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Chapter 5

Entrepreneurship, Innovation, and Sustainable Business

Introduction

"We can't solve the world's problems by using the same kind of thinking we used when we created them."

–Albert Einstein

LEARNING OBJECTIVES

1. Discuss what is meant by entrepreneurship and why it is important to sustainable enterprise.
2. Discuss the relationship between innovation and sustainable business.
3. Understand the key factors affecting entrepreneurial viability.
4. Explain the different motivations for sustainable business entrepreneurs.
5. Discuss the main challenges facing entrepreneurs.

Today's world faces significant challenges. This includes environmental challenges, such as climate disruption caused by man-made greenhouse gas emissions, and societal challenges, including rising income inequality and other forms of **social injustice**¹. There are several ways that businesses are responding to these challenges. Some organizations are accepting deteriorating environmental, economic, and social conditions and are managing through the decline by adapting to limitations. Other organizations speak to the need to make choices between what is good for the environment and society or doing what is good for the economy. However, there are also more proactive, positive responses, including ones that champion business as a force for positive societal change.

1. A situation where there is unfair and unethical treatment of all and not everyone receives a fair share of society's benefits.

Sidebar

Entrepreneurs Find Solutions to Societal Problems

“Deep down, philosophically, we believe that most problems in society—most environmental problems—exist because business hasn’t made their solutions a priority,” says Gary Hirshberg, founder and CEO of Stonyfield Yogurt. “Our idea is that these problems will go away only if business makes finding solutions a priority.”

Addressing ecological and social concerns can create business opportunities that benefit both the economy and society. This is one of the core philosophies of sustainable business practices and a focus of this textbook. Sustainable businesses can help address society’s concerns while providing profit-making opportunities for business owners.

Sustainable business is in large part about changing business practices. Successful sustainable businesses are focused on the creation of new products, services, or practices that address or mitigate environmental and social concerns in new ways. Success in implementing sustainable business practices relies on **entrepreneurship**² and **innovation**³.

Entrepreneurship and innovation are relevant in many different sustainable business contexts. They are fundamental for the success of start-up companies that are providing innovative solutions to meet environmental or social challenges. Entrepreneurship and innovation are also highly relevant for established businesses. This applies all the way up to multinational companies, such as General Electric (GE) or Microsoft, and all the way down to small- to medium-sized companies, such as Timberland, Green Mountain Coffee, Oakhurst, and Stonyfield (which are highlighted in cases in this textbook).

Companies undertake **sustainability entrepreneurship**⁴ for a variety of reasons, including to enhance their brand name and reputation and to benefit financially by being market leaders in business practices that reduce environmental and societal impacts in their sphere of operating influence. They also engage in sustainability entrepreneurship to affect positive societal change.

2. The act of starting a new business or revitalizing the business activities of an existing, mature organization.
3. A change in a product offering, service, business model, or operations that meaningfully improves the experience of a large number of stakeholders.
4. The act of starting a new business or changing an existing business with a specific focus on a new product or service that contributes toward increasing sustainability.

This chapter provides an overview of entrepreneurship and innovation as it relates to sustainable business and specifically focuses on entrepreneurial innovators who forge new paths and break with accepted ways of doing things in new or existing businesses. The chapter begins by discussing some broader topics related to entrepreneurship and innovation and then relates these concepts in a sustainable business context.

5.1 Overview of Entrepreneurship

LEARNING OBJECTIVES

1. Discuss what is meant by entrepreneurship.
2. Discuss the relationship between opportunity and entrepreneurship.
3. Understand the key factors affecting entrepreneurial viability.
4. Explain the different motivations for entrepreneurs.
5. Understand what intrapreneurship is and how it relates to entrepreneurship.
6. Discuss the challenges facing entrepreneurs.

What Is Entrepreneurship?

Entrepreneurship is to a large degree a mind-set, always striving to do new things in an innovative and better way. The meaning of entrepreneurship is derived from the French seventeenth-century term for someone who “undertakes” and more specifically someone who undertakes a specific project or activity. In the nineteenth century, the French economist Jean Baptiste Say refined the meaning of entrepreneurship to individuals who create value by shifting resources from lower- to higher-valued activities. The higher value activities can be activities that bring value to both individuals and society.



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It is the twentieth-century thought on entrepreneurship from Joseph Schumpeter, an Austrian born and then Harvard University-based economist and sociologist, which has most influenced contemporary thinking about entrepreneurship. In Schumpeter’s view, entrepreneurs are innovators who drive the “**creative destruction**⁵” process, reforming or revolutionizing the pattern of production. In many respects, sustainable businesses are significantly changing, if not revolutionizing, the patterns of production and service delivery, transforming business practices in ways that benefit the environment and society.

5. A description of the overall lifecycle of business in which technologies, goods, and services are constantly being replaced by new technologies, goods, and services with the result of making the economy stronger and society better off.

Sidebar

More Than Half Million New Businesses a Month Created in the United States

According to the Kauffman Index of Entrepreneurial Activity, Ewing Marion Kauffman Foundation, “Jobless Entrepreneurship’ Tarnishes Steady Rate of U.S. Startup Activity, Kauffman Study Shows,” news release, March 7, 2011, <http://www.kauffman.org/newsroom/jobless-entrepreneurship-tarnishes-steady-rate-of-us-startup-activity.aspx>, a leading indicator of new business creation in the United States, 3.4 of every 1,000 American adults created a business per month in 2010, or 565,000 new businesses, a rate that remained consistent with 2009 and represents the highest level of entrepreneurship over the past decade and a half.

Another helpful view of entrepreneurship is provided by the twenty-first-century management scholar Peter Drucker. Drucker suggests that entrepreneurs always search for change, respond to it, and exploit it as an opportunity. Entrepreneurs take risks in starting new activities and take on significant personal responsibility. Many sustainability entrepreneurs perceive opportunities emanating from increased public concern about the environment and climate disruption and are responding to this opportunity with profit-making ventures that address these concerns.

Putting these perspectives together, entrepreneurship can be viewed as

- recognizing change,
- pursuing opportunity,
- taking on risk and responsibility,
- innovating,
- making better (higher value) use of resources,
- creating new value that is meaningful to customers,
- doing it all over again and again.

