Digital Media and Innovation

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INNOVATION AND THE POWER OF A GOOD IDEA

If I have seen further it is by standing on the shoulders of giants.

—Sir Isaac Newton

There is one thing stronger than all the armies in the world, and that is an idea whose time has come.

—Victor Hugo

Introduction

The lessons of business history have taught us that there is no such thing as a static market. There are no guarantees of continued business success for companies regardless of their field of endeavor. In 1942, economist Joseph Schumpeter introduced the principle of *creative destruction* as a way to describe the disruptive process that accompanies the work of the entrepreneur and the consequences of innovation. In time, companies that once revolutionized and dominated select markets give way to rivals who are able to introduce improved product designs, offer substitute products and services, and/or lower manufacturing costs.[1]

The resulting outcomes of creative destruction can be significant, including the failure to preserve market leadership, the elimination of a once highly successful product line, or in the worst-case scenario, business failure itself.[2] The history of media and telecommunications is replete with examples of companies that were once high flyers (the best of the best) but who failed to plan for the future. Companies with iconic names like Eastman Kodak, Blockbuster Video, and Blackberry wireless, to name only a few, have been reduced greatly or are no more.

Today, the international business landscape has become ever more challenging. Global competition has engendered a new competitive spirit that cuts across countries and companies alike. No company large or small remains unaffected by the desire to increase profits and decrease costs. Such companies are faced with the same basic question; namely, what are the best methods for staying competitive over time? In a word, *innovation.* This book is about the power of good ideas. It's about those business enterprises that have harnessed the power of good ideas to become real difference makers in the field of media and telecommunications.

When we use the word *innovation*, there is a tendency to think of it in present-day terms. Companies like Apple and Google are considered innovative companies. Similarly, the term *innovation* often is linked to companies that are engaged in digital media. From Sony's Akio Morita and the invention of the Walkman to Steve Jobs and the development of the iPhone, one of the goals of this book is to show the full measure of creativity and entrepreneurship both past and present. While there are numerous books on the subject of innovation (and specific corporate histories of well-known media companies), there are few books presently that are fully focused on the linkage between innovation and media and telecommunications. What has long fascinated me about the work of innovators like Walt Disney (Disney), Steve Jobs (Apple) and Jeff Bezos (Amazon), to name only a few, is the opportunity to examine how such companies and individuals create groundbreaking products and services while addressing the challenges of staying innovative over time. This book represents a unique opportunity to look at the importance of innovation and innovative thinking to the long-term success of today's leading media and telecommunications companies. Specifically, it will address four sets of questions. First, what does it mean to be an innovative media business enterprise? Second, what are the different types of media innovation, and who are some of the players who have proven to be real game changers in shaping the business of communication? Third, why do good companies fail to remain innovative over time? And fourth, how do the best companies foster a culture of innovation within their own organizational settings? This book will examine some of the people, companies, and strategies that have transformed the business of media and telecommunications.

What Is Innovation?

Renowned scholar Everett Rogers (1995) defines innovation as "an idea, practice or object that is perceived as new by an individual."[3] In principle, there are two kinds of innovation, namely, sustaining technology versus disruptive technology. A sustaining technology has to do with product improvement and performance. The goal is to improve on an existing technology or service by adding new and enhanced feature elements.[4] A computer manufacturer, for example, routinely is looking to improve on basic design elements like speed and throughput, processing power, and graphics display. For most companies, sustaining technology (or incremental innovation) is the most common form of innovation, often receiving more than 80 percent of the organization's total research and development budget.[5]

Sustaining technology is extremely important because it provides the steady and necessary improvements in product design that guard against rival product offerings. It also demonstrates a commitment to brand improvement. Such examples might include incremental improvements in Microsoft Office software or the steady progressions made in the Apple iPhone. The goal of sustaining (or incremental) innovation is to try and realize as much value as possible from an existing product or service without having to make a significant change in product design and/or a major retooling in production. By doing so, a company can preserve market share, extend brand awareness, and maintain profitability for a long period of time.

In contrast, a disruptive (or breakthrough) technology represents an altogether different approach to an existing product design and process. It redefines the playing field by introducing to the

marketplace a unique value proposition. (See Table 1.1). Consider, for example, the impact that MP3 file-sharing technology has had on the music industry. The speed and efficiency of Internet-delivered music using MP3 file-sharing software has fundamentally changed the cost structure of music recording and distribution on a worldwide basis.[6] The combination of the Apple iPod and iTunes media store created the first sustainable Internet music business model of its kind. It would redefine the way music is distributed and recorded forever more and give rise to the principle of personalized music selection. It was an absolute game changer and the quintessential example of a disruptive technology.

