Intellectual Asset Management

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7.1 Intellectual Assets

7.1.1 What Is Intellectual Property?

In this chapter, we will cover a key element of media and information management: how to create, protect, and manage Intellectual Assets (IAs). IAs are more commonly referred to as Intellectual Property (IPs) or Intellectual Property Rights (IPRs), terms derived from a legal perspective. For business purposes, we should think of them as assets—items of value that are designed, invested in, produced, improved, valued, priced, sold, licensed, or exchanged.

It is a characteristic of information products that they are expensive to create but easy to duplicate. Technology makes it easier for a producer to create and distribute information, but it also makes it more difficult to protect information from unauthorized copying and distribution by rivals and users. This applies to new content as well as to new technology. Owing to the difficulty in excluding others from use, the ability to collect payments is reduced and with it the incentives to create new information and innovation. These fundamental characteristics have led to the creation of the legal construct of IP.

To discuss intellectual property one must first clarify, more generally, what "property" means. Property is the collection of ownership rights held by someone in an item, which is protected by the state. This "bundle"[1] includes some or all of these rights: to use, consume, destroy, sell, rent, extract, and exclude. "Property" is a central feature of the economic system. Under feudalism, when land was the main resource and real property (i.e. land) was central to law and commerce, defining the social and economic order of the era. In the industrial age, machinery and financial resources became all important and "personal and financial property" became the focus of legal and managerial attention. But in the information age information is the key resource, and intellectual assets are an increasing center of economic activity and hence of management efforts. However, this area has been left primarily to lawyers, and until recently it was underappreciated as a managerial task.

We should start with a broad picture. Individually held property, the notion of private ownership, is an alien concept to some cultures. Most Native American tribes before European colonization, for example, exercised a communal rather than personal ownership of land,[2] though individuals or families personally owned items such as weapons, clothing, and jewelry.

Even in Western cultures, not everything is property—that is, owned by someone. Much of the oceans, which constitute two-thirds of the globe's surface, are not owned by anybody, including by states. Space is another example. Furthermore, many places and things are not owned privately but rather collectively, such as parks, roads, national forests, and military installations. Approximately 40% of the US land area is publicly owned.[3]

As late as the 1950s and 1960s, the expression "intellectual property" was rarely used,[4] and was applied narrowly. Certain creations with potential economic value were left outside the notion of "ownership," such as dance steps, weather predictions, a great scientific idea, or business strategies. But, for each of these examples, the realm of intellectual property has expanded and private ownership is now being claimed.

7.1.2 History

Intellectual Property is not a new concept; it has been around for well over 500 years, at least. In 1469, the Venetian Senate granted John of Speyer (Spiro) the exclusive right to print classic works for a period of five years. This privilege ended soon with his death; freed from exclusivity, Venice printing flourished in subsequent decades and it became Europe's major publishing center. Venice was also the first jurisdiction to grant, after 1450, patents on inventions, particularly in the glass-making area. In Britain, the statute of Anne (1710) created property rights for authors and publishers.[5] In the USA, the drafters of the Constitution of 1787 made special provisions for IP protection in Article I of the document: "Congress shall have the power … to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." The rationale, as Abraham Lincoln later wrote succinctly, was that "the patent system added the fuel of interest to the fire of genius."[6] Lincoln himself received a patent for his invention of a device to enable riverboats to cross sandbars.

In contrast, another US president, Thomas Jefferson, himself a world-class mechanical and scientific tinkerer, was concerned with the potential abuse of IPRs in restricting discourse: "If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself in to the possession of everyone, and the receiver cannot dispossess himself of it … that ideas should freely spread from one to another over the globe."[7] These two positions—financial incentive versus free flow—still characterize the debate over IP.

1 Penner, J.E. "The Bundle of Rights Picture of Property." *UCLA Law Review* 43, no. 3 (February 1996): 711–820.

2 Isakson, Hans R. and Shauntreis Sproles. "A Brief History of Native American Land Ownership." In *Indigenous Peoples and Real Estate Valuation*. Eds. Robert A. Simons and Rachel Malmgren. (New York: Springer, 2008), 63–75.

3 Lobowski, Ruben N. et al. *Major Uses of Land in the United States, 2002*. Washington DC: Economic Research Service, United States Department of Agriculture, 2006.

4 Scherer, Frederic M. "The Political economy of patent policy reform in the United States." *Faculty Research Working Papers Series*. Cambridge, MA: Harvard Kennedy School of Government, October 2007.

5 In Germany, Immanuel Kant provided an ethical rationale. Kant believed that an author has an inherent right to protection against unauthorized compulsion to speak, and that unauthorized publishing would violate the individual's personal autonomy. Kant, Immanuel. "Of the Injustice of Counterfeiting Books (Von der Unrechtmassigkeit des Buchernachdrucks)." *Essays and treatises on moral, political, and various philosophical subjects.* London, 1798.

6 Malone, Michael S. "The Smother of Invention." *Forbes*. June 24, 2002. Last accessed May 22, 2017. ► *https://www.forbes.com/asap/2002/0624/032.html*.

7 Lipscomb, Andrew A. and Albert Ellery Bergh, eds. *The Writings of Thomas Jefferson* (3.1). Washington DC: The Thomas Jefferson Memorial Association, 1905.

Some people held both views. No survey of the icons of American political history would be complete without Benjamin Franklin. Franklin never sought patents on his scientific inventions such as the lightning rod, bifocal glasses, heat-efficient stoves, and flexible urinary catheters. He wrote: "as we enjoy great advantages from the inventions of others, we should be glad of an opportunity to serve others by an invention of ours, and this we should do freely and generously." At the same time, Franklin as a publisher and author, was very attentive to copyrights. (Or rather to his rights in America. He was less concerned with the rights of English authors, whom he published freely and profitably without their permission.)

Though IPR create incentives to innovate, they also encourage monopoly pricing. AZT, the first anti-retroviral effective against AIDS, sold initially for $10,000, while incremental production costs were much lower.[8] Many patients—or public health systems—could not afford such expensive drugs. Patents often lead to high medicine prices and may prevent the treatment of patients living in poor countries. On the other hand, without the patent protection the drug might not have been developed in the first place.

It is similar for copyrights, where protection keeps prices way above marginal cost. The incremental cost to produce and ship a CD-ROM copy of the personal computer (PC) operating software Windows is about $2.40, including the disc, packaging, shipping, and so on. For an electronic download version, incremental cost is close to zero, except for minor administrative expenses. But the price charged is $350 for professionals, $200 for residential use, and $120 for students.

Beyond affordability, IPR can also create petty restrictions. For example, in 1996, the American Society of Composers, Authors and Publishers (ASCAP) threatened to sue girl scout organizations for singing campfire songs such as "This Land is Your Land" without obtaining a license and paying for it. Some large restaurant chains did not serenade their patrons with "Happy Birthday" since that ditty was claimed by Warner Music Group to be under copyright until 2030, despite its dubious origins. (Eventually, the copyright claim was invalidated in 2015 in a court challenge.)

Every change in the property system is a change in the ownership of assets and resources, and is hence a fight over wealth and income in society. Therefore, it is not surprising that IP is an area whose growth has been accompanied by increasing controversy, both economic and political. Opponents argue that patents often reward very little innovation, stifle progress, and suppress the free flow of information. Companies use them to block each other. Furthermore, critics state that patents and copyrights rights have become too broad, and give excessive rights to first movers, shutting out competition.

Critics of the current IP system believe that the IP concept should be a balance between the interests of producers and users, but that it has tilted toward restrictions on users and away from the openness that encourages innovation.

One critic, John Perry Barlow, a founder of the Electronic Frontier Foundation and lyricist for the Grateful Dead, argued that information is not static but evolves, as oral narratives do in retelling, and that copyright law seeks to arrest this dynamic by allowing someone to own a creative work and freeze it.[9] Thus, in periods of rapid progress, an abandonment of IP law in favor of "Wild West" frontier ethics is necessary.[10] Historically speaking, however, the Wild West period of American history, where there were often no settled property rights, was brief. Would farms, railroads, and mines have emerged without property rights? And consider what happened to the Native Americans who were without the protection of a property rights system.[11]

Another noted critic of IPRs was Umberto Eco, the noted Italian author of such books as *The Name of the Rose*. Eco advocates the concept of the "open work" and challenges the principle that creators must retain rights to preserve control over their "property."[12] Instead of a rigid form, a work is merely "suggestive." It is a work in continuous change, with an invitation to make the work jointly with the author. But does Eco practice what he preaches when it comes to his own bestselling books? Is anybody free to alter, copy, and resell them? Such inconsistencies aside, Eco's concept of a sprawling and inherently evolutionary work can indeed provide a fertile framework for innovation. The open source movement in software is an example. It is a loose community of volunteer developers who collaboratively develop software ("freeware") such as the Linux operating system, yet may not even know each other. They challenge the notion that people will not invent without the profit incentive of patents and copyrights.

"Droit morale" is another different IPR model, challenging standard IP rights from the other direction. This French-originated arrangement gives to creators inherent and inalienable rights against changes and profits by subsequent owners and outsiders. For example, a film cannot be altered without the permission of the original director, and the original creator receives a benefit every time the work gets resold or relicensed. These moral rights cannot be abrogated, and a media company cannot force employees to give up the rights to their own creative output.[13]

Despite being diametrically opposed, many critics of IP simultaneously favor the "droit morale" and the "open work" concept. In the former, no one except the originator can make changes, and in the latter, everyone can. The common

8 Scherer, Frederic M. "The Political economy of patent policy reform in the United States." Faculty Research Working Papers Series. Cambridge, MA: Harvard Kennedy School of Government, October 2007.

9 Barlow, John Perry. "The Economy of Ideas." *Wired*. March 1, 1994. Last accessed on May 22, 2017. ► http://www.wired.com/wired/archive/2.03/economy.ideas.html.

10 Barlow, John Perry. "The Economy of Ideas." *Wired*. March 1, 1994. Last accessed on May 22, 2017. ► http://www.wired.com/wired/archive/2.03/economy.ideas.html.

11 Isakson, Hans R. and Shauntreis Sproles. "A Brief History of Native American Land Ownership." In *Indigenous Peoples and Real Estate Valuation*. Eds. Robert A. Simons and Rachel Malmgren. (New York: Springer, 2008), 63–75.

12 Eco, Umberto. "The Poetics of the Open Work." *The Open Work*. London: Hutchinson Radius, 1989.

13 Roeder, Martin A. "The Doctrine of Moral Right: A Study of the Artists, Authors and Creators." *Harvard Law Review*, no. 53 (1939–1940): 554–579.

denominator is that both are non-traditional, and both are opposed by mainstream media companies. Whatever one thinks of these approaches, they show that IP is neither "natural," nor "obvious," nor "ethical," but a pragmatic arrangement of economic policy preferences and political influence. Its parameters are subject to continuous shifts, and with them the underlying business actions.

In the media and information technology (IT) sector, IAs are the key assets. IAs can drive the market value of a company. One such example is the mobile technology firm Qualcomm. In 2013, Qualcomm's revenue from licensing and royalty fees alone amounted to $7.6 billion, about 30% of its total revenue. In 2017, Qualcomm's revenue from licensing fees was $6.4 billion, about 28.7% of its total revenue. That percentage, applied to its market value, would value its licenses at $30 billion. Another example is WebTV, a television internet company without revenues. Microsoft bought the company for $425 million, largely for what it considered (incorrectly, as it turned out) the value of its patents.[14]

Intellectual assets affect non-profit organizations, too. An example is the licensing income from patents by Columbia University, which was $134 million in 2008, highest among American universities[15,16] according to the American University Technology Managers, and $115 million in 2014.[17,18] This income benefited its students and faculty. But at the same time the same university had a student body that topped a list by the film industry of film piracy at universities in the USA, with 1198 "unauthorized uses of copyrighted material."[19,20] This kind of internal contradiction mirrors the similarly conflicted roles of many individuals: they are consumers of media and information, and yet they are often also producers of content of some value to others—as writers, managers, artists, entrepreneurs. Often they do not mind sharing their ideas and creations, but are not willing to let someone else "rip off" their creations to make money.

Despite the importance of patents and copyrights, most firms have no effective IA strategies. A 1998 survey of 360 US companies found that 71% admitted wasting patents through mismanagement. Another study showed that more than 35% of US patents go unused by their owners, though they are potentially of value to others.[21] The estimated value of wasted patents was $150 billion. The value of underutilized copyrights is vast, although even more difficult to estimate.

The questions for this chapter are: what options exist for a media and information firm to create and protect its innovations? How does a firm optimize the benefits from its IAs? We will use the firm General Electric (GE) as the main example.

7.1.3 Case Discussion

GE and Its Intellectual Assets

In 2012, at its peak, GE was ranked the fourth largest firm in the world in *Forbes* magazine's "Global 2000," based on a set of several metrics. GE was formed in 1892 through the merger of the Edison General Electric Company and the Thomson-Houston Electric Company. It was active in consumer electronics, aviation engines, electronics, appliances, financial services, energy, health, and transport—and was the most successful conglomerate in America.

From 1981 to 2001, legendary CEO Jack Welch led the company. Welch raised GE market value by 4000% to make it the most valuable in the world. In 1999, he was picked by *Fortune* magazine as the "Manager of the Century."[22] GE was the fourth largest company in the world by profits, seventh for management, fifth for global brand, 15th "most admired," and 19th "most innovative." It had 333,000 employees working in 160 countries. By 2018, however, the sprawling company was performing poorly and narrowed its focus by divesting several of its operations.

GE operated with 12 major divisions, each holding substantial autonomy. It acquired the electronics technology firm RCA in 1986, and with it its subsidiary the major media company NBC. It also acquired the Universal Pictures film studio from French video game company Vivendi in 2004. GE then sold control of the combined NBC Universal to the major cable firm Comcast in 2012. NBC Universal is one of the world's leading media and entertainment companies. The NBC Television Group consists of the NBC network with its many in-house-produced shows in entertainment, news, and sports; numerous owned and operated local stations; the Spanish-language channel Telemundo; and many cable channels such as MSNBC, CNBC, E!, Bravo, Syfy, and USA Network. Universal Pictures is a major motion picture company. It also owns Universal Theme Parks & Resorts, a popular entertainment destination, and Dreamworks Animation. Hulu.com is an

14 Grove, Alex. "Safeguarding Intellectual Property." *The Red Herring Magazine*. May 1998.
15 Gordon, Larry. "How the UC system is making patents pay off." *Los Angeles Times*. October 10, 2015. Last accessed May 22, 2017. ► http://www.latimes.com/local/education/la-me-uc-patents-20151011-story.html.
16 National Academy of Inventors. "Top 100 Worldwide Universities Granted U.S. Utility Patents 2015." Last accessed May 22, 2017. ► http://www.academyofinventors.com/pdf/top-100-universities-2015.pdf.
17 Gordon, Larry. "How the UC system is making patents pay off." *Los Angeles Times*. October 10, 2015. Last accessed May 22, 2017. ► http://www.latimes.com/local/education/la-me-uc-patents-20151011-story.html.
18 In 2015 Columbia was the ninth highest recipient of patents (119) among educational institutions in the world. National Academy of Inventors. "Top 100 Worldwide Universities Granted U.S. Utility Patents 2015." Last accessed May 22, 2017. ► http://www.academyofinventors.com/pdf/top-100-universities-2015.pdf.
19 Fisher, Ken. "MPAA Names its Top 25 Movie Piracy Schools." *Law and Disorder*. April 2, 2007. Last accessed June 9, 2010. ► http://arstechnica.com/tech-policy/news/2007/04/mpaa-names-its-top-25-movie-piracy-schools.ars.
20 Columbia University was followed by the University of Pennsylvania with 934, Boston University with 891, University of California – Los Angeles with 889, and Purdue University with 873.
21 Rivette, Kevin G. and David Kline. *Rembrandts in the Attic: Unlocking the Hidden Value of Patents*. (Boston: Harvard Business School, 2000), 122.
22 Comstock, Beth. "Best Advice: What I Learned From Jack Welch Hanging Up on Me." *LinkedIn*. February 26, 2013. Last accessed July 16, 2013. ► https://www.linkedin.com/today/post/

online video service offering TV shows, movies, and clips, of which NBC owns 30%.[23]

GE owns valuable trademarks. It holds trade secrets, confidentiality agreements, and business methods for which it owns business process patents. It holds patents for complex technology. GE received 1652 patents in 2016 alone. In 2012, it was the third-largest patent creator in the USA.[24, 25] GE spent $5.5 billion on research and development (R&D) in 2016. In just one year, 2011, it collected 184 "green energy" patents (the highest number of such patents received in the USA).[26] Over the course of its corporate history, GE amassed more than 67,500 patents.[27]

GE was a major content producer when it owned NBC and Universal Pictures, holding a vast collection of valuable copyrights.

There are several questions for discussion:

- How does GE manage these assets?
- How does GE protect and exploit its innovations?
- How does GE deal with others' property rights?

7.1.4 How Companies Organize Their IP Management

With the importance of IAs rising, the question is how companies organize the management of this area. Often the function is delegated to the legal department, which deals with a company's legal and contractual rights and obligations. Other companies assign different types of IP to different departments. For patents, the R&D unit is in charge; for trademarks, the marketing unit;[28] licensing, contracts, and infringements, the Legal Counsel; trade secrets, the HR department;[29] for valuation, the corporate finance group. Whatever the company's organizing structure, it is clear that a collaboration by various departments within a company is essential, often implemented through an IA review team with representatives from all groups.[30, 31]

7.1.4.1 Case Discussion

How GE Organizes Its IA Function

GE's IA function is led by a Chief IP Counsel at the corporate vice-principal (VP) level, an upgrade of the position in rank from what it was before. That person reports to the Corporate General Counsel. All 12 GE business groups have a dedicated IP division.[32] This includes a Head of IP, senior IP managers, a legal counsel, and others.

At the corporate level, GE Licensing is in charge of outbound patents and trademarks. Inbound licensing is handled by the units in need of a license. GE also has a Central IP Group, which supervises trademarks & foreign patent filings.

In the 1990s, GE changed its accounting practices, providing an incentive to its individual units to generate licensing revenue. License fees received were credited from the corporate level back to the business unit that had created the IA.

7.1.5 Outside Counsel

Specialized legal IP work may be outsourced to external law firms; but this can be expensive. In 2016, the cost in the USA for in-house lawyers was approximately $93 per hour for a senior lawyer and $50 per hour for staff attorneys, plus benefits and overhead at about 30%.[33] In contrast, billing rates for top outside lawyers (partners at large law firms) were $650–$875.[34] Rates for associate lawyers ranged from $90 to $250.[35]

The most expensive outside lawyer was reportedly the Los Angeles entertainment lawyer Bertram Fields, at $875 per hour and up. Arrangements for outside counsel are typically based on hourly charges, but can also be based on contingency fees, a flat fee, or equity shares. In other countries, IP lawyers' hourly rates are usually lower but have been rising steadily.

7.2 The Different Types of Intellectual Assets

One can distinguish five basic types of IAs: trade secret protections, contract-created rights, patents, trademarks, and copyrights. The pyramid illustrated in ◘ Fig. 7.1[36] ranks them in terms of frequency and difficulty in creation.

Patents are fairly rare and tough to obtain. Trademarks are easier to get but offer some protection. Copyrights are created frequently and easily but have limited protection. Most abundant are trade secrets. They will now be discussed.

article/20130226113021-19748378-best-advice-what-i-learned-from-jack-welch-hanging-up-on-me.

23 NBCUniversal. "This is NBCUniversal." Last accessed July 15, 2013. ► http://www.nbcuni.com/corporate/about-us/.

24 Anderson, Ash. "IBM, King of the Patents." *SFGate.* January 16, 2013. Last accessed May 22, 2017. ► http://www.sfgate.com/business/fool/article/IBM-King-of-the-Patents-4199052.php.

25 GE. "GE Reports." March 8, 2010. Last accessed June 13, 2013. ► http://www.gereports.com/twenty-thousand-patents-this-decade-and-counting/. GE's list of its patents (over 20,000 in a decade) can be viewed on ► FreshPatents.com.

26 GE. "GE Reports." April 13, 2012. Last accessed June 13, 2013. ► http://www.gereports.com/ge-tops-clean-energy-patent-list/.

27 General Electric. "Fact Sheet." Last accessed May 25, 2017. ► http://www.ge.com/company/factsheets/corporate.html.

28 Tao, John et al. "Developing an Effective Strategy for Managing Intellectual Assets." *Research-Technology Management* 48, no. 1 (Jan/Feb 2005): 50–58.

29 Managing Intellectual Property. "25 ways to be a more effective TM manager." May 1, 2006. Last accessed May 22, 2017. ► http://www.managingip.com/IssueArticle/1254631/Archive/25-ways-to-be-a-more-effective-TM-manager.html.

30 Thomas, Brad. "Intellectual Property Management Tips." *The CPA Journal* 73, no. 8, (August 2003): 10.

31 "Meeting of the Minds." *Risk Management* 49, no. 12, (December 2002): 28.

32 Wild, Joff. "The GE Revolution." *Intellectual Asset Management.* (August/September, 2004): 25–28.

33 Ruiz, David. "Salaries Rise for Early Career In-House Counsel, Report Finds." *Corporate Counsel*. December 5, 2016. Last accessed May 22, 2017. ► http://www.corpcounsel.com/id=1202773934943/Salaries-Rise-for-Early-Career-InHouse-Counsel-Report-Finds?slreturn=20170416165126.

34 Weiss, Debra Cassens. "Top Law Firms Boost Hourly Rates for Equity Partners by 3.9%, leaving Mid-Tier firms $400 behind." *ABA Journal.* June 8, 2016. Last accessed May 22, 2017. ► http://www.abajournal.com/news/article/top_law_firms_boost_hourly_rates_for_equity_partners_by_3.9_leaving_mid_tie.

35 Olson, Elizabeth. "Law Firm Salaries Jump for the First Time in Nearly a Decade." *New York Times*. June 6 2016. Last accessed May 22, 2017. ► https://www.nytimes.com/2016/06/07/business/dealbook/law-firm-salaries-jump-for-the-first-time-in-nearly-a-decade.html.

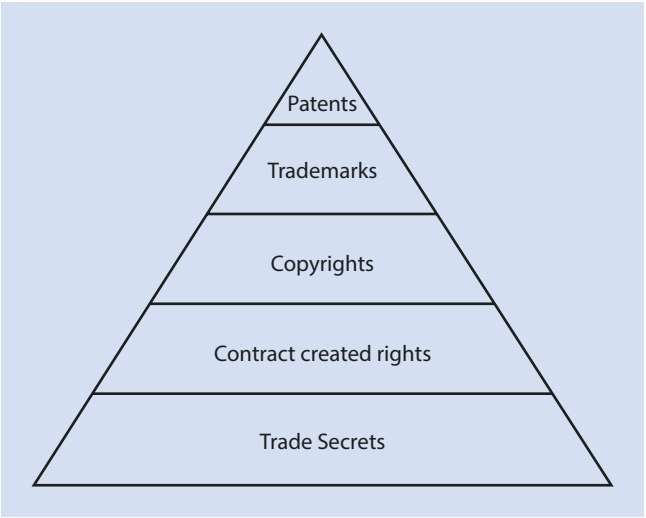

Fig. 7.1 Hierarchy of intellectual property rights by frequency

7.2.1 Trade Secret Protections

By one estimate, 90% of overall commercial value in IA is found in trade secrets.[37] A trade secret is information which is not well known publicly, which benefits a business commercially and which the owner has taken reasonable measures to keep secret. For example, the fast food chain KFC keeps its fried chicken recipes secret. Only a handful of people are told the recipe after signing strict confidentiality agreements. KFC goes so far as to use different companies to blend the spices so that no company has the complete recipe.

Firms may use trade secrets when it is not feasible to obtain a patent. Some creations are not readily patentable, for example, David Copperfield's magic tricks or Coca-Cola's syrup formula. But many patentable inventions have not been submitted for a patent. The reasons are that companies ask themselves whether it is worth trying to get a patent for 20 years, which involves spending much money and time and in the process disclosing the invented technology and risking imitation, particularly from abroad. Or is it better, faster, safer, and cheaper to use trade secrets? This is particularly the question in those areas of technology where innovation is rapid and accelerating, and where patents are less important than a head start, which is helped by adequate measures of trade secret protection.[38] This helps, in particular, where innovation exists in the production process itself. Here, secrecy can be better protected internally than it can be for consumer products that circulate widely and can be reverse engineered.

Keeping innovations as trade secrets avoids the costs of applying for patents and the disclosure of the technology to rivals. But it is not cost free. Theft of trade secrets is estimated to have a value of $5–10 billion annually, just in the USA.[39] The more valuable the trade secret, the more a firm should spend to protect it, by deterring theft and inadvertent disclosure.[40]

There are several approaches to the protection of trade secrets. One is physical security, such as guards, locks, and paper shredders, as well as locked document files. There is electronic security, including password protection and firewalls. Employee background checks and training are part of HR security. There are non-disclosure agreements with employees and business partners (discussed below), as well as internal access and document control.

Obtaining confidential information about a rival's plans and products is not an offense as long as it does not involve a criminal act such as breaking and entering or bribery. In many countries, the theft of trade secrets is a criminal offense and is punishable by substantial penalties. To remedy some trade secret breaches, a firm can use its lawyers to obtain a court order (an injunction) that aims to stop the beneficiary or perpetrators of the breach. To discourage frivolous applications for such an order the firm usually has to post a substantial bond which costs money. Firms whose trade secrets are violated can also sue for damages, including punitive damages. Proving injury for actual damages requires that trade secret owners show:

- that another firm enjoyed "unjust enrichment";
- that the owner suffered "actual loss";
- and/or that the owner is entitled to "reasonable royalty" from the trade secret.

The four managerial principles for protecting trade secrets are

- knowing what to protect;
- identifying where leaks likely occur and how;
- appointing someone to be in charge;
- taking action to protect the secrets.[41]

Factors to consider when deciding whether to maintain a trade secret are the cost of protecting secrecy, the value of the information to the firm, and the difficulty with which the information could be otherwise acquired by rivals.[42]

In the USA, for example, there is a Uniform Trade Secrets Act prohibiting the acquisition of information by competitors through "improper means." Rules like this have been adopted by many states (trade secrets are generally covered in the USA by state rather than federal laws). There is also a Federal Economic Espionage Act of 1996 that makes it a crime to steal or knowingly acquire trade secrets. Violators face a maximum $500,000 fine, and/or up to ten years in prison, and firms can obtain an injunction to stop violations

36 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.
37 Anton, James J. "Little Patents and Big Secrets: Managing Intellectual Property." *RAND Journal of Economics* 35, no. 1 (Spring 2004): 1–22.
38 Anton, James J. "Little Patents and Big Secrets: Managing Intellectual Property." *RAND Journal of Economics* 35, no. 1 (Spring 2004): 1–22.
39 H. Garrett, DeYoung. "Thieves Among Us." *Industry Week* (June 1996): 12.
40 Friedman, David D., William M. Landes, and Richard A. Posner. "Some Economics of Trade Law." *Journal of Economic Perspectives* 5, no. 1 (Winter 1991): 61–72.
41 Pooley, James. *Trade Secrets*. Newark: Law Journal Press, 1999.

of their trade secrets. Other countries have similar laws, in some instances (such as Swiss banking) quite draconian.

A major court case in trade secret law is *DuPont v. Christopher* (1970). This involved professional photographers who were hired by a competitor of the chemical company DuPont to fly a small plane over a chemical plant and take pictures that would reveal DuPont methanol manufacturing secrets. The flight itself was legal in aviation terms, but the court found that it was conducted as an "improper means of discovery," and was economic "espionage" in violation of DuPont's right to its trade secrets.[43]

Trade secrets and their laws do not prevent "reverse engineering."[44] This is used to analyze how a competitor's product works, or how it is made, and to develop similar or interoperable products. This is common in software, games, consumer electronics, and microchips. Where no patent exists, the reverse-engineered copycat product is perfectly legal. Even where a patent exists, companies use reverse engineering to help design a competing product that bypasses the patent or interoperates with it.

An example of reverse engineering is RealNetworks' release of music files that worked on Apple iPods and could therefore be bought by iPod users directly from RealNetworks' Rhapsody music service instead of from the Apple iStore, to which they had previously been limited. RealNetworks had to engage in reverse engineering, which is legal, and which challenged Apple's domination of how music could reach its hardware and its huge user base. Apple castigated RealNetworks for "using the tactics and [having] the ethics … of a hacker." It threatened lawsuits and iPod software updates to disable Rhapsody interoperability.[45] RealNetworks and its users brought a lawsuit themselves. Apple eventually gave up and opened the iPod to other music, but made such use more cumbersome.

7.2.1.1 Case Discussion

GE and Its Trade Secrets

GE possesses a wide array of highly confidential information that is important for its business. It includes contract terms for deals, the manufacturing processes for jet engines, primetime TV schedules, business plans, technology in development, story ideas, royalty rates, and much more.

GE employs physical, electronic, and human security. Another line of defense is legal protection. In 1997, GE charged a former employee of using the confidential knowledge he acquired while working for GE in order to start his own company. A Chinese court agreed with GE and imposed a fine, but at only $120,000 it was a small sum relative to the competitive gain and business volume obtained by the Chinese company.[46] In another lawsuit, *General Electric v. Sung* (1994), the company won protection for trade secrets used to manufacture synthetic industrial diamonds.[47] The defendant was a synthetic diamond expert who worked for GE in the 1980s. He pleaded guilty to stealing numerous documents and trade secrets from GE and was sentenced to a lenient six months of house detention together with a fine of $200,000 plus another $120,000 in restitution. The firm which bought the information was a Korean company named Iljin Corp, but no damages were awarded against it.[48] In still another lawsuit in 2007, GE charged the Rotterdam company Feuz Manufacturing for using GE engineering designs to make parts that it sold to GE competitors.[49] But by that time, Feuz had already shut down.

Complaints go both ways. GE has also been the subject of trade secret litigation as a defendant. In 1997, the Dow Chemical Company sued GE for the theft of trade secrets. Dow claimed that GE employed 14 engineers who had previously been working at Dow, and put them to work on similar and competing projects.[50] Dow's former head of plastics sales and marketing had taken a confidential Dow document and used it after he started work with GE. GE settled the case.

7.2.2 Contract-Created Intellectual Assets

Contractual agreements are a major practical way of protecting many trade secrets, in particular those that cannot be copyrighted or patented. Employees are expected by the law to be loyal to their employers, and this includes not disclosing trade secrets to competitors, even without any particular signed agreements. However, specific agreements can be made to toughen confidentiality requirements by employees, to spell out restrictions and penalties, and to put them on notice that they must not disclose sensitive information.

Companies thus attempt to create contract-based IAs by non-disclosure agreements (NDAs), work-for-hire agreements, and covenants to not compete (CNCs). These are known as confidentiality agreements. Such contracts require employees to refrain from activities competing with

42 Lee, C. Lewis and J. Scott Davidson. *Managing Intellectual Property Rights*. (New York: Wiley Law Publications, 1993), 229.
43 DuPont v. Christopher, 431 U.S. 5th Circuit F.2d 1012 (1970).
44 NPD Solutions. "What Is Reverse Engineering?" Last accessed May 25, 2017. ► http://www.npd-solutions.com/reverse-engineering.html.
45 Hansell, Saul. "RealNetworks Plans to Sell Songs to Be Played on iPods." *New York Times*. July 26, 200. Last accessed May 25, 2017. ► http://www.nytimes.com/2004/07/26/business/media-realnetworks-plans-to-sell-songs-to-be-played-on-ipod.html.
46 People's Republic of China. Ministry of Commerce. "GE Wins Trade Secret Infringement Case against Jiuxiang." Intellectual Property Protection in China., November 12, 2007. Last accessed June 1, 2011. ► http://www.chinaipr.gov.cn/casesarticle/cases/caseothers/200711/247674_1.html.
47 New York Times. "GE Wins a Stolen Secret." August 3, 1993. Last accessed October 5, 2010. ► http://www.nytimes.com/1993/08/03/business/ge-wins-on-stolen-secret.html.
48 Kennedy, John H. "Jury rules Korean company misused GE diamond secrets." *Boston Globe*. July 31, 1993. Last accessed May 25, 2017. ► https://www.highbeam.com/doc/1P2-8238711.html.
49 Rulison, Larry. "GE Claims Subcontractor Stole Secrets: Company Sues Feuz for Allegedly Selling Parts To Its Competitors." *The Times Union*. September 29, 2007. Last accessed on October 5, 2010. ► http://www.allbusiness.com/legal/legal-services-litigation/14703531-1.html.

their employer after their employment ends, and for others involved, such as potential investors or partners, not to make use of the information gained.[51] However, many NDAs and CNCs are actually legally invalid and hence unenforceable. They must be limited in duration and apply to specified and relevant information. Unreasonable parts of a contract are voided by judges as being contrary to good public policy. They would make it difficult for an employee to quit, and could, for example, prevent former employees from ever working again in their chosen field. CNCs are typically held valid for up to three years. In addition, confidentiality agreements do not cover third parties who have no obligations, such as taxi drivers who overhear privileged information. In other instances, CNCs are simply a "golden handshake" – way in which to pay a lot of money to former top managers beyond their term of actual work for the firm.

One survey found that 35% of companies remind departing employees of their NDA trade secret obligation; but only 7% of companies ask new employees to sign agreements preventing them from bringing in competitors' trade secrets.[52] In fact, part of the value of hiring former employees of a competitor may be their insider knowledge, and they may offer up trade secrets as a selling point in a job interview. As the above-mentioned case of *Dow v. GE* shows, a company must be cautious not to open itself up to allegations of stealing a competitor's trade secret by hiring its former staff.[53]

Contract-created IAs have also become popular as an alternative to copyright. For example, a common form of contract-created IPRs exists for the viewing of electronic publications online. Users are asked to click on a "terms of usage" button which makes them signatories to a licensing contract that restricts their rights, for example to "fair use" for educational applications.[54]

Software companies create contract-generated IP rights by way of a "shrink-wrap" contract. The seller considers users to have agreed to and be bound by a contract once they have opened the shrink-wrap packaging. The same term applies to software that is downloaded. In order to be valid, such contracts must be stated in a conspicuous, legible, and printable manner, and the user must have the opportunity to turn it down. (This is usually not much of a realistic option, even assuming that a user will peruse a lengthy agreement.)

Ideas can also be the subject of contractual IA protections. A writer who pitches a story idea to a studio or publisher is vulnerable to theft, since ideas are not protected under copyright law. However, a story idea can be protected by making it the subject of a contract, where a film producer agrees not to use the story idea presented except with those who pitched it. Realistically, a struggling writer is usually in no position to demand a signed advance agreement from an influential producer. A less threatening approach is to make the producer orally agree to confidentiality, in the presence of other participants who could be witnesses.[55] An agent who does repeat business with the producer adds a layer of protection. The writer might start by saying something like: "I want to make sure you understand that I am telling you this idea with the understanding that it is confidential, and if you decide to use it, I expect to receive reasonable compensation." The producer will probably nod affirmatively or say "sure," and this creates an agreement. The writer should follow up with a polite letter restating verbal agreements made in the meeting. But if the producer does not agree, warning lights should go off and the author might not continue to disclose information.

That said, it is not easy to define what constitutes the theft of an idea. Story elements are often similar. Not everyone who writes a play about two young lovers from hostile families has stolen the idea from Shakespeare (who, in turn, was not the first to come up with the story). It has been claimed that "there are only six basic plots." Some instances of parallelism may be quite innocent. Others are not. Media firms have been subject to legal challenges from authors who believe they have been plagiarized. The noted humorist and columnist Art Buchwald sued Paramount Pictures over the appropriation of his concept for the film *Coming to America*, and he won in court. Paramount settled for almost $1 million. But in another case, the Benay brothers submitted a screenplay to an affiliate of Warner Bros. The studio rejected their screenplay but later released a film with a similar plot (*The Last Samurai*). A court dismissed their lawsuit, stating the works were not similar enough.[56] To reduce such lawsuits, media firms will often not review unsolicited manuscripts unless submitted through a reputable agent or other trusted intermediary.

7.2.2.1 Case Discussion

Contract-Created IA at GE

All GE sub-licensees and suppliers must sign a standardized, sometimes mutual, NDA. For example, Zectek Medical Systems is subject to an NDA regarding GE Healthcare's LFS scintillation material, which is a material used for measuring and recording X-rays' gamma/alpha radiation and other tests. Zectek must also inform GE about the use of LFS in its machines. Similarly, GE requires, as a prerequisite for the use of its Advanced Diagnostics software by hospitals, for the latter to sign agreements that GE-made equipment be serviced only by GE.

GE has also CNCs for its former executives. For example, J. Krenicki, the former vice-chairman of GE, receives $1 million annually until 2022 for his agreement not to compete for three years.

50 Gilpin, Kenneth N. "Dow and G.E. Resolve Suit On Theft of Trade Secrets." *New York Times*. April 10, 1997.

51 Anawalt, Howard C. and Elizabeth F. Enayati. *IP Strategy Complete Intellectual Property Planning, Access and Protection*. (Eagan, MN: West Publishing, 1999), 536–537.

52 Joyce, Amy. "Keeping Secrets Under Wraps; In a Knowledge Economy, Companies Combat Theft of Intellectual Property." *The Washington Post*. June 27, 2004.

53 Lee, C. Lewis and J. Scott Davidson. *Managing Intellectual Property Rights*. (New York: Wiley Law Publications, 1993), 207–208.

54 Olson, Kathleen K. "Preserving the Copyright Balance: Statutory and Constitutional Preemption of Contract-Based Claims." *Communication Law and Policy* 11, no. 1 (2006): 83–132.

7.2.3 Patents

7.2.3.1 Patent Overview

The term "patent" is derived from Latin—"to lay open"—and was originally applied to many rights, such as offices, military commissions, titles, status, and monopolies, conferred by a ruler, often in return for payments or other service to the crown. In its modern and narrower meaning, a patent is the grant of an exclusive right to make (or use, sell, import, or license) an invention. The grantee of a patent has the exclusivity for the production and use of the product or process. In return, he must disclose details of the invention.

For example, Colgate had a patent for a three-stripe toothpaste which protects its method from being used by other manufacturers. Colgate's patent, like the vast majority of patents, is a "utility patent." There are also plant patents (on genetic plant development) and design patents (on a particular "look" that is not functional—valid for a shorter period). There are several ways to make money from a patent. In particular, companies can use it, sell it (assignment), rent it (licensing), or not use it at all but prevent rivals from using it.

After a government agency grants a patent, the product is protected typically for 20 years. In the USA, this protection period used to be 14 years after the patent was granted; in Europe and Japan protection lasted 20 years after initial application. But since patented technology tends to become quickly outdated in many fields, the average economic life of a patent is said to be five years.[57] After the patent expires, the innovation is in the public domain, and anyone can use it without permission.

Inventors who obtain patents have a monopoly on the exploitation of their innovation, which helps recoup research and development costs. The patent also adds credibility to a start-up venture. However, the downsides of patenting are, as mentioned, that inventors must disclose details of the invention, and the high cost of obtaining and protecting the patent.

