in particular in film, music, and TV. The next chapter of such expansion is being written as Netflix, Google (YouTube), Amazon, Verizon, AT&T, and Apple have entered the content production business. Already, Amazon and Apple have achieved a scale and importance in distribution that puts them into a position to dictate the pricing structure to book and music publishers.

A concluding observation: about the share that wholesalers keep of what consumers pay

37 Weaser, Mark. "New Logistics Systems Will Increase Efficiency, Boost Profits in China." *Supply Chain Brain*. September 1, 2005. Last accessed June 17, 2017. ► http://www.supplychainbrain.com/content/logisticstransportation/transportation-distribution/single-article-page/article/new-logistics-systems-will-increase-efficiency-boost-profits-in-china/.

for the product is, on average, 18.3% after subtracting their own payments to producers and creators. It is much higher for film (39.9%), and lower for books (6.3%), magazines (3.8%), newspapers (2.2%), and online media (5.5%). It is higher for physical content media than for electronic content media (23.1% vs 14.7%). It is larger where:

- A major marketing activity is required (such as film);
- The distributor has a financial stake or an active role in the shaping of the media product (film, music), or must buy it from the producer (film);
- A large inventory must be kept (consumer electronics);
- The product's potential for success is low (music).

12.6 Retail Distribution: Physical Distribution

Retailing is the resale of a product or service to consumers. It can be done by small and specialized companies catering to a narrow or local customer base, or by large and global companies with outlets in many cities and a wide assortment of products. It also includes "e-tailers" who operate online.

12.6.1 Film

12.6.1.1 Film Retail Distribution Channel #1: Theaters

There was a big investment push into film theaters. In 1980s, multiplex and then megaplex theaters opened in the USA. Such theaters then emerged also in Europe and Japan. Economies of scale, improved sound, stadium style seating, parking, and shopping opportunities are the reasons for the rise of such theaters. In 2016, there was approximately one screen per 8000 people, or 12 screens per 100,000 people.[38] This is a high number. (In some countries, like France, the number was twice as high. But almost everywhere else it was much lower.) For example, there were two competing megaplex theaters with a total of 52 screens in Ontario, California right next to each other. Why this theater glut? Shopping-mall operators encouraged theaters as "anchor" tenants to generate evening traffic. Wall Street financiers liked the theater business because of its huge free cash flow.

In consequence, capacity utilization of film theaters dropped, while they carried high debt and costly leases with mall owners. Under severe economic pressure, several major chains consolidated or declared bankruptcy to reorganize their debt and renegotiate onerous leases. As a result of consolidation, the market share in terms of box-office revenue of the top three chains (Regal, AMC, and Cinemark) rose from 29% in 1997 to 40% in 2001[39] and 47.7% in 2015. Such large chains use their own "buyers" to book films while small chains and independent theaters use third-party buyers.

12.6.1.2 Film Retail Distribution Channel #2: Home Video

While the home video business has been squeezed by online distribution, it is still sizeable. It benefited from the consumer's desire to liberate themselves from a set schedule of movie theaters. Large video chains supplanted the numerous mom-and-pop rental stores. But they over-expanded and got clobbered when the DVD technology enabled the more convenient mail-order rentals from Netflix. At the other end of the spectrum, large general retailers became heavily involved in the cheap sale of popular videos. They often use DVD sales as loss leaders to build traffic for their store.[40]

A different approach to home video rental is the use of vending machines. In the USA, Redbox rents out movies for $2. It has only 70–200 titles at any time, but it substitutes a low price and convenience for lack of choice. Redbox is available at more than 34,000 locations in the USA. Its rental peaked at 776 million in 2013, and then declined.[41] But it accounts for 52% of the physical video rental market, and 12.5% of overall users

38 How many screens can a city support? In 2000, San Francisco was the leader in the USA among large cities with over 20 screens per 100,000 population, four times the New York figure.

39 Alderston, Derek, Jeffrey Karish and Roy Price. "Revenge of the Multiplex." *The McKinsey Quarterly*. (Autumn 2002): 6. (Adjusted for 2015 data).

40 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood.* New York: E.J.E. Publications, Ltd., Inc., 2005.

41 Statista. "Number of items rented out at Redbox kiosks from 2010 to 2014 (in millions)." 2015. Last accessed June 15, 2016. ► http://www.statista.com/statistics/296377/redbox-number-kiosk-rentals/.

in 2017. Redbox faced obstacles from the major studios about the timings for their new films. The studios tried to delay the time when Redbox can rest out new films from 28 days after theatrical release to 56 days.[42]

12.6.2 Book Retailing

In recent years the main innovations in the book industry were those of retail distribution. Innovations were retail chains and megastores, online retailers, and on-line delivery. Traditionally, book retailing was based on thousands of small retailers (bookstores), a few large wholesalers (in the USA, four majors), several direct-to-consumer operators (book clubs and mail order publishers), and some direct distribution large or regular end-users such as to school systems and university libraries.

Large bookstore chains began to emerge in the 1960s. Barnes & Noble has over 1000 stores in the USA, including 400 superstores. What are the advantages of book chains and megastores? They have a central buying system, record of sales history of books, large selection, bigger advertising budgets, sales history and inventory control. They also offer amenities such as coffee bars for longer store visits, and visits by authors.

Critics of superstores believe that all they carry are popular titles. However, there are 50,000–200,000 titles in superstores compared to 20,000 in a small store. Another fear is that superstores deter book buyers, when in fact they have made shopping and browsing more attractive due to lower prices, a greater selection, more convenience, and stronger promotion. Other critics believe that these stores have shifted the public reading taste down-market to bestsellers and potboilers. Some of this may have happened. But one should not over-romanticize the quality choices of past generations of book buyers. Subsequently, online publishing and distribution has shifted choice in the opposite direction, to more specialization and more titles including more high-quality book content.

12.6.2.1 Retail Price Maintenance for Books

The competition problem in book retailing is that the chains obtain substantial discounts from publishers, which negatively affects the survival of small bookstores. With higher retail prices are not consumer-friendly, they keep more bookstores in business and encourage the smaller store to hold a larger inventory relative to sales.

The competition between large bookstore chains and small booksellers has been reflected in legal and political battles. In many countries book publishers must fix the retail price and force the retailers to adhere to it. This system is called Resale Price Maintenance (RPM). Book stores then compete not on price but on the quality of their service and the titles available (see also ► Chap. 11 Pricing of Media and Information).

12.6.2.2 Book Retailing Distribution: E-Tailing of Physical Books

In 1994, a young hedge fund manager, Jeff Bezos, surveyed top mail order products and found that books represent a perfect category for e-commerce in terms of prices and convenience. Mail order catalogs, let alone retail stores, could not comprehensively cover books because of the huge numbers of titles. He started the company Amazon.com, and relocated to Seattle to take advantage of the proximity to Ingram, the largest book wholesaler in the USA. Amazon was innovative in using online capabilities. It provided search engines, personalized suggestions and feedback from the reader community, and more. Initially, Amazon had no physical facilities for books and acted solely as an intermediary for orders. In time, it created distribution centers, strategically located in states with low or no sales tax.

12.6.2.3 Book Retail Distribution: Print-on-Demand

It is difficult to predict consumer demand for a book. This can lead to books sitting around in warehouses (known as "rotten fruit") or, conversely,

42 Gruenwedel, Erik. "The Vanishing Video Store Rental." Home Media Magazine. April 3, 2012. Last accessed June 28, 2017. ► http://www.homemediamagazine.com/research/vanishing-video-store-rental-26860http://www.homemediamagazine.com/research/vanishing-video-store-rental-26860.

being sought after yet out of print. These problems can be fixed with print-on-demand (POD) technology. Consumers are able to print out books at special locations, such as a bookstore, and it only takes a few minutes to print, glue, and bind a book.[43] The technology allows for books to be produced and sold in small quantities, even one at a time. It reduces inventories (by publishers, wholesalers, and retailers) and creates a "pull model" for book production. POD has resulted in specialized models of publishing itself, because it lowers the entry cost for a new publisher and the risk associated with an upfront printing of books whose sales potential is uncertain.

