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BUSINESS CASE STUDIES IN SUSTAINABILITY PRACTICES

by

SHERI L. LYNCH

A thesis submitted in partial fulfillment of the requirements
for the Honors in the Major Program in Management - Entrepreneurship
in the College of Business Administration
and the Burnett Honors College
at the University of Central Florida
Orlando, Florida

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ABSTRACT

Protecting the environment for future generations is crucial. Although businesses are under strong pressure to support sustainability, many leaders find it challenging to meet the environmental needs of the present without negatively impacting their economic goals. This paper describes some methods that businesses have adopted to effectively manage environmental issues and offer an opportunity for competitive advantage. In particular, three case studies show ways that the companies have embraced and integrated sustainability into their strategic planning process, which helped them achieve growth and success in the context of social and environmental concerns. The paper shows how these businesses have chosen to embrace sustainability to minimize the negative impact in our environment, society, and economy. The case studies can help managers define and prioritize their sustainability goals, achieve social and economic value, and transform these environmental investments into sources of competitive advantage. This paper can be beneficial to other businesses who desire to move beyond compliance of the law and become proactive in helping our environment for future generations.

DEDICATION

This thesis is dedicated to my loving family, with boundless gratitude. Thank you for believing in me and encouraging me to achieve my highest goals. A special thank you to my wonderful daughter, Sheena, and my treasured sister, Terri, for being true supporters each and every day by inspiring me and keeping my spirits up throughout this journey. You allowed me to express the challenges throughout my coursework, but were always quick to offer an encouraging word to lift me up and keep me on the path towards a successful completion.

I am so grateful to all of you for helping me become the strong and determined woman I am today. Your belief in me and my goals gave me the strength to propel forward. You helped me realize that I am capable of achieving greatness and that nothing is impossible!

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I would also like to express my gratitude to the other members of my Honors Thesis Committee: Dr. Aaron McKenny, Dr. Robin Roberts, Dr. Nasser Kutkut, and Dr. Lauryn DeGeorge. I deeply appreciate your willingness, commitment, and efforts to serve on this committee. Because of your patience, encouragement, and guidance, you helped me develop a better thesis and made the completion of this project to be an enjoyable experience.

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CHAPTER 1: INTRODUCTION

The world's population growth has been explosive over the past fifty years. This has resulted in rapid economic development throughout the world. The economic growth has put great strain on our ecosystem. Today there are more than 7.4 billion people in the world.¹ With approximately 360,000 people born each day combined with daily deaths, our world population continues to grow at a rate of 1.13 percent each year.^{2, 3} By the year 2050, the world population is expected to reach 9.6 billion.⁴ As the world's population continues to climb, we are faced with increasing environmental challenges and depleting natural resources.

The United States is the third most populous country, in which the average American aspires to have a high-consumption lifestyle and consumes more than their proportional share of the world's resources.⁵ The enormous increase in consumption levels of raw materials, commodities, and energy has created major environmental challenges. As consumers, it is crucial that we understand that our natural resources are not unlimited. We must be proactive in protecting our planet.

Sustainability can mean different things to many organizations. Throughout this paper, the term sustainability is used to describe the operations and activities that are focused on preservation of the physical environment so that it can be continued indefinitely with little or manageable

¹ United States Census Bureau. "U.S. and World Population Clock" found at: <http://www.census.gov/popclock/>.

² Ecology Global Network. "World Birth and Death Rates" found at: <http://www.ecology.com/birth-death-rates/>.

³ Worldometers. "Growth Rate" found at <http://www.worldometers.info/world-population/>.

⁴ "World Population to Reach 9.6 Billion by 2050, India to Surpass China in Numbers." *RTTNews* (2013). Accessed February 20, 2016. <http://www.rttnews.com/2135985/world-population-to-reach-9-6-billion-by-2050-india-to-surpass-china-in-numbers.aspx>.

⁵ Hart, Stuart L. "Beyond Greening: Strategies for a Sustainable World." *Harvard Business Review*, 75, no. 1(1997): 70.

impact.⁶ Although every citizen has some ethical responsibility towards sustainability, much of the responsibility for ensuring sustainability falls on the shoulders of businesses because they are driving the economic growth. Businesses are under continuous pressure to focus on sustainable development. The term sustainable development refers to development that meets the needs of the present without compromising the ability of future generations to meet their own needs.⁷

Managers should be proactive in their response to environmental issues and lead the way towards sustainability. Many are faced with changing technologies and processes used to create their goods and services. Often, managers think of pollution control as the central responsibility with respect to protecting the environment. Although pollution prevention is a key area of environmental protection, there are additional areas that businesses should incorporate for a strategic focus on sustainability.

Within the past decade, the sustainability movement has generated a lot of serious attention throughout the world. Although there are some businesses that are uninterested and remain uninvolved in sustainable development, there are a growing number of companies that are committed to sustainability. Many businesses are taking a profound look at the negative impacts their actions have had on the environment and are now establishing effective processes for improvement.

In recent years the global community has faced unprecedented environmental challenges. Growing concerns about the health of the planet have become a critical topic of discussion among

⁶ Brundtland, Gro Harlem. "Our Common Future ('The Brundtland Report'): World Commission on Environment and Development." (Oxford: Oxford University Press, 1987).