A patentable invention can be a product, a process, a method, a composition of matter, a design, or a plant. Innovations that cannot be patented include ideas ("sail westward to reach India"), laws of nature ($E = MC^2$), mathematical formulas, unsafe drugs, and surgical techniques. Albert Einstein could not patent his scientific discoveries, but he obtained eight patents with another famous physicist, Leo Szilard, for something as mundane as a refrigerator pump. (Einstein knew the patent system well; he had been working as a lowly clerk at the Swiss patent office while writing several of his seminal papers. This suggests that his day job as a patent examiner was not particularly strenuous.) However, the recent patentability of software and "business methods" edges toward patents for formulas and ideas. Other things that cannot be patented include inventions for illegal purposes (e.g. devices to counterfeit money) and naturally occurring substances, plants, and animals.

The conditions for patent approval require "novelty," "non-obviousness," and "usefulness." Novelty means that the invention must be something new, not previously available, and not obvious to a person who has ordinary skill in the relevant field. Novelty can be an assembly of known elements, as long as no one has combined them before. A product is not novel if it is already for sale or it has already been described in the scientific literature. A trade secret holder will be ineligible for patents on an innovation if it has been commercially used or marketed for a year or more.[58] Inventors must file for a patent less than one year after a publication by themselves that describes the invention. Thus, the lesson for inventors is that if they have published, sold, or publicly offered an invention for sale, they risk losing patentability.

Non-obviousness means that it is not a trivial innovation, such as a beer can painted blue for the first time. The third condition for a patent is usefulness. The invention must work in a practical sense, but not necessarily be a winning product economically. There is no requirement that the use be important. Thus, patents have been granted for a device that holds big toes together to prevent sunburned inner thighs.

7.2.3.2 How to Get a Patent

Patents are granted by governments through a patent and trademark office (PTO). The process typically takes two to four years. Examiners search the databanks to determine if an invention is new. The inventors need not actually construct the invention or demonstrate that it works, as long as they can describe plausibly how one might make the thing work. In theory, the description must allow a skilled person to make and use the invention, but patents are often complex, underdescribed, and hard to understand, often on purpose. In the USA, the Patent Office had to keep patent applications confidential until a patent was issued. This gave inventors some protection against early copycats. After 2003, the rules were changed, and the patent application is kept confidential only for the first 18 months of the process. In Europe and Japan, patent applications were always open to the public, sometimes after a brief period. This means that such patent applications can be studied by competitors and challenged long before a patent is granted. This has pluses and minuses. Fewer patents might be granted for undeserving application, but on the other hand it enables rivals to delay or prevent innovative technology from getting a patent. They might give themselves a larger window for catch-up efforts. In the USA, only the patent examiner challenges an application, not third parties with expertise and interest. During the patent approval process, the inventor can use a "Patent Pending" label to inform the public that the product is innovative and to discourage potential infringers.

In the patent application, the inventor must describe the "prior art" that came before her invention and discuss its flaws; she must then broadly describe the advantages of the invention. The inventor must clearly describe the invention

55 Litwak, Mark. *Contracts for the Film & Television Industry*. Los Angeles: Silman-James Press. 1998.

56 Benay v. Warner Bros. Entm't, Inc., 607 U.S. F.3d 620 (9th Cir. 2009).

and how it works, including thorough drawings where appropriate. She must list formal claims and recite the elements of invention; for example, "I claim an electric device for back-scratching, consisting of a handle, a scratcher, and a power source." "Claims" define the bounds of the claimed invention.

The PTO normally responds to the application within 12–18 months after the application. Typically, the patent office rejects most of the claims, which have often been drawn over-broad to maximize coverage. The inventor and patent lawyer then dispute the ruling, resulting in a give-and-take between the inventor and the PTO, and a reinstated application, typically with a narrower focus.

Owing to this complex interplay, only one-fifth of patent applications in the USA were filed without the assistance of a patent lawyer. To get a US patent typically costs between $10,000 and $25,000. To obtain additional patents in other countries costs another $10,000 to $20,000 per country.[59] One study estimated that a European Patent Office filing valid for 13 European Union (EU) countries costs an average of €30,000 per patent.[60]

International patent protection is governed by the Paris Convention for the Protection of Industrial Property of 1883. Signatory countries committed to a non-discrimination of foreign patents, industrial designs, and trademarks. The Patent Cooperation Treaty (PCT) in 1978 simplified the filing of patent applications. It is only necessary to file one patent application in country A, which will then protect invention in country B as long as country B is a PCT member country.

For a patent filing in a foreign country, several factors are considered.[61] They include the size of the market in the country and the environment for the protection of IPRs in that country. A patent in China offers less protection than a patent in Japan, for example.

To identify existing patents and applications, inventors and rivals can visit free government PTO Web sites for patent searches in the USA, ► http://patents.uspto.gov, in Europe, ► http://www.epo.co.at:80/index.htm, and for Japan (full text translations on payment of a fee) at: ► http://www.intlscience.com and visit ► http://www.jpo-miti.go.jp.

Patents have become much more common. In the USA, courts used to be stringent and rejected many patents. This trend reversed in the 1980s after several Supreme Court rulings, and now patents are granted more freely.[62] A new specialized Appeals Court for Patent Appeals was established. Before, one-third of patent holders won cases. After the establishment of the court, two-thirds did.[63]

The number of patent applications in the USA has increased significantly from about 100,000 in 1979 to almost 500,000 in 2007 and 630,000 in 2015. For those years the number of patents granted rose from about 50,000 to 160,000 to 325,000, almost equally between US citizens and foreigners (52.8%). In 2016, the top US patent grantee was IBM with 8088 patents. This means that on every working day about 31 new patents were generated inside IBM. The next-largest patent grantees were Samsung (5518), Canon (3665), Qualcomm (2897), Google (2835), Intel (2784), LG Electronics (2428), Microsoft (2398), Taiwan Semiconductor (2288), and Sony (2181).[64, 65] IBM received over the years some 67,000 patents. It employs about 8000 researchers in 36 countries, with an estimated 6 billion per year R&D budget that has increased by about 3–4% every year. IBM has also bought numerous other companies (140 in 2011 alone), many with a patent portfolio that was part of the acquired assets.[66]

In Europe, top applicants in 2016 were Philips (2568), Huawei (2390), Samsung (2316), LG (2313), United Technologies (2067), Siemens (1871), Qualcomm (1704), GE (1628), BASF (1410), and Robert Bosch (1327).[67]

Case Discussion

GE and Its Patents

GE's first patent was to Thomas Edison, initiator of GE, for electric lights using a carbon filament (1880). Over the first half of the twentieth century GE won more patents than any other US company. GE's research laboratory was founded in 1900. In 1902, it received its first patent for an electric fan. GE's patents included fluorescent lighting, Coolidge tube (X-ray tube), the hermetically sealed home refrigerator, and the first US jet engine. Over the course of its corporate history, GE amassed more than 67,500 patents. In 1986, GE acquired RCA (Radio Corporation of America), the leading electronic technology company in the world from the 1920s to the 1950s. In 2016, it ranked 16th in US patents granted, and seventh among US-headquartered companies with 1646 patents.[68] GE spent $5.5 billion on R&D in 2016, in areas such as aviation, renewable energy and power, and transportation.[69]

The majority of GE's many thousands of patents probably have little value. Even so, the sizable patent portfolio represents a significant deterrent to competitors.

57 Poltorak, Alexander I. "Valuing Patents as Market Monopolies." *Patent Strategy & Management* 4, no. 5 (Sept. 2003).

58 Friedman, David D., William M. Landes, and Richard A. Posner. "Some Economics of Trade Law," *Journal of Economic Perspectives* 5, no. 1 (Winter 1991): 61–72.

59 Quinn, Gene. "Overview of the US Patent Process." *Patents & Patent Law*. February 15, 2008. Last accessed June 15, 2010. ► http://www.ipwatchdog.com/patent/patent-prosecution/.

60 Von Pottelsberghe, Bruno. *Lost Property: The European Patent System and Why It Doesn't Work*. Brussels: Bruegel Blueprint Series, 2009.

61 Myers, Robert A. "Foreign Filing Considerations." *Patent Strategy and Management*. February 2003.

62 The Economist. "Patent Wars: Better get yourself armed. Everyone else is." April 6, 2000. Last accessed June 13, 2012. ► http://www.economist.com/node/332256.

63 The Economist. "Patent Wars: Better get yourself armed. Everyone else is." April 6, 2000. Last accessed June 13, 2012. ► http://www.economist.com/node/332256.

64 Greenwald, Ted. "US Utility Patent Grants hit Record in 2016." *Wall Street Journal*. January 9, 2017. Last accessed May 25, 2017. ► https://www.wsj.com/articles/u-s-utility-patent-grants-hit-record-in-2016-1484013229.

65 ifi Claims Patent Services. "2016 U.S. Patent Trends & Insights." January 6, 2017. Last accessed May 25, 2017. ► https://www.ificlaims.com/news/view/ifi-claims/2016-u-s-patent-trends.htm.

66 IBM. "Intellectual Property Licensing." Last accessed May 25, 2017. ► http://www.ibm.com/ibm/licensing/.

67 European Patent Office. "Top 25 Applicants." March 7, 2017. Last accessed May 25, 2017. ► https://www.epo.org/about-us/annual-reports-statistics/annual-report/2016/statistics/applicants.html#tab1.

7.2.3.3 Frontier of Patents

Patents for Genetic Life Forms

Patents on genetic life forms are controversial—especially genetically engineered life forms beyond plants. The genetic alteration of life forms provokes ethical quandaries, and fears that human, animal, and environmental safety may be compromised.[70] However, gene-based compounds have long been patented. For example, adrenaline was patented in 1907. In 1923 insulin was patented, and then in the late 1970s cloned human insulin was patented as well.

In *Diamond v. Chakrabarty*, the US Supreme Court decided in 1980 by a five to four vote that genetically modified (GM) bacteria capable of breaking down crude oil (which could be used to deal with oil spills) are patentable if they constitute a new "composition of matter." Chakrabarty was an engineer for GE, which was the real party to the patent. The decision opened opportunities to create and patent genetically modified organisms (GMOs). This became especially important for GM seeds of higher yield and resistance.[71]

In 2000, Harvard University won a US patent on a GM mouse used in medical research, but lost an appeal to obtain a patent on the same mouse in Canada.[72] In 2006, the J. Craig Venter Institute applied for a patent for *Mycoplasma Laboratorium*, a microbe form of synthetic life.[73] Over a decade later, the application had not yet been granted.

The subject of GMOs, in particular for food, has been highly controversial. Agricultural innovation is important for the growing of food, and patents have long been issued on improvements. This is an important part of rural development. Almost all conventional non-GM seeds are patentable, not only GM ones. Plant related patents have been common since the 1970s. GM corn, cotton, sugar beets, and soy have been granted "plant patents."[74] Opposition activism shifted to consumer boycotts. This led to a push for the labeling of such products. In the USA, Connecticut became the first state to pass a law requiring products using GMOs to be identified.

As the burgeoning field of biotechnology continues to push the boundaries of biological possibility, the scope and frequency of patent controversy is likely to increase. In a highly significant case in 2013, the US Supreme Court ruled unanimously that isolated human genes cannot be patented, since nothing new has been created. (*Association for Molecular Pathology vs. Myrid Genetics 2013*). Synthetic DNA can be patented, but naturally occurring DNA cannot.

7.2.3.4 Patents for Software and Business Methods

Controversy has also arisen over software patenting. Since a software algorithm is a set of mathematical formulas, computer software programs historically were not considered patentable. However, in the 1981 *Diamond vs. Diehr* case, the US Supreme Court opened the way for patent protection for some computer software when its algorithms can be incorporated into a useful process. Software patents issued by the US PTO steadily increased after this court decision, from 200 in 1981 to over 40,000 in 2013. The business logic here is that a patent offers a stronger protection than a copyright which can be circumvented by using a different coding, but follows the same basic idea. On the downside, a copyright life is much longer, but that is rarely a problem for software.

A proposed EU software directive to clarify the EU position stated that software per se cannot be patented. Owing to protest and political pressure, the directive was rejected by the European Parliament in 2005 by a vote of 648 to 14.[75] Instead of a Europe-wide software patent system, the patent protection is decided on a nation-by-nation basis.[76] A patent recognition for software was given by several countries. In 2010, Germany's high courts declared software patents as valid in the cases of Microsoft's "file allocation table" file system and Siemens' "client-server software for the automatic generation of structured documents."

Historically, one could not get a patent on a method of doing business. Thus, the ideas of selling newspapers in the street, delivering packages overnight, selling goods through mail-order catalogs, or payments through credit cards were not patentable business methods. But in the 1998 case *State Street Bank & Trust Co. v. Signature Financial Group Inc.*,[77] a US federal court opened the door to patenting business methods. In 1998, the Signature Financial Group patented a computerized system for managing mutual funds. The product (hub-and-spoke data processing system) allowed managers to pool and calculate mutual fund investments. The court ruled that business models can be considered patentable "processes" as a transformation of data. Thus, business methods have been explicitly patentable in the USA since 1998. A claimed process is patentable if it is tied to a particular machine or apparatus, or if it transforms a particular article into something different.

In 2005, the US patent office went an important step further and issued a precedent that eliminated the requirement of a "technological arts" test for a patent.[78] This decision essentially allowed any novel non-technological methodologies to be patented, including business processes and models, financial services, and financial products.

68 ifi Claims Patent Services. "2016 U.S. Patent Trends & Insights." January 6, 2017. Last accessed May 25, 2017. ► https://www.ificlaims.com/news/view/ifi-claims/2016-u-s-patent-trends.htm.

69 General Electric. GE 2016 Annual Report. Last accessed May 25, 2017. ► https://www.ge.com/ar2016/assets/pdf/GE_AR16.pdf.

70 Ormandy, Elisabeth H. Julie Dale and Gilly Griffin "Genetic Engineering of Animals: Ethical Issues, including welfare concerns." *The Canadian Veterinary Journal* 52, no. 5 (May 2011): 544–550. ► https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3078015/.

71 Smith, Tempe. "Going to Seed: Using Monsanto as a Case Study to Examine the Patent and Antitrust Implications of the Sale and Use of Genetically Modified Seeds." *Alabama Law Review* 61 (2010): 629.

72 Harvard College v. Canada (Commissioner of Patents), 4 Supreme Court of Canada, 2002.

73 As of early 2017, the patent was still pending. US Patent application: ► http://appft1.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PG01&p=1&u=%2Fnetahtml%2FPTO%2Fsrchnum.html&r=1&f=G&l=50&s1=%2220070122826%22.PGNR.&OS=DN/20070122826&RS=DN/20070122826

74 A lawsuit (The Organic Seed Growers and Trader Assoc (OSGATA) v. Monsanto) was filed in 2011. It sought court protection for family farmers who could be sued for patent infringement if Monsanto seeds hit their property. The organic farmers lost in the US Supreme Court in 2014. OSGATA. "OSGATA et al. v. Monsanto." Last accessed May 25, 2017. ► http://www.osgata.org/osgata-et-al-v-monsanto/.

75 Pinsent Masons. "Patents Directive killed by European Parliament." *Out-Law.com*. July 6, 2005. Last accessed on June 2, 2011. ► http://www.out-law.com/page-5884.

76 BBC News. "Software patent bill thrown out." July 6, 2005. Last accessed May 25, 2017. ► http://news.bbc.co.uk/2/hi/technology/4655955.stm.

77 Ravicher, Daniel. "Software Patents in Different Jurisdictions." Presented at Freedom to Innovate South Africa Discussion of Software and Business Method Patents, Pretoria/

The court decisions in the USA triggered an avalanche of applications to grant rights to business models. Dell patented its "build-to-order" method.[79] Priceline.com patented its system of "reverse auctions." Amazon.com patented its "one-click" sales system, and used the patent in a lawsuit against the bookstore chain Barnes & Noble, claiming that the latter's Express Lane feature infringed upon Amazon's one-click shopping patent. Amazon, in turn, was sued in 2006 for violating a one-click patent held by Cordance Corp., a Seattle-based patent portfolio firm, a type of company often described as a "patent troll" (see below). Cordance unleashed a number of patent lawsuits involving its claim for a one-click patent against Apple, PayPal, and Victoria's Secret.[80]

An obscure company called Sightsound.com claimed a patent on the concept of sending movies into consumer's homes over the internet. It claimed the exclusive right to downloading films in this way without having developed a single piece of software or technology. Similarly, the concept of paying consumers to view internet ads is owned by Cybergold.

Only a few other countries have allowed business process patents, for example Australia, Japan, and Korea, whereas most European countries and Canada have not.[81] The European Patent Office rejects patent applications that lack a technical or physical feature that is useful in solving an industrial problem. Canada requires that a patentable business method must be more than an abstract idea or theorem and have a practical application. In Brazil, commercial or financial plans, principles, or methods are not categorized as inventions. In Japan, a patentable subject matter involves "a technical idea utilizing a law of nature." Business methods are generally regarded as software-related inventions and are considered to have a technical nature.

About 12,000 business processes were patented annually in America.[82] The backlash came soon. In 2007, the federal courts cut business process patents back. In the case *In re Stephen W. Comiskey*, it was decided that patents cannot be issued in business systems that depend entirely on "mental processes or processes of human thinking."[83] This greatly reduced the number of business process patent applications and made technology processes the key factor in patents.

In 2010, the US Supreme Court in *Bilski vs. Kappos*, unanimously limited patents for business ideas.[84] Two inventors, Bernard Bilski and Rand Warsaw, sought to patent a method of hedging weather-related risks in energy prices. The US PTO had concluded that the process was too abstract and denied the application. The process would be eligible for a patent only if it was "tied to a particular machine or apparatus" or if it "transformed a particular article into a different state or thing."

Case Discussion

GE Software Patents

Examples for GE's Software Patents
GE software patent #1: 6,658,330: A "method and system for upgrading software for controlling locomotives." The innovation provides control software when a train has more than one locomotive.

GE patent #2:7,437,200: "Software based control system for nuclear reactor standby liquid control logic processor." The innovation provides software backup control of a hardware-based control system.

GE patent #6: 6,901,387 (GE financial patent): "Electronic purchasing method and apparatus for performing the same." Software and hardware for an electronic payment process where only a limited account of many is issued to a customer. Among other advantages, this can prevent fraud and abuse.

GE patent #7: 7,657,521 (medical data processing) "System and method for parsing medical data." This innovation identifies text strings in medical data, associating each of them with standardized identifiers from a library.

GE patent #8: 6,253,115 (Six Sigma software): "System for implementing a design for six sigma process." This application helps implementing the design for the Six Sigma quality control process. It uses a series of independent sub-process applications.

7.2.3.5 Patent Infringements

Applying for patents is not cheap, but the cost of maintaining them can be much higher. If the patent has commercial value it will attract imitators. The inventor will have to defend the patent in the courts. Often the cost of litigation is larger than the revenue the inventor may subsequently earn from royalties or licensing. As mentioned, patenting standards have decreased, and litigation challenging patents has therefore risen, which has raised transaction costs.[85]

A patent infringement occurs if another person uses the elements of the "claims" of a granted patent. To stop them, the original inventor can obtain a court injunction (a cease-and-desist order), seek a payment for damages, or demand the return of up to three times the infringer's profits ("treble damages"). Microsoft had to pay IBM $30 million in a patent-infringement suit. The patent holder need not actually produce the invented product or process to claim infringement. Companies can just use their patents to block somebody else.

Tshwane, South Africa, January 19, 2007.

78 Petty, Scott. "Ex Parte Lundgren Opens the Floodgates for Patenting Business Processes." *Intellectual Property Today*. December 2005.

79 The Economist. "Patent Wars: Better get yourself armed. Everyone else is." April 6, 2000. Last accessed June 13, 2012. ► http://www.economist.com/node/332256.

80 Mullin, Joe. "Apple and PayPal Hit With Lawsuit Over Patent For 'One-Click.'" *GigaOm*. March 15, 2011. Last accessed May 25, 2017. ► http://paidcontent.org/article/419-apple-and-paypal-hit-with-lawsuit-over-patent-for-one-click/.

81 Bloomberg, Mark H. "Patenting Business." *LatinFinance*. November 2005.

82 The Economist. "Patent Nonsense." February 5, 2010. Last accessed October 19, 2012. ► www.economist.com/node/15479680.

83 United States Court of Appeals for the Federal Circuit. in re Stephen W. Comiskey. 2006–1286, 09/461,742. September 20, 2007.

84 Bilski v. Kappos 130 U.S. S. Ct. 3218 (2010).

Patent holders can then threaten to shut down the operations of other companies.[86]

In consequence, companies often apply for patents as a defensive strategy, in order to prevent others from obtaining a patent that would block the company. In other cases, they will engage in offensive patenting.[87]

For many years, large companies rarely sued each other over patents. But today it is normal. "Patent trolls" are firms that buy or file patents and later sue other firms in their field.[88] They buy patents and operate in plaintiff-friendly states or countries.[89] Patent infringement suits grew in the USA from an annual 1500 in the 1990s to more than 3000 in the 2000s. Complex patent trials can easily cost over $5 million. The average cost to challenge a patent is $1.2 million; thus it is often cheaper and faster to pay royalties than to challenge a patent. Most suits are settled before the trial. In trials, and even with the ability of the challenger to the claimed patent to seek a friendly jury, the defenders of the patent win 58% of copyright infringement trials and 68% of jury trials.[90]

Protecting patents is relatively costlier for small firms than for large firms. Small companies, even with solid patents, can be overwhelmed by legal challenges by deep-pocket firms who tie them up while catching up in their R&D, or by patent trolls with spurious claims but with the ability to create delay.

An infringement suit that almost ruined a company was the case of NTP versus RIM, the Canadian maker of the BlackBerry smartphone. In 1990, Thomas Campana developed a method for wireless email. He patented it and founded NTP Inc. NTP had no employees and never released a product. A few years later, RIM launched the BlackBerry device and soon held about 50% of the wireless email devices market. In 2001, NTP sued RIM for patent infringement. RIM offered a modest settlement but NTP refused. One year later, the court awarded NTP $53 million in damages and punitive damages plus $4.5 million in legal fees.[91, 92]

RIM challenged the validity of the NTP patents because NTP patented but had never entered the market with a product. RIM's immediate problem, however, was much bigger. The court also created an injunction that would force RIM to stop its service by a certain date, thereby stranding its millions of customers. RIM engaged in a lot of legal maneuvers but to no avail. NTP's patents were held valid. Eventually, a jury awarded NTP the equivalent of 8.55% of RIM's BlackBerry sales in the USA.[93] The case was finally settled in 2006 after almost five years. RIM ultimately had to pay $612.5 million to NTP to license the technology.[94] It also covered large costs of litigation and lobbying, and the uncertainty over its service hurt its business.

The risk of a challenge to a vital patent has led to the emergence of IP insurance. This strengthens a small firm's bargaining position in licensing deals since the license is more secure.[95]

Another issue is the rights of patents created by employees, but not as part of their direct job. When the employee uses the employer's resources in creating the invention, the employee is the technical owner of the patent but the company is entitled to a nonexclusive, royalty free, and nontransferable license for the invention.

Case Discussion

GE Patent Infringement

GE and its ultrasound imaging rival SonoSite have repeatedly engaged in heated patent infringement lawsuits. SonoSite, a Seattle company owned by the Japanese firm Fuji Film, is a leader in small ultrasound devices and held the "412 patent" for its production—the 412 patent family.[96] After a claim by SonoSite in 2007, GE counter-sued. Eventually, GE paid $21 million for a perpetual license, plus royalties.

7.2.3.6 Are Patents Necessary?

Are patents essential? Patents may create positive economic incentives: IPR encourage technological change, provided that IP protection has a strong, positive correlation to R&D investment.[97] But critics argue that the quality of patents has eroded and that they offer too much protection.[98] Empirical economic research sheds doubt on the patent system's contribution to innovation. One study found that patents provide incentives to research and to disclose information,

85 The Economist. "Patent Nonsense." February 5, 2010. Last accessed October 19, 2012. ► www.economist.com/node/15479680.
86 Griffin, Greg. "System patently out of date, some inventors complain A CU symposium dissects U.S. patent procedures in light of an explosion in technological innovation." *Denver Post*. April 10, 2006.
87 Lanjouw, Jean O. and Mark Schankerman. "Protecting Intellectual Property Rights: Are Small Firms Handicapped?" *The Journal of Law and Economics* 47, no. 1 (April 2004): 45–74.
88 Chapman, Glenn. "Patent wars plague Internet Age, add 'innovation tax.'" *The Sydney Morning Herald*. April 16, 2012. Last accessed October 22, 2012. ► www.smh.com.au/it-pro/business-it/patent-wars-plague-internet-age-add-innovation-tax-20120416-1x2ej.html.
89 Crovitz, L. Gordon. "Google, Motorola and the Patent Wars." *Wall Street Journal*. August 22, 2011. Last accessed October 22, 2012. ► http://online.wsj.com/article/SB10001424053111903639404576518493092643006.html.
90 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.
91 Stephenson, Correy E. "Blackberry case illustrates complications of patent system," *Lawyer's Weekly USA*. February 13, 2006, 1.
92 Law360. "Supreme Court Patent Cases: Past And Pending." January 5, 2011. Last accessed June 2, 2011. ► http://www.venable.com/files/Publication/1cd1e441-c312-4c24-b797-3c66532017a4/Presentation/PublicationAttachment/95fd4a5b-15a8-47bc-9915-30bac8726f7e/McCann-PatentCases.pdf.
93 Squeo, Anne Marie and Mark Heinzl. "Patent Office Sides With BlackBerry." *Wall Street Journal*. February 2, 2006. Last accessed May 25, 2017. ► https://www.wsj.com/articles/SB113883389359662562.
94 Noguchi, Yuki. "BlackBerry Patent Dispute Is Settled; $612.5 Million." *Washington Post*. March 4, 2006.
95 Lanjouw, Jean O. and Mark Schankerman. "Protecting Intellectual Property Rights: Are Small Firms Handicapped?" *The Journal of Law and Economics* 47, no. 1 (April 2004): 45–74.
96 MDBR. "SonoSite Announces Global Patent Settlement With GE Healthcare." October 19, 2009. Last accessed July 15, 2013. ► http://diagnosticimaging.medicaldevices-business-review.com/news/sonosite_announces_global_patent_settlement_with_ge_healthcare_091019.
97 Kanwar, Sunil and Robert Evenson. "Does Intellectual Property Protection Spur Technological Change?" *Oxford Economic Papers* 55, no. 2 (April 2003): 235–264.
98 The Economist. "World Patent War 1.0." December 19, 2011. Last accessed July 31, 2012. www.economist.com/node/21542005

but that they reduced the invention's use during the patent life.[99] Another study found that stronger patent protection did not stimulate R&D expenditures by a firm, and that the increased danger of infringing on another firm's patents exerted the opposite, a negative influence.[100] Research by Frederic Scherer found that for most American firms and industries patent protection was unimportant for decisions regarding investment in R&D. Instead, companies considered whether R&D would yield competitive advantages. The exceptions were small start-up companies entering fields in which they had little technical advantage or marketing experience.[101] Similar research was conducted by economists at Cambridge and Oxford on the impact of the absence of patent protection on the R&D behavior of British companies. Their study showed that the worldwide average reduction in R&D expenditures would be only 8% if subjected to compulsory licensing with modest fees. The exception, as in most other studies, is the pharmaceutical industry. Many surveys indicate the expectation of patent protection has a greater impact on investment in pharmaceutical R&D than in most industries. Patents are more valued in pharmaceuticals than in IT because the exclusivity of life-saving medicine makes customers' demand very price inelastic, and the monopoly's value is hence higher.

Many analyses of IP assume that patents are the sole means of protecting innovations from theft and appropriation. In the abstract, patents are supposed to make a positive difference to investment in technology. But studies show that getting a first-mover advantage can have a greater impact on investment behavior than patent protection. In a 1994 survey conducted by Carnegie Mellon University, the responses by over 1000 R&D managers show that patent protections were not very important in R&D decisions. Of several factors patent protection ranked near the bottom (34.83%) in its importance.[102] Another study by economists from Yale and Carnegie Mellon surveyed 600 managers and found that a vast majority believed that lead time, learning curves and service efforts were more effective than patents.[103] Patents were not seen as the main barriers to potential imitators. More important to R&D decisions were development and production costs regardless of patents. Other negative factors were the challenges to introduce a new product and the negative image of providing a knock-off follower product. Empirical research performed on patents by Schankerman and Lanjouw found that the value of patent protection is only about 25% of related R&D expenditures.[104] Another study concluded that most industries do not look to the patent system as the main source for invention protection. It was crucial for a few industries only, in particular pharmaceuticals.[105] Other research found that inventors rely on a variety of other ways to appropriate returns from their investment, independent of patents.[106] Joshua Lerner studied the impact of policy shifts in 60 countries over 150 years. He found support for a positive impact of patent length on innovation provided the patent protection was initially low. But the impact of patent length on innovation was negative where the patent was already high. He conjectured that market incentives were adequate to spur these innovations without additional protection.[107]

Many studies conclude that patenting does not significantly affect firms' ability to acquire monopoly power or that it may, indeed, reduce them. Zvi Griliches and Ariel Pakes studied the increase in patent applications, and whether patent length, friendly courts, or an expansion of the scope of patents play a causal role in this expansion.[108] Patent protection is found, on average, to be relatively unimportant compared with the three other first mover advantages: "technological leadership," "preemption of scarce assets," and "switching costs and buyer choice under uncertainty."[109]

Extensions of patent duration may actually reduce research incentives.[110] An increase in patent life induces the researcher to develop larger inventions, but inventions also occur less frequently. At some point in lengthening protection, the frequency effect dominates the size effect, and the rate of innovation therefore declines for increases in patent length.[111] Other research, by Waterson,[112] Kitch,[113] Cockburn,[114] and Henderson,[115] shows that patents do not necessarily create monopoly power as seen in prices, but that companies with a patent may charge a price somewhere between competitive and monopolistic. Therefore, the benefit (and incentive) of a patent is lower than postulated but also harmful to users, though at a less than monopolistic level.

But there is also counter-evidence. One study shows the share of R&D spending in gross domestic product (GDP) is affected by the extent of IP protection. The protection index

99 See Gallini, Nancy T. "The Economics of Patents: Lessons from Recent U.S. Patent Reform." *The Journal of Economic Perspectives* 16, no. 2 (Spring, 2002): 131–154.
100 Scherer, F.M. "The Political Economy of Patent Policy Reform in the United States." *Journal on Telecommunications and High Technology Law* 7, no. 2 (Spring 2009): 167–216.
101 Scherer, F.M. "The Political Economy of Patent Policy Reform in the United States." *Journal on Telecommunications and High Technology Law* 7, no. 2 (Spring 2009): 167–216.
102 Scherer, F.M. "The Political Economy of Patent Policy Reform in the United States." *Journal on Telecommunications and High Technology Law* 7, no. 2 (Spring 2009): 167–216.
103 Scherer, F.M. "The Political Economy of Patent Policy Reform in the United States." *Journal on Telecommunications and High Technology Law* 7, no. 2 (Spring 2009): 167–216.
104 Lanjouw, Jean O. and Mark Schankerman. "Protecting Intellectual Property Rights: Are Small Firms Handicapped?" *The Journal of Law and Economics* 47, no. 1 (April 2004): 45–74.
105 Schankerman, Mark. "Enforcing Patent Rights and Competition." OECD Conference, 2003.
106 Nancy T. Gallini. "The Economics of Patents: Lessons from Recent U.S. Patent Reform." *The Journal of Economic Perspectives* 16, no. 2 (Spring, 2002): 131–154.
107 Jaffe, Adam B. and Joshua Lerner. *Innovation and Its Discontents: How Our Broken Patent System Is Endangering Innovation and Progress, and What to Do about It*. Princeton, N.J.: Princeton University Press, 2004.
108 Pakes, Ariel and Zvi Griliches. "Patents and R&D at the Firm Level: A First Look." In *R&D, Patents, and Productivity*. Ed. Zvi Griliches. (Chicago: University of Chicago Press, 1984), 57.
109 Lieberman B. Marvin and David B. Montgomery. "First-Mover Advantages." *Strategic Management Journal* 9, Special Issue: Strategy Content Research. (Summer 1988): 41–58; Scherer, F.M. "The Political Economy of Patent Policy Reform in the United States." *Journal on Telecommunications and High Technology Law* 7, no. 2 (Spring 2009): 167–216.
110 Koo, Bonwoo and Brian D. Wright. "Economics of Patenting as a Research Tool." EPTD Discussion Paper No. 88. International Food Policy Research Institute and University of California, Berkley, 2002; Gallini, Nancy T. "The Economics of Patents: Lessons from Recent U.S. Patent Reform." *The Journal of Economic Perspectives* 16, no. 2 (Spring, 2002): 131–154.
111 Gallini, Nancy T. "The Economics of Patents: Lessons from Recent U.S. Patent Reform." *The Journal of Economic Perspectives* 16, no. 2 (Spring, 2002): 131–154.
112 Waterson, Michael et al. "Strategic Behavior of Incumbent Firms in the UK." *International Journal of Industrial Organization* 16, no. 2 (Mar. 1, 1998): 229–251.
113 Kitch, Edmund W. "The Nature and Function of the Patent System." *Journal of Law and Economics* 20, no. 2 (Oct., 1977): 265–290.
114 Cockburn, Iain and Zvi Griliches. "Industry Effects and Appropriability Measures in the Stock Market's Valuation of R&D and Patents." *The American Economic Review* 78, no. 2 (May, 1988): 419–423.

is measured on a scale of 0–5. Where such protection is negligible (Indonesia), the R&D to GDP ratio is 0.3%. As one moves to a weak protection (IP protection index 1–2) average shares rise to 0.48; for a protection index of 2–3 it is 0.84; for a protection level of 3–4 it is 1.5%; and for a protection level of 4–5 it is 1.8%. It is 2.7% for the USA and 2.3% for Sweden, both with strong IP protection. This would confirm a fairly pronounced effect of IP protection on R&D spending. (On the other hand, the percentages are fairly low for Italy and South Africa, despite strong protections.)

These findings show that business firms (and countries) should consider whether the economic benefit of obtaining a patent exceeds direct and indirect costs. The alternative may be to keep the innovation confidential and as much as possible as a trade secret, and to aggressively push it in the early stages of a rollout. Thus, patents are not the only way to go, and innovators, companies, and investors should not be mesmerized by them.

7.2.4 Trademarks and Trade Dress

7.2.4.1 Trademark Overview

Trademarks are another major category of intellectual assets. A trademark is a word, name, phrase, sound, logo, or symbol used to identify a company and distinguish its products and services. The aim of a trademark is to protect the investment in a name or logo to build reputation and brand, avoid confusion by consumers, or create brand awareness. Examples of trademarked terms are "Windows 10," "Disney World," or "iPhone."

Some names started out as distinct products by a company but were not registered. They became generic over time and lost protection. Examples are aspirin, cellophane, escalator, kerosene, yo-yo, zipper, and trampoline. In consequence, companies now make major efforts to clarify that products that are used in everyday language—such as Xerox, Kleenex, or Band Aid—are identified as distinctive trademark and use a clarifying qualification such as "Xerox copier" or "Kleenex tissue."

How does one obtain a trademark? Typically trademark registration goes through a country's patent and trademark office. Such a PTO grants the use of the registration symbol (R in a circle). But there are also "common-law" trademarks, for which no registration is required. An unregistered trademark holder can generally only defend in the area it does business in, not necessarily in the entire country. Furthermore, it cannot sue to recover damages, just prevent the use. The symbol "TM" is used for unregistered trademarks. This also prevents others from using the same or similar marks. In Europe, a trademark regulation was passed in 1993 that made a trademark valid throughout the EU and established the European Trademark Office in Alicante, Spain. In the USA, Europe, and Japan, official trademark registration lasts ten years and can be renewed forever. But if a trademark is not used for two years (five years in the EU), a presumption of abandonment is created.

What kind of words can a firm register as a trademark and thus get legal protection of some exclusivity? Easiest to protect are arbitrary new words, such as Xerox.[116] According to photography pioneer George Eastman, a good trademark should be short, easy to spell, punchy, and mean absolutely nothing—an example being his company's name Kodak. Trademark names to avoid, because they are hard to protect, are personal and family names, nicknames, initials, or words that describe a product's characteristics or location. Personal names can get protection if they become distinct, such as Ben & Jerry's for ice cream (but not for a garage, especially if the owners are indeed named that way, and avoid misleading customers that they are connected to the ice cream company).[117] To create trademark names, there are name consultants, websites, and software programs such as NameStormers. They also screen for meaning in other languages, avoiding the problems of the French soft drink Pschitt.

Beyond names, there are trademarks for unique symbols, for phrases such as "Don't leave home without it," for musical jingles, distinctive colors associated with a company, and even for odors. One can trademark a film or book title if it has acquired a distinct secondary meaning.[118]

A major trademark dispute arose over the use of the everyday word Apple. The music rock band, The Beatles, owned the music companies Apple Corps and Apple Records. About a decade later Steve Jobs's company was named Apple Computing by its founders. After a 1978 lawsuit brought by the music company, the computer company paid the music company $80,000 and both parties agreed not to enter each other's domains. This was easy for the Beatles to stick to, but the computer company soon edged into multimedia and music. Another lawsuit and settlement followed in 1991, this time for $26.5 million. The computer company agreed not to sell or distribute music. In 2003, the music company sued again, charging that the iTunes Music Store was a violation of the contract. But it lost in a British court, which accepted the defendant's classic legal argument that "only a moron in a hurry" could confuse the two. In 2007, in a third settlement, the computer company bought all the music company's trademark rights for $500 million, and licensed them back to the music company.

In a trademark violation dispute, the best strategy for a company (claiming an infringement by another party) should be to frame its private interests as a consumer interest—to help prevent consumers being misled by the alleged violator of the trademark. In one case, the studio Tri-Star sued another producer over the use of the film title *Return from the River Kwai*, which misled audiences into believing that

115 Henderson, Rebecca et al. "Geographic Localization of Knowledge Spillovers as Evidenced by Patent Citations." *The Quarterly Journal of Economics* 108, no. 3 (August, 1993): 577–598.
116 Gardner, Steven. "Basics of Trademark Law and Trademark Registration Procedures for the General Corporate Practitioner." *Campbell Law Observer*. April 1, 1999.
117 Elias, Stephen and Kate McGrath. "Trademark Legal Care for Your Business & Product Name." Berkeley: Nolo Press, 2010.

the film was a sequel to the Oscar-winning film *The Bridge on the River Kwai*.[119] Tri-Star was successful in its claim.

"Trade dress" is related to trademarks. It protects distinctive packaging and more: it is the totality of elements—color, shape, texture, design, themes, and labels. Similarity, of course, is in the eye of the beholder. Various factors are considered, with the common focus on whether a reasonable consumer would be misled. In general, the legal system tries to protect consumers, beyond the owners of the trademark. A company claiming a trademark or trade dress has a good chance of winning in court when it can show consumer confusion.[120]

There are many gray areas relating to trademark infringement. One case established the "Polaroid test" for trademark infringement, with eight factors to consider:

- the strength of the mark;
- the degree of similarity between the two marks;
- the proximity of the products;
- the likelihood that the prior owner will bridge the gap;
- actual confusion;
- the defendant's good faith in adopting the mark;
- the quality of defendant's product or service;
- the sophistication of the buyers.

