The Power of Entrepreneurship

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The founders of AirBnB; Nathan Blecharczyk, Brian Chesky, and Joe Gebbia

This is the entrepreneurial age. Each day across the globe, thousands of people embrace the power and liberation of entrepreneurship by pursuing their new business. The 2018/19 Global Entrepreneurship Monitor (GEM) reports that across the 49 countries investigated 12.6% of adults were in the process of working to start a new business or were running one they recently

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started. Hundreds of new businesses are born every hour of every working day in the United States.[1] Entrepreneurs are driving a revolution that is transforming and renewing economies worldwide. Entrepreneurship is the essence of free enterprise because the birth of new businesses gives a market economy its vitality. New and emerging businesses create a very large proportion of the innovative products and services that transform the way we work and live as they take advantage of tech opportunities within social media, virtual reality, and the Internet of Things or by creating new business models to transform "traditional industries" (e.g., Airbnb or Uber). Similarly, these same businesses created half of the new private-sector jobs in the United States in 2018.[2] As a backbone of the economy, entrepreneurs and small businesses played a leading role in helping the economy rebound from the recession of 2008. A 2015 report from the Small Business Association shows that entrepreneurs created 7 of 11 million new jobs since the 2008 recession.[3] Data suggest the same phenomenon is happening worldwide.[4]

There has never been a better time to practice the art and science of entrepreneurship. But what is entrepreneurship? Early in the 20th century, Joseph Schumpeter, the Moravian-born economist writing in Vienna, gave us the modern definition of an entrepreneur: "a person who destroys the existing economic order by introducing new products and services, by introducing new methods of production, by creating new forms of organization, or by exploiting new raw materials." According to Schumpeter, that person is most likely to accomplish this destruction by founding a new business but may also do it within an existing one.

Schumpeter explained how entrepreneurs had suddenly increased the standard of living of a few industrialized nations.[5] When the Industrial Revolution began in England around 1760, no nation had enjoyed a standard of living equal to that of Imperial Rome 2,000 years earlier. But from 1870 to 1979, for example, the standard of living of 16 nations jumped by sevenfold on average.[6]

Very few new businesses have the potential to initiate a Schumpeterian "gale" of creative destruction, as Airbnb is doing in hospitality and Uber is doing in the taxi industry. The vast majority enter existing markets. So, in this textbook, we adopt a broader definition of entrepreneurship than Schumpeter's. Ours encompasses everyone who starts a new business. Our

The Changing Economy

General Electric (GE), a once shining beacon of the power of a global conglomerate, exemplifies today what can happen to firms caught up in the destructive forces and aftermath of "Schumpeter's entrepreneurs." GE, founded in Schenectady, New York, in 1892, thrived in a number of industries and sectors including aircraft engines, locomotives, oil and gas, electrical distribution, health care, finance, and more. As late as 2018, GE was the 18th largest firm by gross revenue in the United States according to *Fortune* and was the 14th most profitable company and the 4th largest just a few short years ago. From the late 1990s through mid-2017, GE stock traded somewhere between $20 and $30. By the end of 2017, it was at $17 and at the start of 2019, GE stock was trading below $9 a share. What happened? Market shifts, bad investments, and direct competition to be sure, but also entrepreneurs and entrepreneurial firms creating Schumpeter's "gales of destruction" that upset the industries and markets where GE competes.

Companies have to react to the moves of a new market entrant and the combined changes over time by many different forces. Walmart and Amazon are currently in a fevered battle for the grocery store dollars of every American. Founded in 1962 by Sam Walton, Walmart was once a small startup retailer who became the world's largest retailer. Today as the company's sales move near $500 billion, they compete fiercely as a relative newbie in the world of e-commerce. Their primary competition? An online bookseller who just a few short years ago was not in the grocery business. However, with their 2017 acquisition of Whole Foods Market, Amazon is now the market leader in the online grocery business according to Forbes.

Sources: http://fortune.com/2018/05/22/fortune-500-companies-list-berkshire-hathaway; https://money.cnn.com/galleries/2011/fortune/1104/gallery.fortune500_most_profitable.fortune/14.html

entrepreneur is the person who perceives an opportunity and creates an organization to pursue it. And the entrepreneurial process includes all the functions, activities, and actions associated with perceiving opportunities and creating organizations to pursue them. Our entrepreneur's new business may, in a few rare instances, be the revolutionary sort that rearranges the global economic order, as Walmart, FedEx, Apple, Microsoft, Google, eBay, and Amazon have done and social networking companies such as Facebook and Twitter are now doing. But it is much more likely to be of the incremental kind that enters an existing market.

In this chapter, we next look at the importance of entrepreneurship and small business to the United States and the global economies. We then provide a foundation for today's entrepreneurial world by looking at some of the major historical markers that brought us to this point: we describe the entrepreneurial revolution, present a conceptual model for the entrepreneurial sector of the economy, and use it to explain major factors in the revolution. Finally, using data from the GEM, we will compare and contrast entrepreneurial activity among regions and different economies across the globe within the context of the conceptual model.

Entrepreneurship and Small Business in the United States

According to the U.S. Small Business Administration (SBA), there are 30.2 million small businesses in the United States today, which represents 99.9% of all businesses in the country.[7] In general, businesses with 500 or fewer employees are classified as small.[8] They account for half the private-sector workers and 47.5% of the private payroll, and they generate approximately half the nonfarm private GDP. The latest report from the U.S. Small Business Administration shows that these small businesses make a large impact not just in the United States but also across the globe as they generate a third of the United States $1.3 trillion in total exports.

Startups and small businesses are also an important driver of job growth. Since the turn of the century through 2017, small businesses created nearly twice as many jobs in the United States as large businesses: 8.4 million to 4.4 million, respectively. This growth comes in industries that are important to the future. In the latest three-year reporting window (2015–2017), small businesses outpaced large businesses in job growth and percentage increase in high-tech firms, software, pharmaceutical, scientific research & development, and computer systems design industries.[9] Not only are small businesses the engine for job creation, but they are also a powerful force for innovation. They hire 43% of all high-tech workers and produce approximately 16 times more patents per employee than large firms; those patents are twice as likely as large firm patents to be among the 1% most cited.[10]

Demonstrating a trend that can be seen in developed economies all over the world, more than a third of the 30 million small businesses in the United States come from the professional, technical, and other related services industries. The majority of businesses are non-employer firms run entirely by a single proprietor and approximately 17% of all firms have between 1 and 20 employees. Over a half million firms employ between 20 and 499 people. Health care, hospitality and food services, along with the retail sector, are leading small business employers.

At any one time, approximately 14% of all adults of working age in the United States can be classified as *nascent entrepreneurs,* that is they are trying to create a new business; they have conceived an idea for a new venture and have taken at least one step toward implementing their idea.[11] Many of them abandon their ventures during the gestation period and never actually open their businesses; nonetheless, each year at least 3 million new ventures are born, of which about 75% start from scratch. Most of the others are purchases of existing businesses.[12] Two in every three businesses are started in the owner's home. Most remain tiny because they are part-time businesses, but around 600,000 have at least one full-time employee.

Survival rates for new businesses have been the focus of several different studies.[13] One of the most thorough was done at the U.S. Census Bureau by Alfred Nucci, who calculated the 10-year survival rates of business establishments.[14] He found that 81% survive for at least one year, 65% for two years, 40% for five years, and 25% for ten years. The survival rate for independent start-ups was slightly lower. For example, the one-year rate was 79% instead of 81%. The chance of survival increased with age and size. Survival rates also varied somewhat with industry but not as strongly as with age and size.

Of course, survival does not necessarily spell success. In general, the median income of small business owners is almost the same as that of wage and salary earners. However, the income distribution is much broader for small business owners, which means that they are more likely to have significantly less income or significantly more income than wage and salaried workers.[15] But small business owners are also building equity in their companies as well as taking income from them, so it is possible that small business owners are better off overall than their wage-earning cohorts. However, a study of business owners disposing of their businesses through sale, closure, passing it on, and other methods found that comparatively few saw their standard of living changed by their business. Only 17% reported that their business had raised their standard of living, whereas 6% reported the opposite.[16] All these numbers aside, it is interesting to note that entrepreneurs and small business owners tend to be happier than others. On the whole, those who chose a path of entrepreneurship end up more satisfied with their life and see their life as being "excellent" and "close to ideal" compared to those who do not become entrepreneurs.[17]

Looking back at the new business formation index, we can see that it was stable through the 1950s and most of the 1960s; there was virtually no growth. By 1970, net new business formation was growing, and the growth continued through the 1970s and 1980s and into the 1990s.[18] No one noticed the change at the time. One of the first documented references to what was taking place was a December 1976 article in *The Economist* called "The Coming Entrepreneurial Revolution."[19] In this article, Norman Macrae argued that the era of big business was drawing to an end and that future increases in employment would come mainly from either smaller firms or small units of big firms. In 1978, David Birch published his book, *Job Creation in America: How Our Smallest Companies Put the Most People to Work*.[20] The title says it all. It captures the important finding from Birch's comprehensive study of business establishments.

No issue gets the attention of politicians more than job creation. Birch's findings and the stream of research that ensued forever changed the attitude of policy makers toward small business.[21] Until then, most of their focus had been on big business. After all, in 1953 Charles Erwin Wilson, then GM president, is reported to have said during the hearings before the Senate Armed Services Committee, "What's good for General Motors is good for the country." At the time, GM was one of the largest employers in the world—only Soviet state industries employed more people.[22] Today, in another example of Schumpeter's effect of entrepreneurship and its accompanying gales of creative destruction, GM employs less than 200,000 people down from its high of over 600,000 in the 1970s.

A recent study reported in MarketWatch showed that many Americans sit in their offices and dream of becoming their own boss. According to the survey

- 39% of employees hope to own their own business someday.
- More than 50% of respondents in their 20s who don't currently own their business aspire to do so.
- 50% of those in their 30s want to leave their job and start a business; the number is 35% for those in their 40s.

Source: http://www.marketwatch.com/story/40-of-employees-want-to-start-their-own-business-2014-08-05

Entrepreneurial Revolution

On November 1, 1999, Chevron, Goodyear Tire & Rubber Company, Sears Roebuck, and Union Carbide were removed from the Dow Jones Industrial Average (DJIA) and replaced by Intel, Microsoft, Home Depot, and SBC Communications. Intel and Microsoft became the first two companies traded on the NASDAQ exchange to be listed in the DJIA.

This event symbolized what is now called the *entrepreneurship revolution* that transformed the U.S. economy in the last quarter of the 20th century. Intel and Microsoft are the two major entrepreneurial driving forces in the information technology revolution that has fundamentally changed the way in which we live, work, and play. SBC (formerly Southwestern Bell Corporation) was one of the original "Baby Bells" formed after the U.S. Department of Justice antitrust action resulted in the breakup of AT&T. It is an excellent example of how breaking up a monopoly leads to entrepreneurial opportunities. And Home Depot exemplifies the big-box stores that have transformed much of the retail industry. In the continuing example of ongoing creative destruction, SBC has long since left the DJIA but today Intel, Microsoft, and Home Depot still remain and Chevron has retuned!

Companies like Intel, Microsoft, and Home Depot best exemplify the foundation of the entrepreneurial revolution. Intel was founded in Silicon Valley by Gordon Moore and Robert Noyce and funded by Arthur Rock, the legendary venture capitalist. Gordon Moore, the inventor of Moore's Law,[23] and Robert Noyce, one of the two inventors of the integrated circuit,[24] had been at the birth of Silicon Valley with William Shockley, the co-inventor of the transistor, when Shockley Semiconductor Laboratory was founded in Mountain View in 1956. They left Shockley in 1957 to found Fairchild Semiconductor, which in 1961 introduced the first commercial integrated circuit. In 1968, they left Fairchild to start Intel.

Ted Hoff, employee number 12 at Intel, invented the microprocessor in 1968. In 1971, Intel launched the first commercial microprocessor, heralding a new era in integrated electronics. Then, in 1974, it launched the first general-purpose microprocessor, the Intel 8080, which was the brain of the first personal computer,[25] the Altair 8800—a $439 hobbyist's kit—announced by MITS (Micro Instrumentation and Telemetry Systems of Albuquerque) on the front cover of the January 1, 1975, edition of *Popular Electronics*.

"When I was 19, I caught sight of the future and based my career on what I saw. I turned out to have been right."

—Bill Gates

According to personal computer folklore, Paul Allen, then working at the minicomputer division of Honeywell in Massachusetts, hurried to his childhood friend and fellow computer enthusiast, Bill Gates, who was a Harvard sophomore, and waving *Popular Electronics* with a mock-up of the Altair 8800 on its front cover, exclaimed, "This is it! It's about to begin!" Within a month or so, Gates had a version of BASIC to run on the Altair. He and Allen joined together in an informal partnership called Microsoft and moved to Albuquerque.

Microsoft grew steadily by developing software for personal computers. By 1979, it had moved to Bellevue, Washington, near Seattle, where Gates and Allen had grown up. It then had revenue of more than $2 million and 28 employees. It got its big break in 1980–1981 when, building on the core of a product acquired from Seattle Computer Products, Microsoft introduced MS-DOS for IBM's first PC. Fourteen years later, when Microsoft released Windows 95 in 1995, it sold 4 million copies in four days. Its success helped to move the personal computer into 250 million homes, businesses, and schools worldwide. In the early 1990s, Microsoft committed itself to adding Internet capabilities to its

Photo Credit: © Rob Kinmonth/The LIFE Images/Getty Images

Bernard Marcus and Arthur Blank, founders of Home Depot

products. When Microsoft joined the DJIA in 1999, there were more than 200 million Internet users, up from 3 million just five years earlier.

Home Depot was founded in 1979 by Bernie Marcus and Arthur Blank. The chain of hardware and do-it-yourself (DIY) stores holds the record for the fastest time for a retailer to pass the $30 billion, $40 billion, $50 billion, $60 billion, and $70 billion annual revenue milestones. It is the fifth-largest retailer in the United States. And it almost set the record for the fastest time from starting up to joining the DJIA when it was only 20 years old. By comparison, Walmart was 35 years old when it displaced F. W. Woolworth in the DJIA. Along with Walmart, Home Depot has set the pace for the retail industry in the last three decades. Together, the two account for 2.7 million jobs.

At the turn of the 20th century, about 50% of U.S. workers were employed in agriculture and domestic service. Less than 100 years later, the number was about 4%. Much of this transformation came about because innovations, many of them introduced by entrepreneurs, made agriculture a shining example of increasing productivity, and labor-saving products such as the vacuum cleaner, gas and electric ranges, washing machines and clothes dryers, dishwashers, automobiles, lawnmowers, floor polishers, processed foods, microwave ovens, and services increased the productivity of household labor. The proportion of the workforce in manufacturing grew from 19% in 1900 to 27% in 1950, thereby providing alternative employment opportunities for farm laborers and domestic workers.

Today, only about 12% of U.S. jobs are in the goods-producing sector, and 80% are in the service-providing sector; the proportion of knowledge-based jobs is estimated to be more than 50%. The DJIA reflects the changing face of the U.S. economy: In 1896, the 12 companies that made up the DJIA reflected the dominance of agriculture and basic commodities; in 1928—the first time the DJIA comprised 30 companies—the members reflected the importance of manufacturing, retailing, and the emerging radio industry; and in 2019, the shift is toward knowledge-based industries, communications industries, and financial services.

Of course, only a few of the entrepreneurial giants ever get into the DJIA, which is composed of only 30 of the most widely held stocks. The following are some of the other legendary entrepreneurs and their companies that played important roles in the entrepreneurship revolution of the last 40 years.

Perhaps one of the most revolutionary entrepreneurial ideas outside of high-tech industries was Fred Smith's notion to deliver packages overnight anywhere in the United States.