⁷ Ibid.

world leaders, businesses, and organizations.^{8,9} It is no surprise that businesses have contributed to the pollution of the air, water, and land. As the ecological damage increases, many businesses are becoming increasingly proactive towards environmental issues and sustainable development. Protecting the environment for future generations is crucial and many businesses have adopted methods to reduce their footprint.¹⁰ Business leaders are feeling strong pressure to not just support the idea of sustainability, but to also improve their company's environmental performance. While leaders find sustainability worthy, there are many who find it challenging to meet the environmental needs of the present without negatively impacting their economic goals.¹¹

Although there is an emerging trend toward greater sustainable development throughout the world, some managers view sustainability initiatives more critically than others. No one should argue that sustainable development encourages environmental protection. However, some believe sustainability guidelines are transformed into indoctrination, which is connected to political control.¹² The costs for a business to be environmentally compliant can be enormous, resulting in little or no financial return.¹³ In addition to imposing significant costs, environmental regulation can impair competitiveness. Some leaders feel the government is interfering with capitalism and

⁸ Nidumolu, Ram, C. K. Prahalad, and M. R. Rangaswami. "Why Sustainability Is Now The Key Driver Of Innovation." *International Trade Forum*, (2009), no.4: 10.

⁹ UNESCO. (2010). Education for Sustainable Development described at <http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-sustainable-development/education-for-sustainable-development/>.

¹⁰ de Lange, Deborah E., Timo Busch, and Javier Delgado-Ceballos. "Sustaining Sustainability in Organizations." *Journal of Business Ethics*, 110, no. 2 (2012): 151-156.

¹¹ "Beyond Kyoto: Capitalism is Not Sustainable." *Industrial Worker*, (2003), no. 6.

¹² Celock, John. "Kansas Sustainable Development Ban Proposed by State Legislature." The Huffington Post. (2013). Accessed on June 25, 2016 at: http://www.huffingtonpost.com/2013/04/09/kansas-sustainable-development_n_3045118.html.

¹³ Clarke, Richard A., Robert N. Stavins, J. Ladd Greeno, Joan L. Bavaria, et al. "The Challenge Of Going Green." *Harvard Business Review*, no 72.4 (1994): 37.

enforcing their authority by imposing numerous environmental rules and regulations. The hefty fines, criminal sanctions, legal penalties, and reputational costs that businesses can face if an environmental regulation is violated can cause fear and worry among business leaders.

A survey conducted in October 2010 by KPMG and the Economist Intelligence Unit reviews the importance of and attitudes about sustainability among 378 business leaders worldwide. According to the results of the survey, 62 percent of managers reported that they have a strong corporate strategy for sustainability and an additional 11 percent of companies were in the process of developing one. The study also showed that managers at 44 percent of the companies agree that sustainability is a source of innovation. Nearly 39 percent saw sustainability as a source of new business opportunities. Surprisingly, 61 percent of business leaders agree that the benefits of investing in sustainability outweigh the drawbacks. The number rose to 72 percent for big companies with revenues of \$5 billion or above.¹⁴

As the KPMG survey suggests, many companies are embracing the triple-bottom-line approach to support sustainability goals, meaning they seek to measure company profits in financial, social, and environmental performance.¹⁵ To achieve triple-bottom-line performance, a business must explicitly consider the social (people), environmental (planet), and economic (profit) impacts of their activities.¹⁶ The results of the survey show that many business leaders are

¹⁴ KPMG International, in cooperation with the Economist Intelligence Unit, "Corporate Sustainability: A Progress Report." (2010). Accessed February 20, 2016. <http://www.kpmg.com/ES/es/ActualidadNovedades/ArticulosyPublicaciones/Documents/Corporate-Sustainability-Nov2010.pdf>.

¹⁵ Norman, Wayne and Chris MacDonald. "Getting to the Bottom of 'Triple Bottom Line'." *Business Ethics Quarterly* 14, no. 2 (2004), 243-62.

¹⁶ Asif, Muhammad, Cory Searcy, Ambika Zutshi, and Niaz Ahmad. "An Integrated Management Systems Approach to Corporate Sustainability." *European Business Review*, 23, no.4 (2011): 354-355.

realizing that there are other dimensions to a business than just financial growth. These companies recognize that they can achieve economic growth while also fulfilling their moral obligations to future generations by being responsible in prioritizing people and the planet.

The purpose of this paper is to describe some of the methods that businesses adopt in their pursuit of environmental goals, which can provide a competitive advantage. The paper will show ways that some companies embrace and integrate sustainability into their strategic planning process, which help to achieve growth and success in the context of social and environmental concerns. This paper will show how some businesses have chosen to embrace sustainability to minimize the negative impact in our environment, society, and economy. In particular, this paper will review the following three different organizations' active roles in environmental management practices and sustainable development:

- Interface, Inc. – a publicly traded company headquartered in Atlanta, Georgia
- New Belgium Brewing Company – a private company headquartered in Fort Collins, Colorado
- East End Market – a start-up located in Orlando, Florida

The paper will analyze how these particular businesses have integrated the principles of sustainable development into their business processes.

Through the literature review, I hope to answer the following question:

- How does sustainable development make economic sense for society?

Through the case studies of the identified sustainable businesses, this paper will seek to address the following questions:

- What is the company's strategy and goals for sustainability?

- Do the company's sustainable initiatives create social, environmental, and economic value for its stakeholders?

Through the examination of these three companies, it is my intent to show how sustainability efforts can offer businesses opportunities for competitive advantage by promoting innovation and attracting customers. This paper concludes with insights about how to manage and benefit from sustainability practices.