Table 1.1 Media Innovation: Disruptive Effects and New Value Proposition

Company	Disruptive Product/Service	Value Proposition
Apple	iPod and iTunes music store	Portable and Customized music selection
Home Box Office (HBO)	Paying for television	Premium television programming *The Sopranos, John Adams, Game of Thowns* etc.
Walt Disney Company	Walt Disney World Theme Parks and Resorts	Enhanced family entertainment
Amazon	Amazon.com; on-line shopping	Business-to-consumer e-commerce
Sony Inc. and Phillips	Compact disk (CD)	Transformed music delivery, playback and storage; later used for information and video game delivery

Source: R. Gershon[7]

The Power of a Good Idea

There are any number of terms that we use in our day-to-day experience to describe the power of a good idea. Such words and phrases as *inspiration, compelling vision*, and *natural insight* are just a few of the lexicon of terms to describe that moment in time when a good idea takes hold. The best innovators have natural curiosity about their environment. They are keen observers of human behavior and one's natural landscape. They are willing to juxtapose various idea combinations to see what happens.

As author Steven Johnson (2010) points out, a good idea is really a network of possibilities. A good idea spawns infinite connections and opportunities.[8] One of the important themes in this book is that the best innovators work in environments that allow them to be creative. From the original AT&T Bell Labs to the present-day Googleplex, there is a natural synergy that occurs when a project team combines talents and skills toward a common effort. A good idea has to be malleable; that is, it must be capable of adapting to various designs and configurations. As Ideo's Tom Kelley (2005) describes it,

the best projects and design configurations are a collaborative effort; they never finish where they began. He characterizes it as the "magic of cross-pollination."[9]

The Serendipitous Discovery

From the original telephone to Post-it Notes, it sometimes happens that the scientist or engineer winds up creating something very different than what was originally intended.[10] As sometimes happens, the discovery is more accidental than planned. Probably, the most famous example was the invention of the telephone itself. In setting out to create the harmonic telegraph (multiple Morse code signals on a single wire), inventor Alexander Graham Bell wound up creating something far more compelling and futuristic than the original concept. Bell's extensive knowledge of sound (and sound waves) enabled him to consider the possibility of transmitting human speech electronically.[11] Both he and Elisha Gray are credited with independently having designed the first prototype devices that would later become the telephone. The telephone became the foundation for an entire system of communication that would take more than fifty years to build and require telephone exchanges (including operators, switches, and routers), long-distance lines, and assigned numbers. In time, the future AT&T would become the largest corporation in the world.

Research and Development

The words *research* and *development* are 20th-century terms that owe their beginning to the original industrial lab concept promoted by men like Thomas Edison, who built one of the first of its kind in Menlo Park, New Jersey (now called Edison in his honor). Menlo Park was home to one of America's first research and development (R&D) labs, which created products such as the phonograph and the incandescent lightbulb as well as an estimated 400 patents. The laboratory's open floor plan allowed for easy communication among Edison and his associates. The layout created an informal environment that Edison felt would foster creativity. Edison had no rules for work and no time clock. But his team worked long hours and was highly successful in their endeavors.[12] In time, other high-tech companies one day would follow suit and create their own version of the industrialized R&D lab. One such company was AT&T.

AT&T

The traditional R&D model assumes a more formal approach to research and product development. The goal is to enhance current product design as well as solve problems related to its implementation. Such R&D groups are assigned an annual budget with which to conduct research pertaining to product development as well as pure research (i.e., creating, new knowledge) that may not have immediate benefit. One of the best examples of a successful R&D model was AT&T Bell Labs, established in 1925. Bell Labs would prove to be an extremely fertile ground for the development of new and enhanced communication technology. Bell Labs had more PhD's under the roof of its 21

branches than any single university could claim in the field of engineering and turned out more than 19,000 patents since it began in 1925. As an R&D facility, Bell Labs could boast a number of firsts, including the first transistor, first laser, the first efficient communication satellite known as Telstar, early prototype designs in cellular telephones, as well as telephone switches and fiber optic communications.[13]

Bell Labs was unique for its time because it enabled its people to pursue pure research. One Bell Labs researcher described it as "managed anarchy." Pure research is an unpredictable path, with many hidden twists and curves. As so often happens, one discovery may not be useful for the moment but may lead eventually to another that is. Consider, for example, the work of Bell researcher Clinton Davisson, who won the Nobel Prize for physics in 1927 for work that revealed the nature of subatomic particles. His work proved that electrons can behave like a wave. Decades later, his work would be critical to the understanding of how semiconductors and lasers work. For his part, Davisson simply was trying to figure out how electrons behaved in a vacuum tube environment. Vacuum tube design was essential to AT&T's growing long-distance telephone network. It should be remembered that all communication signals suffer from problems of attenuation; that is, the signal becomes weakened over distance.[14] A typical phone signal becomes weaker as it travels over hundreds of miles. A vacuum tube helps to restore and amplify the weakened signals. But a vacuum tube has certain limitations.