Smith identified a need for shippers to have a system designed specifically for airfreight that could accommodate time-sensitive shipments such as medicines, computer parts, and electronics in a term paper that he wrote as a Yale undergraduate. Smith's professor did not think much of the idea and gave it a C. After tours of duty in Vietnam, Smith founded his company, Federal Express (FedEx) in 1971, and it began operating in 1973 out of Memphis International Airport. In the mid-1970s, Federal Express had taken a leading role in lobbying for air cargo deregulation, which finally came in 1977. These changes allowed Federal Express to use larger aircraft and spurred the company's rapid growth. Today FedEx ships 15 million packages a day on average and connects over 99% of the world's GDP by covering more than 220 countries and territories across the globe.[26]

In 1971, when Southwest Airlines began operations, *interstate* airline travel was highly regulated by the federal government, which had set up the Civil Aeronautics Board (CAB) in 1938 to regulate all domestic air transport as a public utility, setting fares, routes, and schedules. The CAB was required to ensure that the airlines had a reasonable rate of return. Most of the major airlines, whose profits were virtually guaranteed, favored the system. Not surprisingly, competition was

Dow Jones Industrial Average (DJIA) Companies		
1896	**1928**	**2019**
American Cotton Oil	Allied Can	3M
American Sugar	Allied Chemical	American Express
American Tobacco	American Smelting & Refining	Apple
Chicago Gas	American Sugar	Boeing
Distilling & Cattle Feeding	American Tobacco	Caterpillar
General Electric	Atlantic Refining	Chevron
Laclede Gas Light	Bethlehem Steel	Cisco Systems
National Lead	Chrysler	Coca-Cola
North American	General Electric	Disney
Tennessee Coal, Iron & Railroad	General Motors	DuPont
U.S. Leather	General Railway	Exxon Mobil
U.S. Rubber	Goodrich	Goldman Sachs
	International Harvester	Home Depot
	International Nickel	Intel
	Mack Trucks	IBM
	Nash Motors	Johnson & Johnson
	North American	JPMorgan Chase
	Paramount Publix	McDonald's
	Postum	Merck
	Radio Corporation	Microsoft
	Sears, Roebuck	Nike
	Standard Oil (NJ)	Pfizer
	Texas Corporation	Procter & Gamble
	Texas Gulf Sulphur	Travelers
	Union Carbide	United Technologies
	U.S. Steel	United Health
	Victor Talking Machines	Verizon
	Westinghouse	Visa
	Woolworth	Walmart Walgreens

stifled, and almost no new airlines attempted to enter the market. However, *intrastate* passenger travel was not regulated by the CAB, so Southwest, following the pioneering path of Pacific Southwest Airline's (PSA) service within California, initiated passenger service within Texas. The success of PSA and Southwest in providing cheap airline travel within California and Texas provided powerful ammunition for the deregulation of *interstate* travel, which came about in 1981 as a consequence of the Airline Deregulation Act of 1978.[27] Since deregulation, more than 100 startup airlines have inaugurated interstate scheduled passenger service with jet aircraft.[28] Herb Kelleher, the charismatic cofounder of Southwest Airlines, is often credited with triggering airline deregulation by persevering with his legal battle to get Southwest airborne in the face of fierce legal opposition from Braniff, Trans-Texas, and Continental Airlines. Two of those airlines took their legal battle all the way to the U.S. Supreme Court, which ruled in Southwest's favor at the end of 1970.[29]

Robert Swanson was 27 when he hit on the idea that a company could be formed to commercialize biotechnology. At that time, he knew almost nothing about the field. By reading the scientific literature, Swanson identified the leading biotechnology scientists and contacted them. "Everybody said I was too early—it would take 10 years to turn out the first microorganism from a human hormone or maybe 20 years to have a commercial product—everybody except Herb Boyer."[30] Swanson was referring to Professor Herbert Boyer at the University of California at San Francisco, co-inventor of the patents that, according to some observers, now form the basis of the biotechnology industry. When Swanson and Boyer met in early 1976, they almost immediately agreed to become partners in an endeavor to explore the commercial possibilities of recombinant DNA. Boyer named their venture Genentech, an acronym for genetic engineering technology. Just seven months later, Genentech announced its first success, a genetically engineered human brain hormone, somatostatin. According to Swanson, they accomplished 10 years of development in seven months. Most observers say it was Swanson's entrepreneurial vision that brought about the founding of the biotech industry. Today there are over 20,000 biotech companies in the world with revenues of nearly $140 billion from the 700 hundred publicly traded U.S.-based firms alone.[31] At almost the same time that Swanson was starting Genentech in southern San Francisco, not many miles away Steve Jobs and Stephen Wozniak were starting Apple Computer in Silicon Valley. Their computer, the Apple I in kit form, was an instant hit with hobbyists. The Byte Shop—the first full-time computer store anywhere in the world, which opened in Silicon Valley in December 1975—ordered 25 of them in June 1976. The owner of The Byte Shop asked Jobs to put the Apple I computer board in a case because his customers were asking for complete units, not just kits. When they did so, both Apple and The Byte Shop had a hot product on their hands. The Byte Shop grew to a chain of 75 stores. "Without intending to do so, Wozniak and Jobs had launched the microcomputer by responding to consumer demand."[32]

Genentech's initial public offering (IPO) in October 1980, followed by Apple's IPO only two months later, signaled that something magical was stirring in the biotech and personal computer industries. It triggered a wave of venture capital investment and IPOs in both industries.

A tipping point in the infant personal computer industry was the introduction of the VisiCalc spreadsheet. Dan Bricklin conceived it when he was sitting in an MBA class at Harvard in 1978, daydreaming about how he could make it easier to do repetitive calculations. Bricklin designed the prototype software to run on an Apple II. Together with Bob Frankston, he formed a company, Software Arts, to develop the VisiCalc spreadsheet. When they introduced their first version in May 1979, it turbocharged the sale of Apple computers. Subsequently, sales of IBM PCs were rocketed into the stratosphere by Mitch Kapor's Lotus 1-2-3 worksheet.

The late 1970s and the early 1980s were miraculous years for entrepreneurial ventures in the computer industry. Miniaturization of hard-disk drives, a vital component in the information technology revolution, was pioneered by Al Shugart, first at Shugart Associates, then at Seagate Technology. Dick Eagan and Roger Marino started EMC Corporation in 1979, initially selling computer furniture, and with the seed money from that, they launched into selling Intel-compatible memory. From that beginning, Eagan and Marino built EMC into a company that during the 1990s achieved the highest single-decade performance of any listed stock in the history of the New York Stock Exchange. Today, after a merger that created Dell-EMC, it continues to redefine itself as the data storage industry evolves to a cloud-based industry.

Of course, Dell began in the 1980s as well. Michael Dell, while still a student at the University of Texas, Austin, in 1984, began selling IBM-compatible computers built from stock components that he marketed directly to customers. By concentrating on direct sales of customized products, Dell became the largest manufacturer of personal computers in the world, and Michael Dell was CEO longer than any other executive in the PC hardware industry.

Entrepreneurs were at the conception and birth of new products and services that have transformed the global economy in the last 50 years. However, what is turning out to be the biggest

of them all began in 1989 when Tim (now Sir Timothy) Berners-Lee conceived the World Wide Web. The big four of today—Amazon, Apple, Facebook, and Goggle—would not have existed if not for Berners-Lee. Today, we are still in the midst of a revolution that is changing our lives more profoundly and faster than anyone could have imagined before the Web became operational in 1992. No major new product has been adopted as quickly by such a large percentage of the U.S. population as the Web.

Time for New Technologies to Penetrate 25% of U.S. Population	
Household electricity (1873)	46 years
Telephone (1875)	35 years
Automobile (1885)	55 years
Airplane travel (1903)	54 years
Radio (1906)	22 years
Television (1925)	26 years
VCR (1952)	34 years
PC (1975)	15 years
Mobile Phone (1983)	13 years
World Wide Web (1992)	5 years

Source: The Wall Street Journal, June 1997; http://en.wikipedia.org/wiki/Advanced_Mobile_Phone_Service; www.netbanker.com/2000/04/internet_usage_web_users_world.html.

Web: Three Revolutions Converge

In 1989, when Tim Berners-Lee wrote a proposal to develop software that resulted in the World Wide Web, he was not the first to conceive the idea. As far back as 1945, Vannevar Bush proposed a "memex" machine with which users could create information "trails" linking related text and illustrations and store the trails for future reference.[33]

As it turned out, he was 50 years ahead of the technologies that were needed to implement his idea. After all, the first digital computer was then only a couple of years old. Fifteen years later Ted Nelson, inspired by Bush's "memex," was the first person to develop the modern version of hypertext. He wrote—prophetically, as it turned out—in 1960 that "the future of humanity is at the interactive computer screen … the new writing and movies will be interactive and interlinked … we need a world-wide network to deliver it.[34]

But Nelson, too, was far ahead of the technology. In 1962, there were fewer than 10,000 computers in the world. They cost hundreds of thousands of dollars, they were primitive machines with only a few thousand bytes of magnetic core memory, and programming them was complicated and tedious. AT&T had a monopoly over the phone lines that were used for data communication. And the ARPANET, which was the forerunner of the Internet, had not yet been conceived.[35]

Berners-Lee was a 25-year-old physics graduate of Oxford University working as a consultant at CERN, the European Particle Physics Laboratory in Geneva, Switzerland, in 1980 when he wrote his own private program for storing information using the random associations the brain makes. His Enquire program, which was never published, formed the conceptual basis for his future development of the Web.[36] In 1980, the technology existed for implementing Berners-Lee's concept, but the power of the technology was low, and the installed base of

computers was tiny compared to what it would be 10 years later. By 1989, when he revived his idea, three revolutions were ready for it. They were in *digital technology, information technology (IT)*, and *entrepreneurship*. The semiconductor revolution enabled the digital revolution, which in turn enabled the IT revolution. By 1992, when the Web was released by CERN, the Internet had 1 million hosts, computers were 1,000 million times faster, and network bandwidth was 20 million times greater than 20 years earlier. The entrepreneurship revolution meant that there was an army of entrepreneurs and would-be entrepreneurs, especially in the United States, with the vision and capacity to seize the commercial opportunities presented by the Web. In February 1993, the National Center for Supercomputing Applications (NCSA) released the first alpha version of Marc Andreessen's Mosaic. By December 1994, the Web was growing at approximately 1% a day—with a doubling period of less than 10 weeks.[37] In the next 10 years, Internet usage exploded.* By 2018, users numbered 4 billion, which was about half of the entire population of the world.[38]

Entrepreneurship Revolution Strikes Gold

Marc Andreessen moved to Silicon Valley in 1994, teamed up with veteran IT entrepreneur Jim Clark, and incorporated Mosaic Communications (later renamed Netscape Communications). Clark put $6 million of his own money into Mosaic, and venture capitalists added another $6 million.[39] Their intent was to create a browser that would surpass the original Mosaic. It was a classic Silicon Valley startup with programmers working 18-hour days, 7 days a week, sometimes even working 48 hours at one stretch just coding. In October 1994, the Netscape browser was posted as a download on the Internet. In no time at all, it was the browser of choice for the majority of Web users; in December 1994, Netscape Communications began shipping Netscape Navigator, which started to produce income.

Netscape Navigator was an instant success, gaining 75% of the browser market within four months of its introduction. Netscape Communications was only 16 months old when it went public in August 1995. Its IPO was one of the most spectacular in history and made Jim Clark the first Internet billionaire. According to an article in *Fortune*, "It was the spark that touched off the Internet boom."[40]

A gold rush was under way. "Netscape mesmerized investors and captured America's imagination. More than any other company, it set the technological, social, and financial tone of the Internet age."[41]A generation of would-be entrepreneurs was inspired by Netscape's success. What's more, corporate executives from established businesses wanted to emulate Jim Barksdale, the former president of McCaw Communications, who joined Netscape's board in October 1994, became CEO in January 1995, and made a huge fortune in just eight months. Investors—both angels and venture capitalists—hustled to invest in Internet-related startups. It seemed as if everyone was panning for Internet gold, not only in Silicon Valley but also throughout the United States—and a couple of years later throughout the rest of the world.

Netscape is a superb example of American venture capital at its best, accelerating the commercialization of innovations especially at the start of revolutionary new industries driven by technology. Venture capital was in at the start of the semiconductor and the minicomputer industries in the late 1950s and early 1960s and the biotech and personal computer industries in the late 1970s, and now it was eager to invest in what promised to be the biggest revolution of them all, the Internet and the Web.

Venture capital is not invested exclusively in technology companies. It was in at the beginning of the overnight package delivery industry with its investment in Federal Express, at the start

*The Internet and the World Wide Web (now usually called the Web) are two separate but related entities. However, most people use the terms interchangeably. The Internet is a vast network of networks, a networking infrastructure. The Web is a way of accessing information over the Internet. It is an information-sharing model that is built on top of the Internet.

of major big-box retailers such as Home Depot and Staples, and at the creation of new airlines including JetBlue. No wonder Jiro Tokuyama, then dean of the Nomura School of Advanced Management in Japan and a highly influential economist, stated that entrepreneurial firms and venture capital are the great advantages that Americans have.[42] Since the early 1970s, 42% of all public companies can trace their roots back to venture capital, and these same companies drive innovation as they account for 85% of all R&D spending of public firms.[43] The Web presented numerous opportunities that were soon being exploited by entrepreneurs. It created a huge demand for more and more capacity on the Internet, which in turn presented opportunities for hardware and software entrepreneurs. They were fortunate to find venture capitalists eager to invest in their startups. The period from 1996 through 2000 was a golden era for classic[44] venture capitalists and the entrepreneurial companies they invested in. It was golden both metaphorically and literally, as more and more venture capitalists and entrepreneurs seemed to have acquired the Midas touch. Some of the financial gains from venture-capital-backed companies were indeed of mythological proportions. For instance, Benchmark Capital's investment of $5 million in eBay multiplied 1,500-fold in just two years.[46] True, Benchmark's investment in eBay set the all-time record for Silicon Valley, but there were plenty of instances when investments increased at least a hundredfold and in some cases 1,000-fold. With investments such as those, overall returns on U.S. classic venture capital soared, with the one-year return peaking at 143% at the end of the third quarter in 2000, compared with average annual returns in the mid-teens prior to the golden era.

During a 1999 news conference at the World Economic Forum in Davos, Switzerland, reporters pestered Bill Gates again and again with variations of the same question: "These Internet stocks, they're a bubble?" An irritated Bill Gates finally confronted the reporters: "Look, you bozos, of course they're a bubble, but you're all missing the point. This bubble is attracting so much new capital to the Internet industry; it is going to drive innovation faster and faster."[45]

But the gold rush came to an end in 2000. The Internet bubble burst. Many companies failed, others were forced into fire-sale mergers, investors were hammered, many jobs were lost, and doom and gloom were pervasive. There was much hand-wringing about the incredible wastefulness of the U.S. method of financing new industries. However, by August 9, 2005—the 10th anniversary of Netscape's IPO—some companies founded during the gold rush were thriving. The market capitalization of just four of them—Google, eBay, Yahoo, and Amazon—was about $200 billion, which handily exceeded all the venture capital invested in all the Internet-related companies through 2000; what's more, it even topped the combined amount raised from venture capital and IPOs. Granted, there were many more losers than winners, but five years after the burst, it was clear that U.S. society as a whole had already benefited mightily and the best was yet to come—but not for everyone. As Schumpeter observed, revolutionary entrepreneurship creates new products, services, and business methods that undermine and sometimes destroy old ones.

Creative Destruction

The Web is blowing gales of creative destruction through many old industries, none more so than that of print newspapers, whose publishers were slow to recognize their business models were endangered—perhaps fatally—by the Web. Some long-established U.S. newspapers, such as the *Rocky Mountain News* and the *Tucson Citizen*, have shut down completely; others have drastically reduced their operations; and a few, including the *Christian Science Monitor* and the *Seattle-Post Intelligencer*, now publish only on the Web and no longer produce print editions. *Newsweek's* final print edition was published on December 31, 2012, ending almost 80 years in print. Several prominent newspaper chains, including the Tribune Company, the *Minneapolis Star Tribune*, Philadelphia Newspapers, and the Sun-Times Media Group, have filed for bankruptcy. The 2009 demise of *Editor and Publisher*, the 125-year-old trade magazine for the newspaper industry, seemed to symbolize the plight of the industry.

Newspapers had not only withstood potential competition from the introduction of other forms of news broadcasting, such as radio in the 1920s and 1930s, television in the 1950s, and 24-hour cable news channels in the 1980s and 1990s, but also actually prospered more and more, so why should they have foreseen in the early 1990s the havoc that the fledgling Web was about to wreak on their industry? What most print publishers did not foresee was that the Web would undermine the two basic sources of newspaper revenues, advertising and paid circulation; annual ad revenue, for example, plunged from its peak of more than $60 billion in 2000 to just over $16 billion in 2014.[47] The underlying cause is the changes in society brought about by the Internet, which was used by about 90% of the U.S. population in 2015 compared with less than 3% in 1993.[48] Twitter, Facebook, Instagram, bloggers, and all forms of social media give readers instant access to breaking news stories and often break news ahead of the old media; Google and other search engines make it easy to find stories from anywhere in the world at lightning speed; and perhaps best of all, it is free. For advertisers, the allure of the Web over print newspapers and magazines is that it allows them to target ads to individuals—every Web user is now a market segment of just one individual—and it provides much better metrics for tracking the effectiveness of ads.