CHAPTER 2: REVIEW OF RELATED LITERATURE

Literature

As we face ecological challenges, businesses must understand the need for balance between economic growth and protecting the environment. It is vital to society that businesses help with the management of environmental issues and conservation efforts. In a 2012 report released by KPMG International, “Expect the Unexpected: Building Business Value in a Changing World,” ten sustainability ‘megaforces’ are identified that will impact the future of businesses over the next twenty years. According to the report, the global ‘megaforces’ identified to significantly affect corporate growth are the following: climate change; energy and fuel; material resource scarcity; water scarcity; population growth; wealth; urbanization; food security; ecosystem decline; and deforestation. The report provides an analysis of how these forces impact businesses and calls for action with mitigation efforts from resource use and environmental deterioration.

As people of the Earth, we continue to share in resources, such as land, air, and water. Unfortunately, some people have acted with self-interest in their attempts to maximize their own benefit without regards to others and the society.¹⁷ In order to obtain freedom without destroying shared resources, we must regulate and manage shared resources. Ecologist, Garrett Hardin, described the incentives that people have to destroy shared resources in his article, “Tragedy of the Commons,” published in December 1968 in the journal *Science*. The article brings awareness of the consequences for overusing and eventually depleting our shared resources. Hardin uses the example of a village’s shared pasture, or commons, to describe the incentive problem around

¹⁷ Hardin, Garrett. “Tragedy of the Commons.” *Science*, 162 (1968): 1243-1248.

shared resources. Cattle herders were entitled to let their cows graze on the commons. When a herder purchased one additional cow, overgrazing on the commons occurred. The herder with the additional cow gained the full benefit of income that the cow provided, however, the entire village suffered because of the damage that resulted in the commons from overgrazing. In essence, all of the herders had the incentive to purchase one additional cow for additional income gain, but the result is that the commons is depleted and damaged at everyone's expense.

Today, the 'tragedy of the commons' is often mentioned when referring to environmental issues. For instance, the Earth's atmosphere is a resource that over seven billion people share. Each person receives 100 percent of the benefits of the commons. As the world's population has grown, the strain on the atmosphere has also increased. Air pollution has caused severe damage to this vitally important shared resource. In today's society, businesses are facing intense competition. As companies focus on this competitive landscape and their financial success, oftentimes it can lead to an increase in air pollution. The effects of air pollution are damaging and, in some cases, deadly. Air pollution can cause harm to people and animals, damage agricultural crops, and make our landscapes and buildings appear unattractive.

Water pollution is another problem that can cause harm to people and animals. Water can be polluted by sewage waste disposal, harmful fertilizers, industrial chemicals, oil pollution, radioactive waste, heavy metals, toxic materials, and wastewater from factories. Poor water quality harms our ecosystems, crop yields, marine activities, and impairs our quality of life.

Land pollution is another major focus for environmental protection. Solid and hazardous wastes contaminate the land and can degrade or destroy the Earth's surface. Other sources of land pollution are deforestation, contamination from toxic fertilizers, mining activities, and landfills.

When land is contaminated with toxic chemicals, it can lead to cancer and respiratory problems.

Thus, land pollution can be harmful and lessen our quality of life.

Efforts to meet the needs of the present without compromising the ability of future generations to meet their own needs is often referred to as sustainable development. Today, sustainable development is a popular topic of discussion among managers. Many businesses have begun to integrate sustainability principles into their strategic planning and innovative actions. In a 2011 survey conducted by McKinsey & Company, 67 percent of business executives surveyed indicate that sustainability has been completely or mostly integrated into the organization's mission and values.¹⁸ According to the report, there appears to be a trend in the way business leaders understand and manage sustainability issues. The report finds that 48 percent of business executives believe that their sustainability efforts have made a positive contribution to their organization's short- and long-term value.¹⁹ Furthermore, the results show that for 33 percent of respondents, the most common reason for addressing sustainability issues was to lower costs and improve operational efficiency. Overall, respondents report a more balanced and informed understanding of sustainability and its expected benefits than in prior surveys. Although business leaders view sustainability as an opportunity to support their corporate reputation, many businesses are actively pursuing sustainability goals that exceed their concern for reputation management.

In a published survey conducted by *MIT Sloan Management Review* and The Boston Consulting Group in 2009, more than 1,500 worldwide business executives and managers were

¹⁸ McKinsey & Company. "The Business of Sustainability: McKinsey Global Survey Results." *McKinsey Quarterly* (October 2011).

¹⁹ *Ibid*, 3, 9.

asked about their perspectives with sustainability and business strategies. More than 92 percent of the respondents said their company was addressing sustainability and saw sustainability as an integral part of value creation. Furthermore, 50 percent of the experts surveyed said that their company had a compelling business case for sustainability-related investments.²⁰ The survey findings also showed 68 percent of business leaders cited improved financial returns as a benefit for investing in sustainability initiatives.²¹

Based on the article published in *The Wall Street Journal* on March 23, 2009, “Greener and Cheaper: The Conventional Wisdom is That a Company's Costs Rise as its Environmental Impact Falls; Think Again,” it appears there is a paradigm shift. For years, the general theory held was that it costs a large amount of money for a business to address sustainability issues, which negatively impacted the organization’s economic goals.²² However, companies are discovering that the opposite can be true. The article provides a case analysis in which Subaru was able to reduce its environmental impact and increase their bottom line at the same time. By redesigning their production processes, the company has reduced waste by about 47 percent per vehicle. In addition, about 99 percent of the solid waste that Subaru still generates is recycled or used by other companies. Subaru has saved millions of dollars with its sustainability efforts by revising its processes, giving the company an increase in profits. According to the article, many companies are

²⁰ Hopkins, Michael. S., Andrew Townend, Zayna Khayat, Balu Balagopal, Martin Reeves, et al. “The Business of Sustainability: What it Means to Managers Now.” *MIT Sloan Management Review*, 51, no.1 (2009): 20-26.