And entrepreneurship is an attitude and drive to pursue opportunity and create something new and of value.

Entrepreneurial Opportunities

Many different conditions in society can create **entrepreneurial opportunities**⁶ for new goods and services. Opportunity conditions arise from a variety of sources. At a broad societal level, they are present as the result of forces—such as changes in knowledge and understanding, the development of a new technology, shifting demographics, political change, or changing attitudes and norms—that give rise to new preferences and concerns. These forces constantly open up new opportunities for entrepreneurs.

Related to sustainability concerns, certain demographic shifts and pollution challenges create opportunities. For example, with 50 percent of the world's population, for the first time in history, now living in urban areas, city air quality improvement present opportunities for entrepreneurs.

The entrepreneur must first recognize the opportunity and then innovate by proposing a business solution that provides an attractive alternative to customers. A solution is just the first step in the process, the entrepreneur must also investigate the economic value of and business proposition emanating from that opportunity. They must research the market to understand how their potential product or service provides value to a customer and whether the amount a customer is willing to pay, which reflects the value of the product or service to the customer, exceeds the costs to provide that value, product, or service to the customer. In this way, the entrepreneur is contributing to economic growth and society by providing customers with goods and services whose costs to provide are less than their value to consumers.



Urban Congestion

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6. Opportunity for new goods and services, which are present as the result of forces—such as changes in knowledge and understanding, the development of a new technology, shifting demographics, a political change, or changing attitudes and norms—that give rise to new preferences and concerns.

An entrepreneur can come up with a new approach that meets a customer's need or want, but if not enough customers are willing or able to pay a price above the cost of that product or service, it will not be financially viable. Therefore the opportunity becomes a true business opportunity when it is of sufficient scale and value—that is, revenues will cover costs and promise to offer net revenue above operating costs after the initial startup investment expenditures are repaid.

Entrepreneurial Resources

Successful entrepreneurial efforts require the mobilization of a wide array of resources quickly and efficiently. All entrepreneurial ventures have to have resources such as **capital**⁷, talent and know-how (e.g., accounting and finance, operations, management, legal, and regulatory), equipment, and facilities. Breaking down a venture's required resources offers a picture of the components required and when they are needed. Resource needs change over the growth stages of a venture; at each stage, the entrepreneur should be clear about the priority resources that enable moving to the next stage of venture development.

While management teams must be recruited relatively quickly, typically there are one or two individuals who initially drive the entrepreneurial process through hard work and determination to succeed. As the business grows, the business team becomes the key factor. The entrepreneur's skills, education, and capabilities must be augmented and complemented by the competencies of other team members.

It is essential to have adequate financial resources when starting any new entrepreneurial activity; this is no different for sustainable business activity. Funding can come from a variety of sources including personal savings, credit lines of entrepreneurs, family members, friends, and other sources. Depending on the type of business, venture capital or other investors may be an option. Typically, a company might acquire investors if there are expectations for high growth in the industry. **Clean technology**⁸ is an industry sector that can potentially attract investors for this reason.

All the previously stated resources in the entrepreneurial process are important, but the single most important factor is the individual entrepreneur—that is, their ability to identify a market opportunity and develop a creative response to that opportunity with market potential, to get a product or service out, to sell to customers, to organize an organizational team, and to garner the confidence of potential investors. Entrepreneurs must have passion, drive, excitement, and unique capabilities to do what they do.

Entrepreneurship is not constrained to starting a private for-profit company. While the definition of entrepreneurship is commonly assumed to be individuals creating new for-profit enterprises and pursuing private benefit, entrepreneurship and entrepreneurial innovation can occur in a variety of settings including small or large companies, nonprofits, and government agencies. And entrepreneurship can be focused on a local, national, or global marketplace. The Simply Green case in this textbook is focused on a sustainability entrepreneur serving a local market. [Chapter 13 "Case: Strategic Mission-Driven Sustainable Business: Stonyfield Yogurt"](#) tells

7. An input to entrepreneurial activities and that in this context refers to financial resources or assets to support the business activity.

8. Products or services that reduce energy consumption or environmental impact. Examples include renewable energy, green chemistry, and energy efficient transportation.

the story of Gary Hirshberg, the highly successful Stonyfield Yogurt entrepreneur competing in a global market with a sustainability mission. Entrepreneurship focused on bringing value to society is often referred to as **social entrepreneurship**⁹, while entrepreneurship focused on individual and private enhancement of value is simply called entrepreneurship.

Why Do Entrepreneurs Do It?

The only factor found to be associated consistently with becoming an entrepreneur is that one or both of your parents were entrepreneurs. [citation redacted per publisher request]. This suggests that if the entrepreneurial path is familiar to you, then you are more likely to follow that path yourself.

Beyond having the common trait of having parents who were entrepreneurs, there are many personal reasons why individuals decide to become entrepreneurs. Becoming an entrepreneur can be motivated by personal interests and values, the prospects of financial rewards, or lifestyle preferences. It is also sometimes driven by “necessity” when there is a paucity of other employment or income-earning opportunities.

The motivations for being an entrepreneur include the ability to pursue a passion or interest that is exciting and one feels deeply about. It can include the opportunity to create something new, enhance one’s personal reputation, and make an impact or a difference in customers’ and employees’ lives and in society in general. All of these are motivations for many sustainability entrepreneurs.

The motivation for becoming an entrepreneur can also be driven by a desire to be independent, to be your own boss, to make your own decisions, and to make your own schedule. This moves into the so-called lifestyle motivations for being an entrepreneur—to have a more flexible work schedule that allows time for other activities including more time for family and recreational and creative pursuits.

Intrapreneurship

While entrepreneurship is normally thought of as starting a new business, it applies to applying innovation to existing organizations. Often, this type of entrepreneurial activity is distinguished as intrapreneurship (meaning entrepreneurship from within). **Intrapreneurship**¹⁰ applies the entrepreneurial mindset characterized by innovation, risk taking, and flexibility to an established firm. The objective is to enhance the ability of an established firm to react to market opportunities in a timely and effective manner much like start-up ventures do. Large established companies like General Electric (GE) often encourage intrapreneurship to foster

9. Individuals who act as an agent of change for the society. They take innovative approaches to existing systems to develop sustainable solutions for the purpose of changing society for the better.