Causes of the Entrepreneurial Revolution

The United States has always been a nation of entrepreneurs. But why has it become more and more entrepreneurial since the end of the 1960s—creating what is now called the entrepreneurial revolution?

First, we need to step back and look at the U.S. economy in the decades before the 1970s. The Great Depression, which followed the stock market collapse of October 1929, had an enormous effect on society. By 1932, when Franklin Roosevelt was elected president, over 13 million Americans had lost their jobs, and the gross national product had fallen 31%. The Roosevelt administration implemented many policies to try to bring the nation out of the Depression, but it was not until World War II that the nation once again started to become prosperous. The end of the war in 1945 heralded an era of economic growth and opportunity. But the memories left by the Depression meant that workers preferred secure jobs with good wages and benefits that medium-sized and big companies offered. And big business was booming.

The late 1940s and the 1950s and 1960s were the era of the corporate employee. They were immortalized by William Whyte in *The Organization Man*,[49] in which he "argued in 1956 that American business life had abandoned the old virtues of self-reliance and entrepreneurship in favor of a bureaucratic 'social ethic' of loyalty, security and 'belongingness.' With the rise of the postwar corporation, American individualism had disappeared from the mainstream of middle-class life."[50] The key to a successful career was this: "Be loyal to the company and the company will be loyal to you." Whyte's writing assumed the change was permanent, and it favored the large corporation.

Big American businesses were seen as the way of the future, not just in the United States but worldwide. John Kenneth Galbraith's seminal book *The New Industrial State*[51] and Jean-Jacques Servan-Schreiber's *Le D´efi Am´ericain* (The American Challenge)[52] both "became the bible to advocates of industrial policies"[53] supporting big business. Both books were instant best sellers. *Le D´efi Am´ericain* sold 600,000 copies in France alone and was translated into 15 languages. Galbraith wrote in 1967, "By all but the pathologically romantic, it is now recognized that this is not the age of the small man." He believed that the best economic size for corporations was "very, very large."

The works of Whyte, Galbraith, and Servan-Schreiber were required reading in universities through the 1970s. Schumpeter's work was hardly ever mentioned,[54] and when it was, it was his book, *Capitalism, Socialism, and Democracy*, published in 1942,[55] in which he was very

pessimistic that capitalism would survive. Unlike Karl Marx, who believed the proletariat would bring about the downfall of capitalism, Schumpeter reasoned that the very success of free enterprise would create a class of elites, who would favor central control of the economy and thereby curb free enterprise. His first book, *The Theory of Economic Development*,[56] originally published in German in 1911, in which he endorsed entrepreneurship, was hardly ever mentioned. What's more, in the 1970s there was an abundance of university courses dealing with Karl Marx and almost none dealing with entrepreneurship. It's not surprising that the world was first alerted to the entrepreneurial revolution by a journalist, Norman Macrae, rather than by an academic scholar. About a decade later, researchers confirmed retrospectively that entrepreneurial activity had indeed been on the increase in the United States in the 1970s.[57]

Entrepreneurship did not disappear in the 1930s, 1940s, 1950s, and 1960s; it simply did not grow very much. What brought about the change in the economy that stirred up entrepreneurship around 1970? To try to understand what changes were taking place, we need to look at the social, cultural, and political context of an economy. A framework for this perspective is presented in Figure 1.1, the GEM model for the economy.[58]

The central argument[59] of the GEM model is that national economic growth is a function of two sets of interrelated activities: those associated with established firms and those related directly to the entrepreneurial process. Activity among established firms explains only part of the story behind variations in economic growth. The entrepreneurial process may also account for a significant proportion of the differences in economic prosperity among countries and among regions within countries.

When looking at the nature of the relationship between entrepreneurship and economic growth, it is important to distinguish between entrepreneurial opportunities and entrepreneurial capacity. What drives entrepreneurial activity is that people perceive opportunities and have the skills and motivation to exploit them. The outcome is the creation of new firms and, inevitably, the destruction of inefficient or outmoded existing firms. Schumpeter's process of creative destruction is

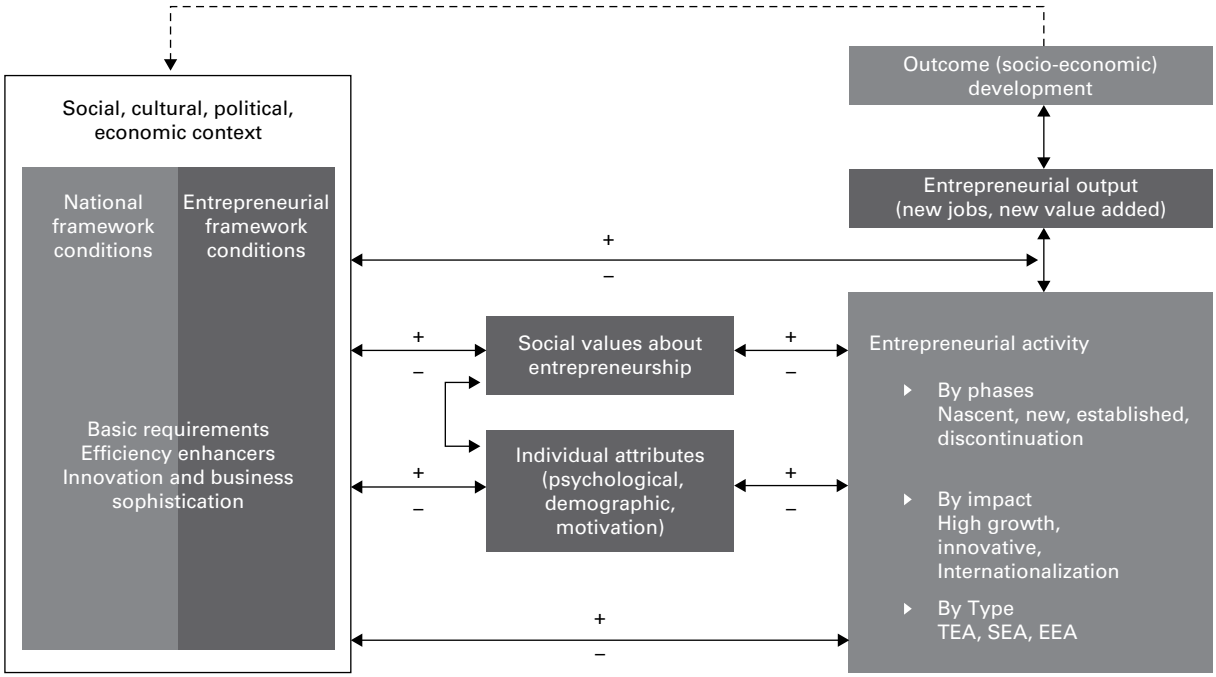


FIGURE 1.1 GEM Conceptual Framework.

captured in the model by business churning. Despite its negative connotation, creative destruction actually has a positive impact on economic growth—declining businesses are phased out as start-ups maneuver their way into the market. These dynamic transactions occur within a particular context, which the GEM model calls *entrepreneurial framework conditions* and which includes factors such as availability of finance, government policies and programs designed to support startups, R&D transfer, physical and human infrastructure, education in general, education and training for entrepreneurship, cultural and social norms, and internal market openness.

Changes in the Entrepreneurial Framework Conditions

Now let's look at some of the major changes in the framework conditions that have fueled the entrepreneurial revolution.

Cultural and Social Norms

First, let's consider the most important components, the entrepreneurs themselves. In the 1960s, a generation of Americans born in the late 1930s and the 1940s—including the first baby boomers—came of age. They had no firsthand memory of the Great Depression. When they were growing up, the economy was doing well most of the time, so they really had not experienced hard times like their parents had endured.

Hence, they were not as concerned about job security. Many were even rebelling against large corporations, some of which were seen as members of the military-industrial complex that was supporting the very unpopular war in Vietnam; some companies were trading with South Africa, where apartheid still prevailed; and others were under attack by consumer activists such as Ralph Nader.[60] It was a generation of Americans who were better educated than their parents, and for them, starting a new business was a credible career.

The *Fortune* 500 employed 20% of the workforce in the 1960s. That percentage began to decline in 1980 and has continued to do so every year since then, down to about 10% by 2005. Hence, jobs in big companies became scarcer. Many companies downsized, and according to George Gendron, who was the publisher of *Inc*. magazine during the 1980s and 1990s, 20% of downsized executives started businesses. Gendron also suggested that some of the executives who were retained—often the "best and the brightest"—became disillusioned by their career prospects in stagnant companies, and that led to a "second exodus" that produced more entrepreneurial activity.[61]

Other important social changes boosted entrepreneurship in the 1990s. More women became business owners, and the proportion of Asian-owned firms increased, as did Hispanic-owned and African American–owned firms. According to Gendron, for people with limited options in employment, entrepreneurship represents the "last meritocracy."

Today, many of the societal changes of the 1990s continue. Increasingly, digitization, shifts in business models, resources distribution, and a cultural evolution of workers and customers who expect outcomes beyond just pure economic drive our societal norms.[62]

Government

The 1970s were the decade when Washington bailed out Penn Central Railroad, Lockheed, and Chrysler. Washington seemed more concerned with big business than with small. But it did recognize the need to pay attention to startups with high potential, especially the ones funded by venture capitalists. There had been a burst of venture-capital-backed startups in the last half of the 1960s. But in the early 1970s, venture capital dried up to a trickle. Looking back from the perspective of 2012, when $26.7 billion of new money flowing into the venture capital industry seems routine, it is scarcely believable that only $10 million of new money was committed in 1975. Congress took urgent steps in 1978 to stimulate the venture capital industry, including reducing the capital gains tax and easing the ERISA prudent man rule, which had inhibited

pension funds from investing in venture capital funds. The pension floodgates opened, and the inflow of venture capital increased to $4.9 billion by 1987. Likewise, venture capital invested in portfolio companies increased from a low of $250 million in 1975 to $3.9 billion in 1987—a 16-fold increase.[63]

The government asserted its role of ensuring *market openness* by minimizing anticompetitive behavior. We've already mentioned that legislation toward the end of the 1970s deregulated the airfreight and airline passenger industries. That was followed in the early 1980s by the U.S. Justice Department's move to break up AT&T's monopoly.

The government deserves immense credit for its funding of R&D in government, universities, and corporations, both directly and indirectly, through purchases of products. Its support was vital in the development of the computer, communications, biotech, and many other industries.

Washington activated the Small Business Innovation Research (SBIR) program in 1983 to ensure that small businesses shared some of the federal R&D dollars for new technology-based developments. Each year the SBIR has $2.2 billion set aside to support the financing of cutting-edge technologies developed by small businesses.[64] In general, funds awarded under the SBIR program go to develop new technologies that are high risk and high reward. Some might say it is pre-venture capital money. From that viewpoint, $2 billion is a significant amount when compared with $740 million that venture capitalists invested in 194 seed-stage companies in 2014.[65] Through 2015, SBIR support has resulted in "70,000 issued patents, close to 700 public companies, and approximately $41 billion in venture capital investments."[66] Symantec, Qualcomm, DaVinci, and iRobot received R&D funding from this program.

R&D Transfer

Commercial development of intellectual property resulting from federally funded research is a major benefit to the U.S. economy. It was given a major boost by the passage of the Bayh–Dole Act, implemented in 1980. The primary intent of that law was to foster the growth of technology-based small businesses by allowing them to own the patents that arose from federally sponsored research. Under Bayh–Dole, universities were allowed to grant exclusive licenses—a feature that was regarded as crucial if small businesses were to commercialize high technologies that were inherently risky propositions.[67]

Fruits of Federally Funded R&D

The success of Bayh–Dole goes far beyond the efforts of Bob Dole and Birch Bayh. This legislation combined the ingenuity and innovation from our university laboratories with the entrepreneurial skills of America's small businesses. Most importantly, this combination created the incentive necessary for private investment to invest in bringing new ideas to the marketplace. The delicate balance of ingenuity, entrepreneurship, and incentive on which the success of Bayh–Dole has depended must not be disrupted.

The year 2016 marked the 35th year since the implementation of the Bayh–Dole Act, and the Association of University Technology Managers estimates that universities have spun off 4,000 companies. They have patented nearly 20 new drugs in that time. It is estimated that 30% of the NASDAQ's total value comes from university-based and federally funded research that never would have happened if not for the Bayh–Dole Act. A few of the notable products to come from the act include the following:

- Taxol, the most important cancer drug in 15 years, according to the National Cancer Institution
- DNA sequencer, the basis of the entire Human Genome Project
- StormVision, which airport traffic and safety managers use to predict the motion of storms
- Prostate-specific antigen test, now a routine component of cancer screening
- V-Chip, which allows families to control access to television programming

Before 1980, U.S. universities were granted about 300 patents a year. In 2003, they applied for about 10,000. In 1980, 25 to 30 universities had offices for technology transfer. Today, more than 1,200 do.[68] *The Economist* hailed Bayh–Dole as "the most inspired piece of legislation to be enacted in America over the past half-century." *The Economist* estimated that Bayh–Dole had created 2,000 new companies and 260,000 new jobs and had contributed $40 billion annually to the U.S. economy.[69] That assessment was made almost 10 years ago, and more progress has been made since then.[70]

The government itself has technology transfer offices at most of its research laboratories,[71] and many large companies have licensing offices. IBM, for example, which annually spends about $6 billion on R&D, was granted 9,100 patents in 2018. It generates about $1 billion annually from licensing intellectual property, which comprises both patents and copyrights.

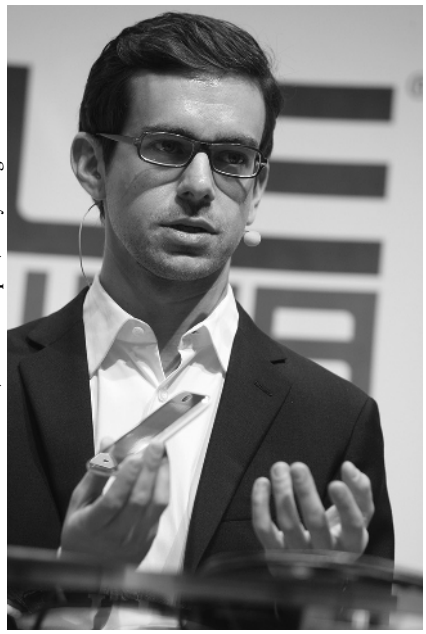


Photo Credit: Thomas Samson/Gamma-Rapho/Getty Images

Jack Dorsey, founder and chairman of Twitter at a conference in Paris in December 2009.

Physical Infrastructure

The biggest change in entrepreneurship in the last 20 years is due to the Web, the great equalizer. Small businesses now have at their fingertips a tool so powerful that it is leveling the playing field. Big businesses no longer enjoy as many scale economies as they did before the Internet. Information that could have been gathered only by a multitude of market researchers can now be found with a search engine and a couple of clicks of a mouse. Entrepreneurs don't have to spend a fortune to reach customers with print, radio, and television advertising; they can target their potential customers anywhere in the world via the Web. When they want to find a vendor, the Web is there to help them—as it is when they are seeking employees, bankers, and investors. Furthermore, the cost of communications of all kinds has plummeted since AT&T was broken up. A long-distance telephone call that cost 40 cents a minute in 1980 now can be made for as little as 1 cent. And if these entrepreneurs need to travel by air, they can shop the Web to find the cheapest ticket, automobile rental, and hotel room.

The worldwide distribution of goods and services is now open to everyone. The revolution of selling online that began in earnest with eBay now is driven by many online companies, most notably Amazon. Looking back, a 2005 study by ACNielsen International Research, reports that 724,000 Americans sell on eBay and that it is their primary or secondary source of income.[72] An American entrepreneur can sell merchandise to a customer anywhere in the world; PayPal (founded in 1998 and now part of eBay) can ensure that the entrepreneur receives payment speedily and securely online; the merchandise can be delivered to the buyer within a day or so; and buyer and seller can track the shipment online at each step of its journey. Amazon has allowed individual entrepreneurs to sell on their site since 2000, and today more than half of Amazon's sales come these third-party sellers.

Outsourcing services and goods makes companies more efficient and effective. Entrepreneurs can now focus on their company's core competency and let vendors take care of noncore items such as payroll, Web hosting, manufacturing, and distribution. There are even companies that will help entrepreneurs find outsource partners. Outsourcing enables small businesses to act like big ones, and some small companies are even called *virtual companies* because they outsource so much of their work.