Davisson's work attracted William Shockley, a young physicist from the Massachusetts Institute of Technology (MIT) to Bell Labs. Shockley headed up a group that included John Bardeen and Walter Brattain. They began doing preliminary research in the field of semiconductor design. This would require a deeper understanding of the switching and amplification of electrons. On December 12, 1943, Bell Labs physicists Shockley, Bardeen, and Brattain demonstrated the transistor: the world's first semiconductor device that could do the work of a vacuum tube.[15] The transistor would allow for more efficient transfer, switching, and amplification of electrons. The transistor provided the beginning step toward the efficient transfer of electrons and the miniaturization of that effort.

The transistor set into motion a whole host of innovation that was to touch every aspect of future communication technology, ranging from transistor radios to command and control telemetry for space flight. The transistor proved to be an important step that would lead to the development of the integrated circuit (i.e., multiple interconnected transistors on a single piece of silicon), popularly known as the computer chip.[16] The development of the transistor would win Shockley, Bardeen, and Brattain a Nobel Prize for physics.[17]

Another important discovery was in the field of wireless communication. The principle of cellular telephony was first articulated by D. H. Ring in 1947 in a technical memorandum at Bell Labs. Ring's paper, with valuable assistance from W. R. Young, referenced several critical elements, including the need for small geographical areas called cells (or areas of phone coverage), a low-powered transmitter in each cell, traffic to be controlled by a central switch, and the reuse of frequencies in different cell sites. Writing for the *Bell System Technical Journal,* W. R. Young stated that Bell's engineering teams "had faith that the means for administering and connecting to many small cells would evolve by the time they were needed."[18] On June 17, 1946, in St. Louis, Missouri, AT&T and Southwestern Bell introduced the first American commercial mobile radio-telephone service. It was simply called Mobile

Telephone Service.[19] It should be noted that early design work in the area of cellular telephony was happening in other parts of the world as well, most notably Sweden and Finland. But the AT&T demonstration marked the beginning of cellular telephone communication as we know it.

Mavericks and the Power of a Good Idea

Very few entrepreneurs ever set out with the goal of becoming an entrepreneur. Rather, they are highly committed individuals who develop a deep-seated passion toward a problem or issue that they are working on. Some of the best innovation comes from the lone individual who I like to term the *maverick.* The maverick stands outside the box in terms of his or her thinking. Mavericks come in many forms. They may include those individuals who criticize deficiencies in current business processes and products. Innovators sometimes include whistle-blowers whose strong sense of right and wrong call out unethical or self-defeating business practices of the organization. And likewise, innovators can be those individuals who think up new ideas that have never been tried before. They put an entirely different lens on a problem.

Tim Berners-Lee, Great Britain

There is something to be said for the fact that good ideas often take awhile to germinate. Steven Johnson refers to it as the "slow hunch." Consider, for example, the evolutionary thought process that gave birth to the principle of hypertext linking. In 1980, Tim Berners-Lee began working on a software project called Enquire that was an early version of hypertext linking and the World Wide Web concept. It was an idea that took several years to evolve. He would come back to it time and again during the next several years. In March 1989, Tim Berners-Lee, now a scientist at CERN, the European Organization for Nuclear Research, wrote a paper detailing the means by which members of the particle physics research community could research easily and share electronic documents.

At the start of the 1990s, the Internet was used primarily by the military, academic institutions, and business contractors. The primary system for communication was entirely text based, relying on basic newsgroups and remote Telnet chat sessions to send messages between users. Berners-Lee was challenged by the fact that searching for information meant having to log on to different computers with different protocol languages. As the popularity of the Internet increased, newcomers often found the arcane navigational commands a difficult task. Such would-be users had to master a complex set of computer commands and procedures before they could access the Internet. What was needed was an easy-to-use communication procedure that could link various programs.

In March 1989, Berners-Lee wrote a proposal to develop a large hypertext database with typed links. The initial proposal generated little interest. Later that same year, both he and colleague Robert Cailliau rewrote the proposal with the goal of developing a more improved navigational protocol for the Internet. The new protocol design was based on the principle of hypertext (or nonlinear text), which is the foundation of multimedia computing.[20] Lee's hypertext markup language (HTML) protocol would not require any specialized computer skills other than the ability to point and click on text or

graphics. The hypertext protocol allows the user to navigate the Internet by moving from one document to another (or from one computer host to another).[21] The genius in Berners-Lee's work lay in the fact that he found a way to link documents using a common protocol rather than having to access remote databases as separate and distinct pieces of information. Tim Berners-Lee's contribution to the development of the Internet cannot be overestimated. The HTML protocol forms the basis for the World Wide Web concept.