12.6.2.4 Case Discussion

Bertelsmann—Book Retailing

Bertelsmann's book distribution has several very different channels: it serves book stores and clubs; but it owns no bookstores.

Random House used to sell many of its books through Bertelsmann's book clubs, based on a membership model with required purchases. This distribution channel was a major factor for the company becoming a media giant. The same system was also used for music. Authors and publishers vied for Bertelsmann's book club distribution. The success of the clubs made Bertelsmann a major publisher by giving its own books a wide distribution. Soon, it also bought up several smaller publishers. In time, however, consumers drifted away from clubs. In 2011 Bertelsmann closed its book club division, which at the time still had 15 million subscribers in 16 countries. It sold its US book club, Bookspan.

Print-on-Demand

Until 2009, Random House owned 49% of Xlibris, a provider of self-publishing and on-demand printing services, but then sold it.

E-stores for Print Books

Bertelsmann started Bertelsmann Online (bol) in 1999 as an e-bookstore, competing with Amazon.com and Barnes & Noble's BN.com. But after major losses and restructuring efforts, Bertelsmann sold off bol.de.

E-book Distribution

Bertelsmann engages in e-book distribution on its own distribution platforms, as well as on others. In Germany, it started several ventures related to e-books:

- The mobile direct-to-consumer Skoobe e-book distribution platform for smartphones and tablets, focused on German-language e-books. (Skoobe is "e-books" spelled backward.) Its model was not selling but renting out books, just as Netflix does for films online. It charges users €10 a month subscription to borrow up to two titles for 30 days. Renting books is cheaper than buying them. Skoobe's main selling points are price and a wide range of recently published e-books and a user-friendly design.
- A second e-book distribution venture is Tolino. The Tolino e-book platform was launched in 2013 and joins Bertelsmann and Germany's three major physical book retail chains—Thalia, Weltbild, and Hugendubel—together with phone giant Deutsche Telekom. It also offered a tablet reader. Thus, Tolino brought together Germany's top physical booksellers, its largest media company and book publisher, and its largest telecom company, all joined to compete with Amazon and Apple. Previously, each of the five had its own e-book business, with a combined market share of 35%. There was no governmental German or EU antitrust intervention in this venture that joined major horizontal competitors and vertical buyers/sellers.

To sum up: Bertelsmann's bargaining strength as a publisher, in dealing with large e-tailers like Amazon or Apple, has weakened compared to what it used to be relative to traditional retailers. Its strength in direct-to-readers book club distribution collapsed. Bertelsmann's efforts to offset these trends by entering the online distribution of physical books or e-books, or by operating POD, have either failed or are yet to show success.

43 Macprint. "Offering You The Latest Printing Press Technology." 2009. Last accessed July 25, 2011. ► http://fahadlatesttechnology.blogspot.fr/2009/11/offering-you-latest-printing-press.html.

12.6.3 Magazine and Newspaper Retailing

The retailing of magazines and newspapers, typically in newsstands or multi-product retailers such as convenience stores, drug stores, and supermarkets,[44] is known as "single copy sales." That form of distribution has been declining steeply,[45] at about 10% per year. Factors were: the much cheaper subscription prices relative to single-copy sales;[46] changing consumer shopping patterns (less impulse purchases, fewer shopping trips); a shift to digital reading and a proliferation of digital devices—smartphones offer far more news choices than a retailer, and with more convenience; a decline in the number of locations selling single copies, which reduced distribution cost but limited availability;[47] and the prevailing system in which newsstands and other offline retailers could return unsold copies, which shifted the risk of weak sales onto the publisher. The result of these factors was a decline of physical retailing to secondary status. For magazines, retail newsstand and supermarket sales make up only a small share of their overall sales. Even for consumer magazines, less than 15% of total circulation is through retail outlets,[48] for example, *Rolling Stone* magazine gets only 5% of its circulation via newsstands,[49] *Vogue* 20%, and *Time* magazine 1.8%. Celebrity publications are the most popular magazine category at newsstands, but it is also the category that has lost the most sales. Also relatively well performing in retail sales are magazines presenting highly visual information that is best done in print, for example food, home decorating, and travel destinations.[50]

12.6.4 Music Retailing

Arguably, no part of the media industry has been more affected by electronics and online technologies than the traditional retail distribution of content. And no music retail distribution has been more affected than that of music.

Before the 1970s, there were two kinds of record retailers. They were stand-alone specialist shops and general department stores that included hit record racks. They had different supply channels. The specialist ordered records from independent "one-stop wholesalers." Department store racks were served by independent "rack jobbers" who selected titles and stocked the racks. Music was also retailed by record clubs.

In the 1990s, online stores such as CD-Now and Amazon.com emerged as retailers of physical music products. A few years later, direct download began, at first illegally and without payment. Subsequently, for-pay online stores also entered, particularly the Apple iTunes. This put specialized retailers under enormous pressure. Since 1999, annual retail music sales dropped by about 10% each year to $8.0 billion,[51] and even more so for independent retailers.

There are various ways to sell digital music. Apple sells music via its iTunes store on a model in which users acquire a song or album and download it to their devices. Since 2015 Apple also let users access music via a streaming service (Apple Music), whereby the music would only be played when connected via the Internet. Since 2015, overall streaming revenue (Apple, Pandora, Spotify, and others) surpassed digital download revenue in the USA.[52]

12.7 Online Retail Distribution of Electronic Media

Online distribution is mostly another form of retailing. But it often straddles the retail and wholesale stages. It enables an intermediary—sometimes traditional, sometimes new—to link between producers and consumers. There are different models:

44 Supermarkets are the largest retail center for single-copy magazine sales in the USA, with 35.6% of the market share.

45 Doctor, Ken. "Newsonomics: Single-copy newspaper sales are collapsing, and it's largely a self-inflicted wound." *Nieman Lab*. March 13, 2005. Last accessed February 24, 2017. ► http://www.niemanlab.org/2015/03/newsonomics-the-collapse-of-single-copy-sales/.

46 Magazine titles that discounted their subscription prices by more than 70% declined by 16% at the newsstand, four times more than magazines that discounted subscriptions by less than 10%.

47 Dool, Greg. "Newsstand Sales Fell 16 Percent in 2015". *Foliomag*. March 14, 2016. Last accessed June 29, 2017. ► http://www.foliomag.com/newsstand-sales-dropped-16-percent-in-2015/.

48 Vasquez, Diego. "Behind magazines' decline on the newsstand." *Medialife*. February 13, 2014. Last accessed June 29, 2017. ► http://www.medialifemagazine.com/behind-magazines-decline-newsstand/.

49 Rolling Stone. "Circulation." 2016. Last accessed February 24, 2017. ► http://www.srds.com/mediakits/rollingstone/circulation.html.

50 Vasquez, Diego. "Behind magazines' decline on the newsstand." *Medialife*. February 13, 2014. Last accessed June 29, 2017. ► http://www.medialifemagazine.com/behind-magazines-decline-newsstand/.

51 Lee, Louis. "Taps for Music Retailers?" *Business Week*. June 23, 2003, 40.

52 Bloomberg. "Apple's iTunes Overtaken by Streaming Music Services in Sales." March 22, 2016. Last accessed June 17, 2016. ► http://www.bloomberg.com/news/articles/2016-03-22/apple-s-itunes-overtaken-by-streaming-music-services-in-sales.

- A traditional retailer extends backward directly to the producer. For example: the book retail chain Barnes & Noble Online leapfrogs much of the wholesale distributor.
- A traditional wholesale distributor may reach consumers directly. Example: HBO Now, which leapfrogs the cable TV and satellite retail intermediaries.
- New intermediaries emerge to reach end users. Example: Apple iStore.
- Producers link up directly with consumers. Example: *The Guardian* newspaper or *The New York Times* which leapfrog wholesale and retail intermediaries.

12.7.1 Business Models for Online Media Retailing

The new online model of distribution leads to several business models.