For some entrepreneurs, business incubators combine many of the advantages of outsourcing. Incubators provide not only physical space but also shared services. Many incubators also provide ready access to human infrastructure. In 1980, there were only 12 business incubators in the United States; over the period between 1985 and 1995, the number of U.S. incubators grew 15-fold, from 40 to nearly 600[73]—and by 2006, there were some 1,115 incubators.[74] Today the International Business Innovation Association (INBIA) estimates that there are over 7,000

incubators worldwide. The Global Accelerator Report shows that nearly $200 million is invested annually across the globe by accelerators.[75]

Human Infrastructure

Access to human infrastructure is as important as access to physical infrastructure—maybe more so. The human infrastructure for entrepreneurs grew rapidly in the last 20 years or so, and gaining access to it has never been easier. Thirty years ago, starting a new venture was a lonely pursuit, fraught with pitfalls that would have been avoided by someone with prior entrepreneurial experience. Today numerous entrepreneurship experts gladly help people who are starting or growing companies. There are incubators, accelerators, support networks, both informal and formal, of professionals who know a lot about the entrepreneurial process.

Education, Training, and Professionalization

Entrepreneurship education and training is now readily available, part of the professionalization of entrepreneurship that has taken place over the few decades.[76] Entrepreneurs can get schooled in the art of business planning on campuses, at boot camps, in incubators and accelerators, and all sorts of programs. Today's training drives entrepreneurs to understand their opportunity and market, to understand how to create real value for their customers and themselves, and to develop the deliverables to communicate their vision. Successful entrepreneurs who grow will someday need a formal business plan but at the start it is more important that they understand business planning and the necessary tools they need to craft at the start (summaries, pitch decks, financial projections, etc.). The field has come a long way since the pioneers of entrepreneurship training put writing a business plan at the core of their programs in the 1970s.[77]

When Babson College and the University of Texas started their internal business plan competitions in 1985, only a few schools had entrepreneurship courses. Now more than 60% of four-year colleges and universities have at least one entrepreneurship course, and many have entrepreneurship centers.

The Accidental Entrepreneur

Like many other scientists and engineers who have ended up founding companies, I didn't leave Caltech as an entrepreneur. I had no training in business; after my sophomore year of college I didn't take any courses outside of chemistry, math, and physics. My career as an entrepreneur happened quite by accident.

There is such a thing as a natural-born entrepreneur…. But the accidental entrepreneur like me has to fall into the opportunity or be pushed into it. Most of what I learned as an entrepreneur was by trial and error, but I think a lot of this really could have been learned more efficiently.

—Gordon Moore (cofounder of Fairchild Semiconductor in 1957 and Intel in 1968)[78]

Financial

Raising money for a new business is seldom easy, but the process of raising startup and expansion capital has become more efficient in the last 30 years or so. In 1982, for instance, an economist at the National Science Foundation stated that venture capital was shrouded in empirical secrecy and an aura of beliefs.[79] The same held true for angel investing. In contrast, today there is an abundance of help. The National Venture Capital Association reports that in 2018 U.S. venture capital investment reached $131 billion surpassing the all-time high dot-com bubble year of 2000. And then there is crowdfunding, the global phenomenon where in just a few short years Kickstarter has facilitated individuals investing on over 150,000 projects to

the tune of over $4 billion.[80] We do not have reliable numbers for business angel investors, but we do know that informal investors—everyone from parents to external business angels—now invest more than $100 billion annually in startup and baby businesses. Furthermore, informal investors are ubiquitous. Five percent of American adults report that they "invested" in someone else's venture in the last three years.[81] It is impossible to claim that the availability of financing has driven the entrepreneurial revolution, but it does appear that sufficient financing has been available to fuel it.

Churning and Economic Growth

Technological change, deregulation, competition, and globalization presented countless opportunities, which American entrepreneurs seized and commercialized. It caused a lot of *churning*, or Schumpeter's creative destruction. But 11 new businesses with employees were started for every 10 that died over the decade 1990–2000.[82] It is this churning that gives the economy its vitality. Only a society that willingly adapts to change can have a dynamic economy.

Entrepreneurial competition, according to Schumpeter, "strikes not at the margins of the profits … of the existing firms but at their foundations and very lives." Established companies that stick with their old ways of doing business self-destruct as their customers turn to new competitors with better business models.

"The power of Walmart is such, it's reversed a 100-year history in which the manufacturer was powerful and the retailer was sort of the vassal. It turned that around entirely."

— Nelson Lichtenstein, University of California, Santa Barbara

We can find examples of churning in every industry that is not a monopoly or a regulated oligopoly. Who can recall VisiCalc or for that matter Lotus 1-2-3? At the height of their fame, they were two of the most widely used software packages for PCs. Today Excel is the spreadsheet of choice. In one week alone in May 1982, when Digital Equipment Corporation (DEC) introduced its ill-fated Rainbow PC, four other companies introduced PCs.[83] At the peak of the PC industry frenzy in the early 1980s, more than 200 companies either had introduced PCs or were planning to do so. Only a handful of PC manufacturers exist today. DEC, which in 1982 was the second-largest computer manufacturer in the world, was eventually bought by Compaq, which in turn merged with Hewlett-Packard. In 2004, IBM sold its PC division to Lenovo, a company founded in 1984 by a group of academics at the government-backed Chinese Academy of Sciences in Beijing.

Not only did the advent of the PC churn up the entire computer industry, but also it virtually wiped out the typewriter industry. And it changed the way office work is organized. Secretaries had to learn computer skills or they were out of work.

And who knows what the future holds for the PC itself? Schumpeterian disruptions abound throughout the information technology space: The PC industry is being upset by mobile, and servers and data storage are being challenged by the cloud. More examples of churning: Southwest Airlines is now the most successful U.S. airline; two of its giant rivals in 1971 no longer exist, and the third, Continental, was bankrupt twice, in 1983 and 1990, and later merged with United Airlines. United Airlines, US Airways, Hawaiian Airlines, ATA Airlines (also known as American Trans Air), Delta, Northwest, Aloha Airlines, and American Airlines have all been in Chapter 11 bankruptcy, and only a handful of the 100 or so passenger airlines started up since deregulation are still around. Who goes to a travel agent to get a regular airline ticket or book a hotel room today? Where is the fax machine? Likewise, video stores and CD retailers are gone except in a few circumstances. Why are newspapers laying off workers? Who is buying a film camera?

Granted, churning causes a lot of disruption—and nowhere more than in the lives of those who lose their jobs as a result. But overall, society is the beneficiary. Entrepreneurship produces new products and services, it increases productivity, it generates employment, and

in some cases, it keeps inflation in check. Economists estimate that Walmart alone knocked 20%—perhaps as much as 25%—off the rate of inflation in the 1990s.[84] According to Alfred Kahn, the father of airline deregulation, airline passengers are now saving $20 billion a year.[85] And with Skype and the Internet, you can "talk to anyone, anywhere in the world for free. Forever."[86]

Next we will look at how other nations as well as the United States are faring with entrepreneurship.

Global Entrepreneurship Monitor

The Global Entrepreneurship Monitor (GEM) was created in 1997* to study the economic impact and the determinants of national-level entrepreneurial activity. GEM is the largest coordinated research effort ever undertaken to study population-level entrepreneurial activity. Since its inception, a total of 99 economies accounting for approximately 95% of the world's GDP and 85% of its population have participated in GEM's annual study. This final section of Chapter 1 is based on the findings from the 20th anniversary of Global Entrepreneurship Monitor: the GEM 2018/2019 Global Report,[87] which explores the entrepreneurial activity from over four dozen economies around the globe. Because of this worldwide reach and rigorous scientific method, GEM has become the world's most influential and authoritative source of empirical data and expertise on the entrepreneurial potential of nations.[88]

The main objectives of GEM are to gather data that measure the entrepreneurial activity of nations and other data related to entrepreneurial activity, to examine what national characteristics are related to levels of entrepreneurial activity, and to explain how differences in entrepreneurial activity are related to different levels of economic growth among nations. GEM distinguishes between two types of entrepreneurial activity within the Total Early-Stage Entrepreneurial Activity (TEA)[89]:

- *Nascent entrepreneurs* are individuals who are actively trying to start a new business but who have not yet done so.
- *Owner–managers* are owner–managers of a new business that is no more than 3½ years old.

There are three main measures of entrepreneurial activity:

- TEA (total entrepreneurial activity) is the percentage of the adult population that is either nascent entrepreneurs or owner–managers or both. It measures the overall entrepreneurial activity of a nation.
- TEA (opportunity) is the percentage of the adult population that is trying to start or has started a business to exploit a perceived opportunity. They are classified as improvement-driven opportunity motivated if they additionally seek to improve their income or independence through entrepreneurship.
- TEA (necessity) is the percentage of the adult population that is trying to start or has started a business because all other options for work are either absent or unsatisfactory.

*GEM in itself is an example of not-for-profit (social) entrepreneurship. It was conceived in 1997 by Babson College and London Business School professors. It was prototyped with bootstrap funding and volunteers and was officially launched in 1998 with research teams from 10 nations and supported with funding raised by each team from national sponsors. It produces annual global reports on the overall state of entrepreneurship in those nations, country-specific reports, and reports on special topics such as female entrepreneurship, financing, and job creation. More than 100 global and regional reports can be read and downloaded at www.gemconsortium.org.

Principal Findings from GEM

For the 2018/19 Global Report, GEM researchers from dozens of countries across the world compiled data from individuals in 49 different economies, collectively representing all regions of the world and a broad range of economic development levels.* New features of this 20th anniversary report of GEM include the National Entrepreneurship Context Index (NECI), a composite measure of the health of the entrepreneurial context in each economy. Based upon a dozen framework conditions, NECI can be used to assess the environment for entrepreneurship in an economy. It allows policy makers and practitioners to benchmark results between peer economies and identify areas to address, as they seek to enhance an economy's entrepreneurial potential and impact. Peer economies are identified as low-income, middle-income, or high-income and as such provide cleaner comparisons and understanding. GEM 2018/19 also provides a first-time global look at entrepreneurship in the gig and sharing economy as well as entrepreneurial activity in family-based entrepreneurship, entrepreneurial employee activity, and solo entrepreneurship.

Activity

Total Entrepreneurial Activity (TEA) is a key indicator of GEM and is captured in the GEM Framework in Figure 1.2. It measures the percentage of adults (age 18–64) in an economy who are nascent and new entrepreneurs. In economies with low GDP per capita, TEA rates tend to be high, with a correspondingly higher proportion of necessity-motivated entrepreneurship. Conversely, high GDP economies show lower levels of entrepreneurship, but a higher proportion of those with opportunity-motivations. To at least some extent then, development levels are associated with particular patterns in the level and type of entrepreneurial activity. This relationship can be seen in Figure 1.3.

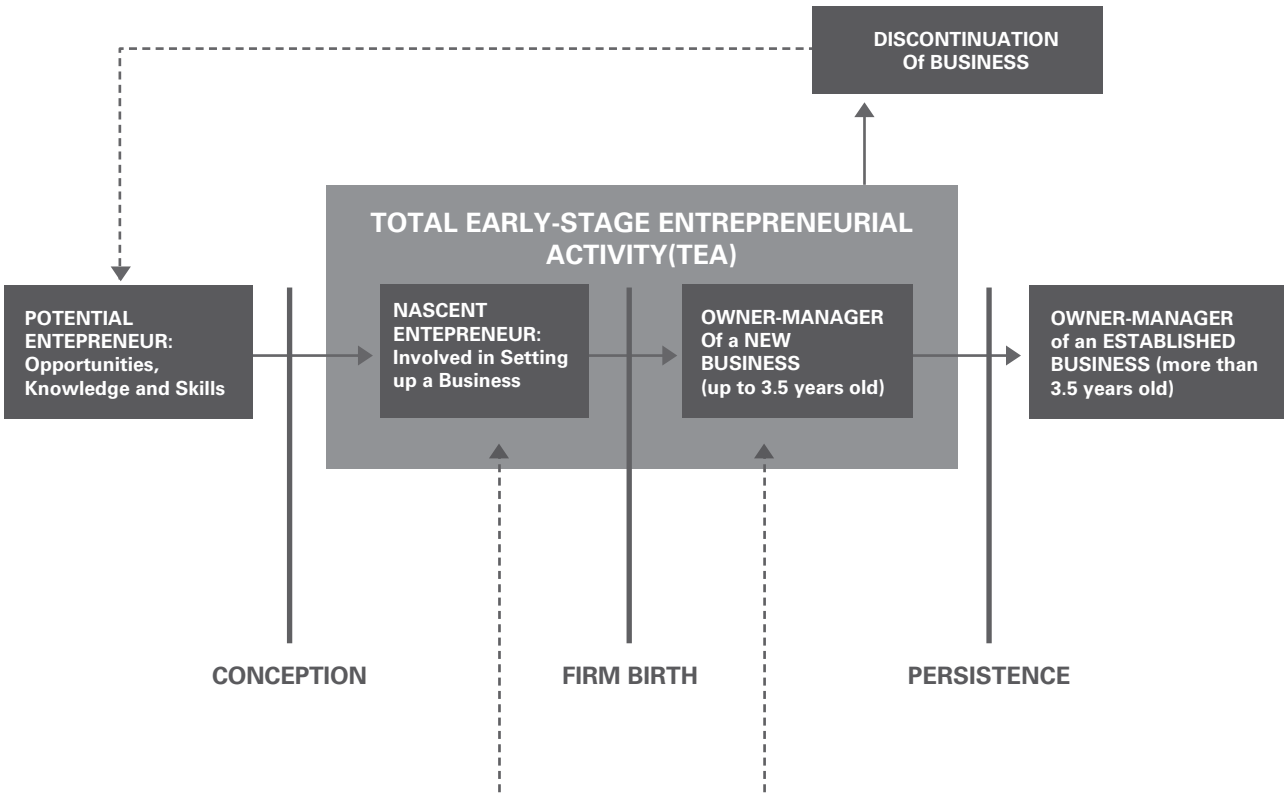
Some of the highest average TEA ranks and scores (see Table 1.1) are found in Middle East/Africa and Latin America/Caribbean. Angola and Guatemala came in with the highest TEA ranks and scores in these regions. The East and South Asia region shows a mix of TEA levels with Thailand ranking high but China and India coming in lower on the scale.

This table displaying the different rankings of entrepreneurial activity by regions also gives us a peek into the activity going on inside existing businesses. The Entrepreneurial Employee Activity (EEA) shows that high-income countries such as Canada, Ireland, and the United States report the highest EEA rates of more than 8% of their adult population. Overall, entrepreneurial activity among employees in existing companies is seen to be highest in Europe. In fact, in some European countries (Sweden and Germany, for instance), entrepreneurship is at least as likely to occur in organizations as it is in the "traditional" startup context. In other countries, entrepreneurship rates are strong regardless of context: see the Netherlands and Canada where levels of employee entrepreneurship complement similarly high TEA rates.

Necessity, Opportunity, and Gender

GEM defines necessity-driven entrepreneurs as those who are pushed into starting businesses because they have no other work options and need a source of income. Opportunity-motivated entrepreneurs, on the other hand, are those entering this activity primarily to pursue an opportunity.

*Some of the text in the following sections was excerpted and adapted from the *GEM 2018–19 Global Report*, http://www.gemconsortium.org/report.



Early-stage Entrepreneurship Profile

Individual attributes	Industry	Impact
• Gender • Age • Motivation (opportunity, necessity)	• Sector	• Business growth • Innovation • Internationalization

FIGURE 1.2 **Phases of the Entrepreneurship Process and GEM Indicators.**

The latter are further distinguished as improvement-driven opportunity motivated if they additionally seek to improve their income or independence through entrepreneurship.

Necessity-driven motives tend to be highest in low and sometimes middle-income economies. With greater economic development levels, the proportion of entrepreneurs with necessity motives generally declines, whereas improvement-driven opportunity increasingly accounts for a great proportion of motives. Geographic differences exist, however, even within the same region and sometimes at the same economic development level.

The GEM data also provides some insight into the issue of gender with respect to the rates of men and women who pursue necessity or opportunity-based entrepreneurial activities. Of all of the economies analyzed by GEM researchers, six show similar TEA rates between women and men (Table 1.2). With the exception of North America, they are split across the globe: two are in the East and South Asia region (Indonesia and Thailand), one is in Latin America (Panama), and three come from the Middle East and Africa region (Qatar, Madagascar, and Angola). It is also interesting to note that these countries cross all three income levels.