Other factors are:

- the size of the plaintiff's investment in the trademark;
- the expectations of the public;
- the plaintiff's treatment of its own mark;
- the methods by which the products are advertised;
- the geographical distribution of the products;
- the similarity in appearance of the products.[121]

Internationally, trademarks are covered by the Singapore Treaty concluded in 2006, which established a regulatory framework of common standards.[122] If a company is regularly doing business in another country, a trademark registration there might help to protect it.[123] Companies may spend much effort on protecting their trademarks. At the consumer products company Unilever, the trademark team alone consists of 54 professionals based in three different countries.[124]

7.2.4.2 Case Study

GE Trademarks

GE has over 2000 registered trademarks in the USA alone. GE's primary trademark since 1900 has been the well-known GE monogram, with the stylized letters GE inside a circle with four curlicues (Fig. 7.2).

In 2003, *Business Week* ranked the GE brand the fourth "most valuable" in the world. GE trademarks the actual letters GE across many different industries, from medical technologies to fuel cells to chemical research. When it owned NBC Universal, it held many iconic trademarks of entertainment media, such as the NBC peacock and chime jingle, and Universal Studios' globe, both recognizable to most TV and film viewers.

GE also held the trademarks owned by Universal, including those for films and TV series such as *Jurassic Park*, *Magnum P.I.*, *The Tonight Show*, and *Saturday Night Live*.[125] Not only is the name *Saturday Night Live* protected, but NBC has also trademarked the initials SNL, a nickname by which the show is commonly known.

In 2011, a subsidiary of the office supply chain Staples reached a deal with NBC Universal to create a "Dunder Mifflin" paper brand that was based on the fictional paper company of the popular TV series *The Office*. NBC receives 6% of Staples' revenue from its paper sales under this brand name. The cases of paper are sold (at a price that is well above market price) for $65 each, so that NBC gets $3.90 for each case of paper reams sold.[126]

7.2.4.3 Rights of Publicity

Rights of publicity is close to trademarks in that it establishes property rights in a person's name and picture. Partly this is to protect privacy and partly it deals with the issue of who can commercialize a person's likeness. For example, the film stars Michael Douglas and Catherine Zeta-Jones sold the rights to photograph their 2000 wedding for $1.55 million to *OK!* magazine. *OK!* successfully sued a rival magazine which took and published unauthorized photographs of the ceremony.[127]

Lawsuits have arisen over what constitutes a celebrity's persona and how completely the celebrity can control it. California governor and film star Arnold Schwarzenegger sued someone who was marketing a "Governator"

118 Greene, K.J. "Abusive Trademark Litigation and The Incredible Shrinking Confusion Doctrine – Trademark Abuse in The Context Of Entertainment Media and Cyberspace." *Harvard Journal of Law & Public Policy* 27, no. 2 (2004): 608–642.

119 Greene, K.J. "Abusive Trademark Litigation and The Incredible Shrinking Confusion Doctrine – Trademark Abuse in The Context Of Entertainment Media and Cyberspace." *Harvard Journal of Law & Public Policy* 27, no. 2 (2004): 608–642.

120 Friedman, Avi. "Protection of Sports Trademarks." *Loyola of Los Angeles Entertainment Law Review* 15, no. 3 (1995): 689–716. ► http://digitalcommons.lmu.edu/elr/vol15/iss3/7.

121 There are also some "anti-dilution" statutes in the USA at state level, which protect against the diminution of the marketing value of trademarks. These laws do not require a showing of a likelihood of confusion.

122 New International Treaty. *WIPO Magazine*. April 2006. (An earlier common framework was the Madrid Protocol, which offered a trademark owner in one country the ability to obtain registration in many other foreign countries.)

123 Internicola, Charles. "What Are The Benefits of The International Trademark Registration Process?." Charles N. Internicola, Business and Franchise Lawyer, 2011. Last accessed June 2, 2011. ► http://www.franchiselawsolutions.com/faqs/what-are-the-benefits-of-the-international-trademark-registration-process.cfm.

124 Managing Intellectual Property. "25 ways to be a more effective TM manager." May 1, 2006. Last accessed May 25, 2017. ► http://www.managingip.com/IssueArticle/1254631/Archive/25-ways-to-be-a-more-effective-TM-manager.html.

125 Legal Force Trademarkia. "Magnum." July 15, 2013. Last accessed May 25, 2017. ► http://www.trademarkia.com/magnum-73281111.html.

126 LoGiurato, Brett. "Dunder Mifflin Paper Comes to Life as NBC, Staples Strike Licensing Deal." *International Business Times*. November 28, 2011. Last accessed June 18, 2013. ► http://www.ibtimes.com/dunder-mifflin-paper-comes-life-nbc-staples-strike-licensing-deal-375734.

Fig. 7.2 GE trademarked logo

bobble-head doll of Schwarzenegger in a business suit holding a machine gun.[128] With him being a public official, the case seemed weak. On the other hand, a movie star and a Hollywood distributor could claim rights to a particular image, though a satire had more leeway. The parties settled before a court ruling. Ohio Discount Merchandise (ODM) was allowed to continue to produce a bobble-head with Schwarzenegger's likeness, under the condition that it removed the gun from the figurine. ODM also agreed to donate part of its sales proceeds to Schwarzenegger's non-profit after-school program in Los Angeles.[129]

The rights of publicity that prove central to celebrities over the use of their persona can easily conflict with the First Amendment free speech rights, since they can provide a means to block biographers, photographers, and film-makers from covering a person's life. In the USA, authors need no permission to write an article or an "unauthorized" biography about someone. On the other hand, consent must be given to use another's name or likeness for some type of gain, financial or otherwise. This is therefore a fine line to toe. For example, Elvis Presley's heirs have the rights to control the commercialization of Elvis' identity. This has been applied aggressively, and authors and publishers try to avoid costly lawsuits. Similarly, the heirs to Martin Luther King Jr. have claimed exclusive rights to King's "I Have a Dream" speech.[130] In another case that went to trial, the heirs of civil rights icon Rosa Parks sued the hip-hop group OutKast and record company for no less than $5 billion over their 1998 song entitled "Rosa Parks."[131] The case went to the US Supreme Court and lasted for years, and in the end the Parks heirs largely lost the case and had to accept a minor settlement.

In the UK, Eddie Irvine, a Formula One racing driver, sued Talksport Radio. Talksport took an unauthorized image of Irvine and superimposed a Talksport radio onto the image (to make it look as if he was holding it). This image was used in a brochure that Talksport sent to advertisers. The British courts held that this was falsely suggesting an endorsement. Courts in other jurisdictions do not necessarily provide celebrities with the same protection. In 2000, Hong Kong pop star Andy Lau lost his case against a bank that offered credit cards with the singer's image without a direct license from him. A court, implausibly, ruled that merely putting an image on a credit card did not suggest an endorsement,[132] and that the bank had therefore not violated Lau's right of publicity.[133, 134]

Case Discussion

Right of Publicity

Oksana Baiul, a Ukrainian figure skater, won the World Championship in 1993 at the age of 15 and in 1994 the Olympic gold medal a year later. She claimed that her appearance was promised by NBC to its viewers for two skating events even though she had not agreed to take part. She was then negatively portrayed as a "no show" after declining to appear.[135] According to Baiul, "her likeness, persona, and image were used illicitly in marketing." Eventually, the case was thrown out and her lawyer was sanctioned.[136]

7.2.5 Copyrights

7.2.5.1 Copyright Overview

Copyright is the property right created by law that grants to the creator of an original work the exclusive rights for its use and distribution. It originally covered books and then expanded far beyond printed works to almost any form of expression, including dance, music, paintings, photographs, movies, software, TV shows, sports, computers, architectural sketches, and computer chip designs. In music, for example, these rights include reproducing and distributing copies, making derivative works based upon the copyrighted work, performing publicly, and more. Copyright gives the owner, for a certain period, exclusive rights to use (or to not use) and to transfer ownership of the work. After that period, the work moves into the public domain.

As mentioned earlier, the first copyright privilege was issued in Venice in 1469. In 1710, the first copyright law was passed in England, known as the Statute of Anne after the contemporary English queen. In 1787, the US Constitution

127 Epstein, Edward Jay. *The Big Picture, The New Logic of Money and Power in Hollywood*. New York: E.J.E. Publications, Ltd., Inc., 2005.
128 Bennett, Drake. "Star Power Celebrities Have a Legal Right to Prevent the Commercial Use of their Images Without Permission. But Are They Silencing Artists and Satirists as Well?" *Boston Globe*. June 4, 2006.
129 Ochoa, Tyler. "The Schwarzenegger Bobblehead Case: Introduction and Statements of Facts." *Santa Clara Law Review* 45, no. 3 (2005): 547–556.
130 Wolff, Michael. "Pride and Property." New York. May 14, 2001. Last accessed May 25, 2017. ► http://nymag.com/nymetro/news/media/columns/medialife/4681/#.
131 "OutKast's Tribute." *Know Your World Extra* 29, no. 9 (February 2006): 6–7.
132 Pendleton, Michael D. "Sponsorship Rights and Passing-off Actions: Test Cases." *Asia Law*, October 2007. Last accessed July 27, 2010. ► http://www.asialaw.com/Article/1970932/Search/Results/Sponsorship-Rights-and-Passing-off-Actions-Test-Cases.html.
133 Irvine v. Talksport Ltd., [2003] EWCA Civ 423. ► http://www.ipo.gov.uk/ipcass/ipcass-alphabetical/ipcass-alphabetical-fj/ipcass-irvine.htm/.
134 Leaffer, Marshall. "The Right of Publicity: A Comparative Perspective." *Albany Law Review* 70, no. 4 (Fall 2007): 1357–1374.
135 Marsh, Julia, and Dan Mangan. "Oksana suing for cold cash." *New York Post*. February 5, 2013. Last accessed June 5, 2013. ► http://www.nypost.com/p/news/national/oksana_suing_for_cold_cash_CgA7xDrUKvAZvE070MAjYL.
136 Wilson, Daniel "Biaul's Atty Sanctioned over 'Frivolous' NBC Suit." *Law360*. May 19, 2016. Last accessed May 25, 2017. ► https://www.law360.com/articles/798494/

listed the protection of authors as one of the specific powers of federal government, and the first US copyright law was passed in 1790, among the very first pieces of legislation on the federal level. Exclusive rights were given for 14 years, being renewable for another 14 years. But by the twenty-first century, both American and European copyrights had lengthened considerably. In 1962, US copyrights were extended to 28 years, renewable for an additional 28 years. Over the next 40 years, the US Congress extended the lengths of copyrights 11 times. In 1998, the Sonny Bono Act, named in commemoration of its chief sponsor, the Congressman and pop singer (in the duo Sonny and Cher) who died in a skiing accident, added another 20 years to the previous periods of 50 years beyond the life of the author and 75 years for works of corporate authorship.

These are very long periods, especially since the economic value of most copyrighted works is far shorter than these extensive periods of protection. But there are notable exceptions, among them creations whose authors and artists died in the early or middle part of the 20th century but whose works still produce income today. This includes films by Charlie Chaplin, and Walt Disney which benefited from the 20-year retroactive extension. Other beneficiaries were the heirs to Edward Munch, Glenn Miller, Wassily Kandinsky, Jerome Kern, Theodore Dreiser, H.G. Wells, R.L. Ripley, Hank Williams, Albert Camus, Ernest Hemingway, e.e. cummings, and Ian Fleming.

A copyright notice contains three elements: the symbol or word copyright, the year, and the name of the copyright owner. Use of the © mark is not necessary. However, the extent of how much notice is given will affect, in an infringement lawsuit, the size of damages that would be awarded. To obtain a copyright, no formal registration is necessary. But if there is no registered copyright one cannot usually sue for damages but only stop the copying and distribution. Registration provides evidence of the creation and is a notice to others that they cannot use the work**.** This is especially necessary for screenplays and manuscripts that circulate. While contract-based protections such as non-disclosure agreements are also available, registration provides good evidence in a potential court case.[137]

To register for a formal copyright, the owner sends a copy of the work to the Copyright Office (in the USA at the Library of Congress), files a copyright registration application, and pays a registration fee.

7.2.5.2 What can Be Copyrighted?

Many things can be copyrighted. Literary and dramatic works, sound recordings, choreographic works, pictures, graphics and sculptural works, motion pictures, and computer software, names (and logos) of programs, or program format, and set designs can all be protected by copyright trademark. After 1984, copyright protection was provided in the USA and other countries for mask works (the original etching) of semiconductor chips, providing protection for 10 years.

What cannot be copyrighted? An idea or a fact, by itself, cannot get a copyright, though the actual expression of the idea or the fact itself is protected. But if a different wording is used for the idea there is no copyright violation, at least not in America. Simple lists of facts do not get a copyright, for example, phone directories arranged alphabetically. This was decided by the US Supreme Court in 1991 when it denied copyright protection for databases that did not involve some original "creative" selection and/or organization of data. Until then, the legal theory was that a "sweat of the brow" effort created copyright for a database. The management consequence therefore is for such lists to be either kept as a trade secret or to be augmented and transformed in some fashion.

The US government cannot copyright its own documents; they are in the public domain unless formally classified as secret. Commercial firms can republish the information, add some information, then resell it. In some cases, such as aviation instrument flying charts, the publishers tried to bring political pressure to bear on the government to stop publishing its information widely and thus providing a competitive alternative to the commercial firms.

Can the way that a play is staged by a director be copyrighted? This question arose over the stage direction of a musical. To produce the Broadway show *Love! Valour! Compassion!* in Boca Raton, Florida, the Florida director travelled to New York and measured the Broadway stage and settings to replicate the original stage direction. A lawsuit ensued, and the court found that stage directions are not copyrightable.[138]

Direct and unauthorized copying of someone else's work is a copyright violation. Quotes and paraphrases with attribution are acceptable within reason, as are innocent omissions of attribution, especially where the content is not central to the new work or in not truly unique. But there is a gray area when it comes to the commercial use of another person's central ideas without attribution or compensation. Such borrowing has a long history, such as the retelling of someone else's joke. But today, some authors (or wannabes) will sue.

The mega-selling book (and film) *The Da Vinci Code* by Dan Brown led to such a copyright dispute. In 2006, the two authors of another book entitled *The Holy Blood and the Holy Grail* sued Brown and Random House, his publisher, for allegedly stealing ideas from their own book, without attribution or compensation.[139] They could not claim that Brown copied their actual words, but that he used the "architecture" of their book (i.e. the steps they took to reach their conclusions.) The court ruled that merely receiving inspiration from another

baiul-s-atty-sanctioned-over-frivolous-nbc-suit.

137 Litwak, Mark. "Frequently Asked Questions: Copyright." *Mark Litwak's Entertainment Law Resources*. Last accessed June 27, 2011. ► http://www.marklitwak.com/faq/copyright.html.

138 Mantello v. Hall, 947 U.S. District Court, New York 92 (1996).

139 Lyall, Sarah. "Idea for 'Da Vinci Code' Was Not Stolen, Judge Says." *New York Times*. April 8, 2006. Last accessed May 25, 2017. ► http://www.nytimes.com/2006/04/08/books/idea-for-da-vinci-code-was-not-stolen-judge-says.html.

work does not qualify as copyright infringement, because an idea cannot be copyrighted.[140]

Even where another work's words are not used, creating a work that is derivative of someone else's story or character, such as an unauthorized sequel, could infringe upon copyright (unless it is "fair use" or a parody), despite every word and name being original. But just to make doubly sure, creators who want to protect character names or titles of their work—which cannot be copyrighted—may instead seek a trademark.

Patent protection deals mostly with technological property, whereas copyright protection is mainly concerned with literary and artistic property. But in some cases, both are available. Computer software or semiconductor designs (as mentioned) qualify for either. Which then to choose? A patent offers strong protection but for a relatively short period (17–20 years) and must satisfy strict standards, such as novelty. Obtaining a patent can be long and expensive, and the inventor has no enforceable rights until a patent is issued. A copyright offers relatively soft protection against direct copying for a very long period (creator's life plus 70 years). It can be obtained early and quickly.

Shakespeare took the story for *Romeo and Juliet* from *The Tragical Historye of Romeus and Juliet* (1562, Matteo Bandello). He took the story for *Julius Caesar* from Sir Thomas North's 1579 translation of Plutarch's *Lives*. Today, would Shakespeare be considered in violation of copyright because he used earlier stories for *Romeo and Juliet*? No; because he is not using the language of the predecessors, only the basic story, to which significant additions are made. However, this has become an increasingly close question as claims of copyright of a "format" have succeeded.

Copyrights for TV shows have been a contentious issue. In 2003, the TV network CBS brought a lawsuit against its rival ABC, claiming that ABC's reality TV program, *I'm A Celebrity … Get Me Out of Here*, was a copy of CBS's *Survivor*, but ABC won the suit since it could show that its show was an original format.[141, 142] A show by the Fox Network called *The Next Great Champ* had a format very similar to NBC's show *The Contender*. Yet NBC did not take legal action, and had to change the start date for its own show. Then NBC sued Fox, trying to get an injunction to block the airing of the show. The judge dismissed that motion, holding that a lawsuit over money was the proper avenue, rather than restraint of speech.[143] In the end, NBC's *The Contender* proved to be the stronger show, while the Fox show was perceived to be a rushed knockoff.

In the UK, the basic plot of a theatrical play has been held to be protected by copyright, but such protection does not exist for TV formats. Brazil and the Netherlands, in contrast, have given TV formats a copyright protection, perhaps because these countries are successful exporters of TV shows and formats. Two TV companies, Endemol and Castaway, got into a dispute over the originality of Endemol's *Big Brother* program. Castaway TV argued that the *Survivor* format was a copyright work by virtue of its unique combination of 12 elements. But the Dutch court ruled that the format of *Big Brother* was not an infringing copy.[144, 145, 146]

Format and content similarities can occur by coincidence. For reality shows especially, there is a very fine line between an original and a copied format. The best-selling English author Barbara Taylor Bradford sued an Indian Bollywood production company, Sahara Television, in an Indian court for copyright infringement, claiming that the company had plagiarized the plot of her book *A Woman of Substance*,[147] and turned it into a 260-episode television series, *Karishma: A Miracle of Destinies (2003),* the most expensive production in Bollywood history at the time. But Bradford eventually lost the case before the Indian Supreme Court.

It is difficult to gain and protect exclusive copyrights for a format because it is, after all, an idea or a concept, and these cannot be protected by copyright law. Trademark may help to protect the titles, catchphrases ("you're fired"), and other identifiable elements. Also protectable are sets, props, and graphics.[148] In 2000, the industry created a Format Recognition and Protection Association to clarify rules on format copyright and to arbitrate claims.[149]

In the USA, fashion designs are not fully protected under any one of the traditional rubrics of IP law (trademark, patent, copyright). There are no laws protecting fashion designs, and copycat versions have generally been held to be legal.[150, 151] Copyright law protects original prints, patters, unique color arrangements, and so on. It does not, however, protect the design itself. If an imitator makes a dress that looks stylistically just like a $5000 Zack Posen™ but has changed the color from green to blue, it would not be a copyright infringement.

140 Lazar, Bart A. "Court says 'inspiration' does not infringe." *Marketing News* 40, no. 9 (May 15, 2006): 6.

141 Reuters. "Judge Says CBS Cannot Block Reality Show." *New York Times.* January 14, 2003. Last accessed May 25, 2017. ► http://www.nytimes.com/2003/01/14/business/judge-says-cbs-cannot-block-reality-show.html.

142 David Lyle, FRAPA and Fremantle Productions. "League of Gentlemen." *Television Business International* 4, (April 2002): 1.

143 Paulsen, Wade. "Fox's 'The Next Great Champ' wins First Amendment court fight against NBC's 'The Contender.'" *Reality TV World.* September 1, 2004. ► http://www.realitytvworld.com/news/fox-the-next-great-champ-wins-first-amendment-court-fight-against-nbc-the-contender-2864.php#3FLXs9ZLKwPXVvyw.99.

144 Waisbord, Silvio. "Understanding the Global Popularity of Television Formats." *Television & New Media* 5, no. 4 (2004): 359–383; Reuters. "Judge Says CBS Cannot Block Reality Show." *New York Times*. January 14, 2003. Last accessed May 25, 2017. ► http://www.nytimes.com/2003/01/14/business/judge-says-cbs-cannot-block-reality-show.html; David Lyle, FRAPA and Fremantle Productions. "League of Gentlemen." Television Business International 4, (April 2002): 1.

145 Reuters. "Judge Says CBS Cannot Block Reality Show." *New York Times.* January 14, 2003. Last accessed May 25, 2017. ► http://www.nytimes.com/2003/01/14/business/judge-says-cbs-cannot-block-reality-show.html

146 David Lyle, FRAPA and Fremantle Productions. "League of Gentlemen." *Television Business International* 4, (April 2002): 1.

147 Desai, Rachana. "Copyright Infringement in the Indian Film Industry." *Vanderbilt Journal of Entertainment Law and Practice* 7, no. 2 (2004–2005): 259–280.

148 Johnson, Debra. "UK: Formatting a plan to protect copyrights." *Variety* 390, no. 5 (March, 2003): 28.

149 Challis, Ben and Jonathan Coad. "Format Fortunes – Is There Now a Copyright for the Television Format?". *Monday Business Briefing*. September 9, 2004.

150 Cox, Christine and Jennifer Jenkins. "Between the Seams, A Fertile Commons: An Overview of the Relationship Between Fashion and Intellectual Property." Presented at Norman Lear Center Conference. USC Annenberg School of Communication, Los Angeles, CA, January 29, 2005.

151 United States Patent and Trademark Office. "A Guide to Filing a Design Patent Application." Last accessed October 28, 2010. ► http://www.uspto.gov/web/offices/pac/design/definition.html#difference.

What is protected are images on clothing. One cannot imitate the Chanel™ Cs on an outfit, or Tiffany's™ Blue but one can duplicate the look of a Chanel™ bag. Copycat versions of bags are held to be legal. Even established companies produce knockoffs of famous brands that they sell at a much lower price.

To deal with this problem for fashion designers, New York senator Charles Schumer introduced in 2010 the Innovative Design Protection and Piracy Prevention Act. The bill proposed adding "Fashion Design" to "Designs Protected" under the Copyright Act. It would have given fashion designs a protection period of three years against knockoffs.[152] But there was only limited sympathy in Congress to protect overpriced fashion.

The EU protects fashion designs. Since 2002, designers can register their designs and obtain protection for designs that are new and unique. The protected period is five years, with renewals up to 25 years. Unregistered designs are protected for three years. Courts can issue injunctions to stop infringements, levy fines, and seize the products.[153]

Copyright laws differ somewhat in every country. In some jurisdictions such as France, the "moral rights" of creators against the alteration of work give them the right to participate in the future profits of resale. Moral rights in a work refer, in particular, to the right to be known as the author of a work, and to the right of authors to prevent others from doing things to her work which can hurt her reputation. Moral rights are retained by an author even if all the other rights are assigned to another. Moral rights cannot be assigned to anyone else by the author.

In contrast, in the USA and the UK such rights barely exist. In 1990, the US Congress enacted the Visual Artists Rights Act, to include limited moral rights for new works of visual art. The artist has the right to claim authorship in his works and disclaim authorship in works that have been altered. However, the statute only covers a limited scope of subjects—visual art, which is a painting, drawing, print, or sculpture that exists in less than 200 copies and is signed and numbered by the author. Moreover, the work must not be made for hire. It offers only limited protection for artists.[154]

7.2.5.3 International Copyright Protection

The USA was pro-piracy in its early years—in fact, the first US copyright law of 1790 explicitly limits the protection of foreign works (typically British ones). This attitude toward foreigners' IP rights encouraged the widespread legal piracy of English books. Only in 1891 did the USA begin to recognize international copyrights. This follows the classic pattern that a country which is primarily an importer of creations and innovations is disdainful of foreigners' IPR, until that country becomes an exporter itself.

There is no such thing as an "international copyright." However, through international treaties and agreements many countries recognize each other's copyrights. Such agreements began with the Berne Convention for the Protection of Literary and Artistic Works in 1886.[155] Each country respects the copyrights of other signatory countries and applies the copyright laws of that nation in which the work is originally copyrighted. The minimal protection period is 70 years for authors and 50 years for performers. The USA eventually adopted the terms of the convention in 1989. The Berne Convention aimed to help non-national authors and publishers receive payment wherever their works are sold.

Another landmark international treaty is the 1961 Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations. This convention, which the USA has not signed, extended such protections to musical and audio media.[156]

Another treaty, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIP, 1994), established minimal requirements and procedures for enforcement.[157] In 1996, The World Intellectual Property Organization Copyright Treaty was created, partly in response to the emergence of the internet and online distribution.[158] Among other provisions, the treaty establishes that computer programs may be protected as literary works.[159]

Most importantly, that treaty created the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations (UN) in Geneva, with over 180 member-nations. Because WIPO has its own financial source in its hefty payment and patent registration fees, it is said to be the richest United Nations agency.

The WIPO's principles are "national treatment" and "material reciprocity." A government is obliged to protect the IP rights of foreign owners in the same way that it protects the rights of national holders, as long as the foreign country grants reciprocal rights. WIPO has also created an arbitration and mediation system.

152 Innovative Design Protection and Piracy Prevention Act. August 5, 2010. ► http://www.counterfeitchic.com/Documents/IDPPPA_as_introduced_8-5-10.pdf.

153 Jimenez, Guillermo, Lara Corchado, and Kristen Kosinski. "Should the United States Protect Fashion Design? The Proposed Design Piracy Prohibition Act." New York State Bar Association. Last accessed October 28, 2010. ► http://www.nysba.org/AM/Template.cfm?Section=Home&TEMPLATE=/CM/ContentDisplay.cfm&CONTENTID=43396.

154 Visual Artists Rights Act of 1990 (VARA), 17 U.S.C. § 106A.

155 United Nations. *Berne Convention for the Protection of Literary and Artistic Works*. (1979). Last accessed June 6, 2011. ► http://www.wipo.int/treaties/en/ip/berne/trtdocs_wo001.html.

156 ILO/UNESCO/WIPO Intergovernmental Committee. "Information on the states not party to the Rome Convention but party to the international copyright conventions referred to in Article 24 of the Rome Convention." Presented at Geneva, Sept. 7–9, 2009, Last accessed May 25, 2017. ► http://www.wipo.int/edocs/mdocs/govbody/en/ilo_unesco_wipo_icr_20/ilo_unesco_wipo_icr_20_3.pdf.

157 United Nations. Agreement on Trade-Related Aspects of Intellectual Property Rights. (1994). June 6, 2011. ► http://www.wto.org/english/tratop_e/trips_e/t_agm0_e.htm.

158 United Nations. WIPO Copyright Treaty. Presented at Geneva, 1996. Last accessed June 6, 2011. ► http://www.wipo.int/treaties/en/ip/wct/trtdocs_wo033.html.

159 United States of America. International Copyright Relations of the United States. Washington D.C.: U.S. Government Printing Office, 2010. Last accessed June 7, 2011. ► http://

Another major international organization dealing with IP violations is the international criminal law enforcement cooperative organization Interpol and its Global Congress on Combating Counterfeiting and Piracy.

7.2.5.4 Copyright Infringement

Infringement of a copyright is not always easy to recognize. One test for infringement is the likelihood of confusion by a user. This can refer to objective similarity or to subjective perceptions. Use of even a small part of the work may be considered infringement if it uses a significant part of the protected work (especially in music).

Most users do not realize that they may infringe on copyrights by engaging in distributing articles or reports electronically to others without permission. Employees at the financial investment firm Legg Mason forwarded electronic copies of a newsletter among its office staff. In court, they claimed they did not know that they were infringing on a copyright. The court, unpersuaded, required Legg Mason to pay $20 million to the newsletter publisher.[160]

The cost of getting permission from a copyright license holder is not just the payment. It is time consuming to determine what copyright permissions applies to what content/documents, and by whom. To assist with this, countries establish public sources to provide this service. The Copyright Clearance Center (CCC) in the U.S. established Rightsphere, a computer database which stores all of a company's copyright, licensing, and per-use permissions information in one place.

Infringement is often not easy to define. In 2006, several major TV networks and film studios sued the cable TV company Cablevision, which wanted to incorporate personal video recording into its network.[161] This would allow users to record every TV show, with the technology built directly into Cablevision's network. According to the studios, the companies had only licensed Cablevision for simultaneous broadcast, not for, in effect, a personalized video-on-demand system.[162] In a similar lawsuit, major music companies sued the XM satellite radio company for copyright infringement. XM's Inno device enabled users to pick songs from the radio and to store them in lengthy playlists. Record companies claimed that this made XM into a music distributor, not just a broadcaster, which required much higher licensing fees. XM eventually settled with the music labels.

7.2.5.5 "Fair Use" and "First Sale"

The fair use exemption permits making and distributing copies for research, teaching, parody, journalism, and library activities. Media firms hate fair use, but universities rely on it. Factors that determine fair use are its purpose (i.e. a non-profit educational purpose); the amount (only a small or non-central part of the total work may be used), and the market (the use does not have a major effect on the market for the work).[163]

Fair use was at issue in 2005 when book publishers sued Google for copyright infringement.[164] Google had started to scan books and make them available through its search engine when they were out of copyright, but also intended to expand the project to copyrighted works. Developing an electronic library, as many university and public libraries have done, falls under the terms of fair use. However, creating such a digital library for commercial purposes requires permission of the copyright holders. Publishers argued that Google, while not charging for access to the books, was using the digital library to increase the number of visitors to its site, and therefore raise its advertising revenue.[165]

When it comes to parody, courts have been lenient in accepting fair use.[166] Thus a film producer could create a parody to the film *Casablanca* with the title of *Uncasablanca*, if it is distinguishable and does not purport to be a sequel.[167]

While copyright holders tend to be critical of fair use, users argue that it has significant economic benefits. The Computer and Communications Industry Association claims that fair use exceptions are responsible for more than $4.5 trillion in annual revenue for the US economy, which would represent an extraordinary one-sixth of the entire US GDP.[168] A more realistic perspective is that restrictions on fair use would inhibit legitimate comment and study and thus reduce the vitality of education, creativity, and democracy.[169]

Another legal limitation to copyright is the first-sale doctrine, which has existed in the USA since the Supreme Court recognized it in 1968. Once a copyrighted work is sold, purchasers are free to resell, rent, and use the work in other ways, with respect to a third party, though they are not free to make copies and resell them. A video store's traditional business model, buying a movie cassette or DVD disc and renting it, is a good example of the first sale doctrine. The video rental company Red Box purchases and rents copies of movies through its vending machines, but it cannot copy the discs without a license to do so.

www.copyright.gov/circs/circ38a.pdf.

160 Brynko, Barbara. "Life, Liberty, and the Pursuit of Copyright." *Information Today* 23, no. 6 (June 2006): 50–51.

161 Grant, Peter. "Cablevision Recording Plan Draws Copyright Suit." *Wall Street Journal*. May 25, 2006.

162 Associated Press. "Studios Sue Cablevision Over New Service." *New York Times*, May 25, 2006. Last accessed May 25, 2017. ► http://www.nytimes.com/2006/05/25/business/media/25cable.html.

163 Minow, Mary. "How I Learned to Love Fair Use." Stanford Copyright & Fair Use Center. July 6, 2003. Last accessed May 25, 2017. ► http://fairuse.stanford.edu/commentary_and_analysis/2003_07_minow.html.

164 Gilbert, Alorie. "Publishers Sue Google Over Book Search Project." *CNET News*. October 19, 2005. Last accessed June 21, 2010. ► http://news.cnet.com/Publishers-sue-Google-over-book-search-project/2100-1030_3-5902115.html.

165 Gilbert, Alorie. "Publishers Sue Google Over Book Search Project." *CNET News*. October 19, 2005. Last accessed June 21, 2010. ► http://news.cnet.com/Publishers-sue-Google-over-book-search-project/2100-1030_3-5902115.html.

166 Warner Bros. and J.K. Rowling v. RDR Books 575 U.S. F.Supp.2d 513 (2007).

167 U.S. Copyright Office-Fair Use. title 17, U. S. Code. Last accessed May 25, 2017. ► http://www.copyright.gov/fls/fl102.html.

168 Computer and Communications Industry Association. "Fair Use Economy Represents One-Sixth of U.S. GDP." September 12, 2007. Last accessed February 19, 2008. ► http://www.ccianet.org/artmanager/publish/news/First-Ever_Economic_Study_Calculates_Dollar_Value_of.shtml.

169 The Economist. "A fine balance: How much copyright protection does the internet need?" January 23, 2003. Last accessed August 1, 2012. ► http://www.economist.com/node/1534271.

Case Discussion

Fair Use

Republican Presidential candidate Mitt Romney in 2012 used in part of his campaign advertising a clip from a 1997 NBC Nightly News report featuring the news anchor Tom Brokaw. NBC claimed that no permission had been given. In effect, the network's position was that while it was free to show clips of Romney, Romney was not free to use clips of Brokaw. The Romney campaign argued that the footage was a small segment of a 14-year-old NBC newscast for which there was no market value, and it was used in a campaign ad, not for profit. It was in the best interest of the public to have full information on a presidential election, and not permitting usage would prevent the flow of information.[170] In the end, NBC recognized the weakness of its legal and public relations positions and did not push its complaint further.

7.3 The Commercialization of Intellectual Assets

Now that we have described IAs and their scope and limits, we will look at how one creates value from them. This raises questions about the importance of the IA and how it fits with the company's overall strategic priorities.

7.3.1 Assessing the Importance of an Intellectual Asset

How to judge the importance of an item of intellectual property? One way is to use the public record. Applications and registrations for patents, copyrights, and trademarks are public. In the case of patents, the applications require specific references to "prior art." This permits a check on which patents are out there and which seem to be important to subsequent inventors. This information can be used to check on the importance of a patent and its place in the broader technology trends of its field, as well as the technology status of rival firms and inventors.

Patent "parents" (backward citations) show the influences of prior art, assessing whether an innovation potentially infringes on a prior patent and whether a firm should acquire a license before using the technology. One can also trace an invention's "children" (forward citations): Who has been influenced? Where did it lead? Are there potential infringements? Does it provide clues to technology competitors and to potential licensees?

Figure 7.3[171] shows the "children" of patent no. 5153830 ("Method and Apparatus for providing assistance with respect to the development, selection, and evaluation of ideas and concepts") awarded to Fisher Idea Systems. Six subsequent

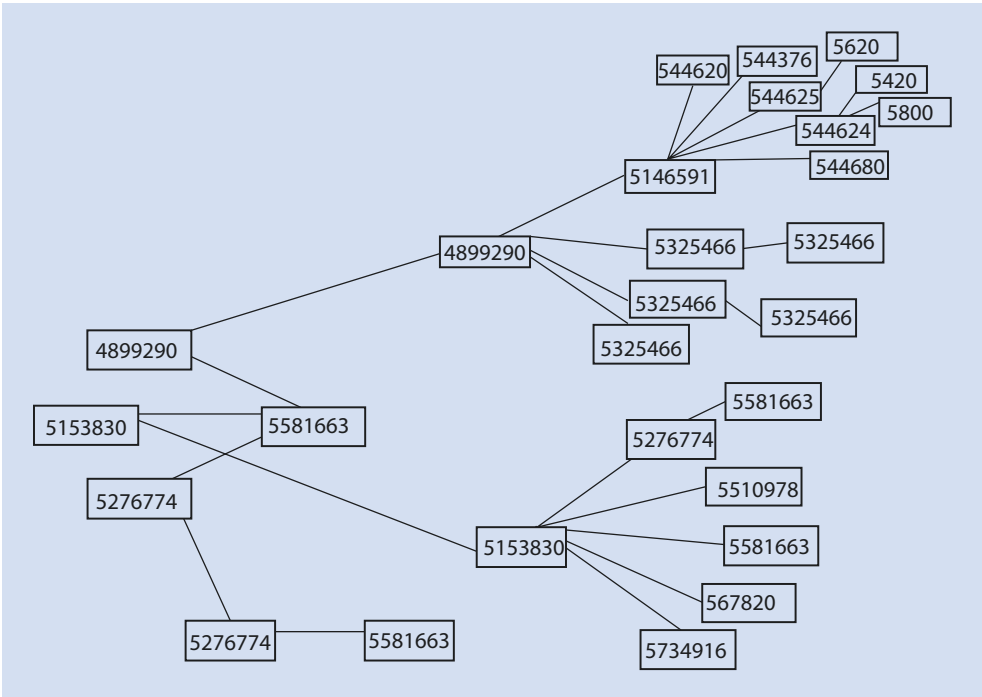

Fig. 7.3 Mapping of the *Prior-Art* interrelationship of patents

170 Paulsen, Ken. "First Amendment Center." *First Amendment Center*. January 30, 2012. Last accessed June 13, 2013. ► http://www.firstamendmentcenter.org/copyright-law-favors-romney-in-ads-use-of-nbc-news-report.

171 Based on Aurigin Systems, Inc. 1999. Aurigin is now part of the Clarivate company.

patents refer to it; while 14 patents refer to #4899290 ("For a system for specifying and executing protocols for using iterative analogy and comparative induction model based"), awarded to Digital Equipment Corporation (DEC) which seemed to be a rival.

Of course, some patents are much more important than others. In patent valuation, the more other patents cite a patent as "prior art," the more fundamental and valuable it is likely to be. This increased value is known as "citation impact." Empirically, citation impact of a firm's patents is positively correlated to its profitability.[172] Furthermore, the more a patent cites scientific papers as "prior art," the more science-based it is likely to be; this generally yields a higher-value patent. Conversely, the more other patents are cited in an application as "prior art," the more likely it is to be a less-valuable derivative variation. It is also more likely to be challenged.

Patent application patterns reveal development trends in various technology sub-fields. An upward trend in patent filings in a sub field indicates an active technology development and its relative importance. The applications can be used by a firm to identify competitors and their strengths, potential partners, likely licensers, and potential targets for acquisition.

7.3.1.1 Case Discussion

GE's Top Cited Patent

GE's most cited patent was # 3,745,623: "Diamond tools for machining" (1972), an invention for a carbide-supported polycrystalline diamond cutter used in oil drilling. It was cited in 163 other patent applications by others. In turn, GE's original patent application referenced three other patents: two also held by GE and one held by the tooling supplier Kennametal (#3,702,573).[173]

Table 7.1 illustrates the use of such information. Other companies, in their own patent applications in the diamond drilling patent applications, reference GE patents numerous times. Smith International's patents list GE's particular diamond drilling patent 42 times. Smith is a supplier to gas and oil companies, with annual revenue of $10.7 billion, and owned since 2010 by Schlumberger, the world's largest oil field company, with revenues of $42.15 billion and 180,000 employees. Smith (i.e. Schlumberger) is an excellent prospect for a license by GE.[174] On the other hand, Smith/Schlumberger's own patents seem to be of much less an interest to GE, with only three references to them in its diamond drilling patents.[175]

It is the opposite with Kennametal, a supplier of tooling and industrial materials. Relevant GE patents cite Kennametal patents 21 times, while there are only six citations in the opposite direction. It seems that Kennametal has many more patents of interest to GE rather than vice versa, and it might be a good and possibly essential source of technology licenses.