12.7.1.1 Advertising-Based Content Provision

The advertising-based business model is by far the most prevalent for text based content, for social-media type video, and for a good number of commercial music and video services. This is a logical continuation of traditional print and broadcast media being supported by advertising dollars. However, the problem of advertising as an economic foundation is that there is a huge supply of advertising opportunities online relative to the attention to such advertisements and to their effectiveness, and hence the price of advertisements is much lower. The former CEO of the media giant NBCUniversal, Jeff Zucker, memorably summarized the problems of moving to online distribution as "trading analog dollars for digital pennies." Whereas the cost per thousand impressions (CPM) in 2017 for TV networks averaged $24.40 and for newspapers it was $35, for online video it was merely $3, and for online text display ads $2.03.[53] Of this, the ad placement service of Google keeps 32%, so that is the web publisher gets $1.38. On the positive end, ads can be targeted more precisely and with greater effectiveness. Yet this advantage would already be reflected in the willingness–to–pay by the advertiser, that is, in demand. Without it the prices would be still lower.

At the same time, the cost of creating online content is not lower but more expensive, if anything. It is true that digital technology makes production and distribution cheaper. But the greater competitiveness of content providers also means the need for more technical bells-and-whistles, for a higher frequency of updates such as news, and for greater marketing efforts. It also means more fragmented audiences which translates into a smaller number of users having to support a higher cost operation though their value to advertisers. That audience is too small for most online content providers to provide an economic base, yet large enough in the aggregate to squeeze the larger media providers, too.

12.7.1.2 Online Content for Sale or Rent

For film or TV programs, the video-on-demand (or the related but more limited pay-per-view) system has been offered since 1993 by cable TV and then satellite and telecom companies. It then migrated online where it is widely used. Some content is streamed for a once-only use while connected. Other content is downloaded for storage and use anytime by the user. In practice, the separation is not neat, with some downloaded material expiring after a few weeks, and conversely streamed materials that can be resumed or repeated for a while. A similar process has taken place with music, where much of it sold online through downloads or streams, in particular from Apple iTunes. Other providers are Amazon Music, Google Play Music, and emusic.com. Online text publishers, too, have taken steps in the direction of the sale of discrete items of content, though with no particular success. Under the pay-per-read (or pay-per-article) system, a newspaper charges a small amount for an article. It is a micropayment system for micro-transactions. A provider exploring the pay-per-article model is Blendle, the Dutch news platform start-up with some funding from The New York Times Company and the German publisher Axel Springer AG. Newspaper articles cost between 19 and 39 cents, while magazine stories cost between 9 and 49 cents. Publishers get to keep 70%. There

53 Online ads charge on a "per click" basis (CPC). For text display ads CPC averages $0.58. The click rate per impression was 0.35%. Per thousand impression this translates to a price of $2.03.

are no ads.[54] It recommends stories by algorithm as well as human choices. Readers who feel the article was not worth it can opt for an immediate refund. About 20% of those who register end up linking their credit card to the service.

Micropayments allow for complex pricing strategies. Price differentiation, group pricing, loyalty discounts, disaggregation, and tie in with products flourish in micropayment systems. The pricing can get very complicated, but such prices cannot be easily sustained when competition comes into play. Only unique content will sustain high or discriminatory prices.

12.7.1.3 Subscription-Based Content

The *Wall Street Journal* began in 1997 to erect a "pay-wall" of subscriptions. At first, registered users dropped by 90% but the count eventually recovered. At the other extreme of size, a small local paper, the *Champagne News Gazette*, also sold news subscriptions. It charged $4.50 a month just for sports because of a popular columnist and due to the nostalgia of University of Illinois alumni who wanted to stay in touch. The *New York Times* began to charge for access to its columnists in 2005. Online subscribers could also access archives and real estate posts. This did not work well. No one wanted to pay for columnists' opinions when so much was available for free elsewhere online. Eventually all content became subscription-based, though offered with deeply discounted content. The emergence of mobile tablet and smartphone devices gave NYT subscriptions a major boost.[55] There were 2.6 million digital-only subscribers at the end of 2017.

Thus, it seems that users are willing to pay for subscriptions when that online news source is the only provider of local news, or when the news source is an authority on its subject matter, like the *Wall Street Journal*, *Handelsblatt*, the *Financial Times*, or *Le Monde*. Readers will not pay for commodity news.

Many content providers have moved into a mixed model of "freemium" pricing in which they offer a basic product for free and charge a premium for a better grade of the service. In music, Spotify offers premium service for downloads and ad-free streaming for $10 per month, with 25% of its active users being paying subscribers. Spotify's ratio of paid-to-free users has held steady as the company has moved beyond early adopters.[56] Pandora implemented a subscription model with a freemium strategy: users can choose between free ad-supported radio listening or an ad-free premium which costs $5 a month.[57] Pandora's pay-users account for only 4.9% of listenership, but they contribute over 20% of its revenue.[58] For newspapers, the *New York Times* gives all visitors 10 free articles per month; to read more they need to pay for a subscription. This is known as a "metered paywall".[59]

12.7.1.4 Public Subsidy-Based Model

A large number of traditional public broadcast organizations have branched out into online provision of their past content. It is a natural extension of their reach and mission, including globally. These activities are often supported by the existing payment mechanism of public TV, based on user fees or government grants. This has been opposed by commercial media companies that compete with the public service media.

12.7.1.5 The Community Model: Retailing of User-Generated Content

This form of retail distribution has arguably been the most innovative contribution of the Internet to content creation and consumption. There are various models of content sharing—including

54 Ha, Anthony. "Pay-per-story news service Blendle comes to the US." *Tech Crunch*. March 23, 2016. Last accessed June 29, 2017. ► https://techcrunch.com/2016/03/23/blendle-us-launch/.

55 Doctor, Ken. "Newsonomics: The New York Times is setting its sights on 10 million digital subscribers." *Nieman Lab*. December 5, 2016. Last accessed June 29, 2017. ► http://www.niemanlab.org/2016/12/newsonomics-the-new-york-times-is-setting-its-sights-on-10-million-digital-subscribers/.

56 Dormehl, Luke. "A Whopping 25% of Spotify's 60 Million Active Users are Paying Customers." *Fast Company*. January 12, 2015. Last accessed June 29, 2017. ► https://www.fastcompany.com/3040781/a-whopping-25-of-spotifys-60-million-active-users-are-paying-customers.

57 Yiranni. "What makes Freemium work? Lessons from Pandora." June 1, 2016. Last accessed June 29, 2017. ► https://yirannnny.wordpress.com/2016/06/01/what-makes-freemium-work-lessons-from-pandora/.

58 Israelite, David. "Freemium Model Works For Pandora But Is Devastating To Songwriters." *Hype Bot*. September 25, 2015. Last accessed June 29, 2017. ► http://www.hypebot.com/hypebot/2015/09/freemium-model-may-work-for-pandora-but-is-devastating-to-songwriters-op-ed.html.

59 Norris, Ashley. "Is the New York Times paywall a success? What can it teach other publishers?" *Fipp*. October 7, 2015. Last accessed June 29, 2017. ► http://www.fipp.com/news/opinion/is-the-new-york-times-paywall-a-success-what-can-it-teach-publishers.

unlicensed piracy and legitimate creation by members of the community who share it with others. Some of it, when successful, becomes advertising-supported.

Having analyzed the various types of business models that support online media distribution, we now take a look at several of the major online media industries themselves.

12.7.2 Online Distribution of Film and Video

Video servers usually store the online content and serve it on demand. Capabilities also include access control, encryption, and compression as well as billing, users' social interaction, polling, and user measurement. They can also insert advertising, including targeted ads.[60]

The distribution of the content from the video platform's servers to the Internet is provided by so-called content delivery networks (CDNs). A CDN is a network of high-performance transmission links capable of carrying numerous video streams simultaneously. CDNs also provide content platforms with a widely dispersed network of servers that stores content files to be accessed by users in a decentralized way. The CDN places files in different places so that the user can receive the nearest copy of it faster and the service provider uses transmission capacity efficiently.[61] This is particularly important for content sites streaming large video files, and those with heavy traffic in different countries. Content platforms enter into contracts with CDNs that frequently include guarantees of service quality. Several content providers and distributors have created their own CDNs, in particular, Google, Netflix, and Amazon.