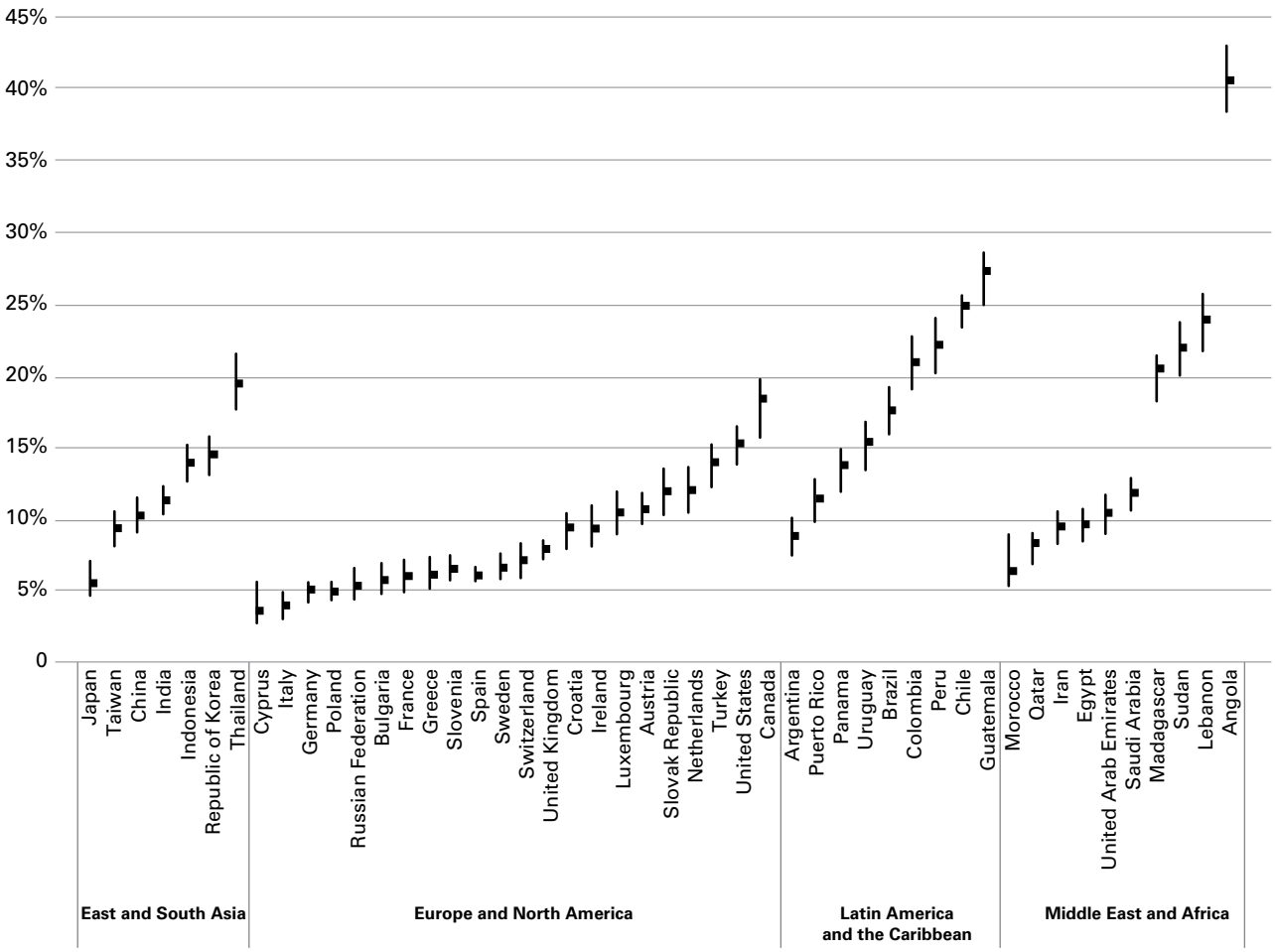


FIGURE 1.3 **Overall TEA Rates in Four Geographic Regions.**

Age Distribution of Early-Stage Entrepreneurial Activity

Although entrepreneurship is often seen through the lens of the popular press as a young person's domain, the data tells a story that again supports the entrepreneurial age we live in: People of all ages across all types of economies are engaging in entrepreneurial activity. Data consistently shows support for the idea that entrepreneurial activity is most prevalent for those in their early (age 25–34) and mid-career (age 35–44) affirming the thought that those with ambition and at least some experience, networks, and other resources view entrepreneurship as a productive path to follow. Those in their early careers may not have accumulated the resources, credibility, and connections of older entrepreneurs. Overall, however, it is interesting to note that rates in other age categories are not all that far behind.

Figure 1.4 shows an interesting comparison of entrepreneurs in countries whose activity is driven primarily by either younger or older entrepreneurs. On the left is a graph of TEA rates showing a high prevalence of entrepreneurial activity among the youngest adults for five countries. These graphs show high rates of entrepreneurship among those aged 18–24, with a steep decline in subsequent age groups, particularly in Canada, Brazil, and the Slovak Republic. The other side highlights countries where entrepreneurs thrive later in life. Here, the highest

Table 1.1 Phases and Types of Entrepreneurial Activity, GEM 2018

			Nascent entrepreneurship rate		New business ownership rate		Early-stage entrepreneurial activity (TEA)		EEA		Established business ownership rate		Discontinuation of businesses	
INCOME LEVEL	**REGION**	**ECONOMY**	**Score**	**Rank/48**	**Score**	**Rank/48**	**Score**	**Rank/48**	**Score**	**Rank/49**	**Score**	**Rank/48**	**Score**	**Rank/49**
low income	Middle East and Africa	**Angola**	22.8	1	19.5	1	40.8	1	3.2	25T	15.2	5	25.5	1
high income	Latin America and the Caribbean	**Argentina**	4.9	27	4.3	25	9.1	32	1.5	39T	9.1	16	3.9	24
high income	Europe and North America	**Austria**	6.8	20T	4.4	24	10.9	23	6.4	9	6.5	27T	5.0	17T
middle income	Latin America and the Caribbean	**Brazil**	1.7	47	16.4	3	17.9	11	0.7	45T	20.3	3	4.3	22T
middle income	Europe and North America	**Bulgaria**	2.4	46	3.7	30T	6.0	42	0.4	48	8.4	19T	1.8	43T
high income	Europe and North America	**Canada**	11.2	6	8.9	10	18.7	10	8.6	1T	7.5	22T	8.6	4
high income	Latin America and the Caribbean	**Chile**	16.0	3	10.1	9	25.1	3	4.2	21T	8.5	18	7.1	11
middle income	East and South Asia	**China**	4.7	28	5.9	17T	10.4	26	1.0	42	3.2	44	2.5	36T
middle income	Latin America and the Caribbean	**Colombia**	15.7	4	5.8	19T	21.2	7	2.0	32T	6.5	27T	4.7	20T
high income	Europe and North America	**Croatia**	5.8	24	3.9	27T	9.6	29T	5.3	15	4.2	40T	3.4	29T
high income	Europe and North America	**Cyprus**	1.2	48	2.7	39T	3.9	48	5.4	14	6.1	33T	2.3	41
low income	Middle East and Africa	**Egypt**	4.0	35T	5.9	17T	9.8	27	2.1	31	4.5	39	7.6	8T
high income	Europe and North America	**France**	4.0	35T	2.3	44T	6.1	41	4.3	19T	2.5	47	2.9	34
high income	Europe and North America	**Germany**	2.7	42T	2.4	43	5.0	46	5.2	16	7.5	22T	1.6	46T
high income	Europe and North America	**Greece**	4.2	30T	2.3	44T	6.4	38T	1.8	36	10.8	14	3.4	29T
middle income	Latin America and the Caribbean	**Guatemala**	13.7	5	15.0	4	27.5	2	2.0	32T	11.2	13	7.4	10
low income	East and South Asia	**India**	8.8	13	2.7	39T	11.4	22	0.8	44	7.0	24	4.9	19
low income	East and South Asia	**Indonesia**	3.1	40	11.1	7	14.1	16	1.3	41	11.8	11	1.4	49
middle income	Middle East and Africa	**Iran**	4.1	32T	5.7	21	9.7	28	0.9	43	12.3	9	6.1	13
high income	Europe and North America	**Ireland**	6.5	22	3.2	36	9.6	29T	8.6	1T	6.8	25T	3.8	25
high income	Middle East and Africa	**Israel**	–	N/A	–	N/A	–	N/A	7.2	6	–	N/A	5.0	17T
high income	Europe and North America	**Italy**	2.7	42T	1.6	47	4.2	47	3.2	25T	6.4	29T	1.6	46T
high income	East and South Asia	**Japan**	3.3	37T	2.2	46	5.3	44	2.2	30	6.2	32	1.8	43T
middle income	Middle East and Africa	**Lebanon**	6.9	19	17.6	2	24.1	4	1.7	37T	21.6	2	8.0	7
high income	Europe and North America	**Luxembourg**	7.1	17T	3.7	30T	10.7	24T	7.1	7	3.4	43	3.7	26T
low income	Middle East and Africa	**Madagascar**	10.3	9T	10.9	8	20.7	8	0.6	47	22.4	1	4.3	22T
low income	Middle East and Africa	**Morocco**	3.3	37T	3.5	34	6.7	37	4.8	17	4.2	40T	10.4	3
high income	Europe and North America	**Netherlands**	6.0	23	6.5	15T	12.3	18	7.9	4	12.0	10	2.5	36T
high income	Latin America and the Caribbean	**Panama**	7.4	14T	6.6	14	13.8	17	0.0	49	6.4	29T	3.4	29T
middle income	Latin America and the Caribbean	**Peru**	17.5	2	5.8	19T	22.4	5	1.5	39T	8.4	19T	7.6	8T
high income	Europe and North America	**Poland**	4.1	32T	1.1	48	5.2	45	1.9	34T	13.0	7	2.4	39T
high income	Latin America and the Caribbean	**Puerto Rico**	9.1	12	2.6	41	11.6	21	1.9	34T	1.9	48	3.1	32
high income	Middle East and Africa	**Qatar**	5.0	26	3.6	32T	8.5	33	6.3	10T	4.2	40T	3.0	33
high income	East and South Asia	**Republic of Korea**	6.8	20T	7.9	11	14.7	14	3.6	23	12.5	8	2.5	36T
middle income	Europe and North America	**Russian federation**	2.7	42T	2.9	38	5.6	43	0.7	45T	4.9	37	1.6	46T
high income	Middle East and Africa	**Saudi Arabia**	5.3	25	6.9	13	12.1	19T	2.8	28	3.1	45	8.5	5
high income	Europe and North America	**Slovak Republic**	9.2	11	3.1	37	12.1	19T	4.4	18	4.6	38	3.6	28
high income	Europe and North America	**Slovenia**	2.8	41	3.6	32T	6.4	38T	5.9	13	6.8	25T	2.4	39T
high income	Europe and North America	**Spain**	2.7	42T	3.8	29	6.4	38T	1.7	37T	6.1	33T	1.7	45
low income	Middle East and Africa	**Sudan**	10.3	9T	12.6	6	22.2	6	4.3	19T	10.2	15	17.3	2
high income	Europe and North America	**Sweden**	4.6	29	2.5	42	6.8	36	6.8	8	5.3	36	3.7	26T
high income	Europe and North America	**Switzerland**	4.1	32T	3.4	35	7.4	35	6.3	10T	11.5	12	2.0	42
high income	East and South Asia	**Taiwan**	3.2	39	6.5	15T	9.5	31	4.2	21T	13.9	6	5.4	14
middle income	East and South Asia	**Thailand**	7.3	16	13.2	5	19.7	9	2.4	29	19.6	4	8.1	6
middle income	Europe and North America	**Turkey**	7.4	14T	7.1	12	14.2	15	3.2	25T	8.7	17	5.2	15
high income	Middle East and Africa	**United Arab Emirates**	7.1	17T	3.9	27T	10.7	24T	6.3	10T	2.6	46	5.1	16
high income	Europe and North America	**United Kingdom**	4.2	30T	4.2	26	8.2	34	7.3	5	6.4	29T	2.7	35
high income	Europe and North America	**United States**	10.5	8	5.3	22	15.6	13	8.0	3	7.9	21	4.7	20T
high income	Latin America and the Caribbean	**Uruguay**	11.1	7	4.9	23	15.7	12	3.5	24	5.6	35	6.6	12

Source: 2018/19 GEM Global Report.

Table 1.2 Gender Distribution of TEA, Opportunity TEA, and Necessity TEA

			MALE TEA (% of adult male population)		FEMALE TEA (% of adult male population)		MALE TEA Opportunity (% of TEA males)		FEMALE TEA Opportunity (% of TEA females)		MALE TEA Necessity (% of TEA males)		FEMALE TEA Necessity (% of TEA females)	
INCOME LEVEL	**REGION**	**ECONOMY**	**Score**	**Rank/48**	**Score**	**Rank/48**	**Score**	**Rank/48**	**Score**	**Rank/48**	**Score**	**Rank/48**	**Score**	**Rank/48**
low income	Middle East and Africa	**Angola**	41.0	1	40.7	1	67.3	40	47.2	45	27.5	12	49.5	3
high income	Latin America and the Caribbean	**Argentina**	10.1	33	8.1	28	76.4	16	59.8	39	21.4	21	35.7	9T
high income	Europe and North America	**Austria**	13.9	23	7.9	29	74.3	24	77.0	16	16.5	37	14.9	36
middle income	Latin America and the Caribbean	**Brazil**	18.5	13	17.3	9	67.7	38	55.6	44	31.4	9	44.0	5
middle income	Europe and North America	**Bulgaria**	6.4	45	5.6	34	72.2	32	63.4	34	23.2	17	34.8	11
high income	Europe and North America	**Canada**	20.4	8T	17.0	11	75.9	17	83.3	5	16.8	35	10.0	42
high income	Latin America and the Caribbean	**Chile**	29.0	4	21.2	3	79.9	11	66.5	28	18.4	29	30.6	16
middle income	East and South Asia	**China**	11.4	29	9.3	18	68.9	37	72.4	22	29.4	10	25.9	24
middle income	Latin America and the Caribbean	**Colombia**	24.9	6	17.8	7	87.5	2	83.0	6	10.7	44	14.1	37
high income	Europe and North America	**Croatia**	12.1	27	7.1	31	63.3	42T	59.6	40T	32.4	7	32.2	15
high income	Europe and North America	**Cyprus**	4.8	48	2.9	47	83.4	7	86.6	2	12.4	40	9.8	43
low income	Middle East and Africa	**Egypt**	14.1	20	5.4	35T	48.4	47	45.0	46	47.3	1	48.5	4
high income	Europe and North America	**France**	7.0	41	5.3	37	77.5	15	66.9	27	21.1	23	23.9	26
high income	Europe and North America	**Germany**	6.6	44	3.3	46	69.9	36	69.7	24	17.1	32T	15.9	34
high income	Europe and North America	**Greece**	8.8	37T	3.9	43T	87.3	4	67.7	26	10.4	45	27.1	21
middle income	Latin America and the Caribbean	**Guatemala**	30.8	3	24.5	2	67.4	39	56.1	42	32.3	8	43.9	6
low income	East and South Asia	**India**	14.0	21T	8.7	21T	45.0	48	40.2	47	44.2	2	49.9	2
low income	East and South Asia	**Indonesia**	14.0	21T	14.1	12	75.2	19T	70.8	23	22.4	19	28.0	18
middle income	Middle East and Africa	**Iran**	12.9	25	6.5	32	59.0	46	64.9	30T	39.6	3	29.8	17
high income	Europe and North America	**Ireland**	11.9	28	7.5	30	75.2	19T	77.8	14T	19.6	27	19.3	31
high income	Europe and North America	**Italy**	5.5	47	2.8	48	82.2	8	78.6	12T	11.5	41	11.3	41
high income	East and South Asia	**Japan**	6.7	43	4.0	41T	73.3	28T	62.8	35	18.1	31	23.8	27
middle income	Middle East and Africa	**Lebanon**	31.3	2	17.4	8	63.3	42T	64.3	33	36.4	4	35.7	9T
high income	Europe and North America	**Luxembourg**	12.7	26	8.7	21T	78.8	13	82.4	8	17.1	32T	4.2	47
low income	Middle East and Africa	**Madagascar**	20.4	8T	21.1	4	70.3	34	64.4	32	28.5	11	33.9	13
low income	Middle East and Africa	**Morocco**	9.2	36	4.3	40	62.6	44T	68.3	25	32.8	6	27.7	19
high income	Europe and North America	**Netherlands**	16.2	16	8.3	27	79.3	12	82.8	7	8.6	46	9.7	44
high income	Latin America and the Caribbean	**Panama**	13.8	24	13.9	13	85.6	6	84.8	4	13.7	38	12.3	38
middle income	Latin America and the Caribbean	**Peru**	23.9	7	20.9	5	73.3	28T	73.1	21	23.1	18	23.1	28
high income	Europe and North America	**Poland**	6.0	46	4.5	39	87.9	1	95.0	1	10.8	43	5.0	46
high income	Latin America and the Caribbean	**Puerto Rico**	15.2	8T	8.4	24T	75.0	22T	64.9	30T	20.9	24	26.2	23
high income	Middle East and Africa	**Qatar**	8.6	39	8.4	24T	73.1	30	78.6	12T	16.7	36	15.8	35
high income	East and South Asia	**Republic of Korea**	17.0	15	12.2	16	77.6	14	77.8	14T	21.9	20	19.6	30
middle income	Europe and North America	**Russian federation**	7.3	40	3.9	43T	62.6	44T	39.8	48	33.1	5	51.1	1
high income	Middle East and Africa	**Saudi Arabia**	14.7	19	8.5	23	73.6	26T	59.6	40T	26.1	14	39.0	7
high income	Europe and North America	**Slovak Republic**	15.2	17T	9.0	19	64.4	41	61.7	37	26.6	13	27.6	20
high income	Europe and North America	**Slovenia**	8.8	37T	3.8	45	72.6	31	62.4	36	20.7	25	32.7	14
high income	Europe and North America	**Spain**	6.8	42	6.0	33	75.2	19T	65.7	29	18.9	28	26.7	22
low income	Middle East and Africa	**Sudan**	27.5	5	17.1	10	75.0	22T	55.9	43	21.2	22	38.3	8
high income	Europe and North America	**Sweden**	9.5	35	4.0	41T	70.7	33	80.0	10	12.5	39	1.3	48
high income	Europe and North America	**Switzerland**	10.0	34	4.7	38	87.4	3	86.4	3	5.5	48	11.5	39
high income	East and South Asia	**Taiwan**	10.2	32	8.8	20	75.6	18	75.3	18	24.4	16	24.7	25
middle income	East and South Asia	**Thailand**	20.1	10	19.3	6	80.3	10	79.6	11	17.1	32T	18.7	32
middle income	Europe and North America	**Turkey**	20.0	11	8.4	24T	73.6	26T	76.7	17	18.3	30	11.4	40
high income	Middle East and Africa	**United Arab Emirates**	11.0	31	10.1	17	73.9	25	73.8	20	20.3	26	21.4	29
high income	Europe and North America	**United Kingdom**	11.1	30	5.4	35T	85.7	5	81.0	9	11.1	42	16.6	33
high income	Europe and North America	**United States**	17.7	14	13.6	14	81.1	9	74.7	19	8.5	47	7.7	45
high income	Latin America and the Caribbean	**Uruguay**	19.4	12	12.3	15	70.2	35	60.5	38	25.7	15	34.7	12