The third category of companies is represented by US Synthetic and Baker Hughes. Here, diamond drilling technology seems to be balanced in both directions. There would be a good opportunity for a patent pool, agreeing to use each other's technology without having to pay license fees.

Table 7.1 GE's drilling patents and prior art citations

Company	Number of patents, by company, citing a GE drilling patent	Number of citations, by company, in GE drilling patents (Hypothetical)
Smith International	42	3
US Synthetic	27	19
Baker Hughes	13	18
Kennametal	6	21
Others	75	101

7.3.2 Aligning Intellectual Assets with Strategy—IA Audits

A second tool for IA analysis is the internal IA audit. A company must systematically review what it owns, what it needs, and what it could sell or otherwise dispose of. An "audit map" represents visually which IAs are most valuable to the firms' business strategy. The X-axis is for Ias, showing the asset's fit and importance in the company's current and future plans, and the Y-axis is the rate of growth of that business line as a ratio to GDP growth.

Figure 7.4[176] shows in broad terms which IAs have the most commercial value for the business. The most valuable patents are in the northwest quadrant—the high growth

172 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.

173 Wentorf, Jr., Robert H. and William A. Rocco. Diamond Tools For Machining. U.S. Patent 3,745,623 filed April 8, 1970, and issued July 17, 1973.

174 Schlumberger Limited. "Financial News: Schlumberger Announces Fourth-Quarter and Full-Year 2012 Results." January 13, 2013. Last accessed July 15, 2013. ► http://investor-center.slb.com/phoenix.zhtml?c=97513&p=irol-newsArticle&ID=1775981&highlight=.

175 Nemeth, Bela J. Cermet product and method and apparatus for the manufacture thereof. U.S. Patent 3,702,573 filed March 19, 1969, and issued November 14, 1972.

176 Based on Rivette, Kevin G. and David Kline. *Rembrandts in the Attic: Unlocking the Hidden Value of Patents*. (Boston: Harvard Business School, 2000), 68.

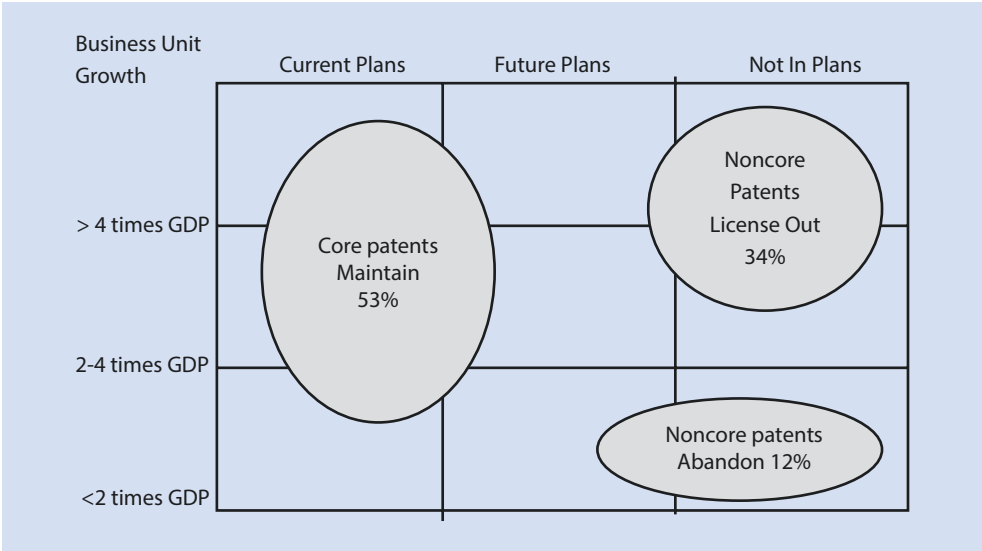

Fig. 7.4 Intellectual asset audit map

area. The map also shows which IAs should be supplemented, licensed, sold, or abandoned. The audit helps differentiate between core and non-core patents. Core patents are technologies central to current or future products, and are not usually licensed. Non-core patents are technologies not being used in current or planned products, and these are often licensed.[177]

Using such an audit, Dow Chemical audited its 29,000 patents, and after identifying and valuing them it assigned each to one of the 15 major Dow business units, which thereafter assumed responsibility for its use. Dow then abandoned or donated the unused patents to universities or non-profit groups, yielding a saving of $50 million in taxes and lower maintenance cost for unneeded patents. At the same time, patent licensing revenues rose from $25 million in 1994 to $125 million in 1999.[178]

Another example of good IA management following such an audit is the case of the defense contractor Lockheed Martin. It had developed a flight simulator technology, Real 3D. After review, it spun the division off as a new firm, whose market value rose to several hundred million dollars.

7.3.2.1 Case Discussion

GE Patent Audit

GE's VP and Chief IP Counsel, a former head of the US PTO, observed: "Quality intellectual property just sitting in a portfolio gathering mothballs is going to do very little in the way for contributing to the bottom line."[179] To avoid this, GE could conduct a patent audit. As an example, we look at five of its technology products.

GEnx is a turbofan jet engine for the Boeing 787 Dreamliner and the Boeing B-747-8. It increases fuel efficiency and reduces noise and emissions.

Growth Potential: Replaces existing 747-8 and Dreamliner engines for decades to come. Only Rolls-Royce competes with GE for the Dreamliner engines. It is an estimated $40 billion market over 25 years. Strong growth and captured customers are to be expected.

Corporate Fit: the engine is an essential element of GE's jet engine division.

Conclusion: in the Patent Audit Map (Fig. 7.5), GEnx is placed in the northwest corner, that of high growth and good fit.

H-System. A combined cycle gas turbine to produce electric energy. It was the first to break the 60% efficiency barrier while producing fewer emissions.

Growth Potential: many electric utilities need more efficient turbines to replace the old ones, and there are few competitors. One can expect strong demand along with healthy margins.

Corporate Fit: this product is an essential element of GE's power plant division.

Conclusion: This product, too, is located in the northwest corner: strong growth, strong fit.

High Definition Magnetic Resonance Imaging (HD-MRI). Generates better image quality than traditional MRI diagnostic tools.

Growth: there is strong competition in this market. Many hospitals already use prior devices. Therefore, expect moderate growth.

Corporate Fit: HD-MRI is important for GE's world-leading medical imaging business.

Conclusion: strong fit, moderate growth.

Organic LED (OLED). First functional 24 inch OLED panel that can be used as an

177 Rivette, Kevin G. and David Kline. *Rembrandts in the Attic: Unlocking the Hidden Value of Patents*. Boston: Harvard Business School, 2000.

178 Rivette, Kevin G. and David Kline. *Rembrandts in the Attic: Unlocking the Hidden Value of Patents*. Boston: Harvard Business School, 2000.

179 Wild, Joff. "The GE Revolution." *Intellectual Asset Management*. (August/September, 2004): 25–28.

alternative lighting source, as a lamp for example.

Growth: there is potential for commercial use in the future but it will take a long time for consumer-market products to become economical.

Corporate fit: this product line is not central to GE's lighting division, which in turn is not central to GE.

Conclusion: Not a central product.

StreetLab. A portable system to identify traces of explosives or narcotics used in the area of homeland security.

Growth: owing to its high cost it is not affordable by most police departments, and market potential is low.

Corporate fit: this is a new business area for GE with potential in the future.

Conclusion: keep only if committed to a long-haul strategy.

What should GE do with these five patent areas? It should keep patents for GEnx, H-System, and HD-MRI. It might keep StreetLab if corporate strategy is to develop this business over the long haul; otherwise it should license those patents to another company. It should license the OLED lighting invention to another company with a better fit.

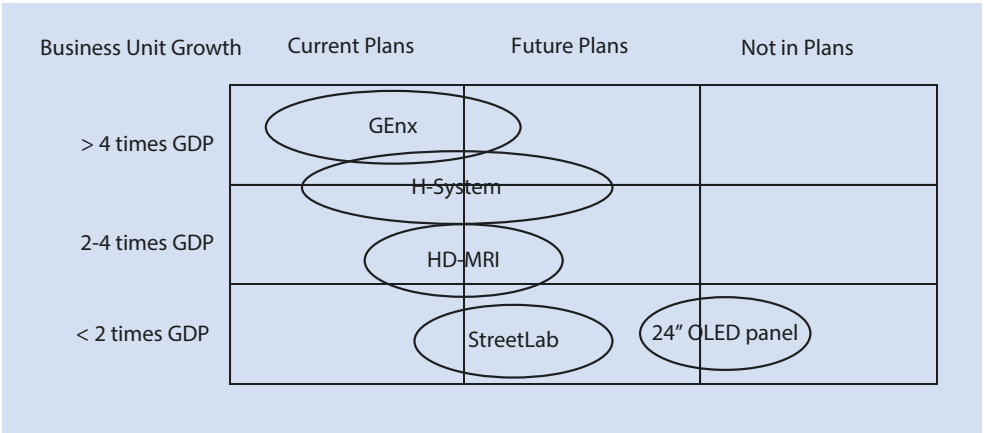

Fig. 7.5 Audit map for GE patents

7.3.3 How to Value Intellectual Assets

There are many factors that affect the value of an IA:

- the economic life of the IA;
- the life-cycle of the technology;
- the strength of the legal protection;
- restrictions on exploitation;
- level of upgrade required to maintain asset;
- market competition;
- economic and technological trends in the industry;
- cost of developing competing assets.[180]

How then does one value IAs for managerial purposes? The valuation methodologies are:

1. book value;
2. cost (or replacement);
3. market value;
4. income;
5. the residual approach;
6. the real options approach.

These will now be explored.

7.3.3.1 The Book Value Approach

Business assets are normally recorded at the cost of creation or purchase. But IAs are treated differently. The main issue is that accounting standards treat in-house developed IAs as an expense rather than an asset. The development of a video game or a film may create an asset of considerable value, but it will not show up on the balance sheet. If a company develops, for example, a new software product and gains a valuable copyright, patent, and maybe trademark, the costs (performers, programmers, editors, overhead, etc.) are written off as expenses against current revenues. The IA rights to the software are not assets on the balance sheet and they cannot be depreciated. As a result, the book value of the company is understated, while its expenses for the developmental years are often overstated.[181] In contrast, the cost of a machine would be written off against revenues over a period of several years. Thus, investors cannot easily use such balance sheets to value a firm with important IAs or to evaluate its performance. A book value does not exist for an IA. The exception is where the intellectual asset has been acquired in a purchase transaction from another party and thus has a clearly stated value as an asset. It should be noted, however,

180 Bertolotti, Nick. "Valuing Intellectual Property." *Managing Intellectual Property* no. 46 (February 1995): 28.

181 Litan, Robert E. and Peter Wallison. "Beyond GAAP." *Regulation*, 51, (Fall 2003).

that companies' stock price valuations reflect, to some extent, the value of the patent holdings and the earnings that they produce, even if they do not show up as assets on the balance sheet. Omitting intangible assets such as copyrights and patents from the balance sheet is not necessarily flawed in terms of assessing a firm's value, because there is also an income statement, and the value of intangible assets can be ascertained from that.[182]

For example, in 2008, Microsoft traded at $25 per share for a $228,775 million market capitalization, yet its book value was much lower, at $36,286 million. Thus, $192,489 million were "missing" from the balance sheet. But if one used the income statement as well, one could gain a much better picture. Microsoft's reported net income was $17,681 million. When such an income stream was transformed into net present value (NPV), in other words capitalized from earnings, it resulted, in combination with the book value, in a valuation similar to that of market capitalization.[183]

In the USA, the rules are set in a document called "FASB Statement 142," which decrees that patents, copyrights, and trademarks with finite lives are amortized over their useful lives, and for not more than 40 years. Thus, although copyrights are granted to the author of a work for the life of the creator plus 70 years (which could easily exceed 100 years), according to the rules the cost of the copyright is amortized only over the expected life of the benefit, not to exceed 40 years. Similarly, the cost of creating or acquiring trademarks must be amortized over the period of the benefit, not to exceed 40 years. Domain names have a depreciation period of two to ten years and website development has a period of three to five years.

7.3.3.2 The Cost Approach

The cost approach, closest to an accounting treatment, defines the value of the IA to be the expense that it took to create it. It is rarely straightforward to measure such costs, given the high overhead and the joint costs of several projects, and assign them to the particular patent or copyright that was created. Beyond the measurement problems there is a more fundamental point. The problem is that the cost expended for an invention or creation is not necessarily related to its economic value. Many costly developments do not lead to successful inventions or products; that is, they are worthless. Should the costs of such unsuccessful inventions be counted as an asset?[184] Conversely, would one value an invention or melody conceived in a flash of creativity at the cost of that brief effort, rather than at its much greater economic worth as an asset?

7.3.3.3 Market Valuation

The third technique, market valuation, assigns the value of the IA as the value given to it by the market. If there are buyers for the rights to a particular videogame at $1 million, but not higher, then that is the value of such an asset.

Using a market value for an IA is fine in concept, but for this approach to work a market must be active with exchange of comparable products, and incorporate only arm's-length transactions (i.e. transactions in which both sides are independent of each other). It must also provide readily available transaction data. Because these conditions are seldom met, the market approach is rarely used for intangible assets. In the media sector, the market approach is sometimes used for "commodity" TV series such as game shows.[185] There are computer programs that simulate a market and draw parameters from other similar industries or products. These valuation models use various formulas to crunch data about the markets, competition, forecasts, and assumptions, and then come up with a value that might serve, at least, as the starting point for negotiation. The data requirements may make this method time consuming and costly to utilize.

The developers of one such valuation model, TRRU, for example, divided the technological spectrum into several hundred categories that reflected industries and businesses and determined the average value of a single piece of technology in each category by observing market values assigned to companies.[186] The computerized models tend to assume that all technology in a given field is of equal value except for two factors: the investment required to bring the technology to market (i.e. cost) and the time remaining until market introduction (i.e. impact on income stream).

Even when there has been an identifiable transaction for the IA that serves as the basis for its valuation, such value tends to decline over time. It must therefore be subject to a calculation of its depreciation in value. This is partly an accounting and tax issue, subject to its rules, and partly a question of economic value. Most patents and copyrights lose value after a few short years.

182 Penman, Stephen H. "Accounting for Intangible Assets: There is Also an Income Statement." *Abacus* 45, no. 3 (September 2009): 358–371.
183 Penman, Stephen H. "Accounting for Intangible Assets: There is Also an Income Statement." *Abacus* 45, no. 3 (September 2009): 358–371.
184 WIPO. "WIPO National Workshops on Assessment and Valuation of Inventions and Research Results for Technology Transfer and Commercialization." August 12, 1997.
185 WIPO. "WIPO National Workshops on Assessment and Valuation of Inventions and Research Results for Technology Transfer and Commercialization." August 12, 1997.
186 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.

7.3.3.4 Income Approach

The income approach is based on the NPV of the income stream the patent generates. This method identifies the value of income flows related to the IA in each time period, and then capitalizes cash flows by discounting them to the present.[187] The income approach is best suited for the appraisal of licenses and franchises.[188] With some imagination, it can also be used to value trade secrets where the income flow is known.[189] The income approach is implicit in various rules of thumb. Typically, music licenses are valued at five to eight times (or sometimes even 12 to 13 times) the revenues they generate per year. (The revenues are the sum of the annual averages of earnings from musical performances, publisher's share of mechanical, i.e. recording, earnings, and foreign income.)

The income approach has two major challenges: how to estimate revenues into the future and how to pick a discount rate. More fundamentally, the income approach has a major conceptual flaw. It does not distinguish between the value of the IP and the value of the technology.[190] A newly invented technology or a new movie would have a value even without the patent or copyright. The patent or copyright's value is the extra value due to the monopoly in commercializing the patent or copyright. (This objection is applicable to some of the other valuation methods too.)

For example, the value of Intel's patents is difficult to determine because of its comparative advantages in chip production. Intel would have significant revenues from its chips even without any patent protection, and it would be therefore incorrect to attribute all of Intel's revenues from a particular chip to the patents associated with it.

The formula below defines this relationship. The value created by the IA in year i is the forecasted annual profit of the firm under monopoly conditions (MR_i) minus the corresponding profit of the firm employing the same technology under competitive (non-monopoly) conditions (CR_i).[191]

The true value of the IA is the present value of these profit differentials over the life of the IA, adjusted by a discount rate reflecting perceived risk. This is reflected in the following equation:

$$V = \sum_{i=1}^{n} \frac{MR_i - CR_i}{(1+r)^i}$$

In a simplified case, where the incremental value and the discount rate remain constant through the life of the patent, the previous formula can be rewritten[192]:

$$V = \sum_{i=1}^{n} \frac{\Delta_i}{(1+r)^i}$$

Applying this formula is not easy in practice. Forecasting future revenues is iffy. The incremental value attributable to IAs can come in many indirect forms, including future cost savings and price increments. It is difficult to pick the proper discount rate for IAs, and they are riskier than tangible capital assets. Risks include legal challenges, infringement litigation, piracy, technology changes (e.g. another new invention is more useful), and other business risks.[193] Furthermore, IAs are not easy to liquidate.

The simplest practice to use in the income approach for the patent value is to estimate the price differential obtainable with an IA above the price of a comparative generic, unbranded product, estimate sales volume, and thus calculate gross revenues attributable to the patent, then deduct the corporate overhead, support costs, and incremental costs that are associated with obtaining and protecting the patent, and the relevant taxes on the extra profit. The industry rule-of-thumb is that a patent is typically worth four to five times the extra profit figure.[194]

7.3.3.5 The Residual Approach

The key question identified in the preceding section is how to figure out the extra value that the IA gives to a product. Baruch Lev, an accounting professor at New York University, proposed a solution by capitalizing what is left of earning after deducting the normal expected return from a business's financial and physical assets. These residual earnings are then attributed to intangibles, including IAs. A variant of the approach is called calculated intangible value. Lev's approach makes it possible for outside investors to estimate the value of intangibles. One can further decompose residual earnings to determine what proportion is attributable to different types of intangibles—people, brands, patents.[195] Profits attributable to IP can be calculated by subtracting, from the firm's total profits the profits attributable to tangible assets. The latter are calculated by applying an industry average return rate to the actual amount of the firm's tangible assets.[196] This is discussed in ► Chap. 13 Accounting in Media and Information Firms.

The problem with this method is that it lumps together all intangible assets, of which IAs are only a sub-set. Moreover, they are all aggregated, and one cannot calculate the value of a particular IA.

187 Bertolotti, Nick. "Valuing Intellectual Property." *Managing Intellectual Property* no. 46 (February 1995): 28.
188 WIPO. "WIPO National Workshops on Assessment and Valuation of Inventions and Research Results for Technology Transfer and Commercialization." August 12, 1997.
189 Halligan, R. Mark and Richard F. Weyand. "The Economic Valuation of Trade Secret Assets." *Journal of Internet Law* 9, no. 8 (Feb 2006): 476–503.
190 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.
191 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.
192 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.
193 There is a real probability that the patent will be infringed, denoted by E. And there is a probability F that the patent owner will prevail in court.
194 Poltorak, Alexander I. and Paul J. Lerner (2002). *Essentials of Intellectual Property.* New York: John Wiley and Sons, Inc. 2002.
195 An average of a period of about three years is used to smooth out temporary fluctuations.
196 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.

7.3.3.6 Real Options

The sixth IA valuation technique, the real options approach, is a variation of the discounted cash flow method. It analyzes investment opportunities as "options." Real options valuation takes into account that an investment developing in an IA is usually not a one-shot deal but requires ongoing investment decisions about whether to go forward. At the end of each period, the company can decide whether to proceed further, or pull the plug and write off part-investments. This, in effect, provides an option with a value. Similarly, a patent gives the firm an option whether to commercialize the technology. A simple discounted cash flow calculation will fail to capture the value of this option of step-wise decisions.

The value of the patent is, to a large extent, the option value it provides to a company for going forward with commercialization or further development.[197] Investing in a patent is analogous to buying a call option. It gives a company the right to decide, in the future, whether or not to exercise that patent investment. If prospects look good, the option will be exercised and the firm will make an additional commercialization investment. But if the prospects are dim, the company will not exercise the patent and the loss will be limited to the investment in the patent.[198]

One way to apply the options approach is to use a binomial method such as a decision tree. It is a transparent approach, but there are so many possibilities that a model would become large and complex. A second approach is to use the so-called Black-Scholes formula, which describes uncertainty as distributed in a log-normal fashion without worrying about the components of the uncertainty in the way that the decision tree does.[199]

Using an options approach often results in a much higher valuation than a discounted cash flow/NPV approach, because the latter does not capture the value of the increased flexibility of the firm.

To calculate an IA's value based on a real options valuation, one does a discounted cash flow calculation, models the step-by-step uncertainties underlying the IA, identifies managerial choices, uses the Black-Scholes option pricing model (or the binomial decision tree approach), and calculates the value of IA as the discounted cash flow value plus the options value.[200] An application of this relatively complex approach is provided in the case discussion that follows.

7.3.3.7 Case Discussion

Valuation of Intellectual Assets

GE Aviation is a top jet engine supplier for civil and military aircraft. It accounts for approximately 12% of GE's revenue. The jet engine division is its most profitable. It racked in $17.6 in revenue and had an order backlog of $99 billion. A large share of the revenue comes from maintenance. Successful products include the F404, which is the engine for the F/A-18 fighter jet, and the GEnx engine, which is used in the Boeing 787 and 747 aircraft. GEnx is GE's next generation of jet engines that are quieter and cleaner.[201] How would one value the patent(s) for the new-generation GEnx jet engine?

IA Valuation #1: The Book Value Approach

Under General Acceptable Accounting Principles (GAAP), GE must book its R&D investments in the jet engine as expenses rather than as assets (unless it bought the patents from another firm, which it did not). Therefore, there would be no asset in its balance sheet to correspond to the jet engine patent.

IA Valuation: #2: The Cost Approach

The cost includes top engineers, skilled manufacturing process, complex technologies and materials, and expensive testing. GE's rival Pratt & Whitney spent $650 million or more on developing a new jet engine.[202] GE spent 50% more time on developing its engine. The cost-base value of the patent accordingly would be $1 billion.

This approach, however, is divorced from economic value. The product technology might not work out in practice and the product might not be chosen by aircraft manufactures. On the other hand, it might be a wild success. A unique feature of the GEnx engine is the lightweight composite material used to build the fan case and fan blades. It took 20 years for GE to develop the composite, and its manufacturing process is likely to prove valuable for other fields too.[203]

IA Valuation #3: The Market Approach

There is no active market for jet engine patents. But suppose that GE's rival in jet engines, Rolls-Royce, has sold similar patents to Pratt & Whitney; that the patents cover similar aspects of a new jet engine; and that the sale price is known to be $240 million. One could then estimate the GE patents to have a similar value. This approach does not seem promising except as a potential reality check.

IA Valuation #4: The Income Approach

The value of the GEnx patents to GE is based on sales, contracts, and maintenance. These agreements are assumed for purposes of the analysis to generate $50 million after-tax net income each year for the next 12 years. Contacts are assured contractually and involve solid and dependable parties. The discount rate is therefore the low-risk rate of 6.7%. The NPV of GE's GEnx patents is then:

$$\sum_{t=1}^{T=12} \frac{\text{Net Revenues}_t}{(1+r)^t}$$

where $r = 6.7\%$ (discount rate), revenues = $50 million per year, and $t = 12$. This results in an NPV of $403.56 million.

197 Faulkner, Terrence W. "Applying 'Options Thinking to R&D Valuation." *Research Technology Management* 39, no. 3 (May/June 1996): 50–56.

198 This presumes that managers are prepared to walk away from patent investment rather than commercialize it, and this is not always easy for a firm to do.

199 Faulkner, Terrence W. "Applying 'Options Thinking to R&D Valuation." *Research Technology Management* 39, no. 3 (May/Jun 1996): 50–56.

200 Kennedy, G. William. "Commentary: Valuing Intellectual Property: Applying Real Options Analysis." *St. Louis Daily Record*. January 2005.

201 Carrigan, Christopher. "Greening Our Blue Skies Above with GE's GEnx." *Vermont Business Magazine* 38, no. 8 (July 2010): 62.

202 Troshinsky, Lisa. "Analysts: 7E7 engine choice based on costs, geography." *Aerospace Daily & Defense Report* 210, no. 14 (April 2004): 3.

203 GE Reports. "Talkin' 'Bout GEnx. Record-Breaking GEnc Engine by the Numbers." June 12, 2013. Last accessed July 15, 2013. ► http://www.gereports.com/talkin-bout-genx/.

IA Valuation #5: The Residual Approach

The profits attributable to IP can be calculated by subtracting from the firm's total profits the profits attributable to tangible assets. The profits from tangible assets are calculated by applying an industry average return rate to the actual amount of the firm's tangible assets.[204] The numbers below are hypothetical.

Step 1: calculate GE's earnings of tangible assets for the past three years.

- Tangible assets: $37.6 billion.
- Average rate of return in industry: 10%.
- Earnings attributable to tangible assets: $3.76 billion.

Step 2: Calculate earnings of IA.

- Total earnings of GE: $9.5 billion.
- Less earnings attributable to tangible assets ($3.76 billion).
- Earnings attributable to intangible assets: $5.74 billion.

Step 3: Allocate earnings to GEnx line.

Step 4: Capitalize the income stream, at discount rate of 12% = $47.825 billion.[205]

Step 5: Allocate. The share of GEnx in GE overall revenues is 8% ($460 million). Allocating at the same proportion results in GEnx valuation of $3.826 billion.

IA Valuation #6: The Options Approach

The classic NGV method discussed above does not capture the full value of the patent. On top of the patent's direct value, GE has a benefit from the ability to make additional business decisions and strategies that will affect its bottom line, such as whether to commercialize the patents or move to developing a subsequent generation of jet engines. In addition to the value of the discounted cash flow, as calculated above, there is value to the ability to make these business decisions and strategies based on the patent. This is the additional options value of the patent.

The value of GE's patent can be calculated by using an option pricing model. The Black-Scholes option pricing formula is the standard for calculating stock options pricing. It consists of two sections: the first describes the expected benefit to an investor of acquiring the asset outright, while the second is the present value of the option exercise price.

The formula is:

$$C = S \times N(d_1) - Ke^{-rt} \times N(d_2)$$

$$d_1 = \frac{\ln\left(\frac{S}{K}\right) + \left(r + \frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}}$$

$$d_2 = d_1 - \sigma\sqrt{t}.$$

Where C = the call premium. It is the value of the option to pursue further development of the patented technology to commercialization.

S = the current value of the patent. The NPV will be the best estimate for S; it is the NPV of $50 million a year for the next 12 years, which, as has been shown earlier, is $403.56 million.

K indicates the present value of the cost to continue developing the patented technology until the point of product maturity; it is assumed to be $200 million.

t = the time to maturity of the option, that is the legal and economic life of the patent (the investment horizon), 12 years in this case; and r is the discount rate assumed at 6.7% as before.

N is the cumulative standard normal distribution; that is, a distribution with a mean equal to 0 and a standard deviation of 1;

σ is the volatility of the value of the patent based on the volatility of licensing fees, and is based on the expected demand for the product enabled by the patent. This will raise and lower annual income from a license based on sales of units. σ measures the volatility from an average. Because volatility measures risk, variance can be used in this case to determine the risk a company (or investor) is taking when purchasing (or holding) a particular patent. σ, the volatility of licensing fees, is 47.33%, based on historical data.

The last step is to plug these values into the Black-Scholes formula.

$$C = 403.56 \times N\left(\frac{\ln\left(\frac{403.56}{200}\right) + \left(6.7 + \frac{47.33^2}{2}\right)\times 12}{47.33\sqrt{12}}\right) - 200e^{-6.7\times 12} \times N\left(\frac{\ln\left(\frac{403.56}{200}\right) + \left(6.7 + \frac{47.33^2}{2}\right)\times 12}{47.33\sqrt{12}} - 47.33\sqrt{12}\right) = 338.71$$

Thus the value C of the call option equals $338.71 million. The full value of the patent is its NPV of expected revenues plus the value of the option, which comes to $403.56 million + $338.71 million = $742.27 million.

Summary and Conclusion

We have gathered the results of the various valuation approaches in Table 7.2.

As one can see, the results vary between $240 and $742 million. Is that the value of the patent? No. GE would still derive significant revenues and profits from a new technology even without patent protection. Patent protection adds value but it would be incorrect to attribute all of GE's revenues to the patent rather than to the technology itself. The value created by the IP is the forecasted annual profit of the firm under patent monopoly conditions minus the corresponding profit of the firm employing the same technology under competitive (non-monopoly) conditions.[206]

Suppose that GE had no patents. It would still have strong sales based on the technology it developed. True, Rolls-Royce, Pratt & Whitney, and maybe one or two others could gain access to the technology and copy it, but it could take years of development and certification approvals, and this would also reduce those firms' reputation among their airline and airframe manufacturing clients. Given the rapid advances in technology, GE's head start in its patented technology, even when imitated, would likely last long enough until the next generation. Thus, the actual patent granted monopoly has a limited value in this particular case. Suppose that the premium sales that GE (and its rivals) could extract due to a patent is 20% over the price it would otherwise negotiate with airframe makers and airlines. The valuation calculations then change.

We then observe a more modest value for the patent, between $48 and $148 million. We can compare this with the rule of thumb described in the text, namely for the value of the patent to be 4.5 times the monopoly premium. That premium is 20% of the monopoly profit for the year, or about 20% × $50 million × 4.5 =$45 million.

204 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property.* New York: John Wiley and Sons, Inc., 2002.

205 GE's overall activities cover many business lines, most with a higher risk than the jet engine business. A higher discount rate is thus used.

206 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property.* New York: John Wiley and Sons, Inc., 2002.

Table 7.2 Summary of results of different valuation methodologies

Approaches (in $ million)	Valuation
Book value	$0
Cost	$650
Market	$240
Income	$403
Residual	$460
Real options	$742

7.3.4 IA Management

So now you have set up an IA department. You understand the legal issues of IPRs. You've identified the importance of your assets and their fit in overall company strategy. You know how to value IAs. The next step is to develop IA-savvy management. We start with licensing.

7.3.4.1 Licenses

A major way for profiting from IAs is by licensing them out. Licensing is an allocation of rights to a product or property among parties. It is somewhat analogous to a rental or lease in real estate. Licensing can take place at any point on the value chain of media, from creators to producers to packagers, distributors, retailers, and end users.

Figure 7.6 shows the flow of rights and license fees. The rights flow from the creators to the producers to the packagers, to the distributors, retailer, and end users. The license fees flow in the opposite direction, from the users and retailers toward the creators. Creators are writers, game programmers, musicians, athletes, and so on. Producers are book publishers, film production companies, music labels, sports teams, newspapers, or bundlers of content products (e.g. a TV channel). Packagers are sometimes part of producers and sometimes part of wholesale distributors (such as a TV network.) A distributor is a wholesaler to retailers, such as a cable TV channel, a book distributor company such as Ingram, or a film distribution studio. Retailers are a local TV station, a cable multiple-system operator (MSO), a book store, an online streaming service, etc.

Licensing can be profitable. Qualcomm's licensing revenues were $7.6 billion in 2013, and $6.4 billion in 2017. In 2000, IBM's licensing revenue accounted for $1.7 billion, 20% of its net income and 98% of its profit margin that year.[207] Some universities, as mentioned earlier, earn hundreds of millions each year from licensing.

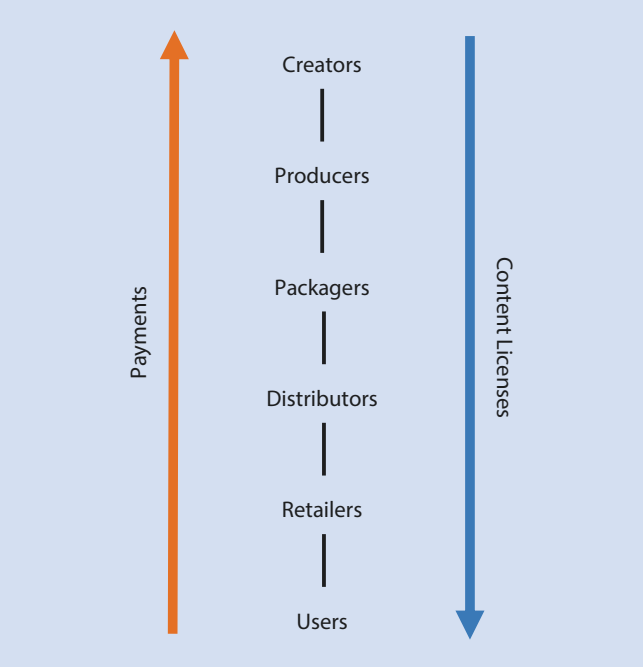

Fig. 7.6 The flow of rights and license fees

There are three main types of licenses: exclusive, partial, and compulsory. Some are given involuntarily ("stick licenses"), usually as a result of a settlement of a lawsuit, but most are given voluntarily as part of a commercial deal ("carrot licenses").[208]

Payments for IA licenses are often called royalties. Royalties can be paid in two ways: in an upfront lump sum, called a paid up" license, or based on sales, profits, units, or other measures of the licensed products, called a running royalty. Profits are often difficult to define and measure. Sales revenue figures may seem to be easy to track, but in practice they are not easy to define and measure. Counting units sold also has its problems, since it may not differentiate between different product grades.

For running royalties based on sales revenues, typical rates for patent licensing are 1–5% of the gross sales related to the patents.[209] For important technologies, rates are 3–5% of gross sales. For computer hardware, typical royalty rates are also 1–5%. In patent infringement litigation, courts have typically ordered payments in the range of 1–5% of the gross sales related to the patents, and maybe twice as high for important technologies.[210]

207 Kline, David. "Sharing the Corporate Crown Jewels." *MIT Sloan Management Review* 44, no.3 (2003): 89–93.

208 Poltorak, Alexander I. and Paul J. Lerner. *Essentials of Intellectual Property*. New York: John Wiley and Sons, Inc., 2002.

209 Kinsella, P., R. Leonard, and G. Weinstein. "Four keys to successful technology in-licensing." *Licensing in the Boardroom.* October 8, 2007. Last accessed March 15, 2017. ► http://www.iam-media.com/Intelligence/Licensing-in-the-Boardroom/2009/Articles/Four-keys-to-successful-technology-in-licensing; Lichtenthaler, Ulrich. "Corporate technology out-licensing: Motives and scope." *World Patent Information* 29, no. 2 (June 2007): 117–121.

210 Megantz, Robert C. *How to License Technology.* (New York: John Wiley & Sons, 1996), 55–69.

When the royalty is tied to profits, for fully commercialized technology, rates are often a 50% profit share. For less developed technology the licensor will receive less (e.g. 25%) profit share.[211] Application software might have royalties of up to 25% of profits.

For video games, a publisher typically pays the game developer a percentage of wholesale revenues with a flat advance fee upon signing the deal. Similar arrangements are used when a game publisher or developer creates a game about an existing movie. The license will typically include an upfront payment as well as royalties based on sales.[212]

After firms license a patent or copyright to others, many lose track of their licenses, the revenues generated for the licensee, and the use to which they are being put. Thus, it is necessary to establish a licensee accounting and tracking system and to frequently check on licensees. This is known as a royalty audit. Any license given must include audit provisions that allow the licensor to review and inspect the licensee's books that are relevant to the license.[213]

There are software programs to organize information about a firm's IA, status, maintenance dates and costs, licenses given, license royalty collections, and invoicing.[214] Such IA management software provides a view of what the company owns, what its intellectual output is, what the resultant revenue streams are,[215] how they align with strategic business goals, how and when to renew them, and what the IP laws in other countries are.[216]

Case Discussion

GE Patent Licenses

Historically, GE has limited the licensing of its patents, but more recently it has become more active in licensing its technology, albeit mostly its non-core technologies.

Example 1: Licensing in Non-Core Industry: Cooling Technology for Electronics
The technology of dual piezoelectric cooling was developed by GE's aircraft engine unit. It consists of two thin ceramic layers, which contract and expand to produce airflow. The technology allows for a 50% size reduction over traditional technologies. GE licensed this new cooling technology to Fujikura Ltd, a world leader in cooling technologies for the telecom and electronic markets. Its strategy is to leverage IA in a market where GE is not active.

Example 2: Compressors
GE licensed the production and distribution of oil and gas compressors for the Indian market to Bharat Heavy Electricals Limited. The products are a part of GE's core portfolio. Its strategy is to shift the risk of a new market to a local firm with strong standing and to use partnership to enter an emerging market.

7.3.4.2 IA License Intermediaries

There are several types of license intermediaries, in particular IP brokers and IP consolidators. IP brokers market and arrange IA sales between firms or inventors with unwanted patents and firms that can use these patents, and typically receive 10–30% of the transaction price. Consolidators purchase IAs from multiple parties and assemble packages that can be used to start a new product. Some of the leading consolidators are law firms.[217]

On the sell side, IAs may be licensed through auctions open to all-comers. Literary agents hold auctions among publishers for publication rights of especially promising manuscripts. Similarly, the film rights of a book or script may be auctioned. In 2003, Sony Pictures paid $6 million for the rights to Dan Brown's *The Da Vinci Code*. The movie made over $750 million worldwide. In 2007, DreamWorks acquired the rights to the film adaptation of *The Lovely Bones*, outbidding Sony, Universal, and Warner Bros.

7.3.4.3 Strategic Licensing

Strategic licensing by a firm can be part of a wider attempt to shape the market. A firm can use licensing to deter the entrance of strong competitors or to select the preferred competitors for the time after the patent protection expires by giving them a head start through a license. For example, pharmaceutical firms are often reluctant to license firms considered tough rivals, and prefer licensing friendlier firms with whom they collaborate on other matters.[218]

211 Megantz, Robert C. *How to License Technology*. (New York: John Wiley & Sons, 1996), 55–69.
212 Wiley, Sam, and Adam Falconer. "Licensing and IP Issues for Mobile and Social Game Developers." *Ipstrategycom.* June 13, 2013. Last accessed June 3, 2014. ► http://ipstrategy.com/2013/06/13/licensing-and-ip-issues-for-mobile-and-social-game-developers/.
213 Licensing in the Boardroom. "The How's and Why's of Monitoring your Licensees." October 2005, 44–46.
214 Business Wire. "Microsoft and Kimberly-Clark Select ANAQUA5." June 26, 2006. Last accessed May 28, 2017. ► http://www.businesswire.com/news/home/20060626005487/en/Microsoft-Kimberly-Clark-Select-ANAQUA5-Intellectual-Property-Leaders.
215 Janes, John & Napper, Brian. "Optimize." January 1, 2004, Business Management, Columbia University, June 14, 2004.
216 Business Wire. "Microsoft and Kimberly-Clark Select ANAQUA5." June 26, 2006. Last accessed May 28, 2017. ► http://www.businesswire.com/news/home/20060626005487/en/Microsoft-Kimberly-Clark-Select-ANAQUA5-Intellectual-Property-Leaders. Products by SAP and by Skandia, which develop a financial measurement system that determines and reports the income of intellectual assets. Anaqua software lets IA owners maintain accurate records and aligns them with strategic business goals. It can be used for tasks such as filing, registration, and renewals and incorporates a rules engine that understands IP laws in many countries.
217 Elton, Jeffrey J., Baiju R. Shah, and John N. Voyzey. "Intellectual Property: Partnering for Profit." *McKinsey Quarterly* (Winter 2002): 59.
218 Rockett, Katharine E. "Choosing the Competition and Patent Licensing." *RAND Journal of Economics* 21, no. 1 (Spring 1990): 161–171.