Online video has rapidly taken off and has become the main use of the Internet, in terms of quantity of transmission. Already in 2014, video traffic accounted for 78% of overall Internet packet traffic online in the USA. In 2016 Netflix accounted for 35.2% of prime-time Internet traffic, and Amazon 4.3%.[62]

A large number of content providers, packagers, and platform providers has emerged. In addition, most TV networks and cable channels have created individual online sites with offerings of their video content.

Clearly, this sector will consolidate considerably and most likely focus around several central nodes, which are likely to be the "cloud providers" who will be the primary integrators of content, platforms, advertising placement, data, and interactive technology.

Their advantages include:

- Providing the convenience of a few access points to consumers;
- Bridging the diversity of technical standards used by content providers;
- Compliance with global laws and regulations;
- Financial distributions to the various participants in the value chain;
- Marketing, branding, and quality control;
- Management of privacy and security;
- Ability for personalization due to extensive access to user data;
- Technological sophistication;
- Deep pockets.

The main players in this cloud-based future global video system could well be, given today's evidence, Internet-based platform companies such as Google, Amazon, Facebook, Apple, Microsoft, and Alibaba. This is further discussed in the ► Chaps. 3 Production Management in Media and Information and 8 Managing Law and Regulation.

The content cloud providers are differentiating themselves by creating vertical extensions into content creation. In 2013, Netflix started to offer its own content: the 13-episode drama *House of Cards* with Kevin Spacey, which got much attention. Amazon, too, has been producing its own original content, including award winning shows like *Mozart in the Jungle* and *Transparent*. It also produced the Oscar award winning movie *Manchester by the Sea*.[63]

60 Picard, Robert and Jeffery Brody. *Newspaper Publishing Industry*. Needham Heights, MA: Allyn & Bacon, 1997.

61 Sexton, Patrick. "Content Delivery Networks." *Varvy.* October 10, 2015. Last accessed June 29, 2017. ► https://varvy.com/pagespeed/content-delivery-networks.html.

62 Spangler, Todd. "Netflix Chews Up Less Bandwidth, as Amazon Video Streaming Surges." *Variety.* June 22, 2016. Last accessed June 29, 2017. ► http://variety.com/2016/digital/news/netflix-bandwidth-share-2016-1201801064/.

63 McAlone, Nathan. "Amazon will spend about $4.5 billion on its fight against Netflix this year, according to JPMorgan." *Business Insider.* April 7, 2017. Last accessed June 29, 2017. ► http://www.businessinsider.com/amazon-video-budget-in-2017-45-billion-2017-4.

12.7.3 Online Periodicals Distribution

Online newspapers started, in 1982, when 11 major US newspapers made portions of their print editions available to consumers on the CompuServe portal.

Although dismissed as old-fashioned, paper-based publications such as newspapers, magazines, and books still carry several advantages. They are easy to use, portable, have high-contrast text, full-resolution graphics, zero power consumption, durability, flexibility, and a permanence for archives.[64] That said, online publishing brings many other advantages to distribution. Most obviously, without paper the distribution cost drops while speed and range rise. In 2008, it cost the *New York Times* twice as much to print out copies for its readers than it would have to send them all on an Amazon Kindle for free.[65] Digital distribution has other advantages. It facilitates interactivity and targeted advertising, and it can collect demographic or geographic information on users, or on their behavior. There are no production over-runs or under-runs, because the distribution model shifts from push to pull. And the need for warehousing, distribution centers, and trucks is eliminated. But the product changes, too. There is a continuous update of content; content can be customized to fit readers' preferences; there is interactivity among readers and the publication; and targeting is possible for advertising. There can be multimedia content, "hypertext," sound, animation, and video.

There are disadvantages to online text publications, too. Technical glitches, network congestion, privacy issues, hardware requirements, and the need for continuous website maintenance. The glut of such information also depreciates credibility and pushes publications to be more sensationalist in content, and less thorough in editing and fact checking.

But by far the hardest aspect of the move to online is the much greater competition, coupled with the difficulty to monetize content. Although people still want to get the news, paying for them is no longer necessary. People refuse to pay for news and articles because the competition between various outlets for viewers or readers drives down the prices to or near zero. Only the most powerful and leading brands are able to charge for content.

12.7.4 Books Online Retail Distribution

E-books have been around, at first unsuccessfully. In 2010, Apple introduced a new line of tablet computers, the iPad, which became wildly popular.

Phones, too, became a popular platform for e-books, especially in Japan. Mobile phone novels, known as *keitai shousetsu*, first emerged in Japan in 2003. These novels were sent through text messages to readers. Such novels cater primarily to young females and feature unconventional orthographs, emoticons, symbols, punctuation, and script choice common in colloquial youth talk and typing styles.[66] In 2007 four of the top five literary best-sellers in Japan were cellphone novels.

12.7.5 Direct Electronic Distribution to Users: Streaming Music

Streaming audio technologies allow users to listen to music or view videos but restrict them from storing the music. In 2008, Apple's iTunes surpassed Walmart to become the #1 music retailer in America. Other online download services in the USA were Rhapsody, Buy Music, Napster, and Yahoo Music Jukebox. Each had millions of songs available for downloading. Pure streaming requires users to be connected. Companies offered subscription plans of around $10/month. Major music streaming services are Pandora (an early Internet radio leader), Spotify (a major provider in Europe), and iHeartRadio, from the largest US radio station group. By 2017 streaming audio accounted for 15% of all audio

64 Wells, Alison. "Exploring the development of the independent, electronic, scholarly journal." *Information Research* 5, no. 2 (January 2000).

65 Carlson, Nicholas. "Printing The NYT Costs Twice As Much As Sending Every Subscriber A Free Kindle." *Business Insider*. January 30, 2009. Last accessed July 8, 2010. ► http://www.businessinsider.com/2009/1/printing-the-nyt-costs-twice-as-much-as-sending-every-subscriber-a-free-kindle.

66 Coates, Stephanie. "The Language of Mobile Phone Novels: Japanese Youth, Media Language, and Communicative Practice." *ASAA*. 2010. Last accessed June 27, 2011. ► http://asaa.asn.au/ASAA2010/papers/Coates-Stephanie.pdf.

sources in the USA, and of that Pandora had a 30% market share, about 4.5% of all US radio listening.[67]

12.7.6 Online Videogame Retail Distribution

The largest online retailer of video games worldwide is, by far, Steam. It was started in 2003 by game production studio Valve as a way to push out updates of its games to users. It subsequently evolved into distributing games by outside developers. In 2018 Steam offered over 8000 games and had over 150 million registered accounts.[68] Steam keeps 15–30% of the retail price, depending on whether the producer is a major game house or an independent producer. In China, the major online distributors of video games are www.37.com and game.qq.com.

12.8 Distribution Channel Strategies

Managers of media distribution must deal with these issues:

- Self-distribution vs third-party distribution;
- The selection of distributors;
- The timing and sequencing of distribution over various platforms.

12.8.1 Self-Distribution: Customer-Direct Distribution by Producers

In general, direct producer-to-consumer sales avoid sharing revenues with retailers and wholesalers. But they also reduce an understanding of the needs of local markets and lose the grassroots promotion of a retailer. In other cases, a direct relationship creates a bond. The Internet enables musicians and authors to use direct-to-fan distribution to sell their work. Some of them are well-known, like Radiohead or Steven King, who at times market their "brand" without a need for intermediaries. (It should be noted that they achieved their brand recognition inside the traditional system, and with the support of its conventional marketing operations.) This avenue will not be easily available to unknown artists. To develop audiences they need self-promotion, word-of-mouth, and sheer luck. While some such efforts snowball and receive much attention, the probability of success is miniscule.

For artists to go directly to audiences does not mean that there are no intermediaries. It is, of course, possible for an artist to have his or her own website and get paid for downloads or streaming, and perhaps also have advertising on that website. For performers, the Internet permits direct-to-fan sales. An example is the comedian Louis CK, who has been called "the king of direct-to-consumer sales." He sells his standup special for $5 a copy on his website. About 200,000 copies were bought in 12 days. He also bypassed the Ticketmaster online ticket agency and instead offered the tickets to his shows directly on his website. He sold 100,000 tickets in 2 days, grossing $4.5 million. More likely, however, is for the artist to place the music on aggregator sites such as Apple's iTunes (for sale), AppleMusic or Google's YouTube (for streaming), and GooglePlay (for downloading).