²¹ MIT Sloan and Boston Consulting Group. “Sustainability Initiative.” *BCG Report: The Business of Sustainability*. (September 2009): 1-36.

²² Robinson, Alan G. and Dean M. Schroeder. “Greener and Cheaper: The Conventional Wisdom is that a Company's Costs Rise as its Environmental Impact Falls; Think Again.” *The Wall Street Journal*, (2009).

now discovering that they can move toward sustainability, reduce their environmental footprint, improve operational efficiency, and reap significant cost savings.

There are, however, opposing views among some business leaders with ecological sustainability. Some businesses cling to the following traditional views regarding sustainability efforts:²³

- Substantially increases costs to achieve compliance with strict governmental regulations
- Increases production costs, which negatively impacts profits to the business
- Limits a company's freedom for innovation

Although some business leaders feel that the risks associated with investing in ecological sustainability outweigh the potential benefits, Michael Porter and Claas van der Linde's article, "Green and Competitive: Ending the Stalemate," show that there is a paradigm shift in traditional views. According to the article, many businesses are adopting sustainability strategies to gain a competitive advantage. The article focuses on sustainability efforts, such as using resources productively. Businesses can benefit from their efforts to improve the environment and become more successful than businesses that do not proactively manage environmental issues.²⁴

Often it is easier for managers to view the case for sustainability in a negative manner. In today's society, it is becoming increasingly difficult for businesses to compete and succeed. Stewart L. Hart's article, "Beyond Greening: Strategies for a Sustainable World," provides a positive case for companies that are proactive with sustainable management practices. Many

²³ Porter, Michael E. and Claas van der Linde. "Green and Competitive: Ending the Stalemate." *Harvard Business Review*, 73, no. 5 (1995): 120-134.

²⁴ KPMG International. "Expect the Unexpected: Building Business Value in a Changing World." (Switzerland: KPMG, 2012).

managers now understand the serious ecological problems we face and have made dramatic changes in how they do business.²⁵ Companies can and should lead the way toward ecological sustainability. According to the article, some executives are realizing that sustainability strategies can actually open the door to opportunities, which may become a source for revenue growth. Anupam Ghosh and Chhanda Chakraborti understand this new paradigm shift for revenue growth.²⁶ In their article, “Beyond Corporate Social Responsibility: Ethics in Action,” the authors mention that sustainable business practices will become the framework for a business to remain operable and profitable. The article discusses a need for businesses to have ethical responsibilities in addressing sustainable development through economic, environmental, and social aspects. Economic sustainability refers to the fair distribution of natural resources and having concern for the environment and its limits. It allows for use of minimal natural resources to meet our needs, not to meet our created *wants*. The environmental aspect refers to the choices we make to maintain natural ecosystems for long-term with respect for the needs of future generations. The social aspect upholds human values, referring to the sustainable choices we make and how they affect others in a society.

Authors Ingrid Bonn and Josie Fisher understand this vision and take it a step further. In their article, “Sustainability: The Missing Ingredient in Strategy,” they explain that a business that upholds sustainability as a core value will support a view of success by integrating the need to achieve economic growth with the responsibility to foster social cohesion and environmental

²⁵ Hart, Stuart L. “Beyond Greening: Strategies for a Sustainable World.” *Harvard Business Review*, 75, no. 1(1997): 66-76.

²⁶ Ghosh, Anupam. and Chhanda Chakraborti. “Beyond Corporate Social Responsibility: Ethics in Action.” *Global Virtue Ethics Review*, 6, no. 4 (2014): 60-99.

protection. In their sustainable development efforts, managers must address sustainability as a strategic issue. When an organization regards sustainability as a cornerstone for doing business, they continuously integrate economic, social, and environmental considerations in all aspects of the business.²⁷

The literature review has shown that an increasing number of businesses are becoming proactive in their response to environmental management. Companies recognize that they can achieve economic growth, while also fulfilling their environmental obligations to future generations. Today, more companies are addressing sustainability issues and recognizing that operating sustainably can help them achieve a competitive advantage.²⁸ I intend to share how three different companies' sustainability efforts have helped them move beyond compliance to gain a competitive advantage and achieve environmental improvements.

Sustainability Models

As mentioned in Chapter 1, the term sustainable development refers to development that meets the needs of the present without compromising the ability of future generations to meet their own needs.²⁹ It describes the activities that are focused on preservation of the physical environment so that it can be continued indefinitely with little or manageable, impact.³⁰ To gain a

²⁷ Bonn, Ingrid and Josie Fisher. "Sustainability: The Missing Ingredient in Strategy." *The Journal of Business Strategy*, 32, no. 1 (2011): 5-14.

²⁸ Orsato, Renato J. "Competitive Environmental Strategies: When Does it Pay to be Green?" *California Management Review*, 48, no.2 (2006): 127-143.

²⁹ Brundtland, Gro Harlem. "Our Common Future ('The Brundtland Report'): World Commission on Environment and Development." (Oxford: Oxford University Press, 1987).

³⁰ Ibid, 8.

better understanding of the term, we must recognize the interdependencies among interactive systems in our world.