Licensing of a firm's core technology carries risks. It can undermine a firm's competitive advantages. Conversely, joint-ventures licensing among competitors may be perceived as collusion and raise anti-trust concerns.[219] A number of strategic considerations emerge. If a firm issues an exclusive license to one favored party and rejects that firm's competitors, it may receive more in license fees upfront. But this often leads the excluded competitors to come up with a similar or better technology. Exclusive licensing is therefore often not the best way to go. Given a non-exclusive license at a reasonable price, a firm's competitors may become its technology followers.[220] Thus a firm can use the licensing process to create industry standards around its technology.

In one classic example, Matsushita/Panasonic licensed to other companies the VHS system used in videocassettes, and it became industry standard. In contrast, Matsushita's competitor, Sony, did not offer licenses for its rival Betamax video recorder, which became a business failure despite its technical superiority.

A similar dynamic exists for the price of the licensing royalty. A high royalty can be counter-productive if it creates incentives to develop alternative technologies or join another standard coalition, or even engage in unlicensed use. An overpriced royalty will also weaken the competitiveness of the licensee and therefore its sales.

7.3.4.4 Cross Licensing and Patent Pools

When several firms hold critical patents and block each other, cross-licensing is often necessary to get a new technology moving. Patent pools reduce litigation risk and intentional blocking, but they also lower innovation, because firms have fewer incentives to leapfrog each other's technology.[221] In the USA, the government and courts had a skeptical view on cross-licensing due to its potential to reduce competition by substituting collaboration.[222] In the case *Standard Sanitary Manufacturing vs. U.S.,* the US Supreme Court held that an ironware-manufacturing patent pool violated anti-trust laws because it led to prices being set through a collective, rather than individually.[223] The 1995 anti-trust guidelines issued by the US government specify where an act has an anti-competitive effect that outweighs pro-competitive effects (such as facilitating innovation), and would then be challenged.[224] An example is the technology for laser eye surgery. VISX and Summit were two companies that each held patents, the only ones within the field. The patents were substitutes for each other. By placing them within a single pool, the companies reduced competition among themselves and could charge high prices for royalties. This was found to violate US anti-trust laws.[225] The European Commission, too, has considered problems of competitors' cross-licensing.

Cross-licensing has become frequent. Often entire fields rather than single patents are cross-licensed. One reason is that in some fields innovations build on each other. To avoid the risks of mutually blocking patents, firms often cross-license all of their patents in that field. To engage in such cross-licensing, a portfolio of strong patents that covers large areas of the partner's product markets is essential. If the patent portfolios of the firms are not equally strong, some balancing payments may be required. A listing of a firm's most valuable patents (the "proud list") is used to assess their value.[226] A royalty rate is assigned to each patent and multiplied by its quality weighting factor and by the annual sales of its product base. This determines the royalty rate percentage of a patent holder in total sales revenues. Cross-licensing negotiations are positively affected by the likelihood that firms will need to co-operate again in the future. Cross-licensing usually lasts for five years, and rarely includes trade secrets or sub-licensing rights.

The development of radio in the early twentieth century is an example.[227] The development of radio technology during World War I required the application of many earlier inventions. Edwin Howard Armstrong, a Columbia engineering professor, pioneer of radio, and inventor of FM radio, wrote that "It was absolutely impossible to manufacture any kind of workable apparatus without using practically all of the inventions…" At first, radio development was deadlocked. Only under massive pressure by the US Navy did three major companies (AT&T, Westinghouse, and American Marconi) pool their interests and patents and form the Radio Corporation of America (RCA) in 1919, which aggregated their over 2000 radio-related patents. RCA established itself as the technical leader in radio, but also enabled other firms to cross-license and develop technology to use in different fields, or as suppliers to RCA.

Patent Pools – The MPEG-2 Patent Pool

MPEG-2, a digital video compression standard required for almost all digital video transmission, was needed to join the essential patents to foster adoption. A patent pool was

219 Kline, David. "Sharing the Corporate Crown Jewels." *MIT Sloan Management Review* 44, no.3 (2003): 89–93.

220 Shapiro, Carl and Hal R. Varian. *Information Rules: A Strategic Guide to the Network Economy.* Boston: Harvard Business School Press, 1999.

221 Crovitz, L. Gordon. "Google, Motorola and the Patent Wars." *The Wall Street Journal.* August 22, 2011. Last accessed October 22, 2012. ► http://online.wsj.com/article/SB10001424053111903639404576518493092643006.html.

222 Standard Sanitary Mfg. Co. v. United States, 226 U.S. 20 (1912).

223 Standard Sanitary Mfg. Co. v. United States, 226 U.S. 20 (1912).

224 United States of America. Antitrust Guidelines for Collaboration Among Competitors. 2000. Last accessed June 7, 2011. ► http://www.ftc.gov/os/2000/04/ftcdojguidelins.pdf.

225 Lind, Robert C. "Report on Multiparty Licensing." European Commission. April 22, 2003. Last accessed June 7, 2011, ► http://ec.europa.eu/competition/antitrust/legislation/multiparty_licensing.pdf.

226 Grindley, Peter C. and David J. Teece. "Managing Intellectual Capital: Licensing and Cross-Licensing in Semiconductors and Electronics." *California Management Review* 39, no.2 (1997): 8–41.

227 Grindley, Peter C. and David J Teece. "Managing Intellectual Capital: Licensing and Cross-Licensing in Semiconductors and Electronics." *California Management Review* 39, no.2 (1997): 8–41.

created that includes 25 patent holders and 880 patents in 57 countries and serves approximately 1500 licensees.[228] Patent holders include Apple, Columbia University, GE, Samsung, Siemens and Sony. The licensing program helped to establish what is claimed to be the most widely used standard in consumer electronics history. The MPEG 2 patent holders wanted to ensure that their IP would be aggressively marketed. CableLabs and other licensors injected $3 million to found a corporation, MPEG LA, which handled the licensing of MPEG-2. The licensing rate set by the pool was $4 per decoder.[229] Worldwide revenues were $3.8 billion in 2004 and $8.4 billion in 2012.[230, 231]

The pool administrator collects royalties and distributes them according to a formula. MPEG-2 pool members agreed to a distribution based solely on the number of patents contributed to the pool. This was adopted because it was easier to administer than other fee rules. The problem, though, is that not all patents are of equal importance. This led Lucent to choose not to participate in the pool since it believed that its patents, while relatively few in number, were particularly important to the standard.[232]

The Mobile Patent Pool

In the smartphone business the main providers were Apple, Google, Samsung, Microsoft, and for a time RIM and Nokia. A smartphone might involve as many as 250,000 patent claims, although a good number of them are questionable.[233] With all of these patents, mobile-phone makers inevitably infringe someone's patents, risking billions in lawsuits and major delays. The best defense is to have bargaining chips. Google sought patents to protect itself and Android-handset producers such as Samsung from claims by Apple and Microsoft. Its fears were not unfounded. Manufacturers using Google's Android operating system must pay several dollars per smartphone to Microsoft. In response, in 2011 Google bought about 2000 patents from IBM.[234] In 2011 Google also tried (but failed) to buy Nortel's patent portfolio. It subsequently bought the major handset manufacturer Motorola Mobility, which added nearly 25,000 patents to its holdings (17,000 valid and 7500 pending). Motorola's important patents in video streaming and 3G phones explained the purchase price of $12.5 billion, about $400,000 a patent. There were about 18 patents in Motorola's portfolio which dealt with GPS, screen interaction, and data storage. In 2012, Google bought from IBM another 188 patents and 29 patent applications related to mobile phones. Armed with these patents Google could negotiate with Apple and Microsoft on cross-licensing deals. It sought to double royalty payments from Microsoft for the H264 codec used to play videos. Motorola held 50 of the 2300 patents which make up that codec, and now they were Google's.

In 2011, the bankrupt Canadian telecom technology giant Nortel put up for auction its last remaining major asset, a portfolio of 6000 patents. This resulted in a heated bidding war of five bidder groups. A consortium consisting of Apple, Microsoft, RIM, EMC, Ericsson, and Sony won the patents for $4.5 billion, three times higher than experts expected. The Apple consortium paid about $750,000 for each Nortel patent. They covered important areas such as 3G and 4G technology for cellphones and internet search technology. Apple's consortium members wanted the patents for their own use, and partly to keep them out of Google's hands.

Microsoft, on its part, bought more than 800 patents from AOL in 2012 for $1.056 billion. In 2013, it bought for $7.2 billion much of Nokia's device and service business and its 8500 design patents (but not its more valuable utility patents. For those, it got only a ten-year non-exclusive license, had to cross-license a number of its own valuable patents, and had to pay Nokia $2.2 billion as part of the deal.) Nokia thus embarked on a transition from a technology manufacturing company to a technology developing company, with IA as its main output, as IBM and Qualcomm had done before.

For mobile handsets, the patent licensing costs for a non-pool company were estimated to be as high as 29% of the cost of a GSM handset and of 20% of the price of a 3G handset.[235] For a 4G (LTE) handset with a $400 retail price, about $60 (15%) went to patent holders, according to a formula in which Qualcomm got 3.25% of the retail price ($13), Motorola got 2.25%, Alcatel Lucent about 2%, and Huawei; Ericsson, and Nokia each 1.5%.[236]

228 Lee, Alexander. "Examining the Viability of Patent Pools to the Growing Nanotechnology Patent Thicket." *Nanotechproject*. June 20, 2006. Last accessed June 4, 2013. ► http://www.nanotechproject.org/process/files/2722/70_nano_patent_pools.pdf.

229 Lerner, Josh and Jean Tirole. "Public Policy toward Patent Pools." *Innovation Policy and the Economy* 8 (2008): 157–186.

230 Design & Reuse. "Buzz Continues to Build Around MPEG-4 AVCs, But MPEG-2 Still Strong." June 28, 2005. Last accessed May 24, 2017. ► https://www.design-reuse.com/news/10774/buzz-continues-build-around-mpeg-4-avcs-but-mpeg-2-still-strong.html.

231 Design & Reuse. "Buzz Continues to Build Around MPEG-4 AVCs, But MPEG-2 Still Strong." June 28, 2005. Last accessed May 24, 2017. ► https://www.design-reuse.com/news/10774/buzz-continues-build-around-mpeg-4-avcs-but-mpeg-2-still-strong.html.

232 Layne-Farrar, Anne and Josh Lerner. "To Join Or Not To Join: Examining Patent Pool Participation And Rent Sharing Rules." November 15, 2006. *International Journal of Industrial Organization* 29 (2011): 294–303.

233 Crovitz, L. Gordon. "Google, Motorola and the Patent Wars." *Wall Street Journal*. August 22, 2011. Last accessed October 22, 2012. ► http://online.wsj.com/article/SB10001424053111903639404576518493092643006.html.

234 Chapman, Glenn. "Patent wars plague Internet Age, add 'innovation tax.'" *The Sydney Morning Herald*. April 16, 2012. Last accessed October 22, 2012. ► www.smh.com.au/it-pro/business-it/patent-wars-plague-internet-age-add-innovation-tax-20120416-1x2ej.html.

235 Dunlop, Hugh. "A Dusty Road to Standards Licensing." *Managing Intellectual Property*. June 1, 2003. Last accessed May 25, 2017. ► http://www.managingip.com/IssueArticle/1255709/Archive/A-dusty-road-to-standards-licensing.html.

236 FN DD-1 Quies, Peter. "Valuing Standard Essential Patents: An Examination of Announced FRAND Royalty Rates for LTE" *American Bar Association*. ► https://www.americanbar.org/content/dam/aba/publications/litigation_committees/intellectual/012413-valuing-standard-essential-patents-memo.authcheckdam.pdf

Case Discussion

GE Cross-Licensing

In 2008, GE and LG signed a cross-licensing deal on household appliances such as freezers and cooking devices. Both companies were to share each other's patents without paying each other any licensing fees. The companies hoped to challenge Whirlpool and Electrolux through this deal.

Considering the size of the two companies in appliances around the globe, could this partnership be a potential anti-trust violation? Because other strong competitors exist, regulators accepted the deal. Helped by the agreement, GE became the second largest appliance maker in the US market in dollar terms and LG jumped from fourth place to third.[237] In 2014 GE went one step further in consolidation and signed a deal to sell all of its appliance business to its chief rival Electrolux. That sale was challenged by the US Justice Department on anti-trust grounds, and after a trial it was abandoned by GE in 2015. A few months later, GE sold the appliance business to a smaller competitor in the US market, the Chinese firm Quindao Haier, for $2 billion more than had been offered by Electrolux.

7

7.3.4.5 Music Licensing

Music rights are a highly complex system, with many participants. Every musical recording consists of two separate copyrights. The first is for the underlying musical creation (the music and the lyrics). Copyrights for this "musical work" are typically owned by the songwriter(s) and/or their music publisher. Royalties for this musical creation, when it is performed publicly, are collected and distributed by performance rights organizations such as ASCAP, Broadcast Music, Inc. (BMI), and the Society of European Stage Authors and Composers (SESAC) on behalf of composers and lyricists.

The second type of copyright is for the sound recording—the actual recording itself. This includes the artist's performance and interpretation of the musical composition, and the contributions of producer, sound engineers, and background musicians. The copyright to the sound recording is held by the music label or an independent musician.

Thus an audio transmission of a musical recording, for example by an online music service such as Spotify, usually requires payment for both the underlying musical work and the actual sound recording.

Songwriters typically let music publishers manage the IA created by them, either on their behalf or through direct ownership by the publisher. Music publishers must be distinguished from the labels and distributors, which do the actual production, marketing, and distribution of the music. In practice, the major music publishers are owned by the major music groups, which also own labels and distributors. But the functions are distinct. There are music publishers who do not produce or distribute, and vice versa. Bertelsmann Music Group (BMG) sold its labels, production, and distribution system to Sony but kept the music publishing part, and indeed strengthened it through acquisitions.

The ownership of music work copyrights is heavily concentrated: 65% of copyrights to musical works of commercial value are said to be owned by three or four music publishers. The music publishers are assigned these copyrights by songwriters and they then proceed to license the work to others, collect license fees and royalties, and distribute part of them to the creators.

These secondary licenses come in several categories. *Mechanical licenses* are granted to music labels for the production of physical recordings (and now digital downloads and streaming.) The revenue is shared with the creators. For download sales in the USA, by law at least 9.1 cents per song must be paid to the music publisher, usually partly shared with the creators. Mechanical licenses depend on sale volume. In contrast, *synchronization licenses* are granted for a movie, television show, and other media, and earns revenue through upfront fees. *Performance licenses* are collected whenever a song is performed to the public, such as through a radio station, podcast, nightclub, or public event. Performance rights organizations track and collect such royalties and pay part of them to the songwriters.

The price of music licensing and the rights that are conferred by a typical license differs among distribution media. Music distributors set different licensing rates on their recordings for different transmission types. MP3 downloads have become increasingly important and in 2007 overtook CD sales as the primary mode of music distribution, in terms of dollar sales volume in the USA.[238] Typically, music download services such as Apple or Amazon pay to the music group $.70–.75 for a download with a $.99 retail price, that is about 70%, and get to keep 30%.

For a CD, the retailer keeps about 20% of the retail price. The wholesale distributor receives another 17%, which leaves 63% for the label—the producing entity, which is often part of the distributor, and engages in the manufacturing and marketing. The music labels, in turn, typically pay a royalty percentage to the performing artists, usually ranging from 17% of the published price to wholesale dealers. This is for the performance. For the musical work itself, the label pays about 6% to the songwriter (composer and lyricist) and/or music publisher (holder of the copyright).

Using a recorded piece of music in visual media such as film, television, advertisement, video game, and so on, requires a synchronization royalty. Usually this is negotiated between the music rights owner and the maker of the visual material, such as a film producer. The rights owner will charge a one-time use fee, which will vary based on several factors

237 Hagerty, James and Min-Jeong Lee. "Samsung's Phones Help Sell Home Appliances." *Wall Street Journal*. August 6, 2013. Last accessed May 31, 2017. ► http://online.wsj.com/news/articles/SB10001424127887323664204578609892263756014.

238 Arango, Tim. "Digital Sales Surpass CDs at Atlantic." *New York Times*. November 25, 2008. Last accessed May 31, 2017. ► http://www.nytimes.com/2008/11/26/business/media/26music.html.

such as the centrality of the song, how much of it is used, how well known the song is, how wide a release there will be, and so on. This payment can range from a few hundred dollars up to hundreds of thousands of dollars. The payment is then divided between the owner of the master sound recording (usually the record label) and the songwriter/publisher. Normally, the performer will not receive extra payment for the song appearing in the material, unless the contract provides it. The rationale is that the increased popularity of the song that is featured in the film material will increase sales for the song, thus benefiting the performer.

Music Licensing by Performing Rights Organizations

Large media companies have licensing departments that negotiate and collect copyright licenses. They have legal departments that monitor violations and file legal complaints accordingly. Small copyright holders in the music field, however, must resort to joint collection agencies. These are known as performing rights organizations (PROs). PROs grant licenses to all types of venues and broadcasters, including TV and radio stations, networks, bars, and so on.[239] PROs were first established in France in 1851. They license and collect royalties for the public performances of members' copyrighted works. Members include composers and authors, but not artists or record companies.

PROs exist in many countries.[240] Major PROs in the USA are for the American Society of Composers, Publishers (ASCAP); the Society of European Stage Authors and Composers (SESAC), owned since 2017 by the Blackstone private equity firm; and Broadcast Music, Inc. (BMI), which is owned by broadcasters. There is also Sound Exchange, a nonprofit, Library of Congress-appointed performance rights organization that collects royalties from digital broadcasting media, such as cable TV music channels and satellite radio.[241]

In the USA, terrestrial radio broadcasters pay royalties to songwriters and composers but not to performers. A license fee is paid by the radio stations to PROs. These, in turn, distribute the revenues to their members, who are songwriters and composers. But a song being played on an FM station will not generate royalties for the artist. The idea is that the promotional value of being played on the radio is the benefit conveyed to the artist. However, the songwriter/publisher is paid, and often the singer/artist is also the songwriter. PROs scan the radio airwaves and keep a log of who is playing what songs. They collect royalties and pay them out according to the airplay. (Thus if ASCAP collects $10 million for one month of radio play, and during that month the stations played a total of 50 million songs, of which 1 million were Taylor Swift-written songs, she could expect to receive $200,000 in royalties for the month (2% of the royalty pool)). There are also bonuses for songs that are "hits" (played at least 95,000 times in a quarter). Similarly, there is also a bonus paid for "standards," songs which have had at least 2.5 million plays since being released, and are played a certain number of times each quarter. This system is different from that in many parts of Europe, where radio stations have to pay not just the songwriter/publisher, but also the performer.

PROs such as SESAC track songs on an online database (DJMonitor). DJMonitor has a playlist management system that lets rights holders review the music performed to verify the results and to make corrections.

PROs give radio stations a blanket license for all of the music of its members. The typical fee for such a license in the USA is about 1.6% of the radio station's net revenues. Alternatively, stations may purchase a "per-program" radio license, keep track of all music used, and pay periodically for those songs used.[242] The rates negotiated for blanket licenses vary, depending on bargaining strength and the value of the music to the distributor. A 1993 court case disclosed that the broadcast network NBC paid 0.44% of gross network revenue (TV and radio) to ASCAP for licenses for its 261 TV and radio outlets.

The PRO distributes the license fees it collects, minus administrative costs of about 20%. ASCAP determines performance credits based on the number of uses, the type of use, and the estimated audience. There are various formulas for the distribution of revenues. For example, for a musical, 5/12 (~42%) might go to the composer, 3/12 (25%) might go to the author, and 4/12 (33%) might go to the publisher.[243]

PROs calculate songwriters' revenues from royalties based on the type of media, size of anticipated listenership, popularity of the song, and other considerations. In the USA, songwriters are paid 12 cents each time a popular song is played on the radio by one of the stations in the top quartile of audiences, and 6 cents each time a song is played on smaller stations. For classical music, composers earn 32 cents per radio performance for stations in the top quartile and 1 cent for all other stations.[244] BMI, another major PRO in the USA, uses two systems to allocate music royalty, the Hit Song Bonus for major success music and the Standards Bonus.

239 Obringer, Lee Ann. "How Music Royalties Work." *Howstuffworks Entertainment*. April 2011. Last accessed June 28, 2010. ► http://entertainment.howstuffworks.com/music-royalties.htm.

240 Examples are the Kenya Association of Music Producers (KAMP), the Indian Performing Right Society (IPRS), the Argentine Society of Music Authors and Composers (SADAIC), the Russian Organization for Intellectual Property (VOIS), and the Japan Society for Rights of Authors, Composers and Publishers (JASRAC). In the EU there are 25 collection societies, each one the sole society for that country, established as a government-affiliated monopoly that collects all the royalty money in the country. PROs try to co-ordinate internationally in order to reduce the ability to bypass national payments. International organizations are the Confédération Internationale des Sociétés d'Auteurs et Compositeurs (CISAC), founded in 1926, which comprises 229 author's societies from 121 countries worldwide, and the Societies' Council for the Collective Management of Performers' Rights (SCAPR), founded in 1986, with 47 member organizations.

241 SoundExchange. "SoundExchange." Last accessed June 8, 2010. ► http://www.soundexchange.com/.

242 American Society of Composers, Authors, and Publishers. "Common Licensing Terms." Last accessed June 28, 2010. ► http://www.ascap.com/licensing/termsdefined.html.

243 To calculate performance royalties, PROs use different methods. ASCAP, for example, gives different weights to different performance types. A song that is featured on TV or on the radio is weighted higher than background music in a radio commercial. Similarly, the time of day a song is played is a factor. The total number of credits of a song is then multiplied by a "credit value," a factor which equals the total credits for all writers and publishers divided by the total collected money for that quarter. Royalties are paid out quarterly.

244 Preston, Frances. "The Royalty Information Booklet." *BMI*. July 1999. Last accessed on August 1, 2012. ► http://www.bmi.com/songwriter/resources/pubs/royalty_print.asp.

As mentioned, in the USA radio stations do not pay radio-play royalties to the actual performers or to the music labels. In contrast, much of the rest of the world compensates these performers for radio play. Owing to a lack of reciprocity by the USA, American artists are therefore not compensated for radio play abroad either. Music labels, too, are not paid by radio stations owing to the relative bargaining strength of the parties. Being played over the air is considered a form of promotion for the song. In fact, music companies have often paid the radio station for such exposure or given other benefits. This is known as "payola" and is illegal in the USA. Internationally, the treatment of this practice varies from country to country. (It is a perfectly legal transaction for books, films, and TV shows). In many countries, Jamaica being an example, it is not prohibited.[245] In South Korea, on the other hand, it is illegal, and payola scandals in the 1980s led to the dismissal or even arrest of Korean radio employees.[246]

A complex area of transactions is around license fees for the live performance of music. Music publishers and songwriters receive royalties for public performances of their songs, for example for a "cover song" performed at a concert or restaurant. The performance rights organizations handle performance licenses. For concerts, these PROs solicit, in the USA, the 300 major live performance venues (such as Madison Square Garden) and receive set lists for all of the performers. There is a license fee due for songs unless the performer owns/wrote them. The concert promoters and venues are responsible for covering the fees. The rate varies based on the size of the venue and is around 1% of the gross of gate receipts. Suppose an average ticket price of $200 and a venue that holds 15,000, then the venue will have to pay about $30,000, just for the copyright license, not the performance itself. The PROs collect the fees each quarter and then distribute them to the music publishers and songwriters, minus an administrative fee of about 11%. From there the fees are split up according to usage, and if one rights holder accounted for 20% of the songs performed, she would receive 20% of the fee pool collected.

For live venues such as restaurants and bars, PROs usually charge a flat fee per year, with a set limit for the number of people covered. The rate varies based on the type of establishment and its size A small restaurant may pay $105 a year flat rate for music events up to 2100 customers. Beyond that number the restaurant might have to pay an additional 0.05 cents per person. The fees are collected in the same way as for live concerts, pooled, and then distributed (minus the 11% fee).

For live concerts, the performer himself is paid by the concert promoter/venue. The upper echelon of the music touring industry (Rolling Stones, Bon Jovi, Taylor Swift, etc.) will be paid a flat, upfront fee for a specific number of shows (i.e. $10 million for 40 shows in the USA). The performers are then responsible for various costs (i.e. backup band, background dancers, scenery, special effects, equipment, grips, etc.). They also can get a percentage of the net as well (what is left over after the concert promoter/venue covers all costs for the show). This is called a door split deal. For less-known performers, a door split deal is usually the way to get paid. The performer's take might be 50–75% of the net receipts, after many others have been paid as expenses. Music labels may offer performers a loan called "tour support". Because it comes with a variety of strings attached, not all performers will elect to take this, and instead will self-finance their tours.

Another type of rights representation negotiates on behalf of copyright holders/publishers with the music labels. In the USA, the Harry Fox Agency (owned since 2015 by SESAC) is the major clearing house for such "mechanical licenses" by music publishers to music labels. It was established by the National Music Publishers' Association in 1927 and mostly serves these music publishers/rights holders.[247] It negotiates on behalf of music publishers with labels, collects and distributes royalties, and tries to fight piracy. Its Songfile service allows individuals to log in, view the catalog of songs, and purchase the rights to use them. The company was bought in 2015 by SESAC (which in turn was acquired by the private equity firm Blackstone in 2017).

Satellite radio, as well non-interactive internet radio (where the user is unable to select what the next song will be, such as Pandora) have to pay royalties to the songwriters and publishers as well as the performers. This is different than terrestrial radio, and came about as part of changes to the Digital Millennium Copyright Act. The rights organization SoundExchange was created by legislation with the exclusive right to negotiate and charge royalties for digital and satellite radio on behalf of the songwriters/performers. SoundExchange has two ways of determining royalties. For satellite radio, it charges a percentage of received revenue. Thus, SiriusXM does not pay individual royalties, but rather a percentage of the subscriptions it receives (11% in 2017) for performance rights and an additional 3% of revenues to publishing rights (i.e. to songwriters/publishers). The second method applies to non-interactive online radio and is based specifically on per-performance/per stream. Each service has an automatic fee ($500 per year, which rises to $50,000 if the service has more than 100 channels/stations) and an additional per stream rate. For non-subscription services (e.g. basic Pandora) the rate is $0.17 per 100 streams. For subscription services (e.g. Spotify in Radio mode) the rate is $0.22 per 100 streams. SoundExchange distributes 45% of performance royalties to the featured artists on a recording; 5% is paid to a fund for non-featured (unknown) artists. The other 50% of the performance royalties is paid to the rights owner of the sound recording.[248] SoundExchange allocates the money according to the number of streams over the time period.

245 Stanbury, Lloyd. "Have a law against payola." *The Jamaica Observer*. December 30, 2010. Last accessed June 6, 2011. ► http://www.jamaicaobserver.com/letters/Have-a-law-against-payola_8260693.

246 Billboard. "Korea radio de-hibernates, karaoke skyrockets, congloms rally market." August 21, 1993: SE22.

247 The Harry Fox Agency. "About HFA." Last accessed June 28, 2010. ► http://www.harryfox.com/public/AboutHFA.jsp.

248 SoundExchange. "About Digital Royalties." Last accessed May 31, 2017. ► https://www.soundexchange.com/artist-copyright-owner/digital-royalties/.

How are these online music royalty rates and terms determined? In the U.S., a Copyright Arbitration Royalty Panel (CARP) used to set rates for compulsory royalty payments. However, smaller webcasters protested the rates as unaffordable, and as a result of the political pressure the Library of Congress and Congress intervened and a new agency was created. In 2004, Congress replaced the CARP system with the Copyright Royalty Board (CRB), a three-member panel of judges that adjudicates copyright issues, collects payments, and distributes them.[249]

The CRB determines rates and terms for a statutory license. These are set either through voluntary negotiations or trial-type hearings before the panel of judges. In negotiated cases, distribution services negotiate with SoundExchange, which represents the rights holders, and present a deal that is reached to the judges for adoption. If the agreement is adopted by them, it will be available for opt-in by any similarly situated music distributors.[250]

In 2016 the CRB set the licensing rates. They have three tiers. Tier 1 service is commercial and interactive subscription services (Spotify, Google Play Radio, ApplePlay Radio, etc.), which pay $0.22 per 100 plays. The law requires that these services negotiate with copyright owners for licenses. Tier 2 is commercial non-subscription services (e.g. the basic Pandora), which pay $0.17 per 100 plays. These do not allow a user to choose what song to hear. They need not license each song, but such broadcasters may be subject to other statutory licenses. Tier 3 are non-commercial webcasters, which are basically non-profit style organizations doing online radio. An example is the rebroadcast of a terrestrial radio station on iHeartRadio. They are exempted from digital performance rights and pay $500 a year, so long as they do not have more than 159,140 aggregate tuning hours a month (this is the number of people listening each month). Any usage over that amount is charged at the rate of $0.17 per 100 performances.

Therefore, if a website has on average 2000 listeners and plays 15 songs per hour, then the royalty payment is $.0255 per listener per hour (15 × $.0017), or $51 for 2000 listeners per hour. This translates to $440,760 of licensing payments per year, which non-profit stations can rarely afford.[251] Even when the audience is, on average, a tiny 20, it would still require payment of $ 4467. This is reduced, for Tier 3 non-profits, by $2724, which still leaves a formidable barrier.

Large music sites also face financial problems. For example, Spotify has an $8 per month advertising-free subscription price. Assuming a per month use by a subscriber of four hours per day, 120 hours per month, this means that the subscriber pays Spotify about $0.066 per hour of listening. Assume 15 songs per hour at a regulated license rate of $0.0022 per song, the license cost to Spotify is then ~$0.033 per hour. Thus, music license fees alone eat up half the subscription revenue. And of course Spotify also has to spend money on marketing, production, technology, distribution, and administration. Furthermore, most Spotify users do not pay a subscription fee at all but rather listen to an advertiser-supported music stream.

It should be noted that this is a considerable change from the system prevailing for radio broadcasting. Historically, radio had a symbiotic relationship with the music industry. It provided free promotion for songs and thus may have generated higher sales. But now, the distribution platform is subject to a mandated payment rate by a government agency.

7.3.4.6 Licensing of Books

Factors in Book Licensing

In book publishing, acquisition editors sign authors to book contracts. (Subsidy publishers, "vanity presses," and the providers of self-publishing services, such as iUniverse and Xlibris, have their own publishing arrangements.)

A contract gives the publisher the rights to the book, usually worldwide, and may include rights to all derivative works, such as TV shows, films toys, and so on. A contract typically covers the grant of rights, copyright, publication, royalties, advances, foreign sales, deep discounts and book clubs, sale of rights, payments, and reserve against returns.

Royalties to authors range from 5% to 15% of gross sales revenues. Some publishers offer author royalties of 15% of the publisher's net, which is about 7.5% of the gross sales revenues. Authors typically receive a higher percentage for hardcover books and a lower one for paperbacks and romance books. Variable royalty rates depend on unit sales. The contract will specify which books count toward sales. Book advances typically count against royalties. In other words, a book must sell enough to earn back an advance. A publisher may hire a writer as a contractor or employee to write a book for a set honorarium rather than a royalty, either under the publisher's name such as in a travel book series, or under the author's name, or under a pen name.

For foreign sales, publishers usually assign different (mostly lower) royalty rates. Since a publisher's net receipts on foreign sales is easy to manipulate, authors prefer royalties based on gross sales.[252] When publishers license other publishers internationally, the royalty schedule for that license is typically 50/50 with the author on net foreign receipts. It is higher as a percentage because the domestic publisher has no production or marketing costs to cover when a foreign publisher covers these in its own country.[253] In other cases, the sale of foreign or translation rights are sold for a lump sum, often as low as a few hundred dollars.

249 Congressional Research Service. *Statutory Royalty Rates for Digital Performance of Sound Recordings: Decision of the Copyright Royalty Board*. Washington DC: Library of Congress, May 28, 2007.

250 SoundExchange. "Licensing 101." Last accessed May 31, 2017. ► https://www.soundexchange.com/service-provider/licensing-101/.

251 Harwood, D. Emily. "Staying Afloat in the Internet Stream: How to Keep Web Radio from Drowning in Digital Copyright Royalties." *Federal Communications Law Journal* 56, no. 3 (May 2004): 675–695.

252 Rosenthal, Morris. "Book Contracts- Author Royalties, Advances, and Rights in a Publishing Contract." *Foner Books*. July 11, 2005. Last accessed June 29, 2010. ► http://www.foner-books.com/contract.htm.

253 Walsh, Caroline. "Publishing Agreements." *Writers & Artists*. Last accessed May 31, 2017. ► https://www.writersandartists.co.uk/writers/advice/162/after-publication/rights-and-legal-advice/publishing-agreements.

When a book is out of print, in other words the publisher is not selling or producing it anymore, the rights may return to the author, by contract. But electronic print-on-demand permits publishers to now claim that a book is never out of print, and that they therefore permanently keep the rights to it. The Authors Guild, representing writers, termed this the worst of both worlds for an author: no marketing of a book by a publisher, yet no possibility of escape. Authors therefore seek contracts that specify tests for out-of-print besides availability, such as minimum sales or sales promotion efforts.[254]

When a book becomes the basis for a film, the first stage is typically an option arrangement. The book publisher (or author, depending on who retains the rights) enters into a literary option/purchase agreement. This means that a producer, or studio, in return for a payment (normally about 10% of the literary property's final purchase price if the option is exercised), gets the exclusive right to purchase by a specified time. After that period, the work can be purchased by anyone.[255]

The determinants of the option fee are the demand for literary property, the length of the option, the type of project (movie, television, etc.), the purchaser's resources, and the two parties' respective eagerness. An option period is typically set at 12–18 months, after which it expires. The option fee will typically be credited as the overall purchase price later if the option is exercised. There may also be a "set-up bonus"—an additional fee compensation to the buyer of the option if he makes a production deal with a film studio or TV network.[256]

The purchase price for a screenplay is subject to negotiations, but the minimum terms for a Hollywood production are set by and industry-wide contract negotiated with the writers' union (WGA). Minimum purchase price for an original screenplay is around $30,000–$70,000, depending on the production budget. But the WGA agreement does not cover books, articles, or plays that form the basis for a film. The copyright holder may get an upfront fixed amount, or a percentage of the production budget, or a percentage of the net profit of production (typically 5%). The latter arrangement means that the copyright holder shares in the film's upside and downside potential.

The copyright owners may try to keep certain rights in the options agreement, such as the publication rights, if the purchaser of the work does not use it for production after a given period of time; it may return ("revert") to the author's control, if so agreed, so that she can solicit another option deal. Well-established writers may retain creative control through approval rights over the use of their work.

Online book publishing has somewhat different arrangements. Amazon.com's Kindle store pays authors or publishers a 70% royalty rate of retail revenues.[257] There are several conditions, including that the price of the book must be below $10, and above $3, and at least 20% lower than the price charged for a paper version of the book.[258] Outside these brackets, Amazon keeps a much steeper cut of 65% in order to discourage such pricing. This issue is also discussed in ► Chaps. 11 and 12.

Amazon has historically held close to 65% of the e-book market and 40% of the total book retail market. The publishers, as they lost bargaining strength, rallied consumers to their side even though their goal was to keep consumer prices high. Publishers sold their digital works over Amazon with the same wholesale prices used for print. Amazon sold new book releases and bestseller for $9.99, even though these books typically sold in hardback for $26 to $35. Amazon's goal was to accelerate e-book sales. Publishers, though they collected the same wholesale price whether for print copies or e-versions, feared that in time a dominant Amazon would press them for much cheaper wholesale prices. To keep prices at $9.99, Amazon had to absorb substantial deficits. By 2009 it was covering $2, $5, and $7 losses on the sale of nearly every copy of the most popular titles.[259] Enter Apple. In contrast to Amazon, Apple operated a different model. Whereas Amazon used a wholesale model in which it set its own retail prices, Apple operated on an agency model. It takes the same 30% commission for books on whatever price the publisher's charges.

Apple had a "most favored nation" arrangement with publishers which gave it the right to match the price at which any e-book was being sold by another retailer, for example Amazon. If Amazon priced a book at $9.99, Apple could sell that book at $9.99 too, and the publisher would make only 70% of $9.99 from Apple—$7—instead of the $12 or $15 wholesale price it would get for that book from Amazon.

The publishers therefore had to push Amazon to get off its low price of $9.99. Macmillan's chief executive officer (CEO) John Sargent, leading the industry, gave Amazon a choice. Amazon could switch to agency (i.e. a percentage cutoff whatever price the publishers chose), or it could stay on the wholesale model. In that case, Macmillan would then window all its digital new releases, that is, release them gradually. Amazon then pushed back: it removed the buy buttons on all Macmillan books. This exercise

254 Rosenthal, Morris. "Book Contracts- Author Royalties, Advances, and Rights in a Publishing Contract." *Foner Books*. July 11, 2005. Last accessed June 29, 2010. ► http://www.foner-books.com/contract.htm.

255 Perez Esq., Dinah. "The literary option & purchase agreement." *Surfview.com*. Last accessed on August 1, 2012. ► http://www.surfview.com/sedpfrm.htm#THE%20LITERARY%20OPTION%20AND%20PURCHASE%20AGREEMENT.

256 Appleton, Dina and Dan Yankelevits. "Optioning Literary Properties." *Hollywoodlitsales.com*. June 21, 2005. Last accessed on August 1, 2012. ► www.hollywoodlitsales.com/ownwords/optioning.shtml.

257 Trachtenberg, Jeffrey A. "Amazon Launches Royalty Plan for E-Books." *Wall Street Journal*. January 21, 2010. Last accessed May 31, 2017. ► https://www.wsj.com/articles/SB10001424052748704320104575014653299582416.

258 Engadget. "Amazon announced new option they put their loyalties to 70% and it will start from end of July." January 20, 2010. Last accessed August 22, 2011. ► http://japanese.engadget.com/2010/01/20/kindle-70-6/.

259 Parloff, Roger. "Second Bite: Can Apple clear its name in the ebooks drama?" *Fortune*. December 2, 2014. Last accessed May 31, 2017. ► http://fortune.com/2014/12/02/apple-ebooks-litigation/.

of market power led to very negative publicity. Amazon, having flexed its muscles, agreed to switch to the agency model.

When the iBooks Store opened, most of the five major publishers' new-release books were priced at or near the $12.99 or $14.99 price caps, not at Amazon's $9.99. For the publishers this was a positive ending, but for consumers it meant higher prices.