Another level of intermediary are services that manage placement on the various music sites around the world, collect the royalties, and distribute them to the artist. These services charge for their work as distributors. Thus, the net revenue left to the artist from the sale of her album selling on iTunes for a typical $9.99 is about $6.36, which is considerably higher than for an album sold as a CD at $15, of which the artist may get about 10%, which after a number of deductions might add up to $1 per sale. On the other hand, the number of copies sold by the artist on her own might be much smaller since she does not have the label's brand reputation and costly marketing apparatus and behind her.

Does self-distribution work in economic terms for artists? Let us look at the numbers. Suppose one artist distributes her music in the traditional way through a major record label, while another artist uses the aggregator TuneCore to distribute content. On average, the second type

67 Owen, Laura Hazard. "Left on the dial: With young people trading AM/FM for streaming, will radio find a home in your next car?" *NiemanLab*. April 18, 2016. Last accessed June 30, 2017. ► http://www.niemanlab.org/2016/04/left-on-the-dial-with-young-people-trading-amfm-for-streaming-will-radio-find-a-home-in-your-next-car/.

68 Edwards, Cliff. "Valve Lines Up Console Partners in Challenge to Microsoft, Sony." November 4, 2013. Last accessed June 10, 2015. ► https://www.bloomberg.com/news/articles/2013-11-04/valve-lines-up-console-partners-in-challenge-to-microsoft-sony.

of artist earns $214 per year, or $18 per month. This is due to the fact that 94% of digital tracks sell less than 100 copies and 32% of them sell only one copy.[69] The top-earning 1% of artists on TuneCore made an average $935 per month while less than 1/100 of 1% of artists made more than $22,000. Three artists (one in 165,000) earned more than $100,000 from digital music sales.[70] In contrast, Universal Music Group (UMG) has 934 artists under contract. On average, these artists make $15,000 per month from digital music sales, which is about 830 times the amount an independent artist makes on average. Of course, UMG signs only a very small number of artists, those with strong sales potential and then promotes them and gives their work a strong distribution.

A second revenue stream for self-publishing artists—music and blogs—is online advertising. Google YouTube sells ads through multiple streams. Those ads are then matched up to content and served when a user clicks on the video. The contributor of the content gets compensated based on how much advertising earnings are brought in through views of their videos.

12.8.2 The Selection of Distributors

One strategy is for a producer to seek a wide distribution by as many distributors as possible. The idea behind such "saturation distribution" is that the more outlets and platforms stock the product, the greater the chance of it being bought. But in that case, the distributors, whether wholesale or retailers, are likely to compete with each other and thus will end up with a limited volume and profit margins. The other extreme is "exclusive distribution," with a small number of intermediaries who then fully commit to the product. Their exclusivity gives them higher profits, but their presence across the market is limited, and the lack of alternative distributors may lead them to be less than fully energetic. Also, having exclusivity, they might exert power against the producer. An intermediate option is "selective distribution"[71] with a relatively small but non-exclusive number of distributors.

When selecting distribution intermediaries, a company will look at several factors. These could include:

- Track record;
- Commitment of distributor to other and possibly competing products;
- Financial position;
- Ability to innovate and use new techniques.

The producer, too, must be careful to motivate and incentivize the distributor. Actions that might backfire are:

- Producer bypassing distributor by selling directly to customers, possibly at a lower retail price;
- Over-saturation of market by engaging numerous distributors;
- Creation of new channels;
- Engagements with cost-cutters.

It is almost unavoidable that there will be some competition among a producer's various distributers and platforms. This is known as "channel conflicts."

12.8.3 The Timing and Sequencing of Distribution Over Various Platforms

Often, the producer will separate different distribution channels by assigning them different geographic territories or customer classes. Another segmentation is by the time taken for their distribution activity. For film, this is known as "windowing" (Fig. 12.11).[72] A film will be shown first in movie theaters. At the conclusion of the theatrical run, it will become available for sale for home movie viewing, then by on-demand streaming for subscribers of video services. This continues until the film, having exhausted all other distribution options with a higher revenue potential, eventually ends up on late-night TV on small TV stations.

69 HypeBot. "You're Losing Money: Why The Majority Of Artists Should NOT Use Tunecore." November 18, 2013. Last accessed June 30, 2017. ► http://www.hypebot.com/hypebot/2013/11/youre-losing-money-why-a-vast-majority-of-artists-should-not-use-tunecore.html.

70 These numbers refer to 2011. TuneCore. "TuneCore Artists' Music Sales – July 2011." November 22, 2011. Last accessed June 30, 2017. ► http://www.tunecore.com/blog/2011/11/tunecore-artists-music-sales-july-2011.html.

71 Palmer, Adrian. *Principles of Marketing*. New York: Oxford University Press, 2000, 337.

72 Inspired by Vogel, Harold. *Entertainment Industry Economics: A Guide for Financial Analysis*, 10th ed. New York: Cambridge University Press, 2014.

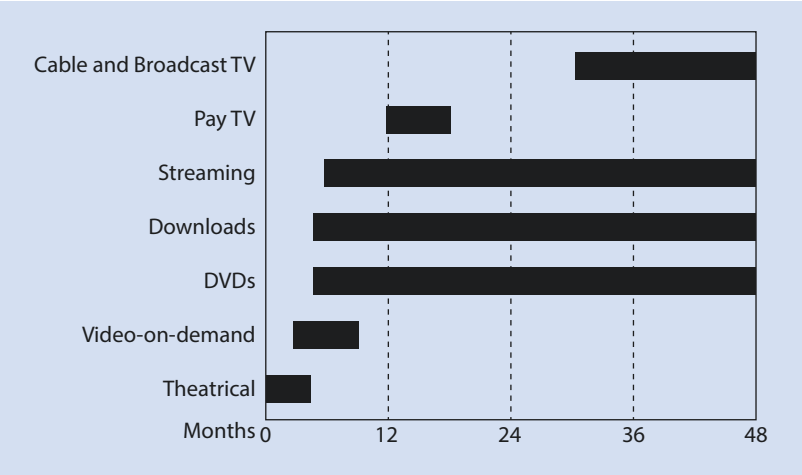

Fig. 12.11 Typical distribution windows from release date, *c.*2014

As mentioned, the basic principle for a release sequence strategy is to:

1. Segment the market by distribution platforms;
2. Distribute via the platform that generates the highest marginal revenue per time unit;
3. "Cascade" down in the order of marginal-revenue contribution.

Creating a release sequence is a form of price discrimination. To be able to maintain it requires keeping the various distributions and their channels separate from each other so that arbitrage does not become possible. Unauthorized sale and pirates undermine the ability to maintain this system. One impact of an increasing piracy was therefore the compression of the release sequence in order to shorten the time window for pirates before the film is available more cheaply than in theaters. Another response was to release films internationally at the same time as they are in the USA, so as to give pirates less time to flood international markets. However, early international release reduces the positive impact of favorable US press stories and performances. Also, marketing campaigns traditionally have the director and stars of a film visit each major country as their film was about to be released. This becomes harder with global release dates.

The theatrical run of a movie is usually over within a window of three months. The home video is released about six months after the theatrical run is done. Spacing too closely cannibalizes the high-margin version, because some potential viewers will wait. But delaying too much results in a loss of the market awareness of the film and its image as "new."

12.8.4 Retail Distribution: Conclusions on Trends

While there are always exceptions, the broader trends in retail distribution are:

1. Bricks and mortar retailers are declining:
   - Video rental stores are dead;
   - Music stores are mostly dead;
   - Bookstores and game stores are in decline;
   - Film theaters are squeezed.
2. Consolidation of retailers into large chains. Massive consolidation into chains can be observed for:
   - Books: (Barnes & Noble (USA), W. H. Smith (UK), Kinokuniya (Japan), Hugenduebel (Germany), Payot (Switzerland), Steimatzky (Israel);
   - Music (before bankruptcy): Tower Records;
   - Video rentals: Blockbuster (before bankruptcy), Redbox;
   - Film theater chains: Regal (USA); Gaumont (France); Siverbird (Nigeria); Cinepolis (Mexico); PVR (India); Toho (Japan);
   - Videogames (Valve);
   - Consumer electronics: Best Buy (USA); Best Denki and Deodeo (Japan); Media Markt (Germany).