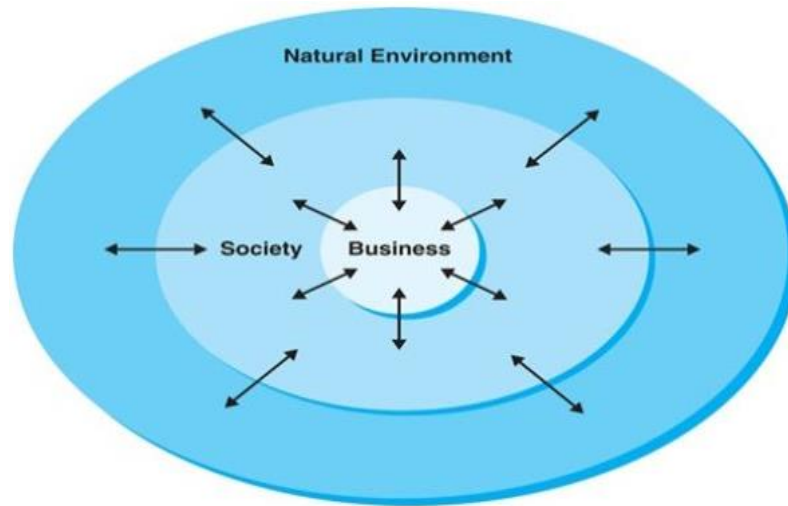
Business, Society, and the Natural Environment

In considering ways a business can meet sustainable development and economic goals, managers must first understand how business and society interact within the constraints of the natural environment. The resources that the planet provides are finite, therefore, people must operate sustainably so that these natural resources are not depleted or destroyed for future generations.

Business organizations are formed to carry out certain commercial goals for a profit. According to the Merriam-Webster dictionary, the term society refers to “a community, nation, or broad grouping of people having common traditions, institutions, and collective activities and interests.”³¹ Business is part of society, in which both operate within the natural environment. Both share the natural environment. This evolving and intertwined relationship among business, society, and the natural environment is crucial in understanding sustainability issues and meeting goals. A diagram of this relationship is illustrated in Figure 1.

³¹ society. *Merriam-Webster.com*. (2016). Accessed on May 23, 2016; <http://www.merriam-webster.com/dictionary/society>.

Figure 1: Interactive System: Business, Society, and the Natural Environment³²



Circles of Sustainability

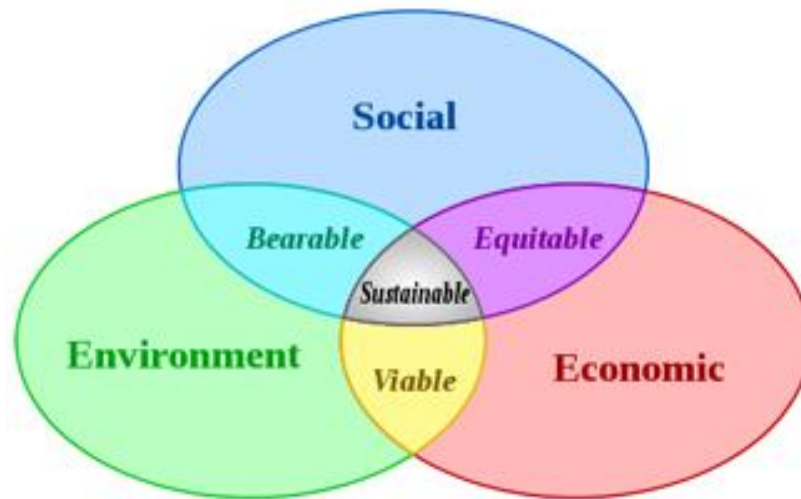
Business drives the economy, and the economy is a subsystem of society. Society is a subsystem of the environment, as demonstrated above. Sustainable development refers to the activities to live within the means of our environment and ensure that our lifestyle (economy) does not harm others (society). Sustainability occurs when the intersection of social, environmental, and economic factors meet. To represent the relationship of sustainable development with regards to the quality of life, environment and economy, the circles of sustainability are often used. This model gives us a better understanding of sustainability and its intersecting and overlapping relationships with society, the environment, and economy.³³ When a business develops sustainable

³² Lawrence, Anne T., and James Weber. *Business & Society: Stakeholders, Ethics, Public Policy*. 14th ed., 212.: McGraw Hill/Irwin,(2014). Print.

³³ 2005 World Summit Outcome, General Assembly Res. 60/1, U.N. Doc. A/RES/60/1 (Sept. 16, 2005).

development strategies, they must realize that social cohesion, environmental protection, and economic growth must coexist.³⁴

Figure 2: Circles of Sustainability³⁵



Pillars of Sustainability

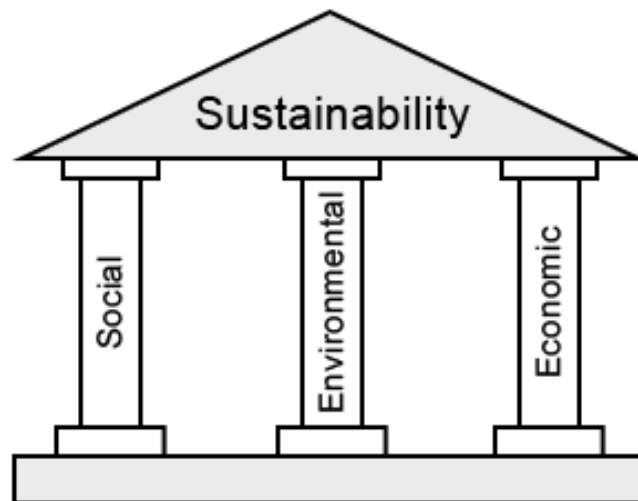
Another powerful model to define sustainable development is the three pillars of sustainability. In a broad business sense, sustainability can be defined as the act of adopting practices and developing products and services that are socially, environmentally, and economically sound, while meeting the needs of the present without compromising the needs of future generations. All of these pillars must be considered with respect to sustainability efforts because they represent the key elements needed for a healthy life.

³⁴ Forte, Almerinda. "Corporate Social Responsibility in the United States and Europe: How Important Is It? The Future of Corporate Social Responsibility." *The International Business & Economics Research Journal*, 12, no.7 (2013): 815-823.

³⁵ Dréo, Johann. "Sustainable Development." 2006. Image is found at Wikipedia Commons: https://en.wikipedia.org/wiki/File:Sustainable_development.svg.

As shown in the figure below, sustainable development seeks to achieve a balance in social development, environmental protection, and economic development. A sustainability problem occurs if any one of the pillars becomes weak, resulting in the system as a whole becoming unsustainable. If a business focuses their efforts mainly on economic growth, the areas of social and environmental development could collapse. Sustainable development is a continuous process and businesses must consider all three pillars, as they are inseparable and mutually reinforcing to achieve a healthy balance of social, environmental, and economic development.^{36, 37}

Figure 3: Pillars of Sustainability³⁸



³⁶ "Agenda 21." *Programme of Action for Sustainable Development ; Rio Declaration On Environment and Development ; Statement of Forest Principles: The Final Text of Agreements Negotiated By Governments At the United Nations Conference On Environment and Development (UNCED), 3-14 June 1992, Rio De Janeiro, Brazil.* New York, NY: United Nations Dept. of Public Information. (1993).

³⁷ Baumgartner, Rupert J. and Daniela Ebner. "Corporate Sustainability Strategies: Sustainability Profiles and Maturity Levels." *Sustainable Development*, 18, no.2 (2010): 76–89.

³⁸ "Finding and Resolving the Root Causes of the Sustainability Problem." Thwink.org. 2014. The Three Pillars of Sustainability can be found at: <http://thwink.org/sustain/glossary/Sustainability.htm>.

Challenges Faced By Businesses In Adopting Sustainability Methods

Sustainability issues are complex and present many challenges. Although businesses are a key player in addressing sustainability issues, many are faced with some heavy challenges in protecting the environment.³⁹ It is crucial that these challenges are properly managed; otherwise they may impede business growth and expansion.⁴⁰

To achieve environmental goals in the United States, the government has standard laws to regulate business activities in order to protect the ecological health of the environment. The government has developed many rules and regulations to exercise their authority and order businesses to comply with and meet specific environmental standards. Violating these rules can result in hefty fines, criminal sanctions, legal penalties, and reputational costs.⁴¹ These tough regulations can also increase operating costs for many businesses.⁴²

One of the main challenges that businesses face is the costs associated with sustainable development efforts.⁴³ Businesses invest heavily to protect the environment, yet many executives question the value when the costs far exceed the benefits to the business. In addition to the large-scale investments that businesses spend to comply with environmental regulations, some businesses have had to struggle with job losses and decreased productivity. To combat the costs,

³⁹ Virakul, Busaya. "Global Challenges, Sustainable Development, and Their Implications for Organizational Performance." *European Business Review*, 27, no. 4 (2015): 431.

⁴⁰ Ibid, 433.

⁴¹ Karpoff, Jonathan M., John R. Lott, Graeme Rankine. "Environmental Violations, Legal Penalties, and Reputation Costs." (1998). Accessed June 24, 2016. http://www.law.uchicago.edu/files/files/71.Lott_Environment.pdf.

⁴² KPMG International, in cooperation with the Economist Intelligence Unit, "Corporate Sustainability: A Progress Report." (2010). Accessed February 20, 2016. <http://www.kpmg.com/ES/es/Actualidad/Novedades/ArticulosyPublicaciones/Documents/Corporate-Sustainability-Nov2010.pdf>.

⁴³ Daub, Claus-Heinrich, Yvonne Scherrer, and Arie Verkuil. "Exploring Reasons for the Resistance to Sustainable Management Within Non-Profit Organizations." *Sustainability*, 6, no.6 (2014): 3252–3270.

some businesses have had to increase their prices for goods and services, which have resulted in a decrease in profitability.⁴⁴

Competition has accelerated in today's society so it is imperative that businesses keep a close eye on their rivals. If a competitor is not actively engaged in sustainable development, the business might find it challenging to compete effectively while incurring additional costs associated with sustainable development.

These challenges can help or hinder business growth. In order for businesses to adopt sustainability strategies, executives need a level playing field with regards to incentives and government regulations. It is a continuing challenge for businesses to adopt sustainable development efforts without hurting their economic growth and competitiveness.

⁴⁴ KPMG International, in cooperation with the Economist Intelligence Unit, "Corporate Sustainability: A Progress Report." (2010). Accessed February 20, 2016. <http://www.kpmg.com/ES/es/ActualidadNovedades/ArticulosyPublicaciones/Documents/Corporate-Sustainability-Nov2010.pdf>.

CHAPTER 3: CASE STUDIES

For this case study research, I chose three very distinct companies headquartered in the United States to explore their contributions towards sustainable development. Businesses of all sizes and types can and should support sustainability. The case studies represent three different types of businesses. Interface, Inc. is a large global organization that is publicly traded. New Belgium Brewing Company is a medium-sized, privately held organization. New Belgium is also a certified B Corporation which meets rigorous standards to make a positive impact on society and the environment. With just four employees, East End Market represents a small-sized entity. Founded in 2012, East End Market is a successful entrepreneurial organization focused on the people and planet, rather than profit. Each of the companies in the case study are managing sustainability to improve their processes and creating value through growth opportunities.

Interface, Inc.

In my search for case studies I chose a publicly traded company, Interface, which is the largest designer and maker of carpet tiles in the world. Carpet manufacturers produce an astronomical amount of greenhouse gas emissions and account for 5 billion pounds of carpet waste in the United States each year.⁴⁵ According to the Environmental Protection Agency, less than 1 percent of the carpet is recycled.⁴⁶ It is no wonder why the carpet industry is considered one of the worst offenders for the environment. I first developed an interest in sustainable practices after

⁴⁵ United States Environmental Protection Agency. Wastes - Resource Conservation - Conservation Tools. Carpet. Use and disposal metrics are found at: <https://archive.epa.gov/wastes/conserve/tools/stewardship/web/html/carpet.html>.

⁴⁶ Fishbein, Bette K. "Carpet Take-Back: EPR American Style." *Environmental Quality Management*, 10, no. 1 (2000): 25.

watching a video of Ray Anderson, founder and former CEO of Interface, address his quest for sustainability.⁴⁷ Interface's vision statement has a clear focus with sustainability:⁴⁸

"To be the first company that, by its deeds, shows the entire industrial world what sustainability is in all its dimensions: People, process, product, place and profits — by 2020 — and in doing so we will become restorative through the power of influence."

Headquartered in Atlanta, Georgia, Interface has a bold vision to embrace sustainability and influence the world with their sustainable standards. According to the article, "Leaving No Footprints," Erin Meezan, Vice President of Sustainability for Interface, attributes the company's success in pursuit of sustainability to its processes and life cycle impacts of its products on the environment. Interface is pledging a zero environmental impact by 2020. The company is proud to disclose their carbon footprint data, showing a reduction in fossil fuel consumption by 45 percent and global warming emissions by 60 percent. In addition, their water consumption has been reduced by 66 percent and landfill waste by 80 percent. Rather than hindering profitability, the company has become the world leader in carpet tiles reaching over \$1 billion in annual sales.

New Belgium Brewing Company

I chose a private company, New Belgium Brewing Company, because of their strong commitment towards sustainability. My interest peaked after watching a video that features New Belgium Brewing Company's efforts to take a leadership role with sustainability in their brewing

⁴⁷ Interface's founder and former CEO, Ray Anderson, describes the story in his quest for sustainability at <https://www.youtube.com/watch?v=OUG4JXE6K4A>.

⁴⁸ Interface's sustainability initiatives and vision are described at <http://www.interfaceglobal.com/sustainability>.

processes.⁴⁹ Beer breweries consume a significant amount of energy and water.⁵⁰ In the United States, it can take 8-24 gallons of water to produce a pint of beer. With their headquarters in Fort Collins, Colorado, New Belgium Brewing Company is committed to being a sustainable business role model. The company's environmentally driven core values are to minimize resource consumption and maximize energy efficiency and recycling. The company continuously looks for ways to eliminate waste generated to minimize damage to the ecosystems and help preserve the ecosystems for future generations. An impressive 99.8 percent of the company's waste was diverted from the landfill in 2015.⁵¹ New Belgium Brewing Company was America's first wind-powered brewery and has eliminated 900 tons of carbon dioxide from being released into the atmosphere each year. New Belgium Brewing Company is the third largest craft brewery in the United States and is nationally recognized for their sustainability efforts.

East End Market

Finally, an entrepreneurial venture located in Orlando, Florida, East End Market was chosen because of its mission to provide the community with sustainable cuisine and a better understanding of our food system. This company was appealing to me in their sustainability efforts and ways they have reduced costs, promoted innovation, and attracted customers to give them a competitive advantage. Founded in 2012, the neighborhood market and food hub has often

⁴⁹ New Belgium Brewing Company's sustainable brewing processes described at <https://www.youtube.com/watch?v=BObRPpy6p8o>.

⁵⁰ Brewers Association. Water and Wastewater: Treatment/Volume Reduction Manual.
http://www.brewersassociation.org/attachments/0001/1517/Sustainability_-_Water_Wastewater.pdf.

⁵¹ New Belgium Brewing Company's 2015 Sustainability Report:
https://www.newbelgium.com/files/sustainability/New_Belgium_Sustainability_Brochure.pdf?pdf=sustainabilityreport.

been considered a “theme park” for food. In addition to their restaurant, the East End Market start-up offers demonstrations, incubator kitchens, and provides opportunities to educate and empower others in sustainability issues. Urban farmer artisans can showcase what their harvested gardens have produced to serve on the table.

Regardless of whether the company is publicly traded, private, or a newly formed entrepreneurial venture, businesses of all kinds can protect the environment by taking proactive measures in ecological sustainability. Through this literature review, I have noticed that sustainable development has made economic sense for society. In these case studies, I will share how these companies’ sustainability efforts have reduced the use of non-renewable resources and how they have recycled residual materials.

In particular, this paper will show each of their strategies and goals for sustainability. As environmental stewards, this paper will show how each company has created environmental value for their stakeholders with their sustainability processes. We will look at how these businesses have reduced their waste and pollution, the processes they have developed towards product stewardship, and their use with clean technologies. In considering the social value these businesses create, we will look at ways they uphold human values. Finally, we will look at how the leaders have strengthened the business by taking a proactive approach towards sustainability in creating financial value.

CHAPTER 4: CASE STUDY INTERFACE, INC.

Sustainability issues are driving businesses to consider new ways to manage and respond to the environment. However, not all businesses are equally involved with sustainable development responsibility. These next three chapters describe the processes that the three business case studies use to operate and embrace sustainable development.

Strategy and Goals for Sustainability

Interface's quest for sustainability started in 1994 when founder and CEO Ray Anderson announced that Interface would seek to become:

*"the first sustainable corporation in the world, and, following that, the first restorative company... We look forward to the day when our factories have no smokestacks and no effluents. If successful, we'll spend the rest of our days harvesting yesteryear's carpets, recycling old petro-chemicals into new materials, and converting sunlight into energy. There will be zero scrap going into landfills and zero emissions into the biosphere. Literally, our company will grow by cleaning up the world."*⁵²

As one of the world's leading environmentalists, Anderson had a bold vision and passion for sustainability. This vision was embraced by its people and Interface was transformed.⁵³

Interface has established its Mission Zero[®] promise as a commitment to their values with sustainability and restoring the environment. Supported by their innovation, Interface is making great strides to achieving their Mission Zero[®] promise.

⁵² Interface's sustainability report, initiatives, and vision are described at <http://www.interfaceglobal.com/sustainability>.

⁵³ Interface's founder and former CEO, Ray Anderson, describes the story in his quest for sustainability at <https://www.youtube.com/watch?v=OUG4JXE6K4A>

Figure 4: Interface's Mission Zero Promise⁵⁴



Environmental Value - Proactive Sustainability Processes

The carpet industry faces many challenges with respect to the environment because of its end-of-life management, where approximately 5 billion pounds of discarded carpet ends up at the landfills each year in the United States.^{55, 56} The carpet industry has realized that there is a responsibility at the post-consumer stage for their products and the damaging effects that carpet has on the environment.⁵⁷ One carpet company that is making a difference in their sustainability efforts to reduce their environmental impact is Interface, a \$1 billion company located in Atlanta,

⁵⁴ Interface's Mission Zero promise can be found at: <http://www.interfacecutthefluff.com/are-you-experiencing-sustainability-at-work/>.

⁵⁵ Perman, Stacy. "Interface's Quest to Make Carpetmaking Cleaner." *Business Week*. (2014) Accessed February 20, 2016. <http://www.bloomberg.com/news/articles/2014-09-04/interface-targets-zero-waste-in-carpetmaking>.

⁵⁶ United States Environmental Protection Agency. Wastes - Resource Conservation - Conservation Tools. Carpet. Use and disposal metrics are found at: <https://archive.epa.gov/wastes/conserve/tools/stewardship/web/html/carpet.html>.

⁵⁷ Fishbein, Bette K. "Carpet Take-Back: EPR American Style." *Environmental Quality Management*, 10, no. 1 (2000): 25-36.

Georgia. Interface is the world leader in carpet tiles, producing 40 percent of the world's commercial carpet tiles.

By 2011, Interface reported that it has saved over \$430 million in reducing waste and adopted a Mission Zero[®] by 2020 commitment and promise, seeking to obtain zero impact on the environment.⁵⁸ Interface will operate a closed loop flow of carpet materials and eliminate all of its gashouse emissions.⁵⁹ The company's 2015 sustainability metrics can be found in Appendix A. In order to achieve these enormous sustainability goals, Interface had to set measurable standards and put processes in place. The following are some of the initiatives and processes the company has undertaken:

- Repurposing through cleaning and refurbishment to give carpets a second life
- Recycling to turn used carpet into new carpet again
- Breaking down used carpet into its components to become less valued products, such as carpet padding
- Lease program offers customers the option to lease their carpet and service, where Interface would be responsible for producing, installing, maintaining, replacing carpet tiles over the lease period, and recycling at the end-of-life
- Learning from nature and creating sustainable carpet products through biomimicry
- Interface invented a process to pull the nylon piles off of discarded carpet so each component can be recycled to make new carpet tiles or other products

⁵⁸ Ibid.

⁵⁹ Meezan, Erin "Leaving No Footprints." *The Environmental Forum*, 25, no. 2 (2008): 42-45.

Sustainability is an integral part of what Interface does. Erin Meezan, Director of Sustainable Development at Interface, attributes the company's success to its pursuit of sustainability.⁶⁰ Interface does not have any problems with disclosing their measured results, as it is part of their success story that they are very proud to share. As of 2015, the following are some of the metrics based on Interface's successful processes:⁶¹

- Carpet Carbon Footprint – down 31 percent since 2008
- Total Energy Use – improved by 45 percent since 1996
- Renewable Energy – 84 percent of total energy used at manufacturing sites is from renewable sources
- Greenhouse Gas Emissions – reduced by 92 percent since 1996
- Raw Materials – 50 percent of raw materials are recycled or bio-based
- Water – decreased by 87 percent since 1996
- Recovered and reused 26 million pounds of carpet and carpet scraps, diverting over 253 million pounds of carpet from landfills since 1995
- Collected 22 thousand pounds of discarded fishing nets, which were recycled into nylon yarn for use in the carpets

⁶⁰ Ibid.

⁶¹ Interface's environmental footprint metrics are described at <http://interfaceglobal.com/Sustainability/Our-Progress/AllMetrics.aspx>

Pollution Prevention

Interface began tracking their ecometrics (measurement system for reducing the carbon footprint) in 1996 to evaluate their progress towards sustainability goals. The company has made impressive measurable improvement by making more carpet with less energy, emissions, and pollution. The carpet industry has received a lot of unfavorable attention because of their negative effects the carpet products have on the environment. The Environmental Protection Agency estimates that nearly 5 billion pounds of carpet are discarded and taken to the landfills each year.⁶² Carpet making is a dirty business because it uses toxic, petroleum-based processes, which releases large amounts of air and water pollution. In 1994, Anderson was confronted by customers asking what the company was doing for the environment.⁶³ During that time, business was booming for Interface, but the company did not have an environmental vision. Anderson was attuned to his customers and became interested in the subject matter of sustainability because they were interested in it. It was then that Anderson realized that Interface needed to change direction to reduce its impact on the environment. Since then, Interface has cut greenhouse gas emissions by 92 percent. Through diverse