Bill Gates, United States

Microsoft is a transnational computer and information company based in Redmond, Washington. The company was founded by Bill Gates and his childhood friend Paul Allen. Microsoft is the world's largest software company. Both Gates and Allen attended Seattle-based Lakeside preparatory school. Both Gates and Allen were the proverbial computer geeks, spending most of their spare time in the school's computer room. Paul Allen would later graduate and study computer science at the University of Washington, while Gates attended Harvard but later dropped out. In January 1975, Paul Allen read an article about the Altair 8800 microcomputer in *Popular Electronics* magazine. He showed the article to Gates, who in turn, called Micro Instrumentation and Telemetry Systems (MITS), makers of the Altair. Bill Gates offered both his and Paul Allen's services to write a version of the new BASIC programming language for the Altair. In signing the contract, Allen and Gates left Boston, Massachusetts, where Allen worked for Honeywell and Gates was enrolled in Harvard, and moved to Albuquerque, New Mexico, where MITS was located. It took them eight weeks to successfully complete and demonstrate the new software package. MITS agreed to distribute and market the product under the name of Altair BASIC.

The success of the Altair project proved to be the important catalyst that motivated Gates and Allen to form their own software company called Microsoft on April 4, 1975. Bill Gates would serve as the company's new CEO. The company was later incorporated in the state of Washington in 1981. Microsoft soon established itself as one of America's first (and perhaps largest) producers of computer software, most notably, expanded versions of BASIC, which had become the default standard on most available personal computers (PCs) to date. The real turning point for Microsoft came in 1981, when it signed a contract with IBM to write the operating system code for the company' soon-to-be-launched IBM PC. Initially, Gates referred IBM to Digital Research (DRI), makers of the widely used CP/M operating system.[22] The discussions were unsuccessful, and IBM came back to Microsoft, which agreed to develop a new operating system. Microsoft contracted with Tim Patterson of Seattle Computer Products, and together they combined to create MS-DOS for a one-time fee of $50,000. The most important part of the deal, however, was Gate's shrewd decision to retain the copyright on the PC operating system. That decision was prescient. Gates recognized that software development would drive the burgeoning computer industry. He believed that future PC manufacturers would need equivalent operating systems, and Microsoft was well positioned to be the principal supplier.

From Microsoft's founding in 1975 until 2006, Bill Gates served as the company's chief technology strategist. He helped expand the company's range of products, including the Windows

operating system as well as the Microsoft Office suite of products. As the world's leading supplier of personal computing software, Microsoft developed a reputation for being aggressive and sometimes anticompetitive.[23] Gates, himself, was generally recognized to be an impatient and demanding boss. Gates met regularly with Microsoft's senior leadership team. Firsthand accounts of these meetings describe him as verbally combative, routinely challenging his managers for perceived flaws in their approach to business strategy or mistakes made in software development and execution.[24]

What is sometimes forgotten is the important role that Microsoft (and specifically Gates) has played in helping to advance personal computing. Microsoft set the defacto standards in business computing software. By shifting the value proposition in computing to software, Microsoft commoditized the manufacture of hardware equipment, thus making personal computing accessible to the general public.[25] Microsoft, more than any company, took the mystery out of computing by transforming an industry that was once the purview of the guys in the white coats. Unlike Apple, Microsoft did not create a proprietary standard, thereby allowing all manufacturers to build computers using Microsoft software. Microsoft put a PC on everyone's desk. Microsoft built a strong, reliable operating system and set of software products that enabled millions of users worldwide to engage in computing at a cost point that greatly advanced the field of personal computing.

Ken Kutaragi, Japan

The Sony Playstation was the brainchild of an engineer named Ken Kutaragi, who was fascinated with designing an entertainment device that could combine the power of a computer workstation with high-resolution graphics. For two years, Kutaragi operated without a sponsor until his friend, Teruo "Terry" Tokunaka, a senior executive at Sony, interceded on his behalf. Tokunaka took Kutaragi to see Sony CEO Norio Ohga to discuss his idea. Ohga was sufficiently impressed that he authorized Kutaragi to begin building a working prototype of his video game console.[26] Not everyone at Sony was enamored with the idea of video game technology. In the beginning, the senior leadership at Sony did not view themselves in the business of video game technology, which was seen as a children's toy. Worse still, companies like Nintendo and Sega were the established leaders in video game technology and software. Nevertheless, Sony's executive planning committee approved $50 million in start-up costs to allow Kutaragi and his design team to develop the basic computer chip necessary for a future video game console.

One of Sony's major challenges was to convince the larger software developers to create innovative games to support the new platform system. Sony's future success in video game technology would depend on high-quality software games. In November 1993, Sony Computer Entertainment (SCE) was created for the purpose of marketing and licensing video game consoles and titles. One of the most critical elements to the new Sony video game platform was the use of CD technology instead of the existing 16-bit cartridge. It was recognized that the CD possessed greater storage capacity than a video game cartridge and was much cheaper to produce. Sony was able to play to its own strengths as both they and Phillips Corporation were the co-inventors of the CD. On December 3, 1994, the Sony Playstation was launched in Japan with eight game titles. Sony sold some 300,000 units in the first

month alone, more than three times what company strategists had expected. The Playstation was launched a year later in the United States and achieved immediate success. By 1998, Playstation had sold 33 million units worldwide and become the international leader in video game consoles. In 2000, Sony's PlayStation 2 was launched and became the best-selling console ever built.[27] In time, the Sony Playstation would become more than a video game system. It would develop into an all-inclusive broadband delivery system to the home, capable of allowing users to play games, watch television, and listen to music. The development of Playstation ultimately changed the landscape of the medium forever, becoming the foundation for gaming as we know it.