The consolidation into chains is part of a larger move to national-brand "big box" store chains that exist everywhere, from groceries to auto repairs to restaurants. The trend weakens traditional mom-and-pop retailers. The next disruptive change has been online retailing, often the *coup de grâce* for bricks and mortar stores, whether small or large, unless the smaller retailers can develop additional value-added for the end user.

3. Replacement of physical products by digital products leads to leapfrogging of traditional retailers by e-tailers:
   - Netflix for video streaming;
   - Apple iStore for music and e-books;
   - Amazon for e-books;
   - Steam for games.
4. While many distribution chains show an integration of wholesaling and retailing, in other distribution chains the opposite is happening.

   For music, books, videogames, or consumer electronics, the emergence of large chains and/or of electronic distribution has led to a compression of the distribution channels, with the wholesale and retail functions often combined. In some cases they are also integrated with that of the producer. Examples are Apple's and Microsoft's retail stores, or Time Warner's HBO Go and HBO Now. On the other hand there has also been a disintegration. In the film industry, the producer com panies used to be also wholesale distributors and retailers (theaters.) Today, film retailing in the USA is quite separate from distribution, though legally it can be joined again. Much of film production, too, is separate from distribution, though closely related to financing. Book retail distribution tied to publishers, such as Bertelsmann's book clubs has declined considerably.
5. A trend from discrete products (a film, a CD) to bundled services:
   - Music (Pandora, Spotify, Tencent);
   - Video (Netflix, Hulu, Amazon);
   - Newspapers and magazines (decline of street sales in favor of subscriptions).
6. There is also a counter-trend into unbundling:
   - VOD instead of Pay-TV subscriptions;
   - Single music tracks instead of albums;
   - Film streaming service instead of a cable TV bundle of channels.
   - Some subscription models have declined, in particular book and music clubs, and more generally newspapers and magazines.
7. Online retailers tend to be large and dominant, even more so than retail chains:
   - Books (Amazon);
   - Film rentals (Netflix and Amazon);
   - Music (Apple iStore);
   - Games (Steam, Green Man Gaming (UK),Tencent (China)).
8. Dominant online retailers tend to be new retailers.

   All of the examples above are new companies.
9. Direct-to-consumer retailing by producers has not been a major factor.

   Can we observe producers becoming retailers? Yes, in many media the producers (even the creators) can access the end user directly. Many music labels or artists run websites that stream content. Book, magazine, and video games publishers permit direct purchases. There has been a large number of self-produced and marketed videos. However, the actual volume of business and of transactions is smaller than the publicity it received.
10. The revenue share of retailers in overall media revenues of the industry averages 23%. It is 25% for physical content media, 21.4% for electronic content media, and 19.3% for online media.

    It is higher where:
    - A major local effort is involved (film theaters, 40%);
    - Major investments are needed (cable TV, 33.5%);
    - Large inventory is necessary (books, 40%);
    - Products are perishable or risky.
11. The retailing stage is resilient.

    The shift away from traditional retailers moves economic activities to new types of retailers (e-tailers), not to disintermediation of the retailing function. The resiliency of the retailing stage is based on its ability to transform itself. In several segments of the media and information sector the retail sector has been the one that has changed the most. Examples are the music business and the video/film industry. The persistence of retailing (albeit in new forms, often integrated with

wholesale distribution) suggests that retailing has a role regardless of the distribution technology used.

What are the elements of this role of retailing?

- Screening and validation of products;
- Customer service;
- Transaction management;
- Inventory storage;
- Local marketing;
- Creating a shopping experience;
- Local market analyses;
- Consumer credit;
- Comparison shopping among many brands and products—a shopping mall rather than a factory outlet.

The relative lack of success of producers—whether large or tiny—to become retailers also suggests that the respective skill sets are different. Retailers are sales and marketing oriented, which are people-oriented tasks. Producers are technology and content oriented. Both stages require a good dose of effective logistics management, which is an operational function.

The emergence of strong retailers creates countervailing power against large producers or wholesale distributors. Thus, whereas in the past retailing was characterized by small independents who were fairly weak, today Apple and Amazon can dictate pricing arrangements to book publishers and music labels. Similarly, Netflix has power facing the Hollywood studios, and Apple can impose conditions on app developers for iPhone. If anything, the retailer, especially when integrated with wholesale as the above examples exert so much bargaining power that the producers have agitated for regulatory/government assistance in curtailing it. In the past, it was the retailers who sought such protection.

12.9 The Revenue Shares in the Distribution Chain

After our exploration of the wholesale and retail stages of the distribution chain, we now turn to the relative shares of revenues for the participants in the entire chain. Some of this was already interspersed in the previous discussion. ◘ Table 12.2 is based on the analyses of this chapter, plus interviews with participants in the various industries. These show the share in the overall revenue of a media product by the four major stages of production and distribution: creation, production, distribution, and retailing. We identify their share in the money consumers and advertisers paid. (This share is net of payments that was kept rather than passed on to the other stages. It is not net of the other various expenses which each stage incurred. For example, of the 62% of newspaper revenues that go to the publisher, 14.7% are used for materials (paper), 18% for the actual production (printing etc.), 6.3% for general administration, and 10.5% for marketing and promotion; 12.5% are profits.)

What can we observe from this table?

- The share of overall revenues that goes to the creators is invariably small and hovers around 11–15% for most media. It is highest for online media at 18%, though that is partly a function of the small role of wholesalers in that sector. It is actually highest for the newspaper industry, which reflects its labor-intensive nature. And it is lowest for film, where much of the revenue goes to theaters, producers, and distributors.
- The share of revenues that goes to producers averages 49%, by far the highest share. It is highest for magazines and newspapers, where it reaches 68% and 62%, including the advertising revenues. It is also high for electronic content media (48.9%), and lowest for film (19%) where most of the revenue goes to the distributors.
- It must be understood that these revenues do not mean a share of profits. The producers of media bear some of the major costs. For newspapers and magazines, for example, (beyond the cost of editors/creators) publishers must pay for paper, printing, solicitation of advertising, marketing of the publication, overheads, and so on. If we look at profitability, profits for book publishers are 7.8% of overall retail revenue, magazine and newspaper publishers 12.5% (2% for advertiser-supported online publishing), music labels have 6% (and less for online music), and consumer electronics makers 5%.[73]

73 These are not profit margins on producer sales, but margins on consumer prices. Since there are markups by wholesalers and retailers, the profit margins of producers are thus higher. See ◘ Table 12.2.

Table 12.2 The revenue shares in the distribution chain

	Retailer	Distributor	Producer	Creator
Film Theatrical distrib.[a]	40%	45%	16%	11%
Film Pay cable distrib.	33.5%	38.5%	20%	8%
Film Broadcast TV distrib.	22%	46%	22%	10%
Film Online distrib.	25.8%	20% (National Distribution) 4.7% (Local ISP) 24% (Advertising Intermediaries)	20%	5%
Film Home video store chain distrib.	25%	50%	17%	8%
Books (print)	40%	12.5%	35%	12.5%
E-books	30%	–	53%	17%
Music CD	20%	17%	46%	17%
Online music	25%	8% (National Distribution) 5% (Local ISP) 18% (Advertising intermediaries)	28%	16%
Magazines (including advertising and subscriptions)	16%	8.5%	68%	7.5%
Online magazines (incl. advertising)	13%	–	67%	20%
Print newspapers (incl. advertising revenues;[b] adjusting for the prevalence of direct subscriptions)	13%	9.5%	62%	15.5%
Online newspapers free (incl. advertising)	3%	23% (Advertising intermediaries)	44%	30%
Online newspapers by subscription (including advertising)	15%	20% (Advertising intermediaries)	45%	20%
Consumer electronics	25%	20%	45%	10%
Physical content media	25%	23.1%	40.1%	11.4%
Online content media[c]	19.3%	5.5%	58.2%	18%
Electronic content media	21.4%	14.7%	48.9%	15.8%
All Media	23%	18.3%	38.5%	13.1%

[a]Theatrical deficit is a loss leader for subsequent distribution on other platforms.
[b]While retailer's share in single-copy sales is much higher, most newspaper revenues come from advertising and subscriptions, in which retailers do not share.
[c]Excluding advertising intermediaries.