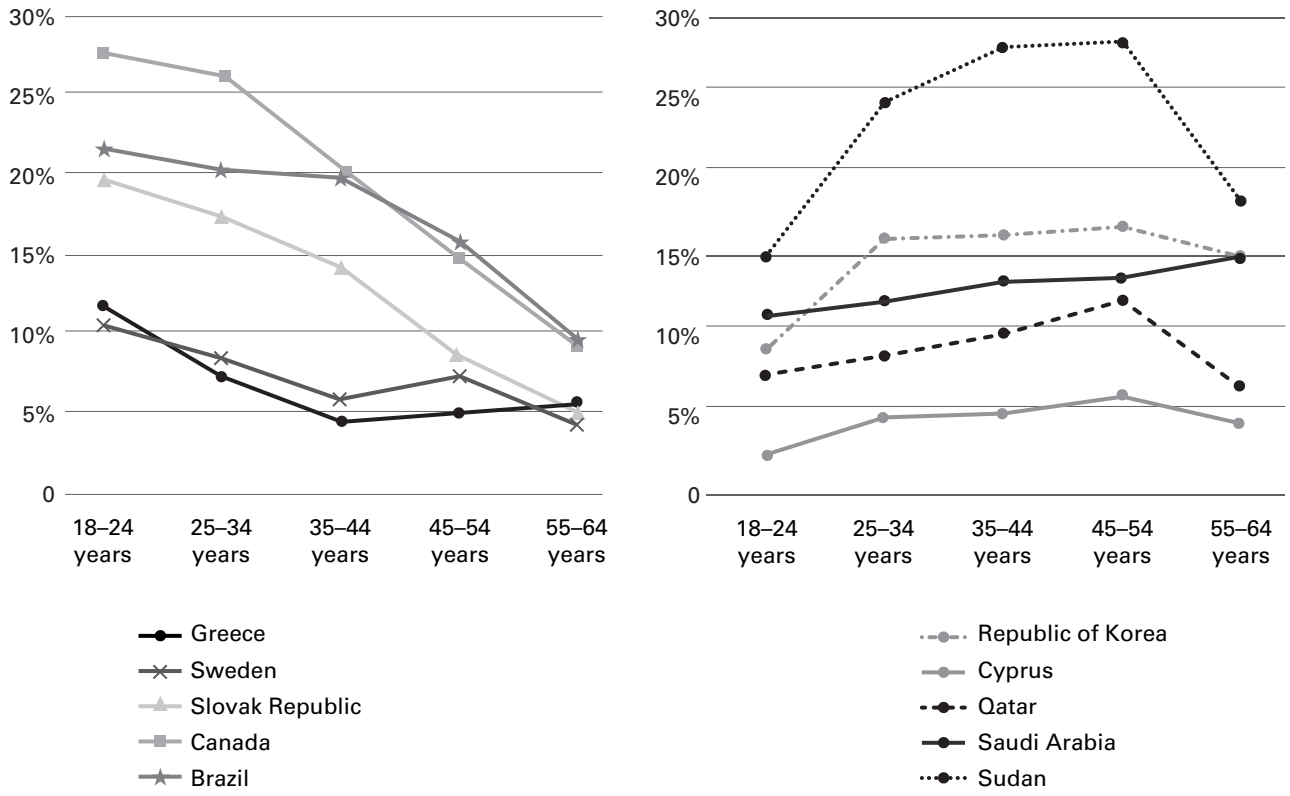


FIGURE 1.4 **TEA by Age by Phase of Economic Development.**

entrepreneurship rates occur among those in late careers, likely due to these individuals having particular strengths to leverage, as noted above.

Survey data alone does not allow one to definitively know why rates differ by age, but it is likely due to different sociocultural factors. The GEM report speculates that it could be that young people in the countries with high rates have the energy and motivation for entrepreneurship or there may be peers and an environment that celebrates young entrepreneurs. Or it could be that they simply have little to lose because they are at the beginning of their careers. As for the countries with high older entrepreneur rates, it may be that they are dissatisfied with their work situations and decide to venture out on their own or that they have only now accumulated the insight, wisdom, and networks to drive an entrepreneurial opportunity to fruition.

Growth Expectations and Job Creation

The power of entrepreneurship is derived from the positive impact it makes on the lives and well-being of people—not just the entrepreneurs themselves, but individuals throughout their communities. Most directly, as entrepreneurs build their businesses, they often create jobs for others, providing a broader economic impact for their region. Simply stated, entrepreneurship is a social good. When entrepreneurs create jobs, they contribute to employment and the overall well-being in their cities, towns, and regions. While TEA rates indicate how many entrepreneurs there are in each economy, growth expectations—measured in the GEM report as job creation projections—represent a quality measure of this activity. Entrepreneurs differ in their growth ambitions, and this can have significant potential impact on the employment growth and competitive advantage of each economy.

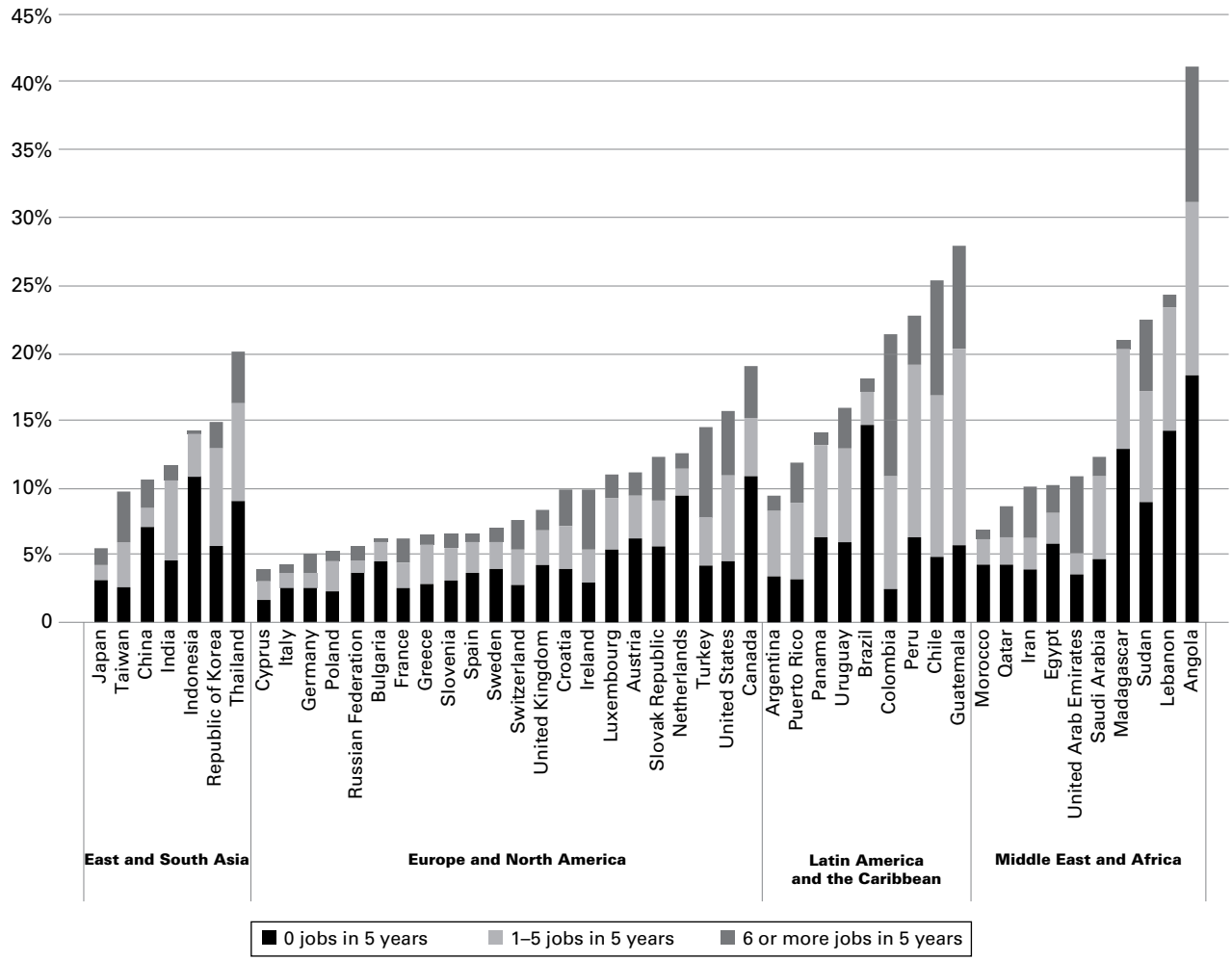


FIGURE 1.5 **Total Early-stage Entrepreneurial Activity with Three Level of Self-Reported Job Growth Expectations.**

The 2018/19 GEM Global Report allows us to see the ambitions and job creation intentions of entrepreneurs across the globe. The report classifies entrepreneurs into three groups: those who expect to create no new jobs in the next five years, those who expect to create at least one to five jobs in this time frame, and those who expect to create six new jobs or more. Figure 1.5 shows the job growth expectations of entrepreneurs by country across the four geographic regions of the study. Like other data we have examined, there is also great variation in the job creation expectations of entrepreneurs across regions and income levels.

Looking at regions and countries—and in line with the thoughts just noted—Brazil appears to be dominated by solo entrepreneurs (those not predicting any job creation), while the entrepreneurs in other countries in Latin America have more aggressive growth expectations.

Drilling down a bit more, in the Middle East and Africa, few entrepreneurs in Madagascar and Lebanon expect to add more than six jobs in the next five years. Alternatively, nearly a quarter of entrepreneurs in Sudan and Angola have these aspirations. Combined with high TEA rates, this accounts for much job creation potential in these economies. In the UAE, despite relatively low rates of entrepreneurship, over half of entrepreneurs project this highest level of job creation. This demonstrates that, even when entrepreneurship is less common in an economy, it can still have substantial impact.

As you examine Table 1.1 for your country and attempt to make sense of it relative to other parts of the world, it is always prudent to also remember that things may not turn out as the entrepreneurs expected. Some individuals are more optimistic than others. However, intention does matter, and to achieve growth, entrepreneurs need to have the ambition to grow!

Entrepreneurship Ecosystems and the Importance of Support

The cautionary notes regarding different factors outside the control of the individual entrepreneur that may affect their intentions to grow their business brings forward another important concept that all entrepreneurs must be aware of: the entrepreneurial ecosystem in which they reside. Similar to the biological ecosystem of the earth, atmosphere, animals, plants, and other organisms that work best in concert with each, entrepreneurial ecosystems include different elements that support each other. Public policy, financing, laws, education, development programs, and a host of other factors come together to create an environment of support for entrepreneurial activities. An entrepreneurial ecosystem can be defined as a multidimensional enterprise that supports entrepreneurial development through a variety of interrelated activities (education, financing, training, public policy and research, etc.)[90] between individuals, organizations, and institutions.

Although there may be different factors in each individual ecosystem, the GEM study assesses what are seen as some of the most relevant factors. In the 2018/19 GEM Global Report, researchers examined the following dozen factors across 54 different economies:

- Entrepreneurial financing
- Government policy support
- Taxes and bureaucracy
- Government entrepreneurship programs
- School-level entrepreneurship education and training
- Post-school entrepreneurship education and training
- R&D transfer
- Access to commercial and professional infrastructure
- Internal market dynamics
- Internal market burdens
- Access to physical and services infrastructure
- Social and cultural norms

Together these factors make a composite index, the National Entrepreneurship Context Index, which is designed to help policy makers—and all of us—better understand the strengths and weaknesses of their environment for entrepreneurship. Table 1.3 provides the NECI rankings and scores for all countries in the 2018/19 GEM Global Report. Most clear and striking to researchers was the importance of having healthy conditions across all aspects of the entrepreneurial environment. Researchers found that countries that had poor conditions in just a few of the overall factors can have a negative effect on the willingness and ability of people to start businesses, even with significant strengths in other areas. This reiterates the importance of an ecosystem that truly works in unison.