Linus Torvalds, Finland

Finland's Linus Torvalds is a computer scientist who was the principal force behind the development of the Linux operating system. In 1991, while studying at the University of Helsinki, he purchased his first PC. Torvalds was not satisfied with the computer's operating system. His PC used MS-DOS, the disk operating system designed by Microsoft Corporation. Torvalds, for his part, preferred AT&T's UNIX-based operating system that was used on the university's computers.[28] He decided to create his own PC-based version of UNIX. Months of determined programming work yielded the beginnings of an operating system known as Linux. In 1991, he posted a message on the Internet to alert other PC users to his new system and made the software available for free downloading. As was a common practice among software developers at the time, Torvalds released the source code, which meant that anyone with knowledge of computer programming could modify Linux to suit his or her own purposes. Because of their access to the source code, many programmers helped Torvalds retool and refine the software, and by 1994 the Linux kernel (original code) version 1.0 was released.

Operating systems require a certain amount of technical acumen. The original Linux OS was not as easy to use when compared to the more popular operating systems such as Windows, Apple's Mac OS, or IBM OS/2. However, Linux evolved into a remarkably reliable, efficient system that rarely crashed. In addition to Linux being free, its source code can be viewed and modified by anyone, unlike a proprietary operating system. This means that different language versions can be developed and deployed in markets that would be too small for traditional companies. Compared to Windows, Linux is more difficult to use. Linux became popular in the late 1990s when competitors of Microsoft began taking the upstart operating system seriously. Companies like Oracle, Netscape Communications, and Intel (to name only a few) announced plans to support Linux as an inexpensive alternative to Windows. What sets Linux apart from other operating systems is that it has grown to become a major force in computing, powering everything from the New York Stock Exchange to mobile phones to supercomputers to consumer devices. As an open source system, Linux is developed collaboratively; that is, no one company is solely responsible for its continuation or ongoing support. Developers from hundreds of different companies contribute to every kernel release. Companies participating in the Linux economy share research and development costs with their partners and competitors. The sharing

in development costs among multiple individuals and companies has resulted in a large and efficient "free" ecosystem that is unparalleled in software design.

Three Strategic Approaches to Business Transformation

The most important inventions build on the fundamental principles set forth by others. Such companies and project teams benchmark and learn by example. At the same time, the innovator must be willing to let go of basic assumptions and consider a problem from an altogether different perspective. He/she must be open to taking risks by approaching a problem in an entirely new way. That is what truly separates the innovator from the also-ran. In this book, we will consider three major types of innovation. They include: 1. business model innovation, 2. product innovation, and 3. process innovation.

Business Model Innovation

Today, innovation is about much more than developing new products. It's also about building new markets to meet untapped customer needs. Business model innovation involves creating entirely new approaches for doing business. Authors Kim and Mauborgne (2005) make the argument that to create new growth opportunities, innovative companies must consider the unknown market space, untainted by competition. They advocate what they term a *Blue Ocean strategy* approach, whereby demand is created rather than fought over. Blue oceans denote all future industries not in existence today (i.e., the unknown market space). It describes the potential market space that has yet to be explored.[29] HBO, for example, created a demand for premium television entertainment. They changed the consumer mind that television should forever be free. Likewise, Amazon.com demonstrated the potential of electronic commerce by developing a simple and efficient way to buy books and other goods using the power of the Internet and intelligent networking. This gave rise to an altogether new business model known as e-commerce. Both companies introduced a business model innovation that proved transformative. They redefined the competitive playing field by introducing an entirely new value proposition to the consumer.

Product Innovation

Product innovation refers to the complex process of bringing new products and services to market as well improving (or enhancing) existing ones. Highly innovative companies display a clear and discernible progression in the products they make. They force themselves to create new and better products while challenging the competition to do the same.[30] There is a natural progression in product design and development.[31] Being first to market is essential. If successful, a new product innovation will create lasting advantage while spawning a host of imitators. Consider, for example, the host of imitators that followed the launch of the original iPhone by Apple.

Successful product innovation goes hand in hand with the creative process for developing unique and original ideas. The best companies foster a culture of innovation. They recognize that the source of good ideas can come from a wide variety of people and players both inside and outside the organization, including design engineers, project teams, business units, as well as individual customers.[32] One important consideration is whether the proposed idea fills an obvious gap or niche in the marketplace. Consider, for example, the success of the e-commerce service known as Vacation Rental by Owner (VRBO) in helping to advance vacation lodging using the power of the Internet and customer feedback. It was the right product at the right time.