The share of the distribution chain covers much of the rest. Wholesalers average 18.3%, as has been discussed earlier in this chapter. It is much higher for film (39.9%), and lower for books (6.3%), magazines (3.8%), newspapers (2.2%), and online media (5.5%). It is larger where marketing activities are extensive, investments are high, and risk is great. It is

higher, by 57%, for physical content media than for electronic content media (23.1% vs 14.7%), and both are much higher than for online media (5.5%) where wholesale operations are less important and are integrated with retailing.
- For retailing, the revenue share averages, as mentioned, 23%. It is higher (25%) for physical content media, 21.4% for electronic content media, and 19.3% for online media. It is higher where local marketing efforts are high, inventory requirements great, and risk high.
- Thus, if we look across all media, the revenue share of the distribution chain is about 41%. It is lowest for online media at about 25% and highest for physical content media (48%). This reflects the higher cost for physical distribution over online distribution, but also the greater market power that prevails.

12.10 The Impact of Distribution on Content

We are on the verge of truly exciting changes in the way we create and consume culture and information. This enrichment of media content will inevitably lead to new types of genres and styles. There is a relation between media technology and content. Marshall McLuhan, the 1970s media guru, is known for the aphorism "the medium is the message"—that is, distribution technology defines content style. He argues that "we shape our tools and thereafter our tools shape us."[74]

Visual images are composed of a huge number of information units. Digital technology expresses information elements as "bits"—binary information. The cheaper it becomes to produce bits and to distribute them, the more visual the medium becomes. Weaker visual capability favors story line, character development, and dialogue. Higher visual capability favors special effects, adventures, and action.

In the first generation of television (broadcasting), there was a limited number of channels, and the high opportunity cost meant national, middle of the road content. The second generation of TV was the multichannel stage—Cable TV, DBS, VHS, and DVD. Cable enabled more channels. Very specialized content channels emerged, like Baby First TV, the Boating channel, or Black Belt TV.

And emerging now is third generation TV: TV over the broadband Internet. Bits have become still much cheaper to create, manipulate, and transmit. This changes media into two dimensions: *widening* and *deepening*.

The "widening" of video distribution continues past trends:
1. More TV channels;
2. More regular TV, but at different times;
3. Narrower narrowcasting: long tail content;
4. More imported channels;
5. User generated video;
6. More distribution platforms, including mobile telecom ("anytime, anywhere") and "follow-me TV."

The "deepening" of media refers to a greater richness of media, that is, to the greater extensions of signals to sensory receptors such as eyes and ears. More powerful and affordable distribution will lead to "richer" media and to media applications that operate with more "bits", not just more of the same.

The dimensions of "richness of media" will include, overtime:
- Better quality of picture, especially for larger screens;
- Virtual reality and immersion;
- Interactivity;
- Individualization.

These elements will create video entertainment of an experiential nature, with user immersion, participation, and interactivity. This leads to entirely new types of content and its subcategories ("genres"):
- Immersive films and games;
- Sports immersion and simulation;
- Marketing tools of experiencing products;
- Travelogue experiences;
- Participatory news ("you are there");
- Education and training simulation content;
- Social immersive sharing;
- Individualization of content: advertising and even plot lines customized to different individuals or user categories.

74 As quoted in Culkin, John M. "A Schoolman's Guide to Marshall McLuhan." *The Saturday Review*. March 18, 1967, 51–53.

12.11 Conclusions

12.11.1 Case Discussion

Bertelsmann's Distribution—The Future

In the past, Bertelsmann controlled strong distribution channels in book and music clubs, and leveraged this into a strong role in book publishing and music labels. Similarly, its RTL TV licenses gave Bertelsmann a strong role in film and TV distribution and therefore production. But in online media, Bertelsmann's role in distribution declines, and with it the advantage for its own content.

For Bertelsmann, one strategy would be to focus purely on content and drop distribution platforms (such as TV stations, media clubs, online streaming, etc.) as well as printing. Already, Bertelsmann's UFA films are being distributed mostly by others, and its music distribution, along with the rest of BMG, has been sold off. Its music and book clubs are in decline or closed down. TV broadcasting is also declining in general.

The second strategic option is to form an online distribution. But what has been Bertelsmann's track record been in creating online distribution?

- Music: it was far ahead of the rest of the music industry but its deal with Napster was blocked.
- Film and TV: Bertelsmann's online efforts had no noticeable impact.
- Books: BOL failed. Tolino and Skoobe's efforts are noteworthy, but they wield no real power in a consortium that includes all the major German book retailers.
- Video games: no presence.

The questions then are:

- What can Bertelsmann do to strengthen its role in online forms of distribution?

12.11.2 Overall Conclusions on Distribution

In the media and information industry, the distribution of content and devices usually gets less attention than creation and production. However, it is a key skill in an environment of glut and multiple platforms and stages. Several trends are occurring:

- The rapid advancement of technology is driving the migration of media distribution to electronics.
- Distribution is moving from bulk to individualization.
- Distribution is becoming globalized.
- Convergence to IP is leading to the convergence to multi-purpose platforms.
- The rising economies of scale in distribution is changing market concentration.
- The lowering of entry for applications and content is creating a greater dependence on distribution platforms.
- The technological and economic trends are transforming individualized electronic distribution from a kilobit stage of individual information to the megabit stage and soon to the gigabit stage.

One network principle—known as "Amdahl's law—states that a system's speed is determined by the slowest component in the data path (i.e. a convoy travels at the speed of the slowest ship). Another maxim—"Drucker's law"—states that profits migrate to the supplier of the missing component necessary to complete a system (i.e. the bottleneck gets the profits). By combining the two, it seems that the most profitable segment is not necessarily the one most developed and innovative but the one most restricted. And that segment more often than not is the distribution stage of the value chain.

Distribution is restricted not because of technology—that is moving ahead rapidly. But rather, it is the fundamental economics of this change. We have seen that networks are characterized by economies of scale, economies of scope, network effects, and instability. And the trends increase these factors, which is why distribution networks almost always are highly concentrated in a few companies. Electronic networks are becoming more expensive in fixed cost and less expensive in marginal cost. This raises industry concentration. It is for that reason that we have market structures with six major film distributors, three music distributors, one infrastructure phone company, one

cable company, maybe two DBS firms, one local newspaper, two to three broadband Internet providers, one satellite radio distributor and three to four mobile wireless providers.

Some distribution is becoming more open and less concentrated, since new technologies create shocks and upheavals to established players. But soon, the fundamental economics of distribution assert themselves with a high fixed cost and low marginal cost. In competition, prices plummet toward low marginal cost, which cannot support the high fixed cost. Companies go out of business, the survivors consolidate, and they establish an oligopoly that maintains prices at a higher level. Airlines, telecoms, and historically films and music are examples of these dynamics.

We now return to the points we presented in the beginning of this chapter.

12.11.2.1 Myth #1: "Content Is King"

This is the cliché of the media industry sector. It believes that content is scarce and difficult, and that distribution is a commodity. Relative power in the value chain is based on the relative scarcity of the stage.

The source of market power is distribution. And distribution, given its fundamental economics, is inherently concentrated. Content has much lower entry barriers, and is not inherently concentrated. The main source of economic power of media firms is distribution. Distribution companies leverage this into a role in content creation and content aggregation. Vertical integration is the symptom, not the cause of market power in distribution. As the complexity of distribution rises, as the FC/MC ratio rises, and as regulation becomes less effective, it is distribution that becomes the key.

12.11.2.2 Myth #2: Technology Breaks Up Market Power in Distribution

Isn't distribution becoming more open and less concentrated? Is there not more broadband Internet, fiber networks, mobile communications, and cable channels? New technology indeed creates new and more advanced forms of distribution. More advanced distribution technology means fewer bottlenecks but not less market power by the distribution company. It could even become more powerful. As we discussed, technology is raising economies of scale and hence reduces the number of players and raises their market power.