Table 1.3 GEM's National Entrepreneurship Context Index (NECI) Rankings

INCOME LEVEL	REGION	ECONOMY	NECI Rank	NECI Score (out of 10)
high income	Middle East and Africa	**Qatar**	1	6.7
low income	East and South Asia	**Indonesia**	2	6.6
high income	Europe and North America	**Netherlands**	3	6.5
high income	East and South Asia	**Taiwan**	4	6.3
low income	East and South Asia	**India**	5	6.2
high income	Europe and North America	**United States**	6	6.0
high income	Middle East and Africa	**United Arab Emirates**	7	5.9
high income	Europe and North America	**Luxembourg**	8	5.7
high income	Europe and North America	**Switzerland**	9	5.7
high income	Europe and North America	**France**	10	5.6
middle income	East and South Asia	**China**	11	5.6
high income	Europe and North America	**Canada**	12	5.5
high income	Europe and North America	**Austria**	13	5.5
high income	East and South Asia	**Republic of Korea**	14	5.5
middle income	East and South Asia	**Thailand**	15	5.5
high income	Europe and North America	**Spain**	16	5.4
high income	Europe and North America	**Ireland**	17	5.4
high income	Europe and North America	**Sweden**	18	5.4
high income	Europe and North America	**Germany**	19	5.4
high income	East and South Asia	**Japan**	20	5.3
high income	Latin America and the Caribbean	**Argentina**	21	5.2
high income	Europe and North America	**Latvia**	22	5.2
middle income	Latin America and the Caribbean	**Mexico**	23	5.2
high income	Europe and North America	**Poland**	24	5.2
high income	Europe and North America	**Slovenia**	25	5.2
high income	Latin America and the Caribbean	**Chile**	26	5.1
high income	Europe and North America	**Cyprus**	27	5.1
high income	Middle East and Africa	**Israel**	28	5.1
middle income	Europe and North America	**Turkey**	29	5.1
high income	Europe and North America	**United Kingdom**	30	4.9
middle income	Europe and North America	**Kazakhstan**	31	4.9
middle income	Latin America and the Caribbean	**Colombia**	32	4.8
high income	Latin America and the Caribbean	**Uruguay**	33	4.7
low income	Middle East and Africa	**Egypt**	34	4.7
middle income	Middle East and Africa	**Lebanon**	35	4.7

Table 1.3 (Continued)

INCOME LEVEL	REGION	ECONOMY	NECI Rank	NECI Score (out of 10)
middle income	Europe and North America	**Bulgaria**	36	4.7
middle income	Europe and North America	**Russian federation**	37	4.6
middle income	Latin America and the Caribbean	**Dominican Republic**	38	4.6
middle income	Latin America and the Caribbean	**Peru**	39	4.5
high income	Europe and North America	**Italy**	40	4.5
high income	Middle East and Africa	**Saudi Arabia**	41	4.4
high income	Europe and North America	**Greece**	42	4.3
high income	Europe and North America	**Slovak Republic**	43	4.3
middle income	Latin America and the Caribbean	**Guatemala**	44	4.3
low income	Middle East and Africa	**Sudan**	45	4.3
middle income	Middle East and Africa	**Iran**	46	4.3
low income	Middle East and Africa	**Morocco**	47	4.3
middle income	Latin America and the Caribbean	**Brazil**	48	4.2
low income	Middle East and Africa	**Madagascar**	49	4.1
low income	Middle East and Africa	**Angola**	50	4.1
high income	Latin America and the Caribbean	**Puerto Rico**	51	4.1
high income	Latin America and the Caribbean	**Panama**	52	4.0
high income	Europe and North America	**Croatia**	53	3.8
low income	Middle East and Africa	**Mozambique**	54	3.2

CONCLUSION

Entrepreneurial activity in the United States now accounts for much of the nation's prosperity and its competitiveness in the global economy. The disappearance of "old" jobs, particularly in mature manufacturing industries, and their replacement by "new" jobs, especially in service and knowledge-based industries, is disconcerting to workers whose jobs are threatened. But society has to accept *churning*—the creation of new enterprises and the destruction of obsolete ones—because it gives the U.S. economy its vitality. As seen in the GEM data, the same can be said for many other economies around the world. Across the globe, entrepreneurial framework factors combine to create entrepreneurship ecosystems and determine the degree of entrepreneurial activity in a nation, or for that matter in a region within a nation.

In this chapter, we have looked at the importance of entrepreneurship to national economies. In the following chapters, we will look at the specifics of how entrepreneurs start and grow their new ventures.

YOUR OPPORTUNITY JOURNAL

We are excited that you are exploring an entrepreneurial journey, one that may lead you to launch a business while in college, after graduation, or at some future point in your life. We know that all great entrepreneurs are avid readers and thinkers, and as such, we encourage you to capture some of your thoughts as you read this book. These thoughts may focus on a new venture that you are interested in creating, or they may focus more on your entrepreneurial career plan. In either event, we will close each chapter with space for you to reflect on what it means to you and your potential venture.

Reflection Point	Your Thoughts…
1. What world-changing industries or opportunities do you see developing over the next 5–10 years?	
2. What innovations or new technologies will drive these world-changing opportunities?	
3. Which regions of the world have the greatest potential for developing these opportunities? Which are you most interested in?	
4. What skills do you need to develop to take advantage of these opportunities?	

WEB EXERCISE

What do you think will be the next major innovation (that changes the way we live, work, and play)? Search the Web to identify trends, statistics, and other evidence to support your insight. (*Hint*: Venture capitalists in the United States have a knack for spotting emergent industries.)

NOTES

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23. "The observation made in 1965 by Gordon Moore, co-founder of Intel, that the number of transistors per square inch on integrated circuits had doubled every year since the integrated circuit was invented. Moore predicted that this trend would continue for the foreseeable future. In subsequent years, the pace slowed down a bit, but density has doubled approximately every 18 months, and this is the current definition of Moore's Law. Most experts, including Moore himself, expect Moore's Law to hold for at least another two decades." *Source:* www.webopedia.com/TERM/M/Moores_Law.html. Retrieved in August 2005.
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Case MightyWell[1]

Introduction

As Emily Levy began to settle into her seat on a crowded train from Penn Station to Boston, a four-plus-hour commute that was now becoming a frequent event, she began to think of how far the company she had founded two years earlier had come. Graduating from college just months earlier in May 2016, Emily now found herself with a substantial investment offer that would allow her to grow her company, but she knew the next 12 months would be challenging. Emily had successfully developed and brought to market a product focused on improving the health-care experience for patients. She now wondered whether her company could rely on one product or whether she could disrupt a broader market within wellness wear.[2] Emily knew the decision she was about to make would have significant implications for the future success and sustainability of her company.

Early Years

To say that Emily Levy was born into a family of fashion industry entrepreneurs would be an understatement. While Emily was growing up, Emily's mother established a successful career in fashion, having helped open and run a Giorgio Armani store in the heart of Boston, Massachusetts, before transitioning into advertising roles at Hill Holiday, a leading advertising firm. While her mother focused on high-end fashion, Emily's father targeted more casual customers with his retail clothing store selling apparel to surfing, skateboarding, and snowboarding enthusiasts. Emily's brother, 12 years her senior, followed in the family's footsteps. After graduating from college, he launched his own sales representative company, "GL Sales," selling on behalf of O'Neill and other apparel companies. All three ventures provided Emily with direct insight and exposure to product design, manufacturing, wholesale and retail sales. Starting in the eighth grade, Emily balanced time at her father's store with her schoolwork, while also working with her brother to organize product samples for him on the weekends. Unfortunately, the recession of 2000 significantly affected her father's store, leading to bankruptcy. Emily recalled "seeing first-hand what being an entrepreneur was and how unforeseen macro risks can impact a company."[3]

In high school, Emily participated in three sports, including serving as captain for both field hockey and lacrosse, and completed a number of AP classes, including psychology. Emily had always been interested in humanities and the human element of history. While school never came easy to her, she took pride in her work ethic and never backed down from challenges. After graduating from high school, Emily considered a number of undergraduate business programs before accepting a four-year scholarship to Babson College as a Center for Women's Entrepreneurial Leadership (CWEL) scholar. The mission of CWEL is to "create a gender-enlightened business ecosystem where a diverse range of entrepreneurial leaders is encouraged to create economic and social value for themselves, their organizations, and society."[4] The Center provides female students with an opportunity to further develop and build confidence in their leadership skill. Knowing that she wanted to start her own business eventually, Emily believed Babson's focus on women entrepreneurs would help her accomplish her dream. It was at Babson that Emily began to surround herself with a number of mentors who worked at the Center, often reaching out to them for feedback and advice.

Following her freshman year of college, Emily's focus on social entrepreneurship continued to grow as she took part in a three-week program that sent female students to Rwanda to teach entrepreneurship. In 2010, Babson had partnered with the Rwanda Private Sector Federation to establish the Babson Rwanda Entrepreneurship Center (BREC) with the mission of strengthening Rwanda's entrepreneurial environment:

> BREC will partner with Babson's Center for Women's Leadership Program to send a team of 5–8 of Babson's Women's Leaders from across campus to Save, Rwanda for three weeks in the Summer of 2013 for the second year in a row to teach entrepreneurship, leadership and academic skills to 9th and 10th grade Rwandan students, conduct a women's leadership seminar at the National University of Rwanda, work alongside aspiring and successful female entrepreneurs of Rwanda, and engage with women empowerment organizations all while getting the opportunity to explore the nation's capital of Kigali and other unique Rwandan experiences.[5]

Reflecting on her time in Rwanda, Emily recalled her participation in this program and the unique timing of this trip, "I loved to see how resilient the people in Rwanda were. They taught me that just because you have a bad situation, it doesn't

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[1] This case was written by Andrew Zacharakis and Alan Simonian of Babson College with financial support from the John H. Muller, Jr. Chair in Entrepreneurship, Babson College. Copyright Babson College, 2017.

[2] Wellness wear—clothing that complements or facilitates medical well-being.

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mean you can't have a positive life. I definitely have taken that into my own business and personal philosophy."[6]

Between her sophomore and junior years in college, Emily traveled to Israel for a three-month internship. When she arrived in Israel, it was a time of peace, but that soon changed as Hamas began firing rockets toward Israel, eventually leading to the 2014 Israel–Gaza conflict. Emily recalled:

> It was a life changing experience. I was there when there was conflict and remember how I just kept working, even though I had friends who kept going into Gaza after being called into the military. One weekend we were surfing with some friends and the next weekend one of them was injured in the conflict and lost his hearing. Just seeing how they kept on working in the face of adversity made me realize that I could embody this attitude too. It's something I'll never forget.[7]

Diagnosing an Opportunity

In seventh grade, Emily had been bitten by a tick, but there was no physical evidence of the bite; doctors had failed to notice symptoms of common diseases associated with tick bites. Throughout high school, Emily had constantly found herself tired and clumsy, often complaining of body pains. In an effort to diagnose and treat her ailments, Emily had met with physical therapists, psychological therapists, holistic doctors, and even had attempted acupuncture, to no avail. For seven years, Emily had struggled physically and mentally to cope each day with fatigue and pain. Prior to leaving for Rwanda in 2013, Emily had completed additional tests; once she returned home, she learned that she had tested positive for Lyme disease.

Lyme disease is prevalent in the United States. "The Centers for Disease Control and Prevention estimate that 300,000 people are diagnosed with Lyme disease in the US every year. That's 1.5 times the number of women diagnosed with breast cancer, and six times the number of people diagnosed with HIV/AIDS each year in the United States. However, because diagnosing Lyme can be difficult, many people who actually have Lyme may be misdiagnosed with other conditions. Many experts believe the true number of cases is much higher."[8]

Treatment for Lyme disease can vary but in severe cases can require intravenous medication delivered directly to a patient's heart via a peripherally inserted central catheter (PICC line). Doctor insert a PICC line, a sterile, flexible catheter, into a vein in the patient's arm and thread it up to the heart, where it can remain in place for days, months, or years depending on the treatment. While PICC lines prevent patients from undergoing IV injections for each treatment, they leave the patient with an exposed end of the catheter outside of the body. Doctors commonly use PICC lines to deliver nutrients and medication for chemotherapy; PICC lines also allow easy access for drawing blood.

In December of her sophomore year, Emily received her first PICC line, which was scheduled to last for six months. Following the placement of the line, nurses and doctors told Emily to wear a cut-off sock over her arm if she wanted to cover the entry port, which she tried when returning to campus. During her freshman year, Emily had been involved in numerous clubs on campus and had actively participated in social scenes. With a cut-off sock added to her fashion wardrobe, everything began to change. Fellow students and friends began inquiring about the sock-covered PICC line and would often stare at her when she had to administer her treatment in public areas. Emily rapidly saw her extroverted personality become much more introverted. As Emily worked to complete her sophomore year, she began to question whether a cut-off sock was the best option to cover her PICC line.

Creating a Solution

In the spring of 2014, Emily and fellow Babson student, Yousef Al-Humaidhi, started to explore options to cover her PICC line. They purchased a number of products that were intended to cover PICC lines, but quickly concluded that they failed to meet Emily's needs. In many cases, Emily even preferred the cut-off sock to some of the products they evaluated. This initial product research pushed Emily and Yousef to design their own solution. In the fall of 2014, they created their first prototype, which Emily personally used and tested, prior to Babson's annual Rocket Pitch event.[9] Following the three-minute pitch of their business concept, Emily received strong positive feedback from a number of attendees who told her that the market needed her prototype and business idea and urged her to continue to move forward. Emily left that day with renewed motivation to bring her PICC line cover to market.

In the spring of 2015, Emily took the prototype with her to attend classes at Babson's San Francisco campus. Throughout the semester, she continued developing the company by using

[6] Emily Levy, interview by author, Wellesley MA, November 10, 2016.
[7] Ibid.
[8] LymeDisease.org, "About Lyme Disease," LymeDisease.org website, https://www.lymedisease.org/lyme-basics/lyme-disease/about-lyme, accessed March 24, 2017.
[9] The Rocket Pitch event is a college-wide half-day event where over 100 students and alumni have three minutes to pitch an opportunity to an audience of over 400 people, including other students, faculty, investors, and entrepreneurs. The event is immediately followed by a networking hour where the presenters have a table to demonstrate their product/service and answer follow-up questions.

her product for class projects. Through this experience, fellow Babson student Maria del Mar Gomez Viyella joined Emily and Yousef to further build the venture. Emily was fortunate to have Professor Jim Poss, founder and CEO of Big Belly Solar and WeModifi, as her mentor while on the West Coast, absorbing valuable guidance, insights, and encouragement to "just go" and take action.

While in San Francisco, and subsequently when she returned to Boston after the semester, Emily began to focus on raising seed capital to fund her first manufacturing purchase order of $10,000, which ultimately rose to $16,000. Until now, Emily and Yousef had funded the company with an initial investment of $11,000. The majority of this capital had already been invested in designs and prototype development, so Emily needed to look elsewhere.

- Kickstarter—Emily established a 30-day online Kickstarter campaign with the goal of raising $10,000. The campaign was completed under the company's former name PICCPerfect. She chose Kickstarter over other crowdfunding platforms for three primary reasons: Kickstarter was a known and recognizable global platform, their campaign fees were comparable to other global fundraising sites, and the site had proven successful for entrepreneurs developing physical consumer products. Prior to launching, she received advice from previous entrepreneurs who attempted to raise their own funding; they recommended that she spend time and resources to create a comprehensive marketing plan for the campaign. This advice was reinforced in conversations with many individuals she spoke with who had failed to complete a Kickstarter campaign successfully and subsequently had faced roadblocks from future investors who quickly took notice of their failed funding attempts. In light of this, Emily invested $2,000 to develop professional marketing materials and videos, with the intent of leveraging these for future marketing purposes. Following Kickstarter's 30-day period, Emily's campaign was oversubscribed and raised $13,200, with both domestic and international donors pledging funds. The final campaign generated net proceeds of $12,188 for her company, with 70% of funds generated from friends and family and the remaining 30% from individuals who wanted to purchase the product for themselves or someone else. After creating and shipping all pledge rewards for donors and deducting the cost of marketing materials, Emily's profits from the campaign were $9,249 (see Exhibit 1.1 for details).
- Business competitions—In addition to funding the company through Kickstarter, Emily entered several business competitions in the Greater Boston area. Between 2015 and 2016, Emily participated in 17 business competitions and won first prize in 15. These competitions provided the company with $225,000 in funding and in-kind professional services and did not dilute Emily's ownership or that of her cofounders (see Exhibit 1.2 for details). While Emily invested significant resources and time away from her business to attend these competitions, she gained increased publicity and guidance from industry peers, successful entrepreneurs, and investors.

Soon thereafter, Emily's market research uncovered that 2.5–3 million patients in the United States receive PICC lines each year.[10] This information, along with feedback she had received from patients, nurses, mentors, and the Kickstarter campaign, led her to realize, "This isn't just Emily who has this problem, it's an addressable market of 3 million potential customers."[11]

Emily returned to Boston for the summer before her senior year at Babson to participate in Babson's Summer Venture Program (SVP). Graduate and undergraduate students accepted into this program receive housing, work spaces, and access to advisors over the course of an intensive 10-week period designed to foster meaningful advances for their ventures. Since launching in 2009, this program has assisted over 150 students in the development of 109 ventures, including companies such as Virool and ThinkLite in 2010 and HigherMe in 2014.[12] Subsequent to SVP, HigherMe was accepted into Y Combinator, which invests small amounts into new ventures and runs the

Exhibit 1.1a Kickstarter Campaign

Gross Funds Pledged	$13,200
Kickstarter Fee[a]	($660)
Payment Processing Fee[b]	($442)
Net Proceeds Generated	$12,098
Pledge Rewards	($869)
Marketing Materials	($2,000)
Net Profits from Campaign	$9,229

Source: Alan Simonian and Andrew Zacharakis, based on data from MightyWell™.