Amazon fought Macmillan's demand to charge higher prices instead of $9.99. But it was unable to hold the line when publishers could charge more on Apple iPad/iTunes.[260] Amazon capitulated and accepted the agency model Macmillan demanded.

Amazon and Barnes & Noble both concluded that the price of an e-book should be between $3 and $10. They pushed publishers toward that price range by offering a more favorable percentage of the list price. At the bottom end publishers cannot sell an e-book for less than $1. Amazon has two tiers. For list prices in the desirable range between $3 and $10, the publisher receives 70% of the list price, minus the delivery fee. When the list price is below $3 or above $10, the publisher receives only 35% of the list price. In Europe, Amazon pays publishers 70% minus a delivery fee based on the file size (which runs from about $0.10 to $0.15 per megabyte). In Canada, Kobo pays publishers 70%.

The publisher, in turn, pays the author a rate of 5–15% on the 70% of retail which they get.[261] In Japan, one of the biggest publishing companies, Kodansha, set authors' royalty rates for electronic books to 15% of retail, excluding tax.[262] For paperbacks, royalty rates are usually about 10%. Kodansha's contracts require exclusivity and the company sets the retail prices.

There are also audio books, typically downloaded online. With audio book content, some US book publishers have exclusive three- to five-year contracts for all or some of their titles with the website Audible.com (owned by Amazon), which in turn is the exclusive supplier of online audiobook content to both iTunes (Apple) and Amazon. The exclusivity of iTunes was ended in 2017 when Amazon agreed to drop it in response to an investigation by the EU. iTunes can sell any audiobook.[263] Audible, through its affiliate ACX, gets to keep a decreasing percent as its share. ACX connects rights holders (i.e. publisher, self-published authors, etc.) with production individuals (narrators, audio engineers, studios, producers, etc.) so that audiobooks can be generated. Once the audiobook is created it can either be distributed by ACX to Audible, Amazon, and iTunes exclusively, or by a non-exclusive contract which allows the publisher to distribute it through another distribution channel.

An example of a European audiobook seller is Storytel AB, a Swedish company founded in 2005. For about $25 a month, users are able to stream unlimited audiobooks.

Licensing Organizations for Print

In 1938, patent attorney Chester Carlson made the first "electrophotographic" image. In 1947, Carlson licensed the technology to the Haloid company to develop the machine. By 1960, the Haloid machine was a huge success, and the company was renamed Xerox. Copying became easy and cheap. And so, therefore, did the unauthorized copying of copyrighted materials. Tape recorders had already done the same for music, starting in the 1950s.

Countries adopted different approaches to the new technology. For a while France imposed a tax on all copying machines, with its revenues paid out to copyright owners according to a formula. France and Spain had a per-page tax in certain circumstances.[264] Austria taxes blank tapes, and Germany taxes recording equipment.[265, 266] The USA mainly went the route of IP law enforcement. Reproduction rights organizations were created as a mechanism to pay participating publishers for copies. The CCC, based in Massachusetts, was established in 1977. Similar organizations exist around the world.[267] CCC manages the rights of millions of works of art, sound, and images, representing more than 10,000 publishers and hundreds of thousands of creators. It also operates an Amsterdam-based subsidiary, Rights Link, for European publishers. CCC facilitates transactions, especially by universities, to reproduce course reading materials from copyrighted articles and chapters from books. It deals with millions of individual licensing transactions each year. In 2013, according to its annual report, the CCC collected $100 million in royalties per year, over three times as much as in 2000. It is the largest licensor of rights for academic paper course packs in the USA through its Academic Permissions Service. This

260 Rich, Motoko and Brad Stone. "Publisher Wins Fight With Amazon Over E-Books." *New York Times*. February 1, 2010. Last accessed May 31, 2017. ► http://www.nytimes.com/2010/02/01/technology/companies/01amazonweb.html.

261 Milliot, Jim. "Authors Guild Slams 'Inadequate' E-book Royalty." *Publishers Weekly*. July 9, 2015. Last accessed May 31, 2017. ► http://www.publishersweekly.com/pw/by-topic/digital/content-and-e-books/article/67433-authors-guild-slams-inadequate-e-book-royalty.html.

262 J-Cast. "What will happen on royalty with moving to electronic books? It seems too cheap the price Kodansya set." October 31, 2010. Last accessed August 29, 2011. ► http://www.j-cast.com/2010/10/31079548.html.

263 Kastrenakes, Jacob. "Apple and Amazon End Decade-Long Audiobook Exclusivity Deal." *The Verge*. January 19, 2017. Last accessed May 31, 2017. ► https://www.theverge.com/2017/1/19/14323438/apple-audible-exclusivity-agreement-ended-antitrust-investigation.

264 Guibault, Lucie. "The Reprography Levies across the European Union." *Institute for Information Law*. March 2003. Last accessed May 31, 2017. ► https://www.ivir.nl/publicaties/download/reprography_levies.pdf.

265 Reuters. "Austria's Supreme Court Orders Amazon to Pay Copying Levy." *Business Insider*. March 17, 2017. Last accessed May 31, 2017. ► http://markets.businessinsider.com/news/stocks/r-austrias-supreme-court-orders-amazon-to-pay-copying-levy-2017-3-1001846593.

266 WIPO. "International Survey on Private Copying." June 5, 2015. ► http://www.wipo.int/edocs/pubdocs/en/wipo_pub_1037_2016.pdf.

267 Cancopy (Canada), Union des Ecrivain Quebecois (Canada), Kopiosto (Finland), Centre Francais du Copyright (France), VG Wort (Germany), KOPIKEN (Kenya), Kopinor (Norway), Pro Litteris-Teledrama (Switzerland), Copyright Licensing Agency Ltd. (UK).

is provided through its rapidly growing Electronic Course Content Service.[268]

7.3.4.7 Licensing of Films, TV, and Games

Factors in Licensing of Films and TV Shows

Film producers or distributors often issue licenses to pay-TV networks such as HBO or Canal Plus, and to advertising-supported TV networks such as CBS or Televisa. Each of these programming wholesalers buys licenses for hundreds of titles a year, spending billions of dollars to license slates of films from major Hollywood distributors.[269] Such licensing of films to programming wholesalers can give studios and producers a solid base of financing in advance of production. Another option is to sell distribution rights of the film in exchange for an agreed-upon royalty or sharing percentage in gross or net revenue ("participation"). Producers can borrow money from banks using these agreements as collateral.[270] A film or TV show can be sold by a producer to a distributor in every aspect, or limited in terms of rights to a particular language market, geographical territory, or media type (pay per view, video on demand, TV, in-flight movies, etc.). The producer tries to keep the license specific and narrow in order to allow the licensing of the product to other licensees.[271] Films also have future potential licensing opportunities for sequels, TV series, books, products, and so on. The ownership of these rights needs to be clearly partitioned from other licensing agreements.[272]

Production companies license programming to networks. A typical network licensing fee in the USA for regular television shows is about $1–2 million per episode, with one rerun, and $0.7–0.8 million for reality shows. Exclusive and unique shows such as award ceremonies have higher licensing fees.[273]

Additionally, networks or independent producers may license—or "syndicate"—their program licenses to other broadcasters. In 2010, NBC Universal bought exclusive syndication rights to the hit sitcom *Modern Family* for its USA channel for $1.4 million per episode, and *Glee* for its Oxygen channel for half a million per episode. Sony Pictures, which owns hundreds of television series (*Fantasy Island*, *Charlie's Angels*, *All in the Family*, *Designing Women*, etc.) made over two-thirds of its money in the 1990s from licensing such programs to television stations throughout the world.[274] TV shows are often licensed for syndication at major TV trade fairs such as the NATPE market in the USA and MIPCOM in Cannes, France.

Royalties for Film and TV Content Producers

In 2002 NBC paid Warner Brothers, the producer, $10 million per episode in licensing fees for the tenth season of the sitcom *Friends*. This was the highest price ever paid for a 30-minute sitcom, which NBC justified by citing the huge fan following of the show. The company expected to recover the cost by selling advertising time at about $450,000 per minute, or about $7 million per episode, and by using the show to plug its other series extensively.[275] Because of the high price of the show, NBC bought only 18 episodes of the season, including reruns. The show, even though still quite popular, was discontinued owing to its high cost. A more typical US TV drama show received $1.5 million per episode from a major network. On average, it costs about $3 million to produce a network show episode.[276] *Two and a Half Men* and *The Big Bang Theory* cost over $4 million an episode.

The independent producers of a film or TV program in turn pay royalties to performers and participants. These can have two components, flat and contingent.

The flat royalties are governed by a union contract as a floor; above it they are governed by negotiation and contracts. Contingent royalties come in two types: gross and net. In gross participation, the recipients are entitled to a share of the total revenues received by the studio. In net deals, performers or investors get paid only after deductions are taken, which often reduces profits to zero. Of gross participants, "dollar one" parties have the best deal because they get a share of all the revenue received by the studio even if the film loses money. For example, for the film *Saving Private Ryan* the lead actor Tom Hanks and the director Steven Spielberg each received 16.75% of the revenues from the first dollar brought in by the film, adding up to $30 million each from the theatrical distribution alone.[277] In contrast, most other gross participants get a share of the film's revenues only after

268 United States Patent and Trademark Office. Technological Protection Systems for Digitized Copyrighted Works. January 14, 2003. Last accessed August 1, 2012. ► http://www.uspto.gov/web/offices/dcom/olia/teachcomments/copyrightcc.pdf.

269 Marich, Robert. *The European Commission EC versus the Hollywood Studios*. New York: Informa, 2004.

270 Garon, Jon. "Film Financing and Distribution Deals." Gallagher, Callahan and Cartrell. August 2009. Last accessed August 1, 2012. ► http://www.gcglaw.com/resources/entertainment/film_distribution_deals.html.

271 Lisotta, Christopher. "Reality Gets Reworked for Prime." *Television Week* 23, no. 33 (August 16, 2004): 41–42.

272 Litwak, Mark. "Frequently Asked Questions: Music." *Mark Litwak's Entertainment Law Resources*. Last accessed June 27, 2011. ► http://www.marklitwak.com/faq/music.html.

273 Networks pay a fee of between 5.5 and 7.5 million dollars for the Emmy awards and 5 million annually for the Grammy awards. ABC has a seven-year contract for the Oscars for a total of 350 million dollars (fifty million dollars per year). Albiniak, Paige. "The Emmy goes…nowhere." *Broadcasting & Cable*. November 17, 2002. Last accessed May 31, 2017. ► http://dev.broadcastingcable.com/news/news-articles/emmy-goes…nowhere/94525.

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

275 Braxton, Greg and Elizabeth Jensen. "Even as It Loses Money, 'Friends' Is Must-have TV." *Chicago Tribune*. December 24, 2002. Last accessed June 18, 2013. ► http://articles.chicagotribune.com/2002-12-24/news/0212240289_1_matt-leblanc-tentative-deal-nbc.

276 Carter, Bill. "Weighty Dramas Flourish on Cable." *New York Times*. April 4, 2010. Last accessed May 31, 2017. ► http://www.nytimes.com/2010/04/05/business/media/05cable.html.

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

the film has earned a certain amount, and net participants are entitled to a share of the profit only after numerous deductions are taken from the gross.

A special royalty system exists for DVD sales to pay the creators of a film. A studio's distribution arm pays the producers (typically an independent entity) 20% of the DVD wholesale revenues. This is the gross revenue of the producer for calculating payments to the artists or other participants. This leaves most of the DVD's revenues with the distributor.

To understand these internal transactions, an example provided by Edward Epstein is the sale of DVDs for the film *Gone in 60 Seconds*. Buena Vista Home Entertainment International (BVHEI), the distribution arm of Disney, earned $198 million from sales and rentals of videos and DVDs of this film. BVHEI then credited another Disney subsidiary, Walt Disney Pictures, the 20% royalty, which was $39.6 million. Against these gross rentals, BVHEI deducted as a video distribution fee $12.6 million and expenses of $7 million. This left $18.4 million credited to the film, which was then divided among participants for profit distribution. The actor Nicholas Cage received, by his contract, 10% of the video gross, in other words $3.96 million. If net profits were the basis, Cage would have received $1.84 million. But the actual gross receipts of $198 million had been used to calculate his share, he would have instead have been due $19.8 million. (For further detail, see ► Chap. 13 Accounting in Media and Information Firms.)

Residual Royalty Payments

A problem that emerges regularly is whether the creator who sells the rights to his creation for current distribution media has thereby handed over the rights to any future and new forms of distribution. In the 1990s, freelance journalists sued the *New York Times* for copyright infringement after it republished print-licensed articles in digital form. In 1997, the US Supreme Court agreed, and ruled that the publishers must explicitly purchase electronic rights from an author before reproducing the material in an electronic format. A publisher cannot simply "repurpose" the original material into other forms of media without permission.[278] The case sent a shockwave through the media sector, and from that time on contracts included a blanket clause that covered future distribution forms.

Similarly, the licensing of TV "residuals" has been the source of controversy. A residual is a sum paid to actors and writers every time a commercial, a TV show, or an episode airs or a copy is sold. In 1992, the Screen Actors' Guild (SAG) negotiated a contract which established a residuals compensation of 12% of a minimum of $761 for the first rerun of a program and 1% of the minimum for the thirteenth rerun and beyond.[279] In 2006, SAG succeeded in raising the residual to 17% of the license payment by the TV station or network for the first rerun and to 1.5% for the thirteenth and subsequent reruns. When the contract expired in 2008, a lengthy dispute ensued.[280] Similarly, disagreements over residuals compensation resulted in the prolonged and costly writers' strike of 2007–2008.

Licensing of Online Video

Licensing of online distribution of video content is an active area of development. Download services for feature films, such as Amazon, typically pay about 50–60% of their revenue to the copyright holders. This payment is somewhat lower for subscription services.

For the licensing of films there are two parts to a contract. The first is for new film releases. Streaming services such as Netflix negotiate a time release (such as 12 months from the opening date) when the film enters the streaming service. The rate at which the streaming service pays varies based on the film's box office performance. Netflix uses a rate card which in 2016 set the rate which it paid for the film, which could range from $787,500 for a film grossing less than $1 million up to $19 million for a film grossing more than $125 million.[281] Such rate cards are negotiated between the two sides, based on different factors such as exclusivity, the time frame of the contract (how many years it runs), and other factors.

The second part deals with back catalogs of films and television. Here, streaming services use big data analysis to explore the types of content their customers are viewing. Netflix has been cutting down its back catalog of films, having found that no matter how large a catalog is offered, average consumers only spend about a third of their time watching films; the rest is spent viewing original content and TV shows.[282] For TV, streaming services negotiate for exclusivity and how many seasons they get access to, along with the desirability of the content. As part of Netflix's deal with Disney, it acquired the streaming rights for TV shows such as *Lost*, *Scrubs*, and *Desperate Housewives*, paying $45 million, $26 million, and $12 million respectively each year of the agreement.[283]

278 *New York Times Co v. Tasini* 533 U.S. 483 (2001).

279 McNary, Dave. "SAG's Keeping Cable on the Table." *Daily Variety*. March 16, 2006.

280 Wyatt, Edward. "Screen Actors Approve New Contract." *New York Times*. June 9, 2009. Last accessed May 31, 2017. ► http://www.nytimes.com/2009/06/10/business/media/10sag.html.

281 The information regarding this rate card came about due to an ongoing lawsuit between Relativity Media and Netflix. Gardner, Eriq. "Relativity's $1.5 Billion Lawsuit Offers Rare Peek at Netflix License Agreement." *The Hollywood Reporter*. October 18, 2016. Last accessed May 31, 2017. ► http://www.hollywoodreporter.com/thr-esq/relativitys-15-billion-lawsuit-offers-939463.

282 McAlone, Nathan. "Netflix Explained Why Its Movie Selection Has Gotten So Skimpy." *Business Insider*. December 5, 2016. Last accessed May 31, 2017. ► http://www.businessinsider.com/netflix-viewing-is-a-third-movies-no-matter-what-2016-12.

283 Investopedia. "How Netflix Pays for Movie and TV Show Licensing." June 25, 2015. Last accessed May 31, 2017. ► http://www.investopedia.com/articles/investing/062515/how-netflix-pays-movie-and-tv-show-licensing.asp.

Case Discussion

NBC Universal Film and TV Licensing

NBC grants licenses for use of its content ("outbound licensing"), and acquires licenses to content by others ("inbound licensing"). In an example of outbound licensing, NBC Universal struck a multiyear licensing agreement with BSkyB in 2012. The agreement provides BSkyB with NBC's TV rights in the UK and Ireland. TV content includes *Law & Order: Special Victims Unit* and *Cold Case*. BSkyB is the largest pay-TV broadcaster in Britain and Ireland with 10 million subscribers, and is controlled by 21st Century Fox, NBC's rival in the USA. The contract also allows BSkyB to air Universal films, with exclusive access, after they end their UK theatrical runs, for a window of about a year until they also become available on other subscription services, such as Netflix. The financial terms of the agreement were not disclosed.[284] However, BSkyB spent about $3.5 billion per year on obtaining exclusive rights to first-run films from Hollywood film studios. The average for a Hollywood studio is therefore about $600 million for films, plus about $400 million for the licensing of TV series from NBC and Universal.

Other examples of outbound licensing are Universal's license to Netflix for television series from NBC Universal as well as from NBC's cable channels USA, Syfy, and so on. Through 2010, Universal received about $22 million from Netflix through its licensing contract. That figure grew to $275 million per year upon renewal of the contract in 2011. Universal also entered in 2011 into a movie-licensing contract with Amazon.com. Amazon paid NBC Universal an estimated $50 million for four to five years of the right to show many of its movies and TV shows. Another outbound licensing deal of NBC was with LOVEFiLM, Amazon's European online film operator that competes with Netflix for the streaming of video. LOVEFiLM received access to hundreds of US TV series.

NBC began selling TV shows on Apple's iTunes in 2010, but NBC was unhappy with the price for single downloads and with Apple's 30% take. As a result, NBC temporarily stopped selling TV shows on iTunes in 2010.[285]

Examples for NBC's inbound licensing are discussed further below.

7

Licensing by Cable TV Channels to Retailers: Cable TV Operators (MSOs)

Once the cable TV channels obtain inbound licenses, as described in the preceding case discussion, they aggregate these items of content into a bundle of programs. These channels, in turn, are offered to cable television and satellites operators who generally pay a licensing fee to the cable program channel provider. Some program channels may be carried without compensation and support themselves from the advertising they carry. Some may even pay an upfront fee to the cable platform company in order to be carried. But most non-subscription channels get paid by cable operators a licensing fee that varies from a few cents per subscriber per month to over $5.[286] In 2013, cable channels included[287]: ESPN, the sports network, was at the top, with $5.54 per cable subscription per month; Disney Channel got $1.15; Fox News $0.94; CNN $0.60; and Animal Planet $0.10. For pay-TV, where there is no advertising, the cable operators split subscription revenues with channel providers about 50:50.

Licensing by Syndicators to Retailers

First run syndications are programs sold by TV producers directly to smaller networks, cable channels, and local TV stations without being shown first on a major network. "Programming strips," shows, are slotted into the same time daily (e.g. *Entertainment Tonight* or *The Wheel of Fortune*), and are broadcast in first run syndication, especially game shows and cartoons. Shows can also be first run syndicated to cable channels when they fail to garner an audience on the major networks. Sometimes first run syndication proves more successful than broadcasting on network television. For example, *Baywatch* was unsuccessful during its first season on NBC in 1989, but was extremely popular as a first run syndicated show.[288] Second run syndication shows are programs that have already been shown on major TV or cable networks and are subsequently distributed over lesser channels.[289]

In barter syndication, a program is given by a syndicator to a TV station or channel without charge, but with several minutes of advertising controlled and sold by the syndicator. There are also mixed deals (cash-barter syndication), where a station pays a fee and will also set aside commercial slots for the syndicator. For those advertising slots to be interesting to advertisers and manageable for the syndicator, the syndicator typically must sell the show in over half of the country. There are barter advertising sales companies that sell advertising slots on behalf of the syndicators. For example, Camelot Entertainment Sales is the barter advertising arm of the syndicator KingWorld.[290]

284 Szalai, Georg. "U.K.'s BSkyB Extends NBCUniversal Movie Deal With Exclusive Window." *The Hollywood Reporter*. November 6, 2012. Last accessed June 4, 2013. ► http://www.hollywoodreporter.com/news/uk-bskyb-nbcuniversal-movie-tv-deals-exclusive-netflix-lovefilm-386837.

285 Tenny, Paul William. "NBC Screws up with Amazon Unbox Deal." *Mediapundit*. September 6, 2007. Last accessed July 15, 2013. ► http://www.mediapundit.net/2007/09/nbc-screws-up-with-amazon-unbox-deal.html.

286 Sports Business Daily. "Subscriber Revenue, Assets Give ESPN A Leg Up Against Competitors." November 25, 2008. Last accessed May 31, 2017. ► http://www.sportsbusinessdaily.com/article/125828; Pew Project for Excellence in Journalism. "Network TV: Economics." 2010. Last accessed May 31, 2017. ► http://www.stateofthemedia.org/2010/network-tv-summary-essay/economics/.

287 Bui, Quoctrung. "The Most (And Least) Expensive Basic Cable Channels, in 1 Graph." *NPR Planet Money*. September 27, 2013. Last accessed May 31, 2017. ► http://www.npr.org/blogs/money/2013/09/27/226499294/the-most-and-least-expensive-cable-channels-in-1-graph.

288 Fletcher, James. "Syndication." *Museum of Broadcast Communications*. June 21, 2005. Last accessed July 1, 2010. ► www.museum.tv/archives/etv/S/htmlS/syndication/syndication.htm.

289 Examples include *The Sopranos*, for which the channel A&E paid Time Warner's HBO $2.5 million per episode in 2006, after they were already repeatedly shown on HBO; *CSI: New York*, for which Spike TV paid CBS $1.9 million per episode in 2006; and *House*, for which NBC paid Fox $1.4 million per episode in 2008 to broadcast the show on its cable subsidiaries, USA Network, and Bravo. TV stations and cable networks keep broadcasting the entire series of successful old TV shows, from *I Love Lucy* of the 1950s to *The Gilmore Girls* of the 2000s. Warner Brothers, the production company for *Friends*, collected over $4 million per episode from syndicating the series to local TV broadcast stations.

290 Blumenthal, Howard J. and Oliver R. Goodenough. *This Business of Television*. (New York: Bill Board Books, 1998), 30–45.

Licensing in Video Games

In game licensing, IA owners such as game developers or game publishers receive a percentage of sales revenue. They may also receive an advance and a guarantee regardless of sales success. Other license fees are paid to the owners of films that are the basis of games. Such licenses will usually cost 5–7% of sales and 12–15% for blockbuster titles (sales greater than $5 million). In other instances, it is the game that precedes the film in positive recognition, and the licensing process goes in the other direction.

7.3.4.8 Compulsory Licenses

Compulsory Licenses for Copyrights

So far, we have mostly discussed the licenses among producers and distributors, or between distributors and retailers, for example. They are commercial transactions, with prices set by market forces and bargaining among the parties. Inevitably, various economic interests and constituencies will try to modify the commercial transaction through governmental intervention. Some parties will argue that they are being expropriated, overcharged, or excluded, or that consumers suffer, and in consequence that regulated license fees are necessary. In the USA, a compulsory license exists for most musical compositions. An artist may use someone else's composition in live performance or recordings. The artist must give notice to the copyright owner (or the copyright office if the owner cannot be found) and pay a royalty set by the governmental body in charge. Compulsory licenses exist for "cover songs," in which an artist plays another artist's song. An example is Jimi Hendrix's version of Bob Dylan's "All Along the Watchtower." To cover this song, Hendrix had to serve notice of intention to do so on Dylan and the copyright office. He had to pay the then-current royalty rate, which was 9.1 cents (or 1.75 cents per minute of playing time).[291] The compensation rate is set by bodies such as copyright tribunals (UK, Australia, and other countries) or the CRB in the USA. Artists and composers were often unhappy with the system. The late singer Prince complained: "A lot of times, people think that I'm doing Sinead O'Connor's song and Chaka Khan's song when in fact I wrote those songs … there's this thing called the compulsory license law, which allows artists, through the record companies, to take your music, at will, without your permission. And that doesn't exist in any other art form, be it books, movies—there's only one version of 'Law and Order.' But there are several versions of 'Kiss' and 'Purple Rain.'"[292]

There is also a compulsory license in the USA that permits cable MSOs and direct broadcast satellite (DBS) broadcasters to carry "distant signals" of local TV stations in other parts of the country (and local TV for DBS carriers), without requiring permission by the TV stations and networks, as long as a statutory licensing fee is paid to the broadcasters at the price set by the CRB.

The licensing fee is set by the CRB with a complex formula. It is based on the gross program receipts from the number of distant signal equivalents on the cable system. Twice a year, the cable operator files a statement about its system revenue and signal carriage, as well as the royalty fee payment.[293]

Cable and satellite operators are required to obtain a retransmission consent from TV stations; that is, to pay a license fee for the channel. Quite regularly, the two sides cannot agree on the compensation and the channels are then "blacked out," causing public inconvenience. For example, in 2013 Time Warner Cable, the second largest cable operator in the USA, blacked out all CBS-owned networks for a week. This led to calls for a governmental setting of prices. Retransmission consent (i.e. license fees) does not apply to public broadcasters, whose content is therefore free for cable distribution.

The CRB also sets the default rates that online music services must pay for their ability to carry music of their choosing. This was discussed earlier.

In 2018, the US Congress passed a "Music Modernization Act" that creates a mechanism for music and music publishers. It establishes a government-sanctioned mechanical licensing collective overseen by both songwriters and streaming services, and enables the latter to get blanket licenses rather than having to track down the rights holders. It would also create a database of rights holders so they would receive their license royalty payments.

Compulsory Licensing for Patents

Compulsory license may exist for patents. In the USA, the government authorizes defense contractors, in certain situations, to infringe patents, with the government assuming liability. These cases are rare, however.

Courts or governments have in the past mandated the sharing of patents ("compulsory licensing"). When AT&T was a near-monopolist in telecoms, it had to share its patents with others.[294] That 1956 consent decree greatly affected the microelectronics industry because it led to the diffusion of semiconductor technology. AT&T, which held a dominant

291 17 U.S.C. § 115 "Scope of exclusive rights in nondramatic musical works: Compulsory license for making and distributing phonorecords." The UK's copyright tribunal in 1991 set the record royalty rate for musical works at 8.5% of the dealer price (excluding VAT) of every record. This can alternatively be expressed as 6.5% of the retail price (excluding VAT).

292 Masnick, Mike. "Prince claims when someone covers your songs, the Original no Longer Exists." *Techdirt*. April 21, 2011. Last accessed February 27, 2012. ► http://www.techdirt.com/articles/20110420/13280113977/prince-claims-when-someone-covers-your-song-original-no-longer-exists.shtml.

293 Royalty rates are typically 89% of the gross receipts (GR) for non-network programming; 89% of the GR for the first distant signal equivalent; 56% of the GR for the second, third, and fourth distant signal equivalents; and 27% of the GR for each additional distant signal. If the GR paid by the subscribers is less than $146,001, then the GR equals: Actual GR – (Actual GR - $146000), but the GR cannot be reduced to less than $5600. The royalty fee is therefore 50%. If the GR paid by the subscribers is greater than $146,000 but less than $292,000, then the royalty fee is 50% of any GR up to $146,000 plus 1% of any GR in excess of $146,000 (but less than $292000).

Royalty rates for cable systems within the top-50 television markets are calculated differently. For the first distant signal equivalent, the royalty rate is 60% of the GR for the first distant signal equivalent. For the second, third, and fourth distant signal equivalents, the royalty rate is 38% of the GR. The royalty rate is 18% of the GR for each additional distant signal equivalents. In the second television market the royalty rate is 30% of the GR for the first distant signal equivalent; 19% of the GR for the second, third, and fourth distant signal equivalents; and 89% of the GR for each subsequent distant signal equivalents.

294 IBM, too, was forced to share some of its technology.

patent position in 1956, adopted a policy of licensing its semiconductor patents at nominal rates to all-comers. (e.g. its researchers developed the transistor.) AT&T, by the terms of consent decree, could produce only for its own network needs. It was required to cross-license its patents. As a result, virtually every important technological development in the industry was available to rivals and employees of AT&T, who went into business for themselves. This would sow the seeds for Silicon Valley.[295]

Countries that belong to the World Trade Organization (WTO) can attain compulsory licensing for pharmaceutical products, enabling that country to distribute a pharmaceutical product without explicit permission from the patent owner. The country may also import such drugs from a manufacturer without a license if the country does not have the capacity to manufacture drugs. In India, the first compulsory license (with a statutory license fee) was utilized by the domestic pharmaceutical firm Natco, which made and sold the cancer drug Sorafenibtosylate that had been patented by the German drug company Bayer. It paid Bayer the low statutory license fee.[296]

Inevitably, such rules that aim to help cancer patients were soon used to help out domestic manufacturers that do not like to pay license fees to foreigners. (And who does?) The Taiwan government granted in 2004 a compulsory license to the Taiwanese firm Gigastorage, a maker of office electronic storage devices, for the CD-R technology of five patents held by the Dutch company Philips.[297] Philips sought a higher license fee that Gigastore wanted to pay. In addition, Gigastore had cheated Philips in its past sales reports, and Philips, understandably, was not eager to do business with it. Gigastore then persuaded the Taiwanese government to force Philips to give it a compulsory and low-rate license based on "local need," even though it produced largely for the export market.

In 2002, the US Department of Justice settled a long-running anti-trust case against Microsoft. It required the company to license on reasonable and non-discriminatory terms IPR for several protocols that were required for applications software to be interoperable with Microsoft Windows. This led to the creation of "middleware" providers with access to Microsoft's operating system. The compulsory license was free.

In 2004, the European Court of Justice, in a ruling on compulsory licensing of IPR under European competition law, set four conditions in the case *IMS Health vs. Med*[298]:

- The IPR should constitute, upstream, an indispensable factor in the downstream supply of a (secondary) product.
- The potential licensee should intend to produce new goods or services not offered by the owner of the right, and for which there is a potential consumer demand.
- The refusal should not be justified by objective reasons.
- The refusal should be of such a nature that it reserves for the owner of the right the market for the provision of the product, by eliminating all competition on that market.

7.3.4.9 Creating Tradable Securities from Intellectual Asset Income Streams: Securitization

IAs are often illiquid, yet the assets may have a fairly predictable revenue stream. Often the owners of the IA, such as artists or their heirs, wish to borrow money to spend against future receivers. But traditional lenders do not consider IP as collateral. To deal with this, some financial institutions created a system of "securitization," in which the copyright holder issues securities (i.e. borrows money) and the buyers of the security (i.e. the lender) is paid back from annual royalties. Securitization allows the owner to keep 100% ownership of the assets being financed, though the IA could also be sold to a financial entity. The best-known example of this is the "Bowie bond" of the 1990s. The singer David Bowie (as well as Elton John, Sting, and others) issued publicly traded bonds using future album revenues to back the debt issuance. David Bowie received $55 million, repaid by subsequent royalty payments. Similarly, James Brown made $30 million through Bowie bonds. The securitization of IP has also been done for events, books, films, sports events, and video games.

Securitization offers several advantages, such as greater liquidity, diminished risk to the artist, and tax-advantages to the investor.[299] This is discussed in greater length in ► Chap. 6 Financing Media, Information, and Communication.

7.3.4.10 Sports Licensing

Traditionally, major sport rights have been controlled by industry cartels ("leagues") of content-producing companies ("teams"), or by event sponsors such as the International Olympic Committee (IOC) and the international soccer federation (FIFA). They operate through three legal mechanisms[300]:

- control of access to private location (e.g. stadium, racetrack);
- control of IP for distribution of the content (media rights);
- control of event partners (major advertising sponsorships and general sponsorship).

The laws are favorable to sports firms. For example, baseball is specifically exempted from the anti-trust laws in the USA.[301] Moreover, the sport content product is perishable, which reduces piracy.

295 Mowery, David C. *Science and Technology Policy in Interdependent Economies.* (Boston: Kluwer Academic, 1994), 217.

296 Estavillo, Maricel. "India Grans First Compulsory Licence, For Bayer Cancer Drug." *Intellectual Property Watch*. December 3, 2012. Last accessed May 31, 2017. ► http://www.ip-watch.org/2012/03/12/india-grants-first-compulsory-licence-for-bayer-cancer-drug/.

297 Love, James Packard. "Recent examples of the use of compulsory licenses on patents." *KEI Research Note 2, Knowledge Ecology International.* March 8, 2007, revised March 31, 2007. Last accessed May 31, 2017. ► http://www.keionline.org/misc-docs/recent_cls_8mar07.pdf.

298 Love, James Packard. "Recent examples of the use of compulsory licenses on patents." *KEI Research Note 2, Knowledge Ecology International.* March 8, 2007, revised March 31, 2007. Last accessed May 31, 2017. ► http://www.keionline.org/misc-docs/recent_cls_8mar07.pdf.

299 Ghent, Andra and Rossen Valkanov. "Advantages and Disadvantages of Securitization: Evidence from Commercial Mortgages." *SSRN*. March 1, 2013. Last accessed May 31, 2017. ► http://www.vgsf.ac.at/fileadmin/user_upload/P/SSRN-id2152703..pdf.

300 Couchman, Nic. "Sports Right Issues." September 2000. Last accessed August 2, 2012. ► http://www.couchmansllp.com/old_site_2005_11_18/library/sports_rights_issues.doc.

301 Weinberger, James D. "Baseball Trademark Licensing and the Antitrust Exemption: An Analysis of New York Yankees Partnership v. Major League Baseball Enterprises, Inc." 23 Colum. – VLA J. of L. & Arts 75 (Winter 1999).

The rights for particular commercial activities by the parties are granted through a variety of licensing contracts by the team, league, or event sponsors. In sports licensing, there are two principal types of rights[302]:

- media rights;
- sponsorship and franchising rights.

Although the categories are overlapping, the former is focused on copyrights and the latter on trademarks.

Media Rights Licensing

Media rights are typically sold to TV networks, cable channels, local television stations, and/or radio. Media rights are differentiated by time, territory, medium, and so on.[303] Successful teams in large media markets command the best prices for licenses. The duration of media rights deals can cover anything from a one-shot event to an entire league's matches over several years.

In the early decades of TV, the monopoly public services broadcasters in Europe claimed that they had the right to cover sports events just as the print press did. They paid trivial amounts to the event sponsors, just to compensate for the logistical arrangements. Until the 1980s, most TV in Europe consisted of public service broadcasters operating as monopolists in their countries. Hence there was no competition for sports rights and prices were low, despite sports programs attracting huge audiences.[304]

But when private commercial networks emerged in the 1980s and with them competition for viewers, sports events became a big attraction, and the leagues cashed in. Soon the individual team companies, too, claimed their share.[305] In 1999, Rupert Murdoch's News Ltd. went one step further and sought to buy a content producer itself – the world's most popular soccer team, Manchester United. But the UK regulators blocked the deal.

Under the old, non-competitive system, many sports rights were acquired by the European Broadcasting Union (EBU), the regional cartel organization for the national monopolies. This lowered the ability of the sports federations to play off countries against each other. For the Olympic Games of 1980, 1984 and 1988, the European rights accounted for 8%, 8%, and 10% respectively of the US fees, even though the EBU serviced a much larger population and audience. With competition, value migrated to the less competitive segment. It moved "upstream" from the conduit (TV networks) to the content (sports leagues).[306] In 1996, the EBU was challenged in Europe for the Olympic rights by Rupert Murdoch's News Corp., which bid $2 billion for the games from 1996 to 2008. The EBU had to increase its bid greatly, to a figure still $0.6 billion less than News Corp., but the IOC accepted the lower bid, mostly for political reasons. Domestically in the UK, licensing prices rose enormously after Murdoch's BSkyB offered much higher payments in 1992 for soccer broadcast rights.

In Australia, the growth of pay-TV channels in the 1990s led to the fear of the migration of sports broadcasts to pay-channels, so that many people would not be able to watch major sports events on free-to-air TV. This also raised the cost of sports rights to established private broadcasters. It led in the late 1990s to an Australian "anti-siphoning" law.

To reduce the financial clout of commercial broadcasters, the EU Commission empowered each member state to draw up a list of events, national or non-national, that the state considered to be of major importance for its society, which had to be shown on the free major channels.[307] Many countries have regulations such as TV "listed events" and anti-siphoning rules to move sporting events back to the "free" public domain sphere. In Ireland, for example, the Minister for Communication and Natural Resources may designate events that are considered to have a special general relevance for the people of Ireland and also have a generally recognized distinct cultural importance for them. The protected list includes[308]:

- the Summer Olympics;
- Ireland's games in the European Football Championship Finals;
- the European Football Championship Finals;
- the FIFA World Cup soccer tournament;
- Ireland's games in the Rugby World Cup Finals Tournament;
- the Irish Grand National and Irish Derby.

In the USA, no such government rules exist but they are often advocated. Instead, the National Football League (NFL) has an anti-siphoning policy of great complexity whose aim it is to maximize revenues, exposure, and political acceptability.[309] Most of the NFL's emphasis on free network TV is due to the experience with boxing, whose popularity greatly declined with its migration to pay-TV. Similarly, NASCAR stock car racing and golf declined in popularity after they moved to ESPN. In France, the dominant pay-TV operator Canal Plus made a €600 million a year deal for the French

302 Couchman, Nic. "Sports Right Issues." September 2000. Last accessed August 2, 2012.
► http://www.couchmansllp.com/old_site_2005_11_18/library/sports_rights_issues.doc.

303 Couchman, Nic. "Sports Right Issues." September 2000. Last accessed August 2, 2012.
► http://www.couchmansllp.com/old_site_2005_11_18/library/sports_rights_issues.doc.

304 Noam, Eli. *Television in Europe.* New York: Oxford University Press, 1992.

305 Thus, in 1998 a German court awarded the media rights to the clubs themselves. Gratton, Chris and Harry Arne Solberg. *The Economics of Sports Broadcasting.* New York: Routledge, 2007.

306 Gratton, Chris and Harry Arne Solberg. *The Economics of Sports Broadcasting.* New York: Routledge, 2007.

307 Gratton, Chris and Harry Arne Solberg. *The Economics of Sports Broadcasting.* New York: Routledge, 2007.

308 White, Andrew. "Broadcasting Rights for Sporting Events in the UK and the Republic of Ireland." *Centre for Media Research: Media Policy Briefing Papers* no. 3, 2012.

309 In 2014, all NFL regular season games, except two games each week, were broadcast by the free TV networks.

The two games that are each week on cable are the league-owned Thursday (Weeks 10–16 excluding Thanksgiving in 2014, plus two Saturday night games) and Disney's Monday night packages, except in Week 1 (two Monday Night games), Thanksgiving (Monday night only), Week 16 (Monday night only), and Week 17 (all games on Sunday). On Week 1 and Thanksgiving, the Thursday game is a broadcast network television game (NBC) and not on the NFL Network. On Week 1, ESPN has two Monday Night games. On Weeks 2–9, the NFL Network game is simulcast on all CBS affiliates. On Week 16, there is no Thursday night game. On Weeks 15–16 there is a Saturday night game on the NFL Network. On Week 17, all games air on broadcast network affiliates of Fox, CBS, or NBC.