10. Applying entrepreneurship in an existing organization.

innovation and accelerate new product development, to take advantage of a new opportunity, or to assess feasibility of a new process or design.

Sidebar

Jack Welch at GE: An Industry Leader as an Intrapreneur

Some of the greatest business leaders of the past century made their early mark in business as intrapreneurs. For example, former General Electric (GE) chairman Jack Welch made a name for himself by building GE's engineering plastics business as if he were starting his own company.

GE invested about \$1.8 billion in 2010 on research and development of clean technologies. This investment helped lead to the development in 2010 of twenty-two new products and solutions such as WattStation, a user-friendly charging station designed to accelerate the adoption of plug-in electric vehicles, and Nucleus, a smart meter technology that helps homeowners manage energy use. The program called "ecomagination" is a competitive force for growth across GE's businesses. With \$85 billion in sales and services since 2005, ecomagination is a business strategy that represents an area of continued strength for the company. GE's ecomagination report is available at <http://www.ecomagination.com/progress>.

Entrepreneurial Risk and the Importance of Resilience and Persistence

Being a successful entrepreneur is not easy and there is no guarantee of success. It requires broad competence across a range of functional areas—including finance, accounting, strategy, marketing, management and operations, and strong interpersonal skills. There are also significant risks and significant likelihood of failure. Part of being an entrepreneur is assessing and managing risk.

Also part of being an entrepreneur is being resilient and persistent. As an entrepreneur, there will always be challenges and difficult times and being able to endure through the tough times and being persistent in working to achieve success is critical for entrepreneurs. Remember that even Steve Jobs got removed from his position at Apple before he came back to transform the company with the introduction of innovative new products including the iPod, iPhone, and iPad.

Sidebar

What Is a Business Plan?

A business plan for an entrepreneur, in its simplest definition, will define where the entrepreneur expects the business to be within a certain period of time and how the entrepreneur plans on getting there. It can serve as an effective tool to manage entrepreneurial risk. It should include details about financing, target market and customers, competitors, and organizational development, including staffing. A business plan is for starting a business as blueprints are for building a home—they are essential.

More business start-ups fail before four years than make it to their fifth year according to the US Small Business Administration. The risks and failures can come from internal factors—such as limited access to funding, poor planning and decision making, or the idea just simply being a bad idea for a business. Failure can also be a result of external factors beyond the entrepreneur's influence, such as weak economic conditions and changing public policies, that can have profound market implications. Also with entrepreneurship—and with ownership, independence, and decision-making authority—comes significant responsibility and the potential for high personal stress and possible burnout.

While this chapter highlights several entrepreneurial success stories, it is important to understand that not all ideas for businesses are good business opportunities. Potential customers have to perceive that the product has value to them (above its cost and better than the products or services provided by competitors) and have the means and desire to purchase it. Furthermore, the pricing options have to cover expenses, and funds have to be available to finance the start-up of the business before revenue from sales cover expenses. These various dimensions must be explored rigorously before a business is launched. While business plans can serve multiple purposes, the first and most important reason for writing a business plan is to test whether an idea is truly an economically promising market opportunity.

KEY TAKEAWAYS

- Entrepreneurship is the introduction of a new product or service through the creation of a new company or the innovation of an existing organization.
- Entrepreneurs search for change, respond to the change, and seize on the change as an opportunity.
- Entrepreneurship requires hard work, dedication, passion, resilience, and persistence.
- Entrepreneurship is to a large degree a mind-set, always striving to do new things in an innovative and better way.
- Entrepreneurs require access to capital, equipment, land, talent, and business know-how.
- Intrapreneurship refers specifically to entrepreneurial activity that originates from within an existing company.
- The key elements of entrepreneurial success include recognizing change, identifying market opportunities inherent in that change, and delivering value to customers by addressing customer needs or problems associated with the change.

EXERCISES

1. Search online for a recent article discussing an entrepreneurial venture, a start-up company. Describe the venture, the motivation for the start-up, and the background of the entrepreneur.
2. Reflect on your personal experiences. Have you had personal experience with an entrepreneur or have you thought about starting your business?
3. Search online for an article about sustainability entrepreneurship in an existing business. Write a paper discussing the activity, the role that innovation and entrepreneurship played in the activity, and the tangible business benefits the company experienced from the new sustainability activity.

5.2 The Keys to Successful Sustainability Entrepreneurship

LEARNING OBJECTIVES

1. Understand the role of entrepreneurship in sustainable business.
2. Discuss what is meant by providing value to customers and how this concept applies to sustainability practices.
3. Understand what is meant by social entrepreneurship.

All the factors that are important to the entrepreneur in a standard business are critical to the successful sustainable business. Sustainability entrepreneurship builds on the basics of entrepreneurship and extends it to encompass addressing ecological and social concerns through the creation of new enterprises and innovation in existing enterprises.

Sustainable businesses *recognize change* in the form of the increased scientific evidence about the effects of ecological disruption on human populations and the environment and increasing evidence of rising social inequities that are disruptive to the business environment and global society. Sustainable businesses recognize change by understanding that the consuming public is becoming increasingly concerned about these challenges to a sustainable world.

These changes create *market opportunities* for sustainability-focused businesses. The market opportunity includes the opportunity to address concerns about sustainability by providing new products and services that reduce energy and natural resource use.

Sidebar

Stonyfield Yogurt: Tapping into Consumers Taking Responsibility for Their Health and for Society

Stonyfield's "Everybody Must Get Stonyfield," *Reveries*, June 2002, http://www.reveries.com/reverb/cause_marketing/hirshberg/index.html. start-up years were 1983 to 1987—before the era of broad interest in organic agriculture and products. The company tapped into the post-1960s, maturing baby boomer generation. "People were looking to take greater responsibility for their own health and also wanted to have their purchases count for something more than just a purchase," says Gary Hirshberg, the company's CEO. "They liked the idea that their grocery dollars could go to causes that they cared about." Ten percent of Stonyfield's profits are donated, primarily to environmental causes.