[a] Standard Kickstarter fee for successful campaigns that reach their goal: 5% of pledged funds.

[b] Payment processing fees: 3% of pledge amount plus $0.30 per pledge (5% of pledged funds and $0.05 for pledges under $10.00).

[10] Emily Levy, interview by author, Wellesley MA, November 10, 2016.

[11] Ibid.

[12] Babson College, "Summer Venture Program," Babson College website, http://www.babson.edu/Academics/ centers/blank-center/venture-accelerator/summer-venture-program/Pages/summer-venture-program.aspx, accessed January 26, 2017.

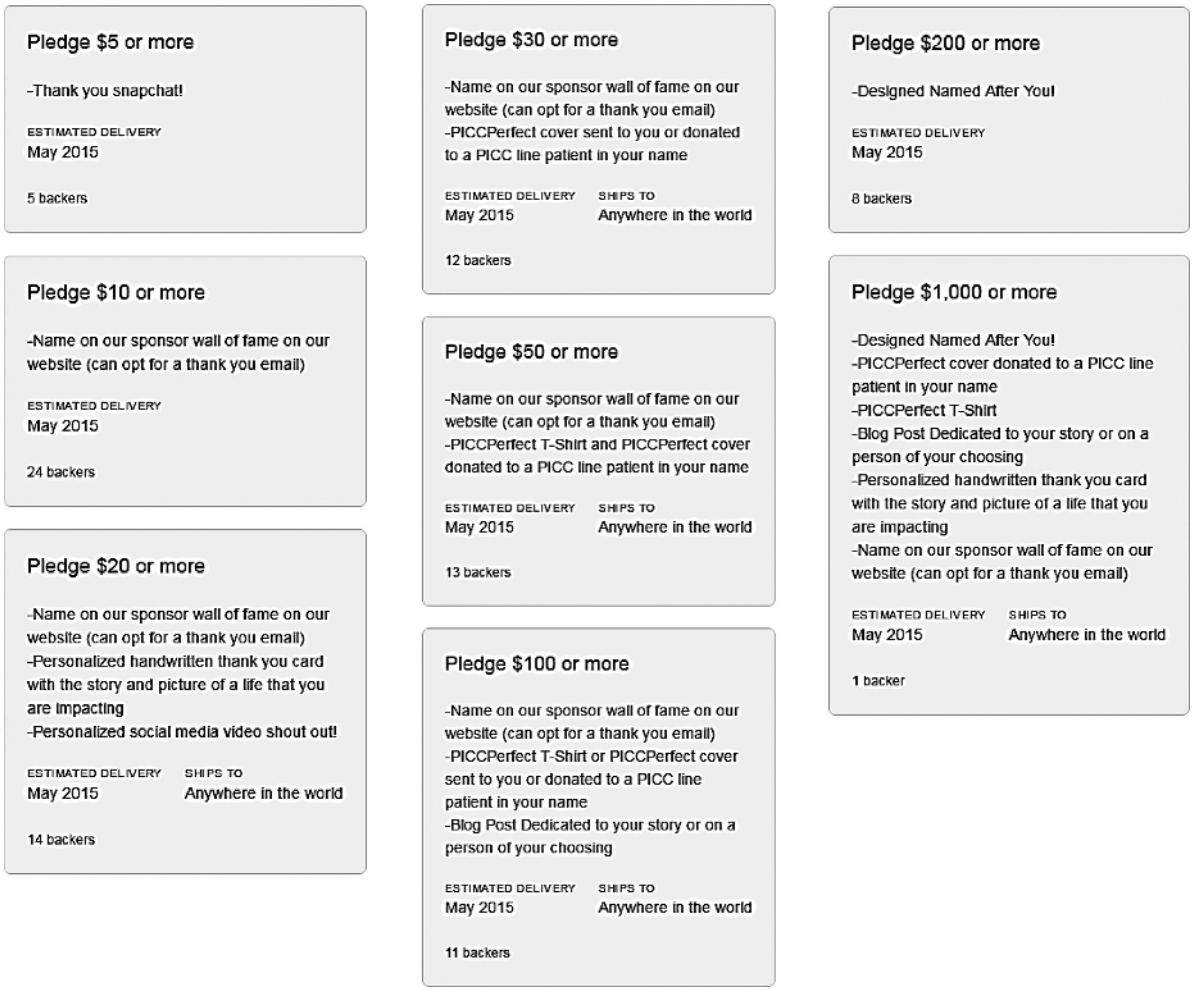

EXHIBIT 1.1b Rewards from Kickstarter Campaign.
Source: PICCPerfect Kickstarter campaign, https://www.kickstarter.com/projects/piccperfect/piccperfect-fashion-meets-function-for-picc-line-

companies through an accelerator program, and Virool successfully raised over $27M in two rounds of funding led by venture capital firm, 500 Startups.

SVP provided an environment for the participants to not only learn from the mentors (successful entrepreneurs, investors, and professors) but also from other teams in SVP. Like Professor Poss in San Francisco, mentors in SVP pushed Emily to attend industry conferences to market her company and product. One of the first industry meetings she attended was targeted to vascular access nurses. This conference opened Emily's eyes even further as she began to question whether a broader market existed outside of PICC line covers. She continued to hear from existing customers of PICC lines who urged Emily to consider developing products and solutions for other medical conditions and treatments. The question Emily now faced was whether she could pivot and transform her young company from a single-product venture into a larger company focused on wellness wear for patients.

PICC Line Cover Product Overview

PICCPerfect™ was designed to provide a functional and fashionable solution to PICC line covers. The product was manufactured using four-way stretch, antimicrobial, nontoxic, moisture wicking fabric to keep the site dry and sanitary. Each machine-washable cover was designed to stay in place at all times using medical-grade elastics. The product's double-way fold feature made treatment easier by fully concealing the PICC

Exhibit 1.2 Selected Business Case Competitions

Month/Year	Competition Name	Location	Prize Received	In Kind Services Received
Apr/2015	Purdue University Big Sell	West Lafayette, IN	$3,000	$24,100 in professional services
Oct/2015	Beantown Throwdown	Boston, MA	$0	$12,500 in legal services, 4 months shared office space, and digital marketing consulting services
Dec/2015	InnovateHER Massachusetts	Boston, MA		Chance to compete in Washington DC if selected by the SBA
Feb/2016	Shark Tank from Combined Jewish Philanthropies	Boston, MA	$1,000	
Mar/2016	Rhode Island Business Plan Competition	Providence, RI	$15,000	$31,650 in professional and consulting services
Apr/2016	Smith College's Tim and Melissa Draper Business Competition	Northampton, MA	$10,000	
Apr/2016	Babson B.E.T.A Challenge	Boston, MA	$20,000	Additional professional services provided by Microsoft, BizLand, Cummings Properties, and MassChallenge
Apr/2016	Girls Geek Boston	Boston, MA	$0	
June/2016	MassChallenge	Boston, MA		$1,000 UPS Domestic Shipping, office space and mentoring
Aug/2016	SheKnows Media Video Pitch	National	$5,000	Funding in the form of video and media feature
Sept/2016	UPS XPort Challenge (Northeast Region)		$10,000	Funding in the form of free international shipping
Oct/2016	Babson Breakaway Challenge	Boston, MA	$250,000	>$20,000 in TV, digital and print campaigns, brand consulting services, and work space
Jan/2017	Draper U: Silicon Valley Intensive Pitch Competition	San Mateo, CA	$10,000	Funding in the form of scholarships for Emily & cofounders

Source: Alan Simonian and Andrew Zacharakis, based on data from MightyWell™.

line and creating a barrier between the tubing and a patient's skin (see Exhibit 1.3 for examples of the PICCPerfect™ product).

Target market of MightyWell™ was women in the United States between the ages of 18 and 36, a market segment Emily identified based on a combination of industry data and historic purchasing demographics from the company's initial sales. To date, the company had relied on word-of-mouth advertisement, business competitions, and free press from their Kickstarter campaign as means to sell their first 1,000 units during Emily's senior year. The majority of these initial sales were direct to consumer through the company's website and e-commerce platforms such as Amazon, priced at $29.95.

Following her first production order, Emily evaluated the effectiveness of their current manufacturer, based in California. She uncovered numerous units in their first order that had been incorrectly manufactured and failed to meet quality standards. In 2016, Emily decided to change manufacturers and selected a firm based in Providence, Rhode Island, for their next order of 2,500 units. This change reduced production costs by 40%, which increased gross margins from 47% to 68%. While further cost reductions may have been possible by moving manufacturing overseas, Emily had committed to keep manufacturing in the United States for all products that touch patient wound sites. The challenge that MightyWell™ faced with their new manufacturer was their company's size and purchasing power relative to the size of other companies their new manufacturer worked with. The small order size of MightyWell™ limited the company's negotiating power with its supplier. However, Emily knew the increase in product quality and expansion of gross margin that MightyWell™ gained significantly outweighed longer manufacturing times and delays.

EXHIBIT 1.3 **Examples of MightyWell Products.**
Source: Reproduced with permission of Mighty Well

Industry Overview

The majority of new ventures in the fashion and wellness industries can be segmented into two categories, those that clearly fall within one of the above industries and those that span multiple industries. MightyWell™ was in the second category, with influences from multiple industries and sectors including health care, wholesale manufacturers, and retail, as the company sold directly to consumers.

Health Care and PICC Lines

Since the 1970s, doctors and nurses had commonly used PICC lines to deliver antibiotics directly to the heart. With an estimated U.S. annual volume of 2.5 million and 5 million on an international scale, PICC line usage is growing rapidly.[13]

While the rate of bloodstream infections associated with PICC line patients was less than those experienced via similar procedures, doctors and nurses recommended that patients keep the wound site clean. Numerous studies had shown patients who receive PICC lines in an outpatient setting and subsequently returned home had a lower rate of infection compared to those who remained in hospital settings.[14] Given these statistics, a segment of PICC line patients admitted to hospitals for extended periods of time may have presented MightyWell™ with an opportunity to target this customer base.

Wholesale Manufacturers

The North American Industry Classification System (NAISC) identified "Women's, Children's, and Infants' Clothing and Accessories Merchant Wholesalers" as a sector within the Wholesale Trade industry classification. In Q2 of 2016, this sector created 249 startups within the United States with average annual sales exceeding $3.9M. Most new ventures within the "small business" category employed four employees, with average annual sales per employee exceeding $996,000. In aggregate, these 249 startups generated annual revenues of approximately $988M, representing 4.6% of the sector's $21B total revenue.[15]

Between 2013 and 2015, the number of wholesale companies in this sector, both small and large businesses, remained flat, with less than a 1% overall change. However, the industry's average two-year cessation rate, that is, firms who failed to stay in businesses, was 12.3%. This rate had remained constant over recent years, with the most recent data from 2015 showing 164 startups still in operation compared to the same 186 that had been started in 2013.[16]

The U.S. textile, apparel, and luxury good market had maintained average gross margins between 46% and 49% over the last five years, but had increased margins 650 basis points since 2006. Industry experts expected future margin improvement based on advances in technology and falling commodity prices. Many believed that "companies with strong brands, differentiated products, and attractive price-value propositions are likely to outperform their peers."[17] Furthermore, the industry's historical average earnings before interest and taxes (EBIT) margin over the last 10 years was 12.75%. The industry EBIT margin was highly impacted by the 2009 U.S. recession, as industry averages fell below 11% before rebounding to a peak of 14.25% in 2014.[18]

Retail

According to a 2016 Mintel Market report, the U.S. clothing industry generated revenue of $239.9 billion in 2015, representing a 4.1% year over year growth rate. This sector was forecasted to experience a 2.9% compound annual growth rate (CAGR) through 2020, reaching $284.3 billion, with increases in spending per capita of the U.S. population and increases in the consumer price index driving many of the advances.[19] The U.S. clothing market has three main segments: women, men, and children. The following values reflected sales and growth between 2008 and 2015:

- Women comprised 53.3% of industry sales, growing at 1.71% CAGR.
- Men comprised 27.4% of industry sales, growing at 2.49% CAGR.
- Children comprised 19.3% of industry sales, growing at 1.51% CAGR.[20]

[13] U.S. Department of Health and Human Services, "Preventing PICC Complications: Whose Line Is It?" U.S. Department of Health and Human Services website, https://psnet.ahrq.gov/webmm/case/289/ preventing-picc-complications-whose-line-is-it, accessed January 26, 2017.

[14] The Traux Group Healthcare Consulting, "January 21, 2014 The PICC Myth," The Traux Group Healthcare Consulting website, http://www.patientsafetysolutions.com/docs/January_21_2014_The_PICC_Myth.htm, accessed February 12, 2017.

[15] "Industry Market Research - [424330] Women's, Children's, and Infants Clothing and Accessories Merchant Wholesalers." *Bizminer*. November 2016. http://reports.bizminer.com/temp/pdf/6533411560.pdf, accessed June 2, 2017.

[16] Ibid.

[17] Tuna N. Amobi, "Industry Surveys – Textiles, Apparel & Luxury Goods," *CFRA*, January 2017. https://gskkr.files.wordpress.com/2015/01/apparel-footwear-retailers-brands.pdf, accessed January 23, 2017.

[18] Ibid.

[19] Diana Smith, "Women's Clothing: US, May 2015," Mintel Group Ltd., http://www.mintel.com, accessed January 2017.

[20] Ibid.

A high volume of suppliers, brands, and retailers fragmented the women's clothing market. The Mintel report identified an opportunity for companies to focus on women between the ages of 18 and 34, as this market segment was the most engaged and involved in shopping for fashion. Furthermore, the report suggested, "the notion of self-gifting is a ripe opportunity for marketers that can tap into both rational and emotional mindsets. Nearly one in three bought clothing as a treat or reward, and this can be amplified through direct marketing communication." The highest concentration of women purchasing clothing as a self-gift was within the age range of 35–44, as 42% of respondents stated they purchase clothing as a treat or reward.[21]

The U.S. women's retail sector continued to see a shift in purchasing trends, moving from in-store purchases at traditional brick-and-mortar locations to online e-commerce purchases. In 2015, 24% of women purchased clothing directly through Amazon, with 66% of women having purchased at least one article of clothing online. This trend had risen 300 basis points, up from 63% in 2013.[22]

Successes to Date

During the summer of 2016, MassChallenge accepted Emily's venture as one of 128 ventures, out of over 1,700 applicants; MassChallenge was a global startup accelerator for early stage entrepreneurs that did not receive an equity position from companies in exchange for their participation in the program. While in this program, Emily began to rebrand her company and implement a marketing strategy to transform the company from a single-product identity with the PICCPerfect cover to a comprehensive consumer brand for patients, caregivers, and health professionals. The transformation not only included branding, changing her company name from PICCPerfect to MightyWell™, but also a number of new products scheduled to launch in 2017–2018 that included PortPerfect™, for patients undergoing chemotherapy, and PillPerfect™, a new version of a pill box.

Months later, in September, MightyWell™ entered the Babson Breakaway Challenge, a business competition sponsored by CWEL at Babson College and Breakaway, a Boston-based brand capital firm. This competition promoted gender parity and awards $250,000 in convertible debt to women entrepreneurs and ventures with consumer-facing businesses. MightyWell™ was one of 23 semifinalists, then one of five finalists, and subsequently became the 2016 winner of the Babson Breakaway Challenge. In addition to the funding, Emily received in-kind business services that included TV and digital advertising campaigns, print media campaigns, legal services, and use of shared workspaces. Upon receiving the $250,000 in convertible debt funding, she also gained access to a team of experienced branding experts who continued to mentor and help her navigate MightyWell™'s transformation and growth.

Moving Forward

Emily was proud of her achievements and the journey she had started years earlier. While she saw the benefits of expanding and diversifying via new product lines, she questioned what types of products made sense. Emily worried that expanding too quickly might lead her to neglect her current emerging product and existing customer base. Could she manage all these elements at once? Could she successfully grow MightyWell™ in the next 12 months while ensuring the long-term sustainability for her company?

Discussion Questions

1. What are the advantages and disadvantages of adding new product lines?
2. If she goes forward, how would you advise Emily to identify these lines?
3. What criteria should she use in deciding what products to add?
4. How can Emily balance expanding her existing base of PICCPerfect customers while educating new markets of customers with other medical needs?
5. Does a hybrid market opportunity exist for MightyWell™'s wellness wear?
6. What are the positives and negatives for the way in which Emily has bootstrapped her company up to this point?

[21] Ibid.
[22] Ibid.