The league's anti-siphoning policy states that the respective cable channel is blacked out in the markets of the two teams playing in the cable-channel games. The NFL sells a syndicated package to local stations within the regions of the teams involved for the Thursday (Weeks 10–16 except Thanksgiving in 2014), Saturday (same as Thursday), and Monday night package.

football league rights, much higher than in the past.[310] The European Commission let the exclusivity stand, even though a few years earlier it had blocked BSkyB's exclusive rights for the English Premier League. The EU Commission held that the league must award its rights to more than one broadcaster in the future. The second highest bid was €327.5 million. According to experts, Canal Plus would have to add more than 1 million subscribers to its 5 million to recoup the additional cost of the new contract, and this was not likely. The soccer federation had split the matches into four packages, but Canal Plus made the highest bid for each.

Some media rights deals include interviews with players and coaches at various times of the event, with the logo of the TV program's sponsor prominently displayed in the background.

In a constant enlargement of claims to property rights, sports leagues have expanded their claim of property to the sports scores themselves. This has led to legal fights over the rights to disseminate and profit from sports information, and the freedom of the press.[311]

Franchise Rights Licensing

For franchise licensing, the rights are administered by a branch of a league known by names such as the properties division. It approves licenses for products, polices the trademarks infringement, distributes licensing revenues among league franchises, and handles marketing and sponsorship efforts.[312]

National Football League Properties, Inc. (NFLP) is a company set up and owned by all the clubs of the NFL. Each club grants NFLP an exclusive license to act as a licensing agent for its trademarks, logos, etc. NFLP then negotiates with manufacturers for licenses to produce merchandise with the NFL and member club's trademarks. The royalty fee is set at 6.5% of all net sales of the licensed products, while 15% of NFLP receipts goes to the league itself.[313] NFLP maintains a quality control program of its licensees' merchandise, and investigates and enforces adherence.[314] The professional sports and collegiate franchise licensing revenues have declined, however, from a high in 2006 of $15.15 to $12.31 in 2011.[315] The following are statistics from some US properties divisions (Table 7.3):

Table 7.3 Product franchises by sport leagues

League	Licensees (in 2012)	Retails sales (in 2014)
NFL	150+	$3.2 billion
MLB	150+	$3.3 billion
NHL	200+	$1 billion
NBA	100+	$2.3 billion

Silcox, Scott. "List of NFL Licensees – National Football League Licensees." *Licensed Sports.* March 7, 2012. Last accessed May 31, 2017. ► http://licensedsports.blogspot.com/2012/03/list-of-nfl-licensees.html

Licenses can also be given by players themselves for their endorsements of products. A players' unions can administer this for its members, or a player's personal business representatives may do so. For example, the NFL Players Association issues annually about 100 licensees, for about $30 million.[316] It collected more than $35 million in royalties from the game maker Electronic Arts in 2008.[317]

For college sports, the National Collegiate Athletics Association(NCAA) has long enforced strict rules barring college athletes from cashing in on their celebrity status. Athletes, however, have challenged these restrictions in court for the right to control the use of their images.

For individual professional sports (as opposed to team sports), the athletes have agents who handle licensing agreements. For example, skateboarding champion Tony Hawk got $1.5 million a year for licensing and endorsements.[318]

All this is dwarfed by the fees collected by the sponsors of the Olympic Games and of the Football (Soccer) World Cup. The IOC, headquartered in Lausanne, Switzerland, set up a sponsorship arrangement called The Olympic Partner (TOP), program that included big sponsors such as Coca-Cola and McDonald's who paid many millions of dollars. These payments are shared between host cities that foot the bill for the venues and infrastructure, and the IOC. Sponsors are given exclusive rights to the Olympics trademark of five rings, and only their products can be sold at the Olympic venues.[319] For the 2012 London Games, these TOP sponsorship corporations paid the IOC over $100 million each. The next tier of sponsors each paid $40 million.[320] The London Organizing Committee of the Olympic, which did the actual staging of

310 Gratton, Chris and Harry Arne Solberg. *The Economics of Sports Broadcasting.* New York: Routledge, 2007.

311 Freeman, Andrea. "Morris Communications v. PGA Tour: Battle over the Rights to Real-Time Sports Scores." *Berkeley Technology Law Journal* 20, no. 1 (January 2005): 3–21.

312 Mullin, Bernard J., Stephen Hardy, and William A. Sutton. *Sport Marketing.* 2nd ed. Champaign: Human Kinetics, 2000.

313 Friedman, Avi. "Protection of Sports Trademarks." *Loyola of Los Angeles Entertainment Law Review* 15, no. 3 (1995): 689–716.

314 The trademarked categories of NFLP are numerous, and include: NFL Pro Line (the league's most elite or prestigious label because it is the same product and apparel worn and used by players and coaches). NFL Fitness (a brand of equipment and apparel for letting fans work out like the pros), NFL Spirit (apparel for women), NFL Classic (for everyday use), NFL Kids, NFL Pro Line Kids, NFL Baby, NFL Back to School, NFL at Home (pillows, bedspreads, wallpaper, lamps), NFL Tailgate (coolers, tablecloths, barbecue grills), NFL Pet Shop, NFL Auto, NFL Quarterback Club, NFL Throwbacks (vintage replica items), NFL Trading Cards, NFL Collectibles, NFL Publishing, and NFL Films.

315 Olenski, Steve. "The Power of Global Sports Brand Merchandising." *Forbes.* February 6, 2013. Last accessed May 31, 2017. ► https://www.forbes.com/sites/marketshare/2013/02/06/the-power-of-global-sports-brand-merchandising/#10756c8176ac.

316 Mullin, Bernard J., Stephen Hardy, and William A. Sutton. *Sport Marketing.* 2nd ed. Champaign: Human Kinetics, 2000.

317 Thomas, Katie. "College Starts Sue Over Likenesses in Video Games." *New York Times.* July 3, 2009. Last accessed May 31, 2017. ► http://www.nytimes.com/2009/07/04/sports/04ncaa.html.

318 Covell, Daniel and Sharianne Walker. *Managing Sport Organizations: Responsibility for Performance.* New York: Routledge, 2013.

319 Peck, Tom. "Father of Olympic branding: my rules are being abused." *The Independent.* July 20, 2012. Last accessed May 31, 2017. ► http://www.independent.co.uk/sport/olympics/news/father-of-olympic-branding-my-rules-are-being-abused-7962593.html.

320 O'Reilly, Terry. "The ever-increasing cost of being an Olympic sponsor." *CBC News.* February 8, 2014. Last accessed May 31, 2017. ► http://www.cbc.ca/news/business/the-ever-increasing-cost-of-being-an-olympic-sponsor-1.2527993.

the summer games, raised another £700 million in sponsorship.[321] Beyond the sponsorships, the IOC raised $4.87 billion in broadcast fees and sponsorship for the London and Vancouver Olympics.

The Football World Cup in Brazil, sponsored by the international soccer federation FIFA, also headquartered in Switzerland, similarly generated about $4 billion in revenue, with $1.4 billion from sponsorship by 22 companies and $2.6 billion from TV rights to the matches. There were three sponsorship tiers with the top ($730 million combined) for 2014 by six companies (Adidas, Coca-Cola, Sony, Hyundai/Kia, Emirates, and Visa.) In addition, the various national teams and individual athletes had their own deals, sometimes also with Adidas and other major FIFA sponsors.[322] Nike, for example, sponsored the teams of Brazil, England, France, and Portugal. In some cases, an advertising agency itself, such as Dentsu in Japan, buys the rights to an event or season and then places advertisement spots of its various clients into the available slots.

Do sports sponsorships make business sense? It seems that sports licensing has a marketing impact owing to fan identification.[323] Sport provides a collective identity and solidarity, especially among young people.[324] Fans see themselves as members of the team, which leads to an elevation of their self-perception of status. A committed fan identifies with a team and therefore with the team's sponsors in retail settings.[325] Auto manufacturers with stock cars at its NASCAR circuit have long believed "Win on Sunday, Sell on Monday." On the other hand, the National Guard in the USA could not trace a single recruit to its NASCAR sponsorship in 2012. Yet in 2014 it again paid $32 million for NASCAR-related sponsorships. It also paid $12 million to sponsor one of the teams on the Indy Car circuit.

These racing and sports sponsorships make up 37% of the National Guard's marketing budget, with the aim of strengthening its "brand," not necessarily for direct recruiting. In contrast, the US Army dropped NASCAR sponsorship, stating: "Currently, only 5% of the NASCAR audience is made up of 18–24 year old males, NASCAR is the highest cost per qualified lead and cost per engagement property in our portfolio."[326]

Case Discussion

NBC Sports Licenses

Football
NBC aired NFL football games starting in 1939. It lost the NFL broadcast rights to CBS in 1998, but reacquired them again for 2006–2013. It then paid an annual fee of $603 million for a package that included the season kickoff, three preseason games, all Sunday night games, two Saturday playoff games, two post-season "wild card" games, two Super Bowls, and two Pro Bowls (2009 and 2012). NBC's contract was renewed for the seasons 2013–2022 for an annual fee of $1.05 billion, a 74% increase from the prior contract. The agreement was similar to the prior package, and included the rights to broadcast the Super Bowls in 2015, 2018, and 2021.

Soccer:
In 2012, NBC acquired the rights to broadcast English Premier League soccer in the USA for 2013–2014 for $250 million. Prior to that, Fox (News Corp.) had held the US rights for nearly two decades. With this deal, NBC became exclusive English- and Spanish-language media rights holder to all 380 Premier League matches across all platforms and devices in the USA. Its aim was, in particular, to reach the Latino audience in the USA.

Formula One Racing:
In 2012, NBC signed a four-year deal for exclusive US media rights to Formula One car racing for an undisclosed price. This deal provided NBC with more than 100 hours of programming, including the 2012 Grand Prix Monte Carlo. NBC aired four races—the Canadian Grand Prix and the final three races of the season—on its main network, and the remaining 16 races were shown on the NBC Sports Network.

Olympic Games
The Olympics have long been NBBC's signature programming event and part of its brand. NBC bought the rights to carry in the USA the six Olympic Games from 2022 to 2032 on all current and future distribution platforms. It paid $7.75 billion, $1.12 billion per Games (Summer as well as Winter Games, with the latter less valuable). This was vastly higher than in earlier years. NBC had paid $77 million, on average, for the 2004, 2006, and 2008 Olympics. In 1995, NBC made the first multiple-Olympics deals, for the 2000 and 2002 games, for $1.2 billion.[327] For the 2014 Winter Olympics in Sochi, Russia, it paid $775 million, for the 2016 games in Rio de Janeiro $1.23 billion, and for the 2020 games in Tokyo $1.45 billion.

321 The Economist. "Victors and spoils." July 21, 2012. Last accessed May 31, 2017. ► http://www.economist.com/node/21559326.
322 Wiesman, Tom. "FIFA World Cup Sponsorship: Is it Worth It?" *Analytic Partners.* March 10, 2014. Last accessed May 31, 2017. ► http://www.analyticpartners.com/news-blog/2014/03/fifa-world-cup-sponsorship-is-it-worth-it/.
323 Burton, Rick. "Teams as Brands: A Review of the Sports Licensing Concept." In *Sports Marketing and the Psychology of Marketing.* Eds. Lynn R. Kahle and Chris Riley. New York: Psychology Press, 2004.
324 One study (conducted by Sports Illustrated for Kids) found that 60% of boys and 37% of girls claimed to own NBA-branded apparel.
325 Burton, Rick. "Teams as Brands: A Review of the Sports Licensing Concept," in *Sports Marketing and the Psychology of Marketing,* eds. Lynn R. Kahle & Chris Riley. New York: Psychology Press, 2004.
326 Brook, Tom Vanden. "Army found NASCAR's price too high." *USA Today.* May 9, 2014. Last accessed May 31, 2017. ► http://www.usatoday.com/story/news/nation/2014/05/09/army-national-guard-recruiting-scandal/8908841/.
327 Sandomir, Richard. "All the Way to 2032, Come What May." *New York Times.* May 8, 2014. Last accessed May 31, 2017. ► http://www.nytimes.com/2014/05/09/sports/olympics/nbc-olympic-tv-deal-accounts-for-advances-in-technology.html.

7.4 Challenges to Intellectual Assets

7.4.1 Piracy

Immanuel Kant once asked: "Why does unauthorized publishing, which strikes one even at first glance as unjust, still have an appearance of being rightful?" Kant, the German philosopher living in the eighteenth century, wrote in *Of the Injustice of Counterfeiting Books* that expression, in other words the content, was an integral part of an author's persona, and could not be altered or used any more than his arms could be used by others against his will.[328] Digital technologies have made Kant's query more relevant than ever. Creators and copyright owners now face parties with new tools of copying for themselves and for distribution and commercialization to others.

Music, movies, television shows, software, and other media are pirated via various ways of physical and electronic copying, streaming, or distribution such as via peer-to-peer (P2P) networks.[329] In 2005, the music industry claimed that 37% of all CDs—or 1.2 billion of them—purchased globally were pirated, that is, manufactured without license.[330] The movie industry, too, saw a quick rise in piracy. Already in 2003, 60% of 312 popular movies were found in a study to be available on file-sharing networks (of those, 77% seem to have been released illegally by industry insiders).[331] In France in 2004, 31 million films downloaded each month were from non-commercial sites: 19% of French internet users had downloaded films but only 4% had paid for them. In 2006, 1 billion music tracks were downloaded but only 20 million were bought legitimately.[332]

In 2012 the Motion Picture Association of America (MPAA) estimated the damage to the overall economy caused by piracy to be a total of $58 billion in annual losses.[333] The computer software industry claimed over $50 billion in annual software piracy costs.[334] In developing countries piracy of IAs is prevalent, on the order of more than 50% of installed software in Latin America, Eastern Europe, and Asia Pacific, according to the industry. Nintendo claims that Chinese counterfeiting alone lowered its level of sales by $720 million in 2002.[335] A 2009 study sponsored by the Business Software Alliance and the Interactive Data Corporation found that piracy rates were highest in Armenia, Georgia (95%), Bangladesh, and Zimbabwe. In terms of lost revenue, piracy losses were claimed to be largest in the USA, China, Russia, India, and France (about $9.1, $6.7, $4.2, $2.8, and $2.8 billion respectively). The report estimated that "for every $1 of PC software sold in a country, there is another $3 to $4 of revenues for local IT service and distribution firms."[336] Thus it argued that an additional 400,000 jobs could have been created by reducing piracy, and over 12 million could have been created. Developing countries, in turn, complain that IP rights, whether copyrights or patents, inhibit their development by imposing an extra cost. On the other hand, the content and software industries in these countries have a much harder time to emerge if they must compete against high-quality imports at a zero price. One source, the Institute for Policy Innovation, found the costs of piracy to the US Treasury to be $291 million in lost personal income tax and $131 million in lost corporate income and other taxes.[337] The MPAA reports that the major studios lost over $6.1 billion—in 2005 through piracy activities—$2.4 billion through bootlegging, $1.4 billion through illegal copying, and $2.3 billion through internet piracy.

US bloggers and commentators disputed the industry reports as alarmist, citing the 2008 US Government Accountability Office report which cautioned that it is difficult, if not impossible, to quantify the economy-wide impacts of software piracy, though it noted that economic losses due to piracy are "sizable."[338] Estimating losses from piracy is indeed difficult and imprecise. Clearly, potential sales are lost because cheap, high-quality, illegal copies are available that reduce the demand for legal ones. Losses also include the impact of piracy on the prices of legitimate sales. However, most piracy users would not buy the music, at least not at the official price, and therefore part of the piracy usage does not represent lost sales. One study concludes: "[we] find that the availability of pirated content at the time of broadcast has no effect on post-broadcast DVD sales gains."[339] Several studies even show that pirated viewing or listening can actually *raise* sales because of the buzz effect of lots of people talking about a new release. One study looked at the impact of free showings of a film on television on the sales of home video versions of that film and concluded that "we find that [free] movie broadcasts on over-the-air networks result in a significant increase in both DVD sales at Amazon.com and illegal downloads for those movies that are available on BitTorrent at the time of broadcast." Other studies find that only about 20% of the decline in record sales can be explained by

328 Kant, Immanuel. "Of the injustice of counterfeiting books." *Essays and Treatises on Moral, Political and Various Philosophical Subjects*. Volume One (1798): 225–39.

329 The word "piracy" that is frequently used is a loaded term. But since it has been adopted proudly by some of those engaged in such use (who have even formed political "pirate parties" that have at times been remarkably successful in elections), we will apply this term to loosely refer to a use without permission by the holder of a valid IPR. The term is less pejorative than "theft," which the content industry uses, and less euphemistic than "sharing."

330 IFPI. "The Recording Industry 2006 Piracy Report." July 2006. Last accessed August 2, 2012. ► http://www.ifpi.org/content/library/piracy-report2006.pdf.

331 Byers, Simon et al. "Analysis of Security Vulnerabilities in the Movie Production and Distribution Process." *Telecommunications Policy* 28, no. 7–8. (August–September 2004): 619–644.

332 Sherwin, Adam. "France Condemned for Unlimited Download Law." *The Times*. February 3, 2006.

333 Cieply, Michael and Edward Wyatt. "Dodd calls for Hollywood and Silicon Valley to Meet." *New York Times*. January 19, 2012. Last accessed May 31, 2017. ► http://www.nytimes.com/2012/01/20/technology/dodd-calls-for-hollywood-and-silicon-valley-to-meet.html.

334 Business Software Alliance. "08 Piracy Study." May 2009. Last accessed on August 1, 2012. ► http://global.bsa.org/globalpiracy2008/studies/globalpiracy2008.pdf.

335 Anand, Bharat and Alexander Galetovic. "How market smarts can protect property rights." *Harvard Business Review* 82, no.12 (December 2004): 72–79.

336 Business Software Alliance. "08 Piracy Study." May 2009. Last accessed on August 1, 2012. ► http://global.bsa.org/globalpiracy2008/studies/globalpiracy2008.pdf.

337 Siwek, Stephen E. "The True Cost of Sound Recording Piracy to the U.S. Economy." *The Institute for Policy Innovation*. August 21, 2007. Last accessed August 1, 2012. ► http://www.ipi.org/ipi_issues/detail/the-true-cost-of-sound-recording-piracy-to-the-us-economy.

338 U.S. Government Accountability Office. "Observations on Efforts to Quantify the Economic Effects of Counterfeit and Pirated Goods." April 12, 2010. Last accessed August 1, 2012. ► http://www.gao.gov/products/GAO-10-423.

339 Smith, Michael and Rahul Telang. "Competing With Free: The Impact of Movie Broadcasts on DVD Sales and Internet Piracy." *MIS Quarterly* 33, no. 2 (June 2009): 321–338.

piracy.[340] However, piracy may affect popular artists more severely. One study[341] finds that piracy has a stronger impact on popular artists, but other studies reach the opposite conclusion.[342]

7.4.1.1 Case Discussion

NBC Universal Losses Due to Piracy

According to one industry study, the motion picture industry suffered a $1.9 billion damage per year. If one accepts that number, Universal's damage would be about its market share of that, in other words about 13.6% or $258 million. There are also damages to NBC's numerous TV shows and a reduced potential for syndication. NBC currently airs 25 entertainment shows (excluding sports, news, talk, awards, and soaps.) We assume that its library of still desirable shows is double the number, that it holds the rights to half of them, and that the harm to NBC is equal the cost of one episode per season, about $2.5 million, this would add up to about $100 million per year, and to a total of $350 million per year for NBC Universal's combined film and TV productions.

7.4.1.2 File-Sharing of Unlicensed Music

Just about every new media technology has brought about new issues in piracy, whether the phonograph, the camera, the radio, the tape recorder, the computer, or the photocopying machine. The new technologies of internet and data file compression have also led to new copyright issues, especially for music distribution. In the late 1980s, WAV and .AU files emerged. But it still took hours to send a three-minute-song as a WAV file. The Moving Picture Experts Group (MPEG) was established to advance the technology. It generated a family of standards used for coding and compressing audio and video data, such as the MP3 compression software. Upload and download times were drastically reduced without sacrificing much sound quality. This allowed users to send and receive high quality music files over the internet more quickly. The compression for an MP3 file could go up to 12:1. The content could be broken up into pieces, with each piece still playable. This meant that MP3 files can be made to stream across the net in real time. MPEG-4 has a "lossy" compression factor of up to 200,[343] and H.264 (AVC), another compression system, probably up to a factor of 1000. H.265 (HEVC) doubles that again.[344] Another audio compression format is AAC, developed by Bell Labs, Dolby, Sony, Nokia, and Fraunhofer Institute. No licenses and payments by content distributors are required, in contrast to MP3. It is used on devices by Apple, Nokia, Sony, BlackBerry, Samsung, Microsoft, and others.

A newer algorithm, H.265 (HEVC) was rolled out in 2016. It is not royalty free. The algorithm developers are charging a royalty to use the codec, 0.5% of content owners' attributable gross revenue for each HEVC video type. In contrast, the preceding H.264 (MPEG-4 AVC), one of the most popular video codecs, was royalty free. The HEVC Advance consortium charges a per device based on the type of device. This device fee ranges from $0.80 for a mobile phone, to $1.10 for "other devices" such as Blu-ray players, streaming boxes, cable set-top-boxes, game consoles, Blu-ray players, digital video recorders, digital video projectors, digital media storage devices, personal navigation devices, and digital photo frames, to $1.50 for UHD (4 K) devices and TVs. At a million devices per year, this is a significant number.[345]

The consortium also charges video rights holders for using the codec. Originally it had been 0.5% of all revenue generated from using the HEVC codec. For instance, if Netflix used the codec to stream video to its subscribers and generated thereby $100 million a month, it would have to pay $500,000 per month as a royalty rate. Owing to the pushback, and because other codecs did not charge this licensing rate, the consortium subsequently (in 2016) changed the royalty rates. Subscription services (such as cable or satellite TV, or OTT services such as Netflix) will pay $0.005 per subscriber per month to license the codec; at a $10 monthly rate, this comes to 0.05%). There would also be a yearly cap of $5 million. Similarly, physical media providers such as the distributors of a Blu-ray disk would have to pay a license fee of $0.025 per disk sold. For on-demand/pay-per-view rentals of video the same license fee is charged. The content industry was not used to paying these kinds of fees for using a codec, and it caused a lack of adoption of the H.266 codec. As of 2017, it was still not widely used.

With the MP3 technology came the portable digital music players that could make use of music compression. The first was the Diamond Multimedia Rio in 1998. This and subsequent devices were clunky to use, and this left a big opportunity for Apple, whose iPod quickly became dominant and was supported by the Apple iTunes Music Store. That digital download site, now called iStore, also addressed another issue, which was the difficulty that internet users have to

340 Hong, Seung-Hyun. "The Effect of Napster on Recorded Music Sales: Evidence from the Consumer Expenditure Survey." *Stanford Institute for Economic Policy Research Working Paper No. 03–18*. Stanford: Stanford University, January 30, 2004. Last accessed May 31, 2017. ► http://www-siepr.stanford.edu/papers/pdf/03-18.pdf; Peitz, Martin and Patrick Waelbroeck. "The Effect of Internet Piracy on Music Sales: Cross-Section Evidence." *Review of Economic Research on Copyright Issues* 1, no. 2 (2004): 71–79.

341 Blackburn, David. "The Heterogeneous Effects of Copying: The Case of Recorded Music." *National Economic Research Associates.* June 1, 2006. Last accessed May 31, 2017. ► http://www.davidjhblackburn.com/papers/blackburn_fs.pdf.

342 Bhattacharjee, Sudip et al. "The Effect of Digital Sharing Technologies on Music Markets: A Survival Analysis of Albums on Ranking Charts." *Management Science* 53, no. 10 (September 2007): 1359–1374; Rob, Rafael and Joel Waldfogel. "Piracy on the High C's: Music Downloading, Sales Displacement, and Social Welfare in a Sample of College Students." *Journal of Law and Economics* 49, no. 1 (April 2006): 29–62.

343 Vatolin, Dmitriy et al. "Lossless Video Codecs Comparison 2007." March 10, 2011. Last accessed May 31, 2017. ► http://compression.ru/video/codec_comparison/lossless_codecs_2007_en.html.

344 Rodrigues, Ana. "H.264 vs H.265—A technical comparison. When will H.265 dominate the market?" *Medium.* June 8, 2016. Last accessed March 20, 2017. ► https://medium.com/advanced-computer-vision/h-264-vs-h-265-a-technical-comparison-when-will-h-265-dominate-the-market-26659303171a#.nqibcfbst; Digiarty. "H.265 vs H.264: Comparison between H.265 (HEVC) and H.264 (AVC)." Last accessed March 20, 2017. ► https://www.winxdvd.com/resource/h265-vs-h264.htm.

345 Rayburn, Dan. "New Patent Pool Wants 0.5% Of Every Content Owner/Distributor's Gross Revenue For Higher Quality Video." *StreamingMediaBlog.com*. Last Accessed March 20, 2017. ► http://blog.streamingmedia.com/2015/07/new-patent-pool-wants-share-of-revenue-from-content-owners.html.

legitimately buy and pay for music. The absence of a legal alternative had attributed to the emergence of file-sharing users.

Before such a way to buy music became available, users were largely on their own. Music software enabled P2P storage of MP3 files. This led to the emergence of communities of participating users who shared their MP3 libraries. The first major file-sharing website, Napster, became a sensational success, but was shut down in the courts after furious challenges by the music industry in 2001. In 2005, the Supreme Court found StreamCast and Grokster liable for inducing and encouraging copyright infringement.

A related question was the liability of "innocent bystanders" to the dispute. As more internet users downloaded media content, the question arose of who bears responsibility if a copyright is violated by a use of a website or transmission facility run by an ISP. Content holders tried to make ISPs liable in order to induce them to block such usage. The ISPs' defense was that they were not "copyright police." After some legal back and forth, an arrangement emerged in which ISPs and search engines are protected under "safe harbor" provision, which limits their liability for information posted by users.[346] Safe harbor provisions apply so long as the ISP and search engine do not have notice of the issue. Once they receive notice, they must "expeditiously" remove the material. "Expeditiously" has not yet been determined by the courts, but for a large ISP or search engine such as Comcast or Google it should be less than 24 hours.

However, court cases stripped away some of those protections and held the cable TV and ISP company Cox liable for piracy because it had been too lax.[347] Cox failed to shut down accounts that repeatedly downloaded music illegally and thus the safe harbor did not apply. On the other hand, many ISPs and cloud content providers had a quick trigger finger and terminated content as a violation of copyright just on the say-so of a rival provider.

Another approach was taken by the French government, which for a while legalized unlimited P2P sharing of music and film files. The French plan, rushed through a half-empty parliament, would have enabled internet subscribers to pay €7 per month for a "global license" to download unlimited music for personal use through P2P websites. The money raised through this license would be shared between copyright holders, reimbursing musicians and record companies that receive nothing from illegal downloading.

346 Lumen. "DMCA Safe Harbor." Last accessed March 20, 2017. ► https://www.lumendatabase.org/topics/14.

347 Such as BMG Rights Management (US) v. Cox Communications 149 F. Supp. 3d 634 2015. On the other hand, in 2013, another court held that the file sharing website Veoh was not liable for a copyright infringement by its users. Although Veoh profits from the traffic to the infringing music on its website by selling advertising, the court found that it had no "substantial influence" over its users copyright infringement, and that it had been complying with takedown notices from copyright holders that alerted the company to alleged violations. In Europe, online liability led to the EU E-Commerce Directive in 1999, according to which the provision of facilities by an ISP that enable a message or transaction is not unfair use.

7.5 Protection Strategies

Given the growing problem of unlicensed use of content for producers and distributors, what then can they do? It is difficult for media companies to protect against piracy. An effective IA protection strategy against the constantly changing challenges requires a wide array of measures. These strategies include technological counter-measures, enlisting government, engaging in litigation, executing "counter-attacks," and revising business strategies. All actions must be balanced against the harm from inconveniencing and alienating potential customers.

7.5.1 Moral Appeals

The first protection strategy to use is moral appeals. This approach has been largely unsuccessful because users tend to feel that they do not impose marginal cost on the copyright holder and that they are therefore not really "taking." Other users engage in an anti-corporate justification or argue that they would not have bought the music or video anyway.

7.5.2 Enlisting Government

Firms seeking protection from piracy lobby for stronger laws, better enforcement, and diplomatic pressure on other governments. At one point, US government representatives tried to restrict the doctrine of first sale internationally, even though it is legal in the USA.

The international WIPO Copyright Treaty (1996) requires all signatory countries to enact laws against the circumvention of protective measures. The US Congress enacted laws to enforce IP rights domestically or to sanction other countries that did not sufficiently protect American IPs.[348] In France, the 2009 HADOPI law provided for a mandatory termination of any internet connectivity to a user who violated copyrighted materials for the third time. After 1 million warnings had been sent out by the government, and after significant public opposition, the law was dropped. Other developed countries take relatively similar protection positions. For China to become a member of WTO required its commitment to protect other countries' IAs.

In 2008, the US Congress passed a law aimed at protecting IAs, which created an IP Enforcement Division under the President. The law created US prosecutors specializing in IP enforcement and international IP specialists based in US embassies worldwide, and added money for state IP enforcement programs. It also revised the law to increase statutory

348 The examples include the Caribbean Basin Economic Recovery Act of 1984, the Computer Software Protection Act, the No Electronic Theft Act of 1997, the Trademark Anti-Counterfeiting Act of 1984, the Semiconductor Chip Protection Act of 1984, Copyright Infringement Act, Computer Fraud and Abuse Act, Economic Espionage Act of 1996, Copyright Felony Act of 1992, the Counterfeit Access and computer Fraud and Abuse Act of 1986, and the National Information Infrastructure Act of 1996. Additionally, each US state has enacted corresponding legislation offering additional statutory IP protections.

damages and penalties in counterfeit cases, and prohibited the export of counterfeit or pirate goods from the USA.

In the USA, the most important law to protect IAs has been the Digital Millennium Copyright Act (DMCA) of 1996. This prohibits the circumvention of technological protection measures such as encryption used by copyright owners to control access to their work. It also outlaws the manufacture, sale, and distribution of tools that make circumvention possible.[349] The DMCA shields ISPs from copyright infringement liability as long as they have no actual knowledge of the infringement, have not financially benefited, have established a system for dealing with infringement complaints, and comply with "takedown" standards for removing copyright material.[350] ISPs are expected to remove material from users' web sites that violates copyright or they face liability.[351]

In interpreting a website's or ISP's liability, courts will consider the existence of "red flags." The website cannot be "willfully blind" and look the other way.[352] Website owners have no liability when they spell out in their user agreement that repeat infringers will be dropped, that they co-operate with "standard" technical measures by copyright owners to identify and protect copyrighted works, and that they provide contact information.[353] The EU has enacted similar principles as part of its European eCommerce Directive in 2000 and the 2001 Directive on Copyrights. But DMCA is far stricter than copyright statutes in other countries. First-time violators of the DMCA can face up to five years in prison, and subsequent offenders up to ten.[354]

The DMCA has been severely criticized as being overprotective of the industry and as jeopardizing fair use, competition, and innovation. Critics allege that the DMCA has been used to block aftermarket competition in laser printer toner cartridges, garage door openers, and computer maintenance services.[355]

Coordination of the U.S. Federal activities is through the Office of Management and Budget (OMB) and its IP Enforcement Co-ordinator. For the international dimension, the US Immigration and Customs Enforcement (ICE) has taken a major role in the enforcement of IP rights. For example, in 2010 ICE shut down nine websites offering free downloads of the films *Toy Story 3* and *Iron Man 2* that drew a combined 6.7 million users per month.[356]

7.5.3 Litigation

A third strategy for media companies is to sue violators of their copyrights. Litigation over innovation is nothing new. Johannes Gutenberg was intensely engaged in it in the fifteenth century. Abraham Lincoln litigated disputes over his patented creation.[357] Today, the music industry has been suing unauthorized users, or threatening to do so, to deter illegal downloading. The Recording Industry Association of America (RIAA) had sent 1.8 million notifications of file-sharing violations to individual users by 2010,[358] including over 270,000 to students. In 2003, it sued 261 people, including a 12-year-old girl living with her single mother in public housing. By 2008, it had filed, settled, or engaged in legal action against 30,000 people. The RIAA documents illegal file usage by logging P2P users' IP addresses.[359] This information is obtained from ISPs and others. As interpreted in a 2003 case against Verizon, the DMCA compels ISPs, universities, and other networks to reveal the identities of those suspected of illicit file-swapping without court order.

In addition to filing lawsuits against individual users, the RIAA also brought lawsuits against file-sharing providers and ISPs themselves, both in the USA and abroad. It won important cases against Napster in 2000 and against Grokster in 2005.[360] The CEO of Universal Music, Doug Morris, called MP3 players "repositories for stolen music" and brought legal claims against YouTube, MySpace, Yahoo, and others.[361] Many cases against P2P networks have also been brought in non-US legal venues, often by local music companies. A Japanese court found the file-sharing company MMO guilty of copyright infringement and ordered it to pay fines of $350,000. There have also been lawsuits against the Taiwanese companies Kuro and EzPeer, injunctions against Weblisten, a Spanish company, and legal actions against Kazaa and related Australian services.[362] A 2010 legal action against the founders and host server-owners of Sweden's Pirate Bay also involved a criminal complaint. In addition, the music companies have sued telecoms providers to block access to file-sharing sites in an effort to combat overseas piracy.

349 Electronic Frontier Foundation. "Unintended Consequences: Twelve Years under the DMCA." March 3, 2010. Last accessed August 1, 2012. ► https://www.eff.org/wp/unintended-consequences-under-dmca/.

350 Wallis, Rosemary and Thomas Huthwaite. "ISP liability for copyright infringement: are dodgy subscribers worth the risk?" *Lexology.* April 12, 2013. Last accessed May 31, 2017. ► http://www.lexology.com/library/detail.aspx?g=e466d7dc-e24e-4f6d-bba3-bb33bba46b53.

351 Smith, Breana C., Don Ly, and Mary Schmiedel. "Intellectual Property Crimes." *The American Criminal Law Review* 43, no. 2 (Spring 2006): 963–714; UCLA Online Institute for Cyberspace Law and Policy. "Digital Millennium Copyright Act." February 8, 2001. Last accessed July 8, 2010. ► http://www.gseis.ucla.edu/iclp/dmca1.htm.

352 A web host loses its "safe harbor" immunity when it should have known that someone was putting copyrighted content on its site—even if the content owner cannot show that the host had actual knowledge. A host may not have "actual" knowledge but have "apparent" knowledge. Roberts, John Jeff. "The YouTube Decision: What it means and what happens next." *Gigaom.* April 5, 2012. Last accessed May 31, 2017. ► https://gigaom.com/2012/04/05/the-youtube-decision-what-it-means-and-what-happens-next/.

353 Cooley Godward's Information Technology Group. "Website provider liability for user content and actions." *Eric Goldman.* ► http://www.ericgoldman.org/writings/websiteliabilityalert.htm.

354 Smith, Breana C., Don Ly, and Mary Schmiedel. "Intellectual Property Crimes." *The American Criminal Law Review* 43, no. 2 (Spring 2006): 963–714

355 Electronic Frontier Foundation. "Unintended Consequences: Twelve Years under the DMCA." March 3, 2010. Last accessed August 1, 2012. ► https://www.eff.org/wp/unintended-consequences-under-dmca/.

356 Verrier, Richard. "Feds Shut Down Nine Websites in Movie Piracy Crackdown." *Los Angeles Times*. July 1, 2010. Last accessed August 1, 2011. ► http://articles.latimes.com/2010/jul/01/business/la-fi-ct-piracy-20100701.

357 Scherer, Frederic M. "The Political economy of patent policy reform in the United States." *Journal on Telecommunications & High Technology Law* 7, no. 2 (Spring 2009): 167–216.

358 Riley, Jason L. "Copyfight." *Wall Street Journal*. November 26, 2005, A.10.

359 Chaffin, Joshua. "Young gun." *FT.com.* September 8, 2006. Last accessed August 1, 2012. ► http://www.ft.com/intl/cms/s/0/d2a8d0c6-3e31-11db-b4de-0000779e2340.html#axzz22JUkqjUP; Gorski, Eric. "File Sharing Fight Returns to US Campuses." ► CSMonitor.com. July 1, 2010. Last accessed August 1, 2012. ► http://www.csmonitor.com/From-the-news-wires/2010/0701/File-sharing-fight-returns-to-US-campuses.

360 Mann, Charles C. "The Heavenly Jukebox." *The Atlantic Monthly* 286, no. 3 (September, 2000): 39–59.

361 Mnookin, Seth. "Universal's CEO Once Called iPod Users Thieves. Now He's Giving Songs Away." *Wired*. November 11, 2007. Last accessed August 1, 2012. ► http://www.wired.com/entertainment/music/magazine/15-12/mf_morris?currentPage=all.

362 IFPI. "Digital Music Report 2005." January 2005. Last accessed May 31, 2017. ► http://www.ifpi.cz/wp-content/uploads/2013/03/Digital-Music-Report-2005.pdf.

The RIAA also sent universities waves of "pre-lawsuit" letters, demanding they forward to them names of students who used the university's network for piracy. Facing the prospect of thousands of dollars in legal costs and settlement payments to avoid a lawsuit, many universities took some actions to prevent the illegal downloading by their students. UCLA imposed a one-semester suspension for repeat piracy offenders, and Ohio University banned access to P2P networks. Stanford fined students against whom a complaint was brought by charging escalating "reconnection fees." On the other hand, several universities refused to co-operate with RIAA, such as Kansas, Maine, and Wisconsin.

Not all in the music industry believe that such litigation—"suing one's customers"—is a good business practice. Rather than for an individual company to expose itself to a targeted backlash, it is usually better for the industry to operate jointly through its association. But for joint action a common perspective is needed, and care must be taken not to violate antitrust laws.

7.5.4 Case Discussion

Universal's Anti-Piracy Actions

In 2009, Universal Studios and other film studios sued the file sharing site Pirate Bay for copyright infringement. The court ruled in Universal's favor, finding the site operators guilty. They were sentenced to one year in prison and fined $3.5 million, but Pirate Bay continued to operate, and Universal Studios and 12 other firms launched a lawsuit to shut down the site. Later that year, Universal, along with several other entertainment companies, won a decision in the Swedish courts that ordered ISPs in 14 countries to block access to the website. As a result, Pirate Bay had to find a new ISP to handle its servers.[363]

Four men linked to Pirate Bay were originally sentenced to one year in prison and fined $4.8 million. An appeals court later reduced the prison sentences, but raised the fine to $6.9 million. Despite the Swedish crackdown the website is still functioning, and is now registered in the Seychelles. But the company's founder, after being on the run for nearly two years,[364] was arrested in southern Sweden, and sent to serve an outstanding jail sentence of eight months for copyright violations.