Process Innovation

Business process innovation involves creating systems and methods for improving organizational performance. Davenport and Short (1990) define business process innovation as a "set of logically related tasks performed to achieve a defined business outcome."[33] Examples can be found in a variety of organizational settings and structures, including product development, manufacturing, inventory management, customer service, distribution and delivery.[34] The benefit of business process innovation is that it creates internal efficiencies that translate into organizational cost savings, including a better use of time, people, and resources.

A highly successful business process renders two important consequences. First, business process innovation is transformative; that is, it creates internal and external efficiencies that provide added value to the company and organization. Second, a well-designed business process sets into motion a host of imitators who see the inherent value in applying the same business process to their own organization. As an example, Dell Computers was an important innovator when it came to developing just-in-time manufacturing techniques as well as direct-to-home computer sales. Similarly, Netflix harnessed the power of the Internet in providing consumers with the ability to directly order movies online, thus creating an efficiency for the delivery of movies to the home. Both companies were game changers in the field of e-commerce by demonstrating that one could engage in e-commerce without the need for a brick-and-mortar retail store.

Three-Sided Innovation

It is not uncommon that some of the best companies discussed in this book are innovative in more than one area. As so often happens, the demands of bringing a product to market may require the organization to develop a business plan as well as support systems that cut across all three areas of innovation. I call this three-sided innovation. See Table 1.2.

Table 1. 2 Three-Sided Innovation

Company	Business Model	Product	Process
Amazon	Electronic Commerce	Books and Later General Merchandise	Supply Chain Management System
Apple	Electronic Commerce	iTunes Music / iPod Music Player iPhone (smartphone)	Mp3 File Sharing and Distribution
Google	Key-Word Search Advertising	Internet Search	Intelligent Network
HBO	Pay Cable Television	Premium Television/ Film Entertainment	Satellite Communication
NBC/CBS Radio and Television Network	Advertiser Supported Radio and Television	Radio/Television Entertainment – News	Network/Affiliate Relationship

Digital Media and Innovation

Today, of course, we think of innovation within the modern-day context of digital media and the Internet. Digital media represents the artistic convergence of various kinds of hardware and software design elements to create entirely new forms of communication expression. From e-commerce (Amazon.com and Google) to music and video streaming (Apple iTunes and Netflix), digital media has transformed the business of retail selling and personal lifestyle. Digital media is at the heart of today's communication revolution. We have entered the era of personalization, where smartphone users personalize their music listening experience and newspaper readers customize their news selection via their computer tablet.[35]

Central to any discussion pertaining to digital media is having an appreciation for the importance of convergence. For communication scholars, the word *convergence* is a fairly elastic term that has come to mean different things depending on time, application, and context. There are a number of driving forces that focus public attention on the issue, including changes in technology (most notably the Internet), business merger and acquisition activities, and the search for new market opportunities.[36] While the term *convergence* may be elastic, it shoulders an important responsibility in helping explain the ramifications of technologies and business enterprises that are jointly linked together.

Digital Storytelling and Photography

Digital media has proven to be a major game changer when it comes to storytelling. *Digital storytelling* is the art of using digital tools to tell a story. Consider, for example, what has occurred in terms of how we handle photographic display. The once iconic family photo album represented a certain way of telling one's personal family history (i.e., weddings, sporting events, vacations, etc.).

The digital camera changed all that. The digital photo can be stored on a variety of media devices, including PCs, flash drives, smartphones, and computer tablets as well as being uploaded to the Internet, not to mention social media sites as well as personal or professional Web site displays. Instagram, for example, is a mobile photo and video-sharing service that enables its users to take pictures and videos, apply digital filters, and share them on a variety of social networking services, such as Facebook, Twitter, and Tumblr. All this points to the fact that the transition to digital cameras is no longer about a single product but, rather, a fundamental shift in thinking regarding visual display, storytelling, and the communication process.[37]

Digital Media Innovation and Intelligent Networking: Eight Signature Features

International business has been transformed by the power of instantaneous communication. The combination of computer and telecommunications has collapsed the time and distance factors that once separated nations, people, and business organizations.[38] We start with the assumption that the intelligent network is not one network but a series of networks designed to enhance worldwide communication for business and individual users alike.[39] What gives the network its unique intelligence are the people and users of the system and the value-added contributions they bring via critical gateway points (e.g., PCs, smartphones, tablets, etc.).[40] The intelligent network in combination with digital media services provides the electronic pathways and information repositories that make global communication possible. In this book, we consider eight signature features that help define the many ways in which digital media and intelligent networks are being used. This can be seen in Table 1.3. These eight signature features are part and parcel of what I term *digital lifestyle.*