12.11.2.3 Myth #3: Disintermediation

Retailers and wholesalers are needed and fulfill several essential functions. The producer-direct business with consumers is fairly weak. There are indeed new types of distributors, and some distribution stages become integrated, but the function does not disappear. On the contrary, the new distribution intermediaries are more powerful and central than ever.

12.11.2.4 Myth #4: Electronic Distribution Is Very Different from Physical Distribution and Changes Everything

People often make a big distinction between electronic and physical distribution. But there are great conceptual, economic, structural, and organizational similarities. The new distribution technology changes network architectures, market structures, and the players. But the basic role of distribution intermediaries—wholesalers and retailers—remain.

Given its fundamental economics, distribution is inherently concentrated. Content has much lower entry barriers, and is not innately concentrated. Thus, the main source of economic power of media firms is distribution.

In other words, for some types of media content is king. But if so, then distribution is the emperor. It must be managed. It can be leveraged.

12.12 Review Materials

Issues Covered

- What the concept of distribution networks is;
- How network design affects economies of scale and market structure;
- How physical distribution is affected by electronic channels;
- How governments impact a firm's distribution business;
- Whether vertical integration of distribution and production creates synergies;
- What the various topologies and architectures of networks are;

- How different disciplines approach the analysis of networks;
- What the concepts of guaranteed quality of service vs best-effort work are;
- How net neutrality regulations affect the Internet;
- What the distribution systems for film, music, video, and videogames are;
- What the distribution systems for books, newspapers, and magazines are;
- How wholesaling and retailing can be vertically integrated;
- How electronic distribution affects print, music, and video;
- How to select distribution intermediaries;
- How to analyze release sequencing strategies over various platforms;
- The different stages in a distribution chain;
- What the trends are in wholesaling;
- What the trends are in retailing;
- What the revenue shares are for firms in the distribution chain;
- What the extent of disintermediation and consumer-direct distribution is.

Tools Covered

- Social network theory;
- Operations research;
- Queuing models;
- Erlang network capacity analysis;
- Quality of service analysis;
- Distribution architectures;
- FC/MC ratio;
- Economies of scale of networks;
- Network effects;
- Derived demand curve with network effects;
- Shannon's law;
- Release sequencing models.

12.12.1 Questions for Discussion

1. How are electronics changing physical distribution?
2. What are the parallels in physical and electronic distribution networks, and how will declining prices affect these networks?
3. How will the film industry change as various operations move toward electronic distribution?
4. Are the problems of volatility facing network companies today similar to those faced by other network industries? How did they deal with these problems?
5. Identify a non-media industry where the approach to distribution has changed dramatically over the last few years. What are the implications for suppliers to that industry?
6. List the criteria a content provider might use in selecting a channel intermediary.
7. In what media industries is JIT inventory management relevant, or for which less so?
8. Describe logistics management, in consumer electronics.
9. Business managers and engineers both need to make economic decisions. As a business manager, how does the decision process differ from that of an engineer?
10. You are a manager at a large e-commerce company such as Amazon.com. Analyze the effect of a pull supply chain on your company.
11. What are the limitations of Metcalfe's law?

12.12.2 Quiz

1. What is not a myth?
   A. Content is "king" (the scarce element).
   B. Technology reduces the market power in distribution.
   C. Electronic distribution is very different from physical distribution and changes everything.
   D. Electronic and physical distribution are organized around networks.

2. Which one is not a primary characteristic of telecom networks?
   A. Two-way.
   B. One-to-many connectivity.
   C. Individualized medium.
   D. Limited capacity.

3. What is not a conceptual similarity between electronic and physical distribution?
   A. Transport links.
   B. Nodes.
   C. Hierarchy.
   D. Wired links.

4. From the factors listed below, which one is the key factor in networks?
   A. Price deflation.
   B. Intangible products.
   C. High fixed costs, low marginal costs.
   D. Convergent markets.

5. Which platform is not a broadband distribution option?
   A. Satellite.
   B. DSL.
   C. Dial-up modem.
   D. Powerline.
   E. Cable modem.
   F. Wi-Max.

6. Satellite delivery is very appealing for what reasons?
   A. Ability to reach distant areas.
   B. More secure than physical distribution of film.
   C. Centralized scheduling.
   D. All of the above.

7. The key economic characteristics of communications networks are:
   A. Economics of scale.
   B. Economics of scope.
   C. Network effects.
   D. All of the above.

8. What is Metcalfe's law?
   A. The total value of the network to all users, n, is proportional to $n \times (n - 1)$.
   B. The value of the network grows by the square of the processing power of all the terminals attached to it.
   C. The total value of the network to all users, n, is proportional to $(n - 1)(n + 1)$.
   D. The total value of the network grows by the nth power of the processing power of terminals attached to it.

9. What are the implications of Shannon's law?
   A. The stronger the signal, and the lower the interference ("noise"), the more information can be put on a transmission link.
   B. The stronger the signal, and the higher the interference ("noise"), the less information can be put on a transmission link.
   C. The stronger the signal, and the higher the interference ("noise"), there is no effect on the amount of information that can be put on a transmission link.
   D. None of the above.

10. Investment in telecommunications networks in the future is likely to:
    A. Decrease, because most of the network has already been built.
    B. Be more difficult, because capital suppliers will be more wary of regulatory conditions and capital requirements.
    C. Increase rapidly and exponentially, due to high levels of demand for multimedia services.

11. Digital is more effective than analog for communications because:
    A. Digital signals can travel faster.
    B. Analog signals cannot travel through walls.
    C. Digital information has less degradation over distances.

12. What is not another term for network effects?
    A. Network externalities.
    B. Spillover effects.
    C. Supply-side economies of scale.
    D. Demand-side economies of scale.

13. What are current wholesale distribution trends?
    A. Replacement of a three-stage system by a four-stage one.
    B. Decreasing market concentration in wholesale distribution.
    C. Large retail chains don't deal directly with manufacturers/producers, and this increases the role of the wholesalers.
    D. Expansion of distributors into content production.

14. What key economic factors shape distribution in the media industry?
    A. High fixed costs & low marginal costs.
    B. High marginal costs & economies of scale.
    C. Low fixed costs & low marginal costs.
    D. Low fixed costs & high marginal costs.

15. What are business implications of network effects?
    A. A large network is less attractive to users and hence less competitive, all other factors held equal.
    B. Larger networks don't add any value to the users.
    C. Interconnectivity to large networks is not important to a small network, because this does not raise its value to customers.
    D. The control to access to a large base of users can be a company's greatest asset.

16. What statement refers to the Tree-and-Branch distribution architecture?
    A. Topology that contains multiple distributors and multiple consumers.
    B. The flow of information or of products is two-way.
    C. The flow of information starts with a wide distribution pipe which then branches into increasingly narrower ones.
    D. In this architecture every consumer is horizontally connected among various users.

17. What is a trend in retail distribution?
    A. Brick and mortar retailers are increasing in their share.
    B. Direct-to-consumer retailing by producers has been a major factor.
    C. A shift from single product offerings to bundled services.
    D. In music, digital download revenue is growing faster than digital streaming revenue.

18. What are criteria for selecting distribution intermediaries?
    A. Track record.
    B. Financial position.
    C. Commitment of distributor to other and possibly competing products.
    D. All of the above.
    E. A and C only.

19. What action by a media producer is most likely to backfire in a producer distributor setting?
    A. Development of new products.
    B. Creation of new distribution channels.
    C. Setup of an innovative marketing team.
    D. None of the above.

20. Which of the following statements about revenue shares in the media distribution chain is correct?
    A. Creators typically receive the largest revenue share.
    B. On average across all media, producers generate the highest revenues.
    C. Distributors receive a higher revenue share for online content media than for physical content media.
    D. Relative to distributors, retailers receive a higher revenue share for pay cable films but a lower revenue share for broadcast television.

Quiz Answers

1. D
2. B
3. D
4. C
5. C
6. D
7. D
8. A
9. A
10. B
11. C
12. C
13. D
14. A
15. D
16. C
17. C
18. D
19. B
20. B