In 2008, Universal and 33 other film studios alleged that thousands of users of the Australian internet service provider iiNet had shared copyrighted content via BitTorrent. They had informed iiNet of the infringements, but iiNet had not responded. The companies sued iiNet for authorizing its customers to infringe copyrights of many titles by sharing them. The court ruled in iiNet's favor, stating that the company had no technical power to prevent customers from using the BitTorrent system. The case was dismissed in 2012.

7.5.5 Counter-Attacks

Another strategy is to make piracy inconvenient and frustrating to users. To that purpose, music companies distributed decoy copies of songs on file-sharing networks with altered or no content. Users may spend time downloading a file to get a movie or songs, but then discover in mid-listening that they have got a corrupted file. On the Kazaa platform, for some songs more than 50% of all files were found to be polluted. (By one test, 76.8% of copies of the song "My Band" and 68.9% of "Naughty Girl".) Through the sharing of corrupted files, it spreads from one user to the next, like a virus.[365] There are service providers who provide blocking and counter-attacks such as MediaDefender.[366] Such actions by media companies raised legal questions since they could also negatively affect innocent users. A bill was introduced in Congress that would have insulated music firms who attack file sharers electronically from liability.

7.5.6 Technology Fixes

"Technology fixes" include a large array of technical anti-piracy measures designed to make unauthorized copying of copyrightable material difficult or impossible. Together, these measures are known as digital rights management (DRM. An example is the "broadcast flag" inserted into an audio-video file that instructs devices not to redistribute files. Other techniques include:

- file access restrictions;
- encryption;
- watermarking;
- fingerprinting;
- access control;
- digital signatures;
- marking and monitoring;
- metadata processes;
- sniffer technologies;

363 The Pirate Bay. "Wireless TPB." August 24, 2009. Last accessed July 16, 2013. ► http://thepiratebay.se/blog/171.

364 Reuters. "Pirate Bay co-founder arrested in Sweden to serve copyright violation sentence." May 31, 2014. Last accessed May 31, 2017. ► http://www.reuters.com/article/2014/05/31/us-sweden-piratebay-idUSKBN0EB0XF20140531.

365 Liang, Jian et al. "Pollution in P2P File Sharing Systems." Presented at IEEE INFOCOM, Miami, Florida. March 13–17, 2005.

366 Chaffin, Joshua. "Young gun." *FT.com* September 8, 2006. Last accessed August 1, 2012. ► http://www.ft.com/intl/cms/s/0/d2a8d0c6-3e31-11db-b4de-0000779e2340.html#axzz22JUkqjUP.

- copying function alerts;
- the "cable card";
- non-copying embedded passwords;
- source identification (SID) codes
- virus seeding;
- graphics that do not photocopy well;
- documents printed on colored paper;
- microdots for secret identification.

Each of these technologies can be defeated ("hacked"). The questions are how much effort a pirate would have to expand and how great the benefit would be. Spending months to download a song for free? Economically that makes no sense for media productions—except for some blockbuster movies, which can also be copied by a simple camcorder in a movie theater—but the incentive might be the challenge to break the protection. Safeguards can be strengthened; yet making them too formidable might degrade the content and be inconvenient for regular users, and they will be turned off. The key to successful anti-piracy technical programs is to use a diverse mix of measures, and to vary protection measures from product to product and from release to release.

In one technology initiative, the five major record companies jointly devised in 1998 "SDMI-compliant" (Secure Digital Music Initiative) music players. They set out specifications for how manufacturers' players should and should not read digital music files. These players were supposed to refuse to play songs that had been converted to MP3 without authorization, and limited copying to a few copies. For example, a DVD released in the USA (region 1) would not play on equipment sold in Japan (region 2).[367] The SDMI system was dropped in 2001 owing to a "lack of consensus" on proposed technologies.[368] It had also not been able to provide full protection against hacking without a small degradation in quality.

Some software allows users to make a specified number of copies of purchased MP3 tracks and not more. For example, Apple used to limit the copying of songs to seven times through its FairPlay DRM. That system was dropped in 2009 for music, but it is still used for video and iOS apps.[369] Video game providers developed a technology called "fade." If "fade" detects that a game has been pirated, it initially allows users to play the game normally, but gradually disables game features over time.

Similar problems exist for e-books, though at a lesser magnitude. Early online book media tried encryption. In 2000, the best-selling author Stephen King released the new book *Riding the Bullet* online in a protected format. Within days, the format was cracked. Apple's iPad was the target of hackers in 2010.

DRM tries to control media access, and the sharing, saving, printing, and altering of content. It can be in the system operating software, in the program software, the content, or the hardware itself. DRM also prevents perfectly legal fair-use copying, and it can be used by authoritarian governments to block content for political reasons.[370] The main types of DRM are marking, which uses watermarks or other tags to instruct the devices that the content is copy-protected, and containment, where encryption excludes unauthorized users.[371]

Watermarking adds a pattern of bits to a file to identify the file's copyright status. ASCAP, BMI, and SESAC put watermarks on music to enable tracking of use. A "robust" watermark identifies that the recording is protected music that can only be played on devices compliant with the blocking requirements. Watermarks cannot be readily used for small-sized files, such as text, and they can be tampered with.[372]

Encryption uses an algorithm to scramble the content and requires a key to unlock or lock the content. There are two main types of encryption: symmetric and asymmetric. Symmetric encryption is like a physical key to a door. An example is the Data Encryption Standard algorithm.[373] But the key needs to be changed periodically, and it requires direct communication and transfer of information. If millions of users are involved, it is hard to contain this information. Asymmetric encryption operates by using two keys: one to lock, which is public; and one to unlock, which is private. Some examples are the RSA system. Asymmetric encryption requires much computing power. DRM often uses both symmetric and asymmetric encryption. For example, asymmetric encryption is used for the symmetric key, which, once obtained, then controls access to content.

For advanced video DVDs, a DRM system known as AACS was developed by major studios and tech companies. However, this was quickly hacked and widely distributed. Other companies use Microsoft's PVP. Sony uses the copy-protection chip MagicGate, which is embedded in players and recorders. All content is transmitted and stored in encrypted format, using a public-key system.

Other approaches are the "cable card," which restricts the content that a cable TV subscriber can feed through the television set top box, and the "broadcast flag" mentioned earlier, where the FCC required that all broadcasts embed a signal which identified whether they could be recorded by the users. This requirement was struck down in 2005 by a court. A related approach had better luck in Europe, where it was adopted in 2007 for video content protection, as DVB-CPCM.

Over-zealous DRM can backfire painfully. In 2004, Sony added the DRM to its music CDs to prevent copying and theft. When attempting to play Sony music CDs on a Windows PC, a Sony "rootkit" software was automatically

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

368 Mann, Charles C. "The Heavenly Jukebox." *The Atlantic Monthly* 286, no. 3 (September, 2000): 39–59.

369 Cohen, Peter. "iTunes Store goes DRM-free MacWorld." *Macworld*. January 6, 2009. Last accessed May 31, 2017. ► http://www.macworld.com/article/1137946/itunestore.html.

370 The Economist. "A fine balance: How much copyright protection does the internet need?" January 23, 2003. Last accessed June 13, 2012. ► http://www.economist.com/node/1534271.

371 Electronic Privacy Information Center. "Digital Rights Management and Privacy." March 29, 2004. Last accessed August 1, 2012. ► http://epic.org/privacy/drm/.

372 Averkiou, Melinos. "Digital Watermarking". January 1, 2010. Last accessed May 31, 2017. ► https://www.cl.cam.ac.uk/teaching/0910/R08/work/essay-ma485-watermarking.pdf.

373 Rouse, Margaret. "Date Encryption Standard (DES)" *TechTarget*. November 2014. Last accessed May 31, 2017. ► http://searchsecurity.techtarget.com/definition/Data-Encryption-Standard.

installed on the PC without the permission of the user. A rootkit is a type of spyware that goes undetected in normal scans and is hidden in the computer operating system. This spyware then delivers information from the user's computer to Sony without the knowledge of the user. The software cannot be safely removed without computer crashes and loss of memory, and was then impossible to uninstall.[374] What made it worse is that some hackers took advantage of the hidden aspect of the Sony software, which created a vulnerability to certain attacks, installed malware on the computers, and spread viruses etc.

Even if it was possible and safe for the user to uninstall the Sony software, this would be illegal under the DMCA law. A public outcry resulted from Sony's altering its customers' computers without their knowledge or consent. Sony had sold around 3 million of the CDs containing the software. Because of the bad publicity, Sony agreed to stop using the system and released software and security patches to uninstall it from infected computers.[375] It also offered customers as compensation a choice between $7.50 in cash and one free album download, or three free album downloads.

Universal Music Group used DRM on music until around 2007, but then it started to sell DRM-free digital downloads through digital outlets (Amazon, Rhapsody, etc.), except for iTunes.[376] In 2009, iTunes started to offer only DRM-free downloads. Other technical protection techniques use metadata, where the content file includes information on the buyer and content file. If the original buyer's file is copied by others, it can be traced. Apple's iTune's store, though DRM-free for music since 2009, takes this approach.

The fundamental problem of most technology fixes using one-way digital protection is the "analog hole": to be useful, the protected digital stream must ultimately be translated into an analog version that can be viewed or heard by human eyes and ears. And once outside its digital DRM cocoon, the content can be captured by pirates.[377]

7.5.7 Business Responses

The prevalence of these legal and technological strategies against illicit copying and file-sharing may obscure that often the best response by media companies is through new business strategies.

There are multiple approaches. Perhaps most obviously, content providers can lower the price. The incentives for piracy drop if the legitimate price of the content is lowered. For example, magazines and paperback books are rarely pirated, because their price is low enough to make the effort of piracy less worthwhile. A common response by media companies is that "you cannot compete with free," in other words, even a low price is too high. But many commercially-marketed goods and services disprove this and successfully offer for-pay versions where free versions also exist: bottled water, pay-TV, and commercially purchased music in the presence of free radio. Pay products win when they provide a value added, such as convenience, immediacy, quality, or reliability.

A business response related to a lowering of the price is to use more differentiated pricing models. One example is pay per use. Fee payment models have emerged. For example, music companies may allow a customer to pay each time they want to hear a song or just buy one song instead of the whole album. Pay per use payment models exist for music, TV shows, films, books, newspapers, magazines, and games. In these models, success depends on the provider's ability to control post-sale copying.

An alternative approach is to rely on an advertising-based content service. This has traditionally been the case for commercial television. Here, there are several pricing models. Some content is premium—paid and on-demand—while other content is based on a channel subscription; still others are on the basis of a subscription to a large bundle of channels; and still others are entirely "free" and advertising-based.

Users may be given the option of different quality versions. There may be a free lower-end product, whose limitation encourages add-on purchases of higher tiers of quality. The music service Pandora allows users to listen to a certain number of hours of free, ad-supported music per month, and charges them to listen to unlimited additional songs without advertising interruptions. Hulu is free in its basic service but HuluPlus, which offers a library of previous seasons of certain shows or the entire current season, with high definition content and content viewable on tablets and gaming devices, cost $10 per month. The kinds of arrangements that combine a basic and free version and a premium pay-version are known as "freemium" offerings.

Some newspapers and magazines offer a free look at the first part of a story. If the reader wants to continue she must pay. Others provide a limited number of free stories per month. Beyond that number the reader must pay. The *Wall Street Journal* and *The Economist* offer free full-text searching of archives but charge a fee to download articles. Some print-media companies offer complementary products for subscriptions, such as Elsevier, which provides free tables of contents for each of its journals on the web as well as a push service called Contents Alert.[378]

Differentiated pricing offers many other approaches. Songs could be offered for a limited number of plays at a low price before repurchasing. Repeat or long-term customers could receive incentives and pay less than those charged to the general market.

374 Pournelle, Jerry. "Beware of Sony's DRM." *Dr. Dobb's Journal* 31, no. 2. (Feb 2006): 74–75.

375 Edgecliffe-Johnson, Andrew. "Sony BMG settles suits over 'flawed' music CDs." *FT.com*. January 2, 2006. Last accessed August 1, 2012. ► http://www.ft.com/intl/cms/s/2/963aaecc-7bb1-11da-ab8e-0000779e2340.html#axzz22JUkqjUP; Butler, Susan. "Sony BMG Agrees to DRM Settlement." *Billboard*. December 29, 2005. Last accessed May 31, 2017. ► http://www.billboard.com/biz/articles/news/1401496/sony-bmg-agrees-to-drm-settlement.

376 Sandoval, Greg. "UMG Chief on iTunes, DRM, and Android." *CNET News*. January 12, 2009. Last accessed October 5, 2010. ► http://news.cnet.com/8301-1023_3-10140244-93.html.

377 Two-way content, in contrast, can be better controlled because it must continuously pass through a communications link and through routing.

378 Shapiro, Carl and Hal R. Varian. *Information Rules: A Strategic Guide to the Network Economy*. Boston: Harvard Business School Press, 1999.

Will consumers pay for content? Surveys indicate that the majority of students, for example, will pay for compelling content at a good technical quality and without annoying limitations. For movies, price has to be comparable to or be lower than a DVD rental ($3–$5). TV episodes must be less than 99 cents and $5 for a series.

Companies can also quicken the pace at which they release new versions of their products, staying a step ahead of mass piracy. Another strategy is to connect the online content with the physical product and human interaction, such as manuals and tech support.[379] The goal is to make the product into a service, with users connected to content providers. Companies can create additional incentives by offering periodic access to enhancements. This improves the quality of service, a benefit which rarely exists for illegally pirated goods.[380]

Going one step further, some content might shift from digital back to physical. In music, the move to concert tours rather than sales of recordings is an example. In the past, a band's tour promoted its record. Now, the record may promote the tour. In 2015, 24 artists grossed more than $40 million each at the concert venue box office, while CD sales stagnated or dropped.[381]

Alternatively, the physical device becomes the source of revenue. Apple changed the music industry's physical business model with another physical product: the iPod. Apple offered drastically discounted media content in order to sell its mobile devices (the iPod, then the iPhone, and then the iPad). On top of it, its players were built to be able to download music preferentially from Apple's site.

Another approach is customization, which reduces mass copying. Where that is not feasible, the creation of smaller groups through site licensing is another strategy. It is easier to monitor such a site's license compliance and detect and go after organizations instead of individuals. This leads some content companies to provide licenses to organizations instead of individuals. These organizations are in a position to comply with IP laws and license agreements. For example, most universities have site licenses that allow any user on their network to access online libraries.

Some companies give away their products rather than seek to limit it, with the goal of widespread usage. This has been the model of "free" radio and TV broadcasting for almost a century. Beyond the aim of getting advertising revenues, the strategy creates a large user community which generates high network externalities, and high switching costs for users. It enables companies to introduce a complementary, non-free product. This, too, was the original goal of free radio and TV, when NBC aimed to encourage the sale of its patent RCA's radio sets. A similar goal led initially to the creation of the BBC in the UK.

In free distribution, firms depend on upgrades and auxiliary products and services for revenues. Examples might include free access to online newspapers in exchange for demographic and personal data. Free distribution of some music enhances the sales of the goods and services associated with the artist.

Companies may give away free samples. This method allows users to experience the product before making a purchase. Companies can break up products into components, some being given away and others sold. Some companies give away initial products and then sell upgrades. One example is anti-virus software: the revenue-generating product is the subsequent updates and support service. Companies may give away complements to the original product. The availability of a book's texts and additional materials online may increase the sales of hard-copy versions.[382] Another form of free distribution is tying and bundling, or giving away one product to create a market for another. For example, Adobe's Flash Player and Acrobat Reader are free to download, creating a market for Flash and Acrobat.

Offering incomplete or time-limited "demo" versions of products, called shareware in the software market, is another common free distribution model. Shareware is particularly popular in internet-distributed software and smartphone apps, such as products for Apple's mobile devices and video game demos. Companies offering such services position their products for low-priced, mass-market distribution from consumers upgrading to non-free versions. Similar to shareware, freeware allows for free distribution but requests payment from users. US public broadcasting uses such a model. Wikipedia is following a similar model by soliciting donations.

7.5.7.1 The Life-Cycle of Piracy

At least in some cases, media companies might view file-sharing not only as negatively disrupting markets but actually as a positive enabler of new types of products and markets.

P2P file sharing is part of a larger family of economically valuable media activities which grew from the grassroots. Commercial radio emerged in the 1920s on the basis of the radio amateur community that laid the groundwork. In the 1970s, Citizens' Band radio in cars and trucks was widespread and served as a precursor to cellular telephones. Amateur microcomputer builders in the 1970s led to the PC. The internet and world wide web originated in non-profit research organizations, which laid the foundation for highly profitable commercial operations. Today we have an open software movement which generated the operative software Linux, and Wikipedia as a community effort. Why do such grassroots activities exist?

379 Shapiro, Carl and Hal R. Varian. *Information Rules: A Strategic Guide to the Network Economy*. Boston: Harvard Business School Press, 1999.

380 Barlow, John P. "The Economy of Ideas," *Wired*. March 1, 1994. Last accessed August 1, 2012. ► http://www.wired.com/wired/archive/2.03/economy.ideas.html.

381 Surowiecki, James. "Hello, Cleveland." *The New Yorker*. May 16 2005. Last accessed May 31, 2017. ► http://www.newyorker.com/magazine/2005/05/16/hello-cleveland.

382 Shapiro, Carl and Hal R. Varian. *Information Rules: A Strategic Guide to the Network Economy*. Boston: Harvard Business School Press, 1999.

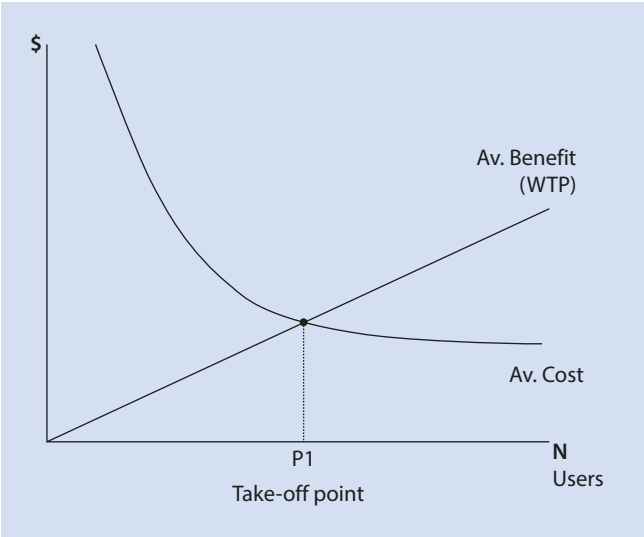

Fig. 7.7 Evolution of networks to take-off

Consider the schematic model (Fig. 7.7) of a new networked application. The horizontal axis shows the number of users. The vertical axis shows average benefits to a user, as well as the average cost per user. The curve sloping down to the right is the average cost per user, and it is declining with the number of users because the fixed costs are distributed over more participants. In the early stages of adoption, average cost is high (high upfront cost, low number of users). The curve that is rising to the right is the average benefit per user. It is rising because of the positive externalities of being connected to many others—the network effects. Users would be willing to pay up to the amount of the benefit they receive. In the early stages of a network, the benefits to users are low, since they can interact only with few other users. Thus, below the network size P_1, costs are higher than revenues, and the activity cannot support itself. At P_1 there is a breakeven. Beyond it the activity is self-sustaining. But how does one get to this take-off point, after which the activity becomes self-supporting?

To reach this "critical mass," the activity or service may need either government subsidies or regulations to force a price below cost to raise demand, or a business which underwrites the deficit. The latter is unlikely to be at the optimal level where competitive entry is probable once the product is viable, because the first entrant ends up subsidizing its competitors. A fourth alternative is the community approach.

Community can play a legitimate and useful role as an entrepreneurial element in the innovation process. Suppressing sharing because it facilitates piracy can be short-term thinking, for once a user base is large enough it will provide the foundation for market-based transactions. If established media business firms took the long view, they would often value the community efforts that create the user base for their own subsequent expansion.

Joseph Schumpeter's famous "creative destruction of capitalism" focuses on the undermining of an existing oligopoly by competitive innovators. People tend to lionize the business-based disrupters as creative entrepreneurs; however, the community-based disrupters, such as the pirates, also make a significant contribution by generating a user base that is large enough to sustain commercial production.

7.5.8 Reform Proposals for Intellectual Assets

7.5.8.1 Ideas for Reform

Many media companies argue that existing IP laws do not adequately respond to challenges such as piracy. Since this undermines the incentives for innovation, a strengthening of the laws is being advocated. Others support the opposite response because they believe that the copyright system is too restrictive to innovation and freedom.

One proposal by Professor William Fisher at Harvard Law School is for internet content to be free, but that there would be a tax on internet access and on the electronic hardware that uses digital content. All content would be watermarked and downloads could be measured. The tax revenues would then be distributed to content providers according to usage. This would be similar to the system that compensates composers for free-to-air radio broadcasts of their music, except that instead of radio stations it would be the government that did the paying through its tax collectors.[383] The prerequisites to make this scheme work are tough to design and difficult to implement. Fisher also proposes to replace patents by offering a one-time monetary reward for innovative inventions from a government fund. However, how would one determine the value or differentiate it from other innovations?[384] And how would one keep this system from being gamed, politicized, and bureaucratized?

Another Harvard Law professor, Lawrence Lessig, suggests that if a copyrighted content is not offered to the public anymore it must be licensed to someone who will offer it. But in an age where everything can be offered online for pay, this is unlikely to be effective. Lessig also champions a shortening of copying to five years. Others have similarly advocated a shortening of patents.

7.5.8.2 The Open Source Movement

Another direction of reform is more practical than legislative in nature. The open source movements, as mentioned, is a loose community of volunteer developers who collaboratively create software known as freeware.[385] The movement

383 The Economist. "A fine balance: How much copyright protection does the internet need?" January 23, 2003. Last accessed June 13, 2012. ► http://www.economist.com/node/1534271.

384 Fisher, William W. "Property and Contract on the Internet." *Chicago-Kent Law Review* 73 (1997–1998): 1203–1256.

385 The Economist. "A fine balance: How much copyright protection does the internet need?" January 23, 2003. Last accessed June 13, 2012. ► http://www.economist.com/node/1534271.

challenges the notion that people will not invent or create without the profit incentive of patents and copyrights. Users of the software "pay" by contributing improvements. This creates a higher-quality product than programmers could afford to develop on their own. Furthermore, because open-source software is peer reviewed, it is more dependable than closed or proprietary software.[386]

A general public license was developed by Richard Stallman, founder of the Free Software Foundation. It uses developers' copyrights to issue licenses that guarantee rights to all future users. These rights include copying the free software, the right to study and modify the source code, and the right to freely distribute versions to others.[387]

Prominent open-source projects include the Linux operating system, the internet protocols Mozilla Firefox and Thunderbird, and various developer tools (e.g. WinSCP). Linux, started by Linus Torvalds at the University of Helsinki in 1991, is a free computer operating system that encouraged the development of compatible software as an alternative to Microsoft's pricy Windows operating systems.

Commercial companies can also profit from open source software. What is free is the software product itself but not its distribution, branding, and after-sale service. This has led to companies such as Red Hat and Cygnus. In "widget frosting," the core software product is free and the profit is in add-ons. Another profit opportunity is in selling and servicing compatible hardware and complete systems, with the open-source software preinstalled.

An alternative copyright arrangement is called a "copyleft." It allows users to redistribute, modify, and use the software freely, but also gives creators some of the legal protections of copyright over their own and derivative works. Copyleft says that anyone who redistributes the software, with or without changes, must in turn pass along to others the freedom to further copy and change it.

In 2002, inspired by the copyleft license, an organization called Creative Commons (CC) created a set of license templates that make it easy for a creator to release particular rights under clearly specified conditions.[388] It allows use of digital files as long as proper credit to the originator is given.[389] The creator retains ownership, allowing others to use the work but not steal it. It also means that no other company can claim ownership rights. A CC license could be a good way to build a fan base for a relatively unknown artist or software developer.[390]

7.5.8.3 Case Discussion

GE Open Innovation

GE used an innovative way to deal with some of its non-essential patents.[391] GE partnered with Quirky—a new invention platform company in which GE invested $30 million-- to offer the wider public a licensed use of about 1000 of its 20,000 patents. Inventors and start-ups submit ideas and concepts to Quirky, which reviews the ideas and takes votes from its user community about which ideas to take forward. The innovators then prototype and release the products that incorporate the GE patents without the fear of being sued. However, they have to pay a license fee on items made and sold.

7.6 Case Discussion: Conclusion

7.6.1 Case Discussion

How Much of GE's Value and Profits Are Based on IA?

In 2007 *Business Week* estimated that GE's intellectual assets were valued at $50 billion. GE was ranked fourth in terms of global brand value and second in terms of global market capitalizations.[392] GE's financial statements are more conservative. Its total property, plant, and equipment was valued at $70 billion in 2012. Intangible assets, including goodwill, were valued at only $12 billion. Hence the company booked the total of its intangible assets as constituting about 17% of its assets.

How can one estimate the value of GE's IAs? We estimate the share of IAs in GE's overall value by using the "residual approach" described earlier in the section on valuation.

GE had seven major lines of business, including capital, home and business

386 Open Source Initiative. "Open Source Case for Business." Last accessed August 1, 2012. ► http://opensource.org/advocacy/case_for_business.php/.

387 Von Krogh, Georg. "Open Source Software Development." *MIT Sloan Management Review* 44, no. 3 (Spring 2003): 14–18.

388 Kay, Russell. "Quick Study: Creative Commons." *Computerworld*. May 22, 2006. Last accessed August 1, 2012. ► http://www.computerworld.com/s/article/111316/Creative_Commons?taxonomyId=70&pageNumber=2.

389 Rohter, Larry. "In Digital Age, Advancing a Flexible Copyright System." *New York Times*. June 26, 2006. Last accessed May 31, 2017. ► http://www.nytimes.com/2006/06/26/arts/26crea.html.

390 Creative Review. "Made for Sharing." June 5, 2006. Each of the six model Creative Commons licenses contains a combination of four license conditions: "attribution" (abbreviated "by"), "Share Alike" ("sa"), "non-commercial" ("nc"), and "no derivative works" ("nd"). "Attribution," the most common condition among the CC licenses, states that works can only be used if credit is given to its original creator; "non-commercial" that works can be used freely only for non-commercial purposes; "no derivative works" that works can only be used in "verbatim" form (i.e. new works based on the CC original are not allowed); and "Share Alike" that others can only distribute an original work if the subsequent work has an identical license.

391 Aguilar, Mario. "GE Frees Up 'Thousands' Of Patents To Fuel Your Imagination." *Gizmodo Australia*. April 11, 2013. Last accessed June 5, 2013. ► http://www.gizmodo.com.au/2013/04/ge-frees-up-thousands-of-patents-to-fuel-your-imagination/.

392 General Electric. "Statement of Financial Position." *GE 2012 Annual Report*. 2012. Last accessed July 16, 2013. ► http://www.ge.com/sites/default/files/GE-AR2012-Statement-of-Finacial-Position.pdf.

solutions, energy infrastructure, aviation, healthcare, transportation, and media.[393] We proceed with a valuation methodology based on the "imputed value" approach discussed earlier. Given the reported respective revenues of various divisions one can estimate the profits of these divisions. Using an estimate of the tangible assets one can calculate earnings attributable to tangible assets. The residual earnings are then attributable to intangibles and IAs. One can then calculate the value of the IAs and the share of IA in the overall assets of that division. The results are shown in ◘ Table 7.4.

The results show, in the right-hand column, that for three of GE's seven main divisions, imputed IA value was about half that of overall assets, that is, similar in magnitude to the tangible assets. For media IA constituted 44.7%. For financial services it was 46.7%, and for aviation 41.3%. IA is a less important part of value in transportation and energy. Overall, the value of IA for GE can be totaled to be almost $47 billion, a figure similar to that of *Business Week*. This is about four years' worth of earnings. Given such large contribution to earnings and value, and to GE's future, the creation and management of IAs needs to be one of the company's top priorities.

◘ **Table 7.4** Intellectual asset value in GE's divisions

Imputed $ value of intellectual assets ($)		% of imputed intellectual asset value in total assets of division
Energy	5.7	12.3
Aviation	5.9	41.3
Healthcare	8.4	29.1
Home	3.6	24.5
GE capital	21.1	46.7
Transportation	0.9	9.8
Media	3.4	44.7
Total	46.8	28.8

7.7 Outlook

Intellectual property was once the domain of lawyers. Now it has become an essential input into its management and output. It is a vital component in strategy, mergers and acquisitions, operations, and investment. Protection and exploration of IA is a critical management task. What is the point of developing and producing creatively and efficiently if the subsequent licensing and protections are ineffective?

For firms in the media and information sector, IAs are the main assets and the core of their value. Protection of these assets from infringement is important, but their exploitation and commercialization are still more valuable. Yet the markets for IA transactions are still fairly imperfect—there are information problems and arbitrage.

The future of IA management will be defined by several conflicting forces:

- In an information society and economy, IAs are more valuable than ever before and their incentive value is important.
- However, legal restrictions to protect IAs slow everyone down.
- More information is produced with a shorter shelf-life, and with more commodity characteristics.

We conclude that the management of IAs is just as important as its legal protection. It is also a complex function to run. Yet it is a key profit activity for successful information and media firms in the digital economy, and its mastery is an essential business tool.

7.8 Review Materials

Issues Covered

In this chapter we have covered the following issues:

- What the characteristics of IA are.
- How IA developed over years and its positive and negative effects on society.
- What the options are for a media and information firm to create and protect its innovations.
- How a firm optimizes the benefits from its IAs.
- How to organize the management of IA.
- What the reasons are for business method patents.
- What trade secrets are and how to protect them.
- What the benefits and risk are of patents.
- How companies solve patent infringements.
- What the requirements to file patents are.
- What trademarks are and how to obtain them.
- How copyright is created and protected.
- What the roles of international treaties and organizations are for IA.
- How to value IAs.
- Why companies cross license.
- How IA are treated in a company's balance sheet.
- What the advantages and disadvantages are for strategic licensing.
- How patent pools reduce litigation risk and intentional blocking.
- How PROs works
- How compulsory licenses work.
- What kind of protection strategies can be used against piracy.
- How digital rights management operates.
- How the open source system works.
- How the value of IAs is calculated.
- How to create contractual protection of IAs.
- How sports organizations license media and franchise rights.

393 MSN. "General Electric Co." *GE Company Report, Financial Results, Key Ratios, Income Statement*. Last accessed 6 June 6, 2013. ► http://investing.money.msn.com/investments/company-report/?symbol=ge.

Tools Covered

We described tools to address some of the above issues:

- Patent filing.
- Patent infringement suits.
- Trademark requirements.
- Copyright and trademark registration.
- Contract-generated IP rights.
- Protecting trade secrets.
- Fair use criteria.
- Identifying patent "parents" and "children."
- IA audit map.
- Valuation techniques for IAs.
- Residual approach of IA valuation.
- Optimal licensing rates.
- Cross-licensing pools.
- Sport licensing.
- Piracy protection strategies.
- Copyleft and open source.
- Patent search.
- Analysis of technology velocity.
- IAM software.

7.8.1 Questions for Discussion

1. Practically speaking, how can a company check for infringement of its copyrights?
2. How would a media company account in its books for a patent before it has created any tangible item based on it?
3. Contrast the sale of IP with the open source movement. Can open source be more useful to a media firm?
4. How can an inventor check sales of his invention, for royalty purposes, after he has licensed it to a large company?
5. How does an interactive internet radio firm need to negotiate licenses differently from a passive internet radio station, such as the online streaming edition of a local FM radio station?
6. If a manufacturer has developed a new audio technology that produces better sound at a lower bit rate, contrast the method of keeping this information as a trade secret versus applying for a patent.
7. Explain how a firm can best protect itself from having its product reverse engineered.
8. After a company independently develops a new product or technology, describe the process a company can take to ensure that no other firm or individual already has a patent on the same process.
9. Describe the differences between a patent, a trademark, and a copyright. For which assets would a company want to obtain these protections?
10. How should companies respond to the "intellectual commons" movement?
11. How should a record company respond to challenges to its IP?
12. Discuss how the concept of fair use applies to universities and start-ups.
13. When should a company join a patent pool? And when is it a bad idea?

7.8.2 Quiz

1. Company XYZ sells music CDs online. For the past two years, music CD sales have slipped dramatically. Instead, music downloads have increased significantly. A bad idea for company XYZ would be to:
   A. Direct its focus to an area less vulnerable to competition;
   B. Undercut competitors by selling its CDs much cheaper;
   C. Enforce its IPRs;
   D. Further advertise CDs with the hope that CD sales will eventually reemerge.
2. All of the following are IPR benefits of larger firms except:
   A. Usually greater protection from piracy and P2P users;
   B. Less costly to protect patent rights;
   C. Usually have greater resources when dealing with litigation;
   D. Have larger portfolios, therefore cross-licensing can be an alternative to litigation.
3. All of the following are true concerning the NATPE and MIPCOM shows except:
   A. Allows for bidding between producers and creators of products;
   B. Only permits the viewing of shows that are seeking syndication;
   C. Proves a valuable channel for marketing and purchasing of television programs;
   D. Serves as a promotional venue for producers and potentially viewers.
4. Each of the following can be used to determine the value of a company's IAs except:
   A. The number of times it is cited or referenced in other patents/patent filings;
   B. Usage of "royalty methodology" such as tax-generated revenue from deals resulting from cross-licensing;

C. Consideration as to the length of the patent description as filed with the Patent Office;
D. Whether it is in existing use versus liquidation value.

5. Which of the following is an important consideration in developing business practices which will protect a trade secret?
   A. The ingredients in your secret hamburger sauce can be determined by chemical analysis;
   B. The turnover rate of your employees is high;
   C. The process for making your product was published in a 1968 government report;
   D. A, B, and C;
   E. None of the above.

6. Which of the following is important in choosing to apply for a patent over using trade secrets to protect your business?
   A. The process for making your product was published in a 1968 government report;
   B. Your chief technology officer has a drinking problem and leaked confidential information about your product to a friend three weeks ago;
   C. Your product is a method for doing business;
   D. All of the above;
   E. None of the above.

7. Which of the following cannot be patented?
   A. An idea;
   B. An organic compound;
   C. A mathematical algorithm;
   D. A business process;
   E. An improvement on an existing patented process.

8. The proprietor of Bill's Duck Farm wants to launch a new product line of orange-colored duck eggs. Which of the following would give Bill the strongest competitive advantage?
   A. Labeling each egg "patent pending";
   B. Getting a servicemark for the slogan "If it walks like a duck, and talks like a duck; it must be a wild Duck.";
   C. Getting trade-dress protection for orange-colored duck eggs;
   D. Launch a massive advertising campaign emphasizing his new patent for a process for making sure the eggs are orange;
   E. Selling his eggs under the brand name "Wild Duck Eggs";
   F. Labeling each egg "© Duck Bill, 2000".

9. Which of the following would make a piece of information the most valuable?
   A. How old it is;
   B. When the information has been reproduced;
   C. The number of people who believe it;
   D. The distance the purchaser is from where the information is produced;
   E. How easy it is to stop from being spread.

10. Which is not a problem with encryption?
   A. It hinders criminal investigations;
   B. Early reliance on copy protection led to the notion that cracking into a software package somehow "earned" one the right to use it;
   C. Once something has been unscrambled by a legitimate licensee, it can be widely reproduced;
   D. New subscriptions to various commercial satellite TV services skyrocketed after their deployment of more robust encryption of their feeds.

11. Jason is the General Counsel for Axis Travel Agents, Inc. The company has been using that name as a registered trademark for nine years. Axis programmers are now building their e-commerce website and want to use the domain name ► http://www.axis.com. However, the programmers have found that Axis Telecom has registered that domain name, although it is not currently using the address. Axis Telecom has been in business for 11 years, but has never registered the name as trademark. Reuben, Axis Travel's CEO, asks Jason to develop an IP strategy to handle the problem.
Jason should recommend that Axis Travel:
   A. Sue Axis Telecom for cybersquatting;
   B. Sue ICANN for issuing an infringing domain name;
   C. Purchase the domain name outright from Axis Telecom;
   D. Sue Axis Telecom for trademark infringement;
   E. License the domain name from Axis Telecom;
   F. Register ► http://www.axis.net.

12. Which element(s) are required in a proper copyright notice?
   A. The symbol ©, the word "copyright" or the abbreviation "copr.";
   B. The year in which the copies of the work were first published;
   C. The name of the copyright owner;
   D. All of the above are required;
   E. Only A and B are required;
   F. None are required, only recommended.

13. Which of the following is not an example of open source software?
   A. Springboard OS;
   B. GNU;
   C. Redhat Linux;
   D. UNIX;
   E. None of the above.

14. What of the following cannot be copyrighted?
    A. Dance choreography;
    B. Computer software;
    C. Motion pictures;
    D. Business operation process.

15. What does "fair use" mean for copyright holders?
    A. Central parts of the total work can be used as long as they have an educational purpose;
    B. Educational institutions have to acquire licenses in order to copy copyrighted work;
    C. Their copyrighted work can under certain circumstances be copied for research, teaching, etc.;
    D. Profit can be made by implementing the knowledge acquired from copyrighted work.

16. Which of the following anti-piracy strategies is most effective once a copied version of a film is already available on the internet?
    A. Technology fixes;
    B. Enlist government;
    C. Counter-attacks;
    D. Litigation.

17. What is not a suitable strategy for managers to counteract piracy?
    A. Slower introduction of new versions to reduce the advantages of a pirate offering the "newest version";
    B. Slower introduction of new versions to increase the advantages of a pirate offering the "newest version";
    C. Faster introduction of new versions to reduce the advantages of a pirate offering the "newest version";
    D. Competitive pricing in order to adapt more to inexpensive, high-quality illegal copies.

18. What is/are a disadvantage(s) of the cost approach as a valuation method?
    A. Often leads to overvaluation;
    B. Includes development cost that did not lead to successful inventions;
    C. Inflation can be overcome;
    D. Inadequate correlation of cost with value;
    E. All of the above.

19. Why is the real options approach as a valuation method for patents useful?
    A. Managers do not understand the underlying calculations and thus cannot judge the results;
    B. Valuation methods, such as decision tree analysis or the Black-Scholes formula, can fully describe the options value;
    C. It models the uncertainties of the underlying IAs;
    D. Uncertainty can be easily described by a normal distribution.

20. What are valid reasons for the licensing of a technology?
    A. Shape market structure;
    B. Deter entrance of competitors;
    C. Select competitors after patent expires;
    D. All of the above.

21. Which of the following are considered a type of Intellectual Asset (IAs)?
    A. Trade Secret Protections;
    B. Contract-Created Intellectual Assets;
    C. Copyrights;
    D. All of the above;
    E. A and C only.

22. Which of the following statements about Intellectual Assets is correct?
    A. By estimations, 90% of commercial value in IA is found in trade secrets;
    B. Copyrights are less frequent than contract created rights and trade secrets;
    C. Patents are less frequent than trademarks and trade secrets;
    D. All of the above;
    E. None of the above.

23. Typically, how long does it usually take to obtain a patent?
    A. Six months;
    B. One year;
    C. Two to four years;
    D. Five to ten years.

Quiz Answers

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