Table 1.3 Digital Media and Innovation: Eight Signature Features

• **High-Definition Television (HDTV)**	Provides picture quality approaching that of 35 mm film. HDTV is considered the most significant development in television technology since color television because of its remarkably improved picture quality.
• **Video Streaming**	Represents the ability to distribute video information via the Internet to one's television set, computer, or mobile device. This can include video clips (YouTube), movies (HBO and Netflix), and social media (Facebook).
• **Mobile Wireless Communication**	Suggests that users require flexibility of movement and access to the Internet anytime, anywhere. The term *smartphone* describes a new generation of cellular telephones that is highly personalized and features a variety of enhanced information services.
• **Video-on-Demand (VOD)**	Represents a category of pay television services that enables the cable, Internet Protocol TV (IPTV) or Direct Broadcast Satellite (DBS) viewer to access feature films and concerts from a large selection of titles and program categories that are hosted on a remote server. Central to this discussion is the importance of Netflix, which in 2008 demonstrated the possibility of streaming

	movies via a broadband cable to the home. Netflix would be a catalyst for change, opening the door for other services, including Hulu and HBO-Go.
• **MP3 File Sharing**	Is a digital audio encoding format that utilizes compression technology. MP3 is designed to greatly reduce the amount of data necessary to provide a faithful reproduction of an original recording. The power of Internet-delivered music using MP3 file-sharing software has changed fundamentally the cost structure of music recording and distribution on a worldwide basis.
• **Digital Video Recording (DVR)**	Represents the ability to record selected television programs for later viewing. A DVR set-top box includes an on-screen guide of scheduled TV programs. The value proposition for the consumer is the ability to record one's favorite programs as well as the ability to skip over commercial TV ads.
• **Cloud Computing**	The expression *putting something on the cloud* refers to the idea of storing of information and data on a remote host site. Cloud computing provides both storage as well as the delivery of information services over a virtual platform using the networking capability of the Internet. The user is able to access such services on demand. Cloud computing comes in two general forms: public (Facebook and Google Calendar) versus private clouds (internal university or hospital networks).
• **Digital Video Compression (DVC)**	Refers to digitizing and compressing video pictures so that they may be processed, stored, and distributed with greater flexibility and ease. DVC has important implications for diverse technologies and services such as: 1) HDTV, 2) increased channel capacity on cable, IPTV and DBS, 3) Internet video streaming and 4) video games.

Innovation Failure

Authors Collins and Porras (1994) make the argument that highly successful companies are those that are willing to experiment and not rest on their past success. Over time, tastes, preferences, and technologies change. Innovative companies keep abreast of such changes, anticipate them, and make the necessary adjustments in strategy and new product development.[41]

This begs the question: if strategic adjustment and innovation are such basic elements, why then don't more companies succeed at it? One of the important arguments of this book is that even the best-managed companies are susceptible to innovation failure. In fact, all companies are susceptible to innovation failure or experience decline in their ability to maintain a competitive edge. Christensen (1997) posits what he calls the *innovator's dilemma.*[42]

Specifically, a company's very success can become the root cause of its failure to stay innovative. The public quickly forgets that in the mid-1990s, Apple was less than sixty days shy of declaring bankruptcy. So too, the Walt Disney Company experienced a similar decline in their innovative prowess in the decade of the 1990s, when it chose to partner with Pixar rather than internally develop new Disney animation films, once the hallmark of the company's creativity.

Past success can sometimes make an organization very complacent; that is, they lose the sense of urgency to create new opportunities.[43] Companies, like people, can become easily satisfied with organizational routines. They become preoccupied with fine-tuning and making slight adjustments to an existing product line rather than preparing for the future. They become risk averse and engage in what MIT's Nicholas Negroponte (1995) describes as the "problem of incrementalism."[44] The history of business is filled with examples of past companies where senior management failed to plan for the future. Such companies do not anticipate a time when a substitute product (or changing market conditions) might come along and dramatically alter the playing field.

The Challenges of Business Reinvention

While most organizations recognize the importance of innovation, there is a wide degree of latitude regarding the method and approach to innovation. For some business enterprises, innovation is deliberative and planned. It is built into the cultural fabric of a company's ongoing research and development efforts. Some companies like Apple have a lengthy and structured approach to R&D. Other times, innovation is a direct response to a triggering event, that is, a sudden change in external market conditions and/or technology that forces a change in business strategy.[45]

The introduction of a new technology is the consummate triggering event that can cause any number of intended and unintended consequences on the marketplace, hence, the term *creative destruction.* One of the accompanying rules of creative destruction is that once a technology has been fully introduced, there is no going backward. There is no disinventing what one already knows how to do. Consider this the fallacy of nuclear disarmament (i.e., there may be a reduction in arms, but the core knowledge remains permanent). Thus, the real test for an established media enterprise is how to reinvent itself in light of new competitive threats and changes. We have seen this pattern time and again throughout the latter part of 20th and early 21st centuries. Table 1.4 provides a select set of examples of incumbent media enterprises and the triggering event technologies that forced business reinvention.