Stonyfield Farms has been a success on an international basis by many different measures. By the time Groupe Danone, S.A., a French conglomerate, purchased a 40 percent stake in the company in October 2001, Stonyfield had \$80 million in annual sales and was America's number four brand of yogurt. The company in 2010 exceeded \$100 million in annual revenue and is expected to rank number three nationwide in yogurt sales very soon. Underneath it all, Gary Hirshberg says, is the constant creation of new strategies. "We never knew what was really going to work because there were no models for us," he explains. "We led with the only things we really knew—our yogurt and our causes."

The opportunities to address sustainability concerns are worth pursuing if new ways of addressing the concerns can be conceived and delivered in ways that bring net value to significant numbers of consumers in the marketplace. A key for successful sustainability entrepreneurs is to make sure that the new way of doing things they create provide value to their potential customers.

An example of the value from a better and more sustainability-oriented product coming from an entrepreneur can be seen with the Nest Learning Thermostat, also known as the Nest (<http://www.nest.com/reviews>). Thermostats and even programmable thermostats have been around for a long time. But they have been hard to use and hard to achieve energy efficiency with. The Nest thermostat was created by Silicon Valley start-up Nest Labs, whose cofounder Tony Fadell used to

be in charge of iPods at Apple and wanted to start up a venture to fill an unmet need. And not surprisingly, the Nest thermostat has been described as the thermostat that Steve Jobs would have loved and the thermostat can be accessed and set using the iPhone and iPad.

The innovative thermostat learns from household behavior and automatically programs the thermostat settings to reflect household routines and preferences to achieve maximum energy efficiency. The Nest thermostat adjusts to household patterns. The Nest thermostat gets smarter over time based on the way households raise or lower the temperature and how household members come or go at different times. In a week's time, the Nest thermostat will automatically turn down heating or cooling when household members are not around. The Nest product was introduced in 2011, and in early 2012, the company was sold out and could not meet demand for its product even though the price was well above conventional and other programmable thermostats.

Consumers that purchase a Nest thermostat pay a premium above the cost of conventional thermostats due to the higher cost of the technology in the Nest product. The benefit consumers derive is that over time they can more effectively and more easily manage their home heating and cooling, use less energy, and reduce their costs and greenhouse gas emissions. Customers receive value in lowered costs and the personal satisfaction of knowing that their carbon footprint has been reduced, and they can also demonstrate their environmentalism to visitors in their home. A bit of conspicuous conservation can help sell "cool" new products like the Nest.

Sidebar

Making the World a Better Place with Invention and Entrepreneurship

To understand why Tony Fadell is building the world's most high-tech thermostat with a team that includes several former iPod and iPhone engineers and an artificial intelligence researcher who's won a MacArthur Genius Grant award, you have to imagine that you're him: flush with cash after nine years leading mobile devices at Apple, and wandering the world with your family. You've just spent six months in Paris on a whim. You're building an ultra-green home in Lake Tahoe, with a \$15,000 heating and cooling system. When your architect shows you the archaic \$350 thermostats that control the system, you're not only genuinely offended by their lack of innovation, but you have the ability, time, and means to make your own.

The amazing thing about Tony is that he tells this story as though it's the most natural thing in the world—as though anyone faced with a similar set of circumstances would immediately start trying to build a thermostat. Actually, that's not the amazing thing. The amazing thing is that after a while you start to believe him.

“Most thermostats are built by plumbing companies,” Fadell tells me. “But you really need to understand how to build a phone to make them better.” His pitch to Nest co-founder Matt Rogers and their other team members was simple: a breakdown of how much energy a thermostat controls (50 percent in a typical home), the size of the potential market (150 million residential thermostats in the US alone, and another 100 million commercial units) and how much technology would be needed to make an impact (lots). “In a span of 25 to 30 seconds people are like ‘how couldn't I do this?’” It's 20 minutes into our meeting and now I'm fired up about thermostats too. Let's change the world, one leaf icon at a time.

Source: Nilay Patel, “Inside the Nest: iPod Creator Tony Fadell Wants to Reinvent the Thermostat,” *The Verge*, November 14, 2011, <http://www.theverge.com/2011/11/14/2559567/tony-fadell-nest-learning-thermostat>.

Since there are always people pursuing market opportunities, to be a successful entrepreneur requires constant innovation and effort, continuously figuring out new ways to service customers' needs and wants in cheaper, faster, and better ways. That is what Tony Fadell's Nest efforts are all about. The opportunities to address sustainability concerns are worth pursuing if new ways of addressing the concerns can be conceived and delivered in ways that bring value to a significant numbers of consumers in the marketplace and that are capable of generating revenues higher than costs over time for the enterprise.

Entrepreneurship as a mind-set, or kind of behavior, lends itself well to sustainable business practices. For sustainable business practice, entrepreneurship is about constantly looking for innovative ways to protect the environment or improve societal conditions by providing new goods, services, or methods that reduce detrimental activities while also generating profits for the entrepreneur. By always thinking about doing things in new and better ways, entrepreneurship is highly relevant to individuals and organizations interested in sustainability.

From the business perspective, entrepreneurship and an entrepreneurial mind-set can be advantageous. It can allow for quicker response to market opportunities, such as those emerging for sustainable business. It can also allow for the ability to focus on particular customers, such as the households most interested in minimizing their environmental footprint even if that means having to purchase a product or service at higher cost than a similar product or service.

Sidebar

The Entrepreneurial Process of Sustainable Entrepreneurs

Choi and Gray David Y. Choi and Edmund R. Gray, “The Venture Development Processes of ‘Sustainable’ Entrepreneurs,” *Management Research News* 31, no. 8 (2008): 558–69. examined the entrepreneurial processes of sustainable entrepreneurs. They identified successful sustainable entrepreneurial companies in various industries ranging from apparel to biotechnology that were exemplary in their pursuit for sustainability. They examined their key decisions and activities in their “entrepreneurial process,” collecting most of the relevant information from published or self-developed case studies. They found that most sustainable entrepreneurs are an unusual breed with limited business backgrounds. Most obtain financing from nonconventional sources and employ unorthodox, yet sound, human resource management practices. They are shrewd in their marketing strategies and effective in running efficient, environmentally sound operations. Also they find innovative methods for balancing their financial goals against their objectives of making a difference in their environment and society.

International Entrepreneurship

China is the “place to be” for many clean technology companies. China is the fastest-growing market for all products and services and also for wind and nuclear power. It is the leader in solar power modules. In addition, the nation has a commitment to expand in the development of electric vehicles and carbon capture from coal plants.

With markets for sustainability goods and services in China and in some other nations growing faster than in the United States, there are significant opportunities and incentives for international entrepreneurship. This can, however, be very challenging, particularly for small start-up ventures. To enter global markets requires knowledge of different laws and regulatory requirements and also of foreign exchange. It also requires knowledge of historical, economic, political, social, and cultural differences among nations.

In China, for example, contracts are more of a memorandum of understanding than a legal binding contract. Business arrangements are commonly built on the foundation of a relationship instead of the law. Chinese companies are used to a

rapidly changing business environment. They expect their business partners to be flexible to deal with changing conditions as they occur. This can be a good match for the entrepreneurial mind-set but difficult for entrepreneurial ventures relying on relations and “changing on the ground” while they are physically located thousands of miles and many time zones away from the Chinese market. Also for sustainable business ventures introducing new technologies, China can be a particularly difficult environment for protecting intellectual property. This issue has kept many technology companies from doing business in China. There is a real possibility that Chinese competitors will copy a Western product and nullify the patent or other intellectual property that is protected by law in the home country. Some entrepreneurs might not take this as a barrier. An example is if a US software company operating in China actually tracked down the hackers that had been infiltrating their system and talked them into joining their team as security experts. This is an example of an entrepreneurial company turning a threat into an international market opportunity.

Most entrepreneurs, especially first-time and relatively inexperienced entrepreneurs, would benefit from first focusing on home markets before entering global markets. The challenges of entrepreneurship are hard enough without also trying to figure out entry into global markets. Yet the reality is that China’s and other nations’ high growth rates and large populations make it an important market for sustainable products and services. Before engaging in global markets, however, entrepreneurs must prepare and recognize how global markets vary and how they may require different strategies and practices. If done right, the Chinese and other global markets could be significant opportunities for entrepreneurs focused on sustainability.

Social Entrepreneurship

Many of the for-profit entrepreneurs engaged in sustainable businesses might be characterized as social entrepreneurs—enterprising individuals who apply business practices to addressing societal problems, such as pollution, poor nutrition, and poverty, and are interested in social change. **Social change**¹¹ involves social processes whereby the values, attitudes, or institutions of society, including businesses, become modified. It includes both the natural process and action programs initiated by members of society. Entrepreneurship can be a process that contributes to social change.

Many social entrepreneurs are engaged in nonprofit organizations. An example is Kiva (<http://www.kiva.org/about>), a nonprofit organization with a mission to connect people through lending to alleviate poverty. Leveraging the Internet and a worldwide network of microfinance institutions, Kiva lets individuals lend as little as \$25 to help create opportunity around the world. Since Kiva was founded in 2005,

11. Process in which values, attitudes, and institutions of society are changed.

it has engaged nearly six hundred thousand lenders worldwide providing more than \$200 million in loans to microenterprises in sixty different countries.

Sidebar

Profile of a Successful Social Entrepreneur

Jessica Jackley was a cofounder of Kiva, the world's first person-to-person microlending website. Jackley and Matt Flannery founded Kiva in October 2005. Jessica obtained an MBA from the Stanford Graduate School of Business, with certificates in public and global management, as well as a BA in philosophy and political science from Bucknell University.

Social entrepreneurs engaged in for-profit ventures are concerned with creating shared value—for their companies and also for society. Creating both private and societal value aligns well with the interests of the large percentage of consumers. Edelman (<http://www.edelman.com>), the public relations firm, has identified that 87 percent of Americans believe that companies should place at least as much value on societal interests as on business interests. And many thought leaders on entrepreneurship have recognized the potential of social enterprises. For example, Bo Fishback, vice president of entrepreneurship at the Kauffman Foundation in Kansas City believes that “it’s not all pie in the sky....Many social entrepreneurs have shown they can accomplish their mission....They can deliver a social good and report a positive cash flow.” Stacy Perman, “Making a Profit and a Difference,” *Businessweek*, April 3, 2009, http://www.businessweek.com/smallbiz/content/mar2009/sb20090330_541747.htm.

The concept of building a profitable business model in which doing good and contributing to social change is an intrinsic part of the business and not just a sideline has been gaining ground in recent years. Social entrepreneurs total more than thirty thousand and are growing in number, according to B Lab, a nonprofit organization that certifies these purpose-driven companies. Together, they represent some \$40 billion in revenue.

Sidebar

Certified B (Benefit) Corporation

Certified B (Benefit) Corporations are a new type of corporation that use the power of business to solve social and environmental problems. B Corps (<http://bcorporation.net/about>) are unlike traditional businesses because they meet comprehensive and transparent social and environmental performance standards and meet higher legal accountability standards.

Sidebar

Private Foundation Support for Social Entrepreneurs

The idea of blending a social mission with business is not new. One of the founding forces behind the movement, the Ashoka Foundation (<http://www.ashoka.org>), since its inception in 1981, has granted multiyear living stipends to support more than two thousand fellows dedicated to finding answers to a host of social ills through business ventures.

Examples of Sustainability Entrepreneurs (from the Textbook Case Studies)

Case chapters in the textbook document sustainable businesses and how they addressed consumer concerns about ecological and social matters in new ways across different industries. An entrepreneur was the key driver in four of these cases. Simply Green, Green Mountain Coffee, Seventh Generation, and Stonyfield Yogurt have provided fuel, coffee, household products, and yogurt to customers, respectively, with product options that have lower carbon and environmental footprints and higher attention to social justice. We summarize one of the case examples and its founder entrepreneurs here.

Green Mountain Coffee Roasters (GMCR)

Bob Stiller opened his first coffee shop in 1981 in Waterbury, Vermont, selling high-quality coffee. His concept was simple: sell only high-quality coffee to ordinary people every day. When demand for his coffee outstripped his small store, he started bagging his coffee and sold it to wholesalers, supermarkets, and through mail order. Then recognizing and experiencing the challenges brought on by fierce competition in the specialty coffee segment of the industry, Stiller became an early advocate that his business—and all businesses for that matter—could help make the world a better place by committing to sustainable business practices. Green Mountain Coffee Roasters (GMCR), under Stiller's entrepreneurial leadership, saw an opportunity to create a competitive advantage by embedding sustainability in its products and practices. Stiller was passionate about this commitment and was convinced that this would lead to financial success. By adopting innovative sustainable business practices, GMCR met customer demand while having a positive impact on the environment and society. GMCR implemented a fair trade procurement model that improved the quality of life for the farmers in the coffee bean supply chain and their families. At the same time, fair trade helped GMCR monitor quality and lower costs. By lowering dependency on traders and other supply chain intermediates in procuring its coffee, the company lowered supply chain costs and was able to respond more quickly to customer preferences. The company's entrepreneurial success is seen in Green Mountain's stock price with \$100 invested in company stock in September 2004 valued at \$1,600 by March 2009. In 2009, the company was listed as number eleven on *Fortune's* "100 Fastest Growing Companies" and number five in *Forbes's* "Best Small Companies." The company sales and net income for year-end 2009 were \$803 million and \$55.8 million, respectively.



Source: Wikimedia,
<http://commons.wikimedia.org/wiki/File:Salvadorcoffeegrower.jpg>.

KEY TAKEAWAYS

- Addressing environmental and social concerns can create business opportunities that can benefit the economy and society.
- Successful sustainable businesses are focused on the creation of new products and services that address ecological and social concerns in new ways.
- Sustainability entrepreneurship can involve starting a new business or creating a new product or service in an existing business.
- Sustainable entrepreneurship can impact companies of all sizes, from the very small to the world's largest.
- The entrepreneur is the key driver in sustainability efforts at both new and established companies.
- To be successful in sustainable business practices often requires entrepreneurship and innovation.
- Social entrepreneurship specifically utilizes a business as the vehicle to tackle a societal problem.
- Green Mountain, Stonyfield, and Oakhurst all provide examples of how entrepreneurship led to innovation in regards to sustainability at existing organizations.

EXERCISES

1. Generate a list of possible sustainable new business opportunities that you might be interested in undertaking. What innovations are critical to the success of each of the new business opportunities that you identified?
2. In the sidebar on Peter Drucker's interpretation of entrepreneurship (from [Section 5.1 "Overview of Entrepreneurship"](#)), discuss how that view applies to sustainability entrepreneurship.
3. Search for a blog on social entrepreneurship. Write a paper reflecting on what you learn from the blog and answer the question, "Why do you think social entrepreneurs do what they do?"

5.3 Innovation and Sustainability

LEARNING OBJECTIVES

1. Understand the role of innovation in sustainable business.
2. Discuss the relationship between technology and innovation in sustainable business.
3. Discuss the relationship between social networks and innovation in sustainable business.

Innovation in business involves a change in a product offering, service, business model, or operations that meaningfully improves the experience of a large number of stakeholders. There are two particularly important words in the previous definition—“meaningfully” and “stakeholders.”

Sidebar

Apple: The World’s Leading Innovating Company

Consistently since 2006, *Fortune* surveys have ranked Apple number one in innovation and the company is also frequently mentioned as the most admired company in the United States. In August 2011, Apple also became the world’s most valuable company at \$349 billion based on stock market valuation. Apple’s innovations have revolutionized the way we use computers and phones and play music and movies. One innovation in particular, the iPod was the start of a trend of products with broad consumer market appeal. The iPod combined technical knowledge with a new online music concept to become the most influential new product in decades. That was followed by Apple’s introduction of the iPhone and iPad. All these products combine technological innovation with attention to design, usability, and content delivery in new and innovative ways to transform the way billions of consumers use music, use their phones, use their computers, and access the Internet.

If a company redesigns its packaging to be more environmentally friendly, that’s a change. It’s new. But does it *meaningfully* reduce the materials and energy use of

consuming or using the product? There are many types of changes that can be made, but the question of whether it's an innovation rests on how significantly it improves what is being targeted to be improved. This aspect of the definition raises the bar to avoid classifying meaningless changes as innovations. What is meaningful is contextual on a per innovation basis.

And for an **invention**¹² to be more than something new and creative, it should have broad impact. The term *stakeholders* acknowledges that the beneficiaries of an innovation can vary widely—consumers, shareholders, employees, and any subset thereof. All of these stakeholders can potentially benefit from different types of innovations meant to address sustainability.

Responding to an opportunity often requires innovation; for example, finding a new way to solve a problem or address a concern that is cheaper, faster, or better than the old way of doing things. The innovation can range from a relatively simple process (way of doing things) change to a highly complex new technology, such as those introduced by General Electric (GE) in their ecomagination program (discussed in the previous sidebar titled "Jack Welch at GE: An Industry Leader as an Intrapreneur").

Sidebar

Commercialization and Its Phases

The process by which a new product or service is introduced into the general market is called commercialization. Commercialization is broken into phases, from the initial introduction of the product to its mass production and its adoption. It takes into account the production, distribution, marketing, sales, and customer support required to achieve commercial success. As a strategy, commercialization requires that a business develop a marketing plan, determine how the product will be supplied to the market, and anticipate barriers to success. Read more at <http://www.answers.com/topic/commercialization#ixzz1PvcRgIo5>.

12. A new process, device, or method that did not exist previously and is the unique output of someone's work.

To help illustrate the concept of innovation, two companies will be discussed. Both companies are innovators in two entirely different areas at two entirely different price points. However, both companies are connected to sustainability in that they are providing a product to help reduce the consumption of fossil fuels for energy.

Enertrac (<http://enertrac.com>) provides low-cost smart sensors to track energy use so households and businesses know when they need refills. The smart sensors allow fuel distributors to electronically monitor the amount of oil in a tank. The sensors send information to a software-as-a-service interface that integrates into fuel dealers delivery scheduling systems. This allows business owners to make their delivery methods more efficient while reducing greenhouse emissions by 30 percent or more. The same sensors can also monitor other energy and natural resource use, including water, and can help with regulating use and conservation efforts. The basic smart sensor device is priced at less than \$30. From early 2010 to early 2012, Enertrac went from 200 monitors installed to 25,000 monitors in place with 140,000 units on order.

On the other end of the technological spectrum is SustainX Energy Storage Solutions (<http://www.sustainx.com/>), a company started by the former dean of the engineering school at Dartmouth College. SustainX has invented a new technology to cost-effectively and efficiently store energy from renewable and other sources. The technology being pioneered by SustainX compresses and expands gas resulting in seven times the reduction in storage cost as compared to traditional methods. This could profoundly change the economics of energy generation from both renewables and conventional sources. The storage systems that SustainX is developing for utility companies will cost more than \$1 million.

Technological Innovation and Sustainable Business

Fundamental to many sustainable businesses, including Enertrac and SustainX, are so-called clean energy technologies or sometimes called clean tech. These include technologies that generate energy from renewable sources, store energy, conserve energy, monitor and regulate energy usage and the pollution it generates, and efficiently manage water and other natural resources.

Technological advancement relies on investment in research and development. This can range from relatively small investments for Enertrac and other sustainable businesses pursuing low-cost technology solutions to millions of dollars for companies like SustainX, which are pursuing more radical (so-called game-changing) inventions.

Public policy can play a role in encouraging the development and adoption of new technology, which serves to jump-start market development and demand and reduce start-up risks for sustainability entrepreneurs. Research and development tax credits can reduce the costs of innovation and new products and services, offering development for entrepreneurs. And public programs offering tax advantages and rebates to customers, such as the California Solar Initiative

(<http://www.gosolarcalifornia.ca.gov/csi/index.php>), can lower the cost and increase the rate of customer adoption of new products and services.

Sidebar

Financial Incentive from Government to Innovate: The Research and Development Tax Credit

The Research and Development (R&D) tax credit is for businesses of all sizes, not just major corporations. Any company that designs, develops, or improves products, processes, techniques, formulas, inventions, or software may be eligible. In fact, if a company has simply invested time, money, and resources toward the advancement and improvement of its products and processes, it may qualify. The company receives a credit that can be used against taxes owed for their investment in qualifying research and development. The credits are available in the United States at the federal level at 14 percent (as of 2011), and additional R&D tax credits are available in some states.

Also important in the development of new technologies are the industry standards the government defines and regulates. Examples of public policy initiatives that have pushed forward technological innovations are energy efficiency standards for appliances and for buildings.

Innovation in turn can lower the barriers and costs of public policy standards on emissions and efficiency, and this can also be true for some policies to address social injustices (e.g., technologies that improve the productivity and output of workers and that can lower the costs of increasing the minimum wage). So from a systems perspective, there is feedback going in both directions between innovation and public policy.

Sidebar

Energy Efficiency Standards and Clean Tech Innovations

Minimum standards of energy efficiency for many major appliances were established by the US Congress in various legislations including the Energy Policy and Conservation Act (EPCA); the National Appliance Energy Conservation Act; and the Energy Policy Act of 2005, Public Law 109-58 (http://www1.eere.energy.gov/buildings/appliance_standards/pdfs/epact2005_appliance_stds.pdf). To access these laws establishing federal appliance and equipment standards and Department of Energy's authority to review, revise, and issue standards, see Energy Conservation Program for Consumer Products Other Than Automobiles, 42 USC § 6311. Regulations are issued by executive branch agencies to carry out federal laws, such as the standards laws, and are available in the Code of Federal Regulations. For the regulations pertaining to appliance and equipment standards, see Energy Conservation Program for Consumer Products, 10 CFR Part 430 (<http://www.gpo.gov/fdsys/pkg/CFR-2011-title10-vol3/pdf/CFR-2011-title10-vol3-part430.pdf>) and Energy Efficiency Program for Certain Commercial and Industrial Equipment, 10 CFR Part 431. Proposed and recently adopted rules and regulations may be found in the Federal Register (<http://www.gpoaccess.gov/cfr/>).

The end users of clean energy technology are diverse. They include private households, businesses, public agencies, and utilities. End users can take advantage of public incentives and they can also influence the public discourse and policies concerning investment, standards, mandates, and incentives. Most importantly, the choices end users make influence decisions by green producers and sustainability entrepreneurs regarding new products and services. For example, as end users are becoming more conscious about the environmental impact of a product from production to discontinued use (from “cradle to cradle”), consumers are demanding cleaner production processes and recycling services for the end of the product's life. And this provides an entrepreneurial opportunity.

Innovation and Social Networks

To compete in the sustainability arena, entrepreneurs must frequently go beyond what has worked in the past and seek new and different perspectives and connections. One important area of innovation is new associations, networks, and

partners that can provide new resources and information and foster new ways of doing things. Facebook is an example of a social network that has been innovative in creating new connections and relationships on a global scale that otherwise would not have existed through applying existing technology.

People from the same circles tend to share the same pools of information and contacts. Research indicates that the longer the duration of these direct connections, the more similar the perspectives and resources. Under normal circumstances, this is fine. However, when entrepreneurs want to take action in an arena outside the familiar terrain—such as launching a new sustainable enterprise—it is likely that information from existing relationships will not be enough. Instead they must search outside of their traditional network of relationships.

For new entrepreneurs, it will be beneficial to seek information and resources from new relationships and contacts. These new relationships can be formed with a range of individuals and organizations—including academics, consultants, nonprofit research institutes, government research organizations, and nongovernmental organizations (NGOs). NGOs have often been business's harshest critic on environmental and social issues. It is for this reason that businesses are increasingly forming relationships to these groups to engage them in thinking strategically about solutions and new venture opportunities. The most innovative ideas may well come from those quarters most critical of how business has traditionally been done. An example of this is McDonald's benefitting from collaboration with the Environmental Defense Fund, which was one of the company's harshest critics before their working together. In consultation with the Environmental Defense Fund, McDonald's has reduced their use of materials in packaging, replacing polystyrene foam sandwich clamshells with paper wraps and lightweight recycled boxes, replacing bleached with unbleached paper carry-out bags, and making dozens of other packaging improvements behind the counter in McDonald's restaurants and throughout the company's supply chain.

Ronald Burt Ronald S. Burt, *Structural Holes: The Social Structure of Competition* (Cambridge, MA: Harvard University Press, 1995). and other network theorists add useful and interesting constructs to the discussion of entrepreneurship, which is relevant to understanding the benefits of weak ties to sustainable businesses. Burt's focus is on what he calls "structural holes." **Structural holes**¹³ are defined as the gaps between nonredundant contacts, stated more simply for our purposes here: it is individuals not connecting with resources that would be very helpful to them.

13. The gaps between nonredundant contacts.

For sustainable business focused on producing green products or services, structural holes often take the form of engineers aspiring to start businesses based

on new technologies they have conceived but that are not connected or don't know how to get connected to well-qualified (1) marketing professionals (who can help them identify specific market opportunities) and (2) management professionals (who can help them effectively develop and implement business plans and to potential funders).

Burt suggests the value of processes at the “local” level, which help to fill structural holes for entrepreneurs. An example of what Burt suggests is the Green Launching Pad (GLP; <http://greenlaunchingpad.org/about/overview>) at the University of New Hampshire. The GLP works with aspiring entrepreneurs and connects the entrepreneurs with qualified marketing and management professionals and potential funders. The program works with entrepreneurs to accelerate the development of new sustainable businesses that will directly reduce energy use and carbon emissions while creating new jobs and economic opportunities in the state of New Hampshire. In a short time period, just more than one year (from May 2010 to June 2011), the GLP helped to launch eleven companies, including Enertrac and SustainX.

The GLP's focus is on helping entrepreneurs enter new social networks that are critical to their success. The GLP helped Enertrac gain the support of state and federal government officials and helped the company to expand the markets they target and reach. The GLP is helping SustainX, which is dominated by highly skilled engineers, connect with market development expertise. Without GLP, both these companies would not have been able to establish these connections to new resources and to develop their businesses as fast and as effectively.

KEY TAKEAWAYS

- Innovation is a new change in a product offering, service, business model, or operations that meaningfully improves the experience of a large number of stakeholders.
- Responding to an opportunity effectively often requires innovation.
- Clean tech includes technologies that generate energy from renewable sources, store energy, conserve energy, monitor and regulate energy usage and the pollution it generates, and efficiently manage water and other natural resources.
- Innovation can lower the barriers and costs of public policy standards on emissions and efficiency, and this can also be true for some policies that address social injustices.

EXERCISES

1. Search online for a clean tech product. Describe the product and discuss how it is innovative compared to conventional alternatives.
2. Search online for the example of a social network that specifically applies to sustainability, such as the Green Launching Pad. Provide detail of how this social network is specifically useful in forming new relationships for a sustainability entrepreneur.

5.4 Conclusion

To be successful in sustainable business practices often requires entrepreneurship and innovation. This chapter provides an overview of entrepreneurship and innovation as it relates to sustainable business. The discussion is most relevant to sustainable businesses focused on offering new products and services in response to societal concerns. The importance of entrepreneurship and innovation also applies to companies that change how they produce products and services. The latter companies can use innovative practices and entrepreneurship to establish their brand name and to be market leaders in doing things that create shared value for society and their companies and also, over time, contribute to changes in practices in their industry.

KEY TAKEAWAYS

- To be successful in sustainable business practices often requires entrepreneurship and innovation.
- Entrepreneurship and innovation are relevant in for-profit and nonprofit ventures.
- Entrepreneurship can be viewed as recognizing change, pursuing opportunity, taking on risk and responsibility, innovating, making better use of resources, creating new value that is meaningful to customers, and doing it all over again and again.
- Being an entrepreneur requires taking on significant responsibility and comes with significant challenges and potential rewards.
- Entrepreneurship is a mind-set, an attitude; it is taking a particular approach to doing things.
- The motivations for becoming an entrepreneur are diverse and can include the potential for financial reward, the pursuit of personal values and interests, and the interest in social change.
- For innovation to be relevant for sustainable businesses, it has to be meaningful and affect a large number of stakeholders.
- Successful entrepreneurship often requires creativity and innovation in addressing a new opportunity or concern in a new way.

EXERCISES

1. Interview an entrepreneur in your city or town. Identify why the individual started their business and what has been most important to their success. Then investigate why Mark Zuckerberg became an entrepreneur and founded Facebook. What motivated him to start a new venture? What keeps him motivated to grow Facebook? What do you attribute his success to? Has he been an agent for social change?
2. Assess your likelihood of becoming an entrepreneur. Were your parents entrepreneurs? Are they presently entrepreneurs? Do you have the mind-set, attitude, and way of thinking of an entrepreneur? If not, could you change to pursue a business interest? What passions or interests do you have that could translate to an entrepreneurial pursuit? Do you readily take on new challenges? Are you a risk taker? Are you interested in making a lot of money? Are you interested in social change?
3. Identify the role model entrepreneur for you. Is there any entrepreneur that you are familiar with who you think of as a role model or as a model that other entrepreneurs should emulate? Describe the entrepreneur and why you think of them as a role model.
4. Using the business media, identify a for-profit enterprise that has a strong social mission. Then using a nonprofit media source, identify a nonprofit organization that has strong similarities to a for-profit entrepreneurial venture.
5. Think of three new types of innovations that are needed to help address ecological and social concerns. Have any ventures been started to commercialize these types of innovations?
6. Investigate public policies in your state or city (using government websites) that work to promote sustainable business entrepreneurship. And identify new policies that could be established to help support sustainable businesses.