Table 1.4 Challenges and Solutions:
Disruptive Communication and Information Technology

Incumbent Media	Challenged by	Solution
Newspapers	Radio, late 1930s and 1940s	Became more interpretative in news approaches, expanded photojournalism coverage
Radio	Broadcast Television, 1950s	Deemphasized radio drama and comedies and focused on music (top 40 music, sports broadcasting, etc.)
Broadcast Television	Cable Television, late 1970s and 1980s	Slowly bought into cable programmers or created their own cable brands:

		• ABC acquired ESPN • NBC launched CNBC
Cable Television	Direct Broadcast Satellite, 1990s, early 21st century	Emphasized high-speed Internet access and cable telephony
Vinyl Records	Compact Disk (CD), 1980s	All music production companies eventually transitioned to CD format
CDs (traditional music retail)	iPod, MP3 music file sharing, early 21st century	Steady transition to the EC model: iTunes, Pandora, etc.
Newspapers and Television	The Internet, 21st century	Digital newspapers and on-line reading formats

Source: R. Gershon

Consider, for example, the impact that television had on the radio industry in the 1950s. Television was developed and promoted by the same companies involved in radio. In the beginning, television was conceived simply as radio with pictures. Radio provided many of the programmatic lessons that would be later adopted by television. Thus, the programming, economic structure, and the system of regulation was patterned after radio. The once highly successful radio networks (i.e., CBS and NBC) strengthened their dominance of the industry in the 1950s by establishing a strong television presence.[46] Many of the programs and its actors and actresses would make the transition from radio to television (some would not). Thus, famous radio programs like *Dragnet, Gunsmoke,* and the *Lone Ranger* eventually would make their way to television. All this came at a price. The radio industry began feeling the effects of creative destruction. Radio listenership steadily dropped off. The challenge for the radio industry was either to adapt or face a slow, steady demise. It took several years, but eventually radio reinvented itself strategically by playing to its natural strengths, emphasizing music formats (i.e., top 40, sports, news, etc.), becoming more mobile (radios in cars and portable radios), and employing radio station formats with more targeted audiences. This included the rise of celebrity DJ and radio personalities.[47]

It was only a matter of time before television would find itself in a similar situation with the emergence of cable television in the 1970s. Suddenly, broadcast television was feeling the tide winds of creative destruction as well. The broadcast television marketplace was no longer an oligopoly of three major networks, given the explosive growth of new cable television programming services like HBO, CNN, ESPN, and MTV (to name only a few). The upstart cable networks now had the ability to narrowcast their programming by targeting specific audiences both in terms of specialized program content as well as audience demographics. Thus was born the principle of narrowcasting. They threatened to siphon audiences away from the traditional broadcast networks, and by the 1980s cable seriously had begun to fragment the television marketplace.[48]

Discussion: Failure Is Not An Option

Change is never easy. Change is especially difficult when a new technology or start-up company is poised to displace a well-established business. Nowhere is this more evident than the impact that digital media and the Internet have had on traditional newspapers and magazines. Today, the international newspaper industry finds itself on the receiving end of creative destruction. Starting in 2008, the international newspaper industry has entered into a period of unprecedented decline. Many of the world's leading newspapers have experienced overall revenue decline. Once iconic magazine names like *Newsweek, Fortune* and *Life have been greatly reduced or* are no more. Hundreds of newspapers and magazines from around the world have shuttered their doors or gone to an all-digital format. The digital fusion of Internet news in combination with computer tablets and other mobile devices has fundamentally challenged the long-term sustainability of print media. This is creative destruction in its most essential form. Today, the question for journalists, newspaper managers, and journalism educators is the same. What business are you really in?

In this book, we will see examples of companies that have overcome the challenges of business reinvention. We will meet a select number of media companies that have learned how to make innovation a sustainable repeatable process. Their lessons and experience are fully shared with the reader. We also will encounter companies that succumbed to the devastating effects of creative destruction and have been greatly reduced or no longer exist. In the life of all business enterprises, there comes a point when such companies are challenged by the moving tides of the unexpected. How they respond to such changes determines whether they will be successful or a business that failed to adapt. This juncture represents what former Intel CEO Andy Grove refers to as a *strategic inflection point;* a time when a triggering event in the competitive marketplace requires new solutions or face the prospect of business extinction.[49] Put differently, as former National Aeronautics and Space Administration (NASA) flight director Gene Kranz once said to the members of his mission control team—responsible for the safe return of the disabled Apollo 13 spacecraft— "Failure is not an option!"

Endnotes

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10. A word about Post-it Notes. A Post-it Note is a small piece of colored paper with a strip of light adhesive on the back that allows it to be temporarily attached to papers, documents, books, and a variety of other things. In 1970, 3M chemist Spencer Silver was working to develop a strong glue. Instead, he wound up creating an adhesive that wasn't very sticky. Nothing came of it for four years. But it so happens that a 3M colleague by the name of Arthur Fry was a singer in a local church choir. Fry would sometimes find himself routinely losing his place in the church hymn book when the bookmarks he would use kept falling out. Why not try something different? Fry hit on a simple but elegant idea. He decided to coat a set of bookmarks with Spencer's glue. Now for the first time, they stayed in place yet lifted off without damaging the pages. The Post-it Note was born. In time, the Post-it Note would prove to be one of 3M's most popular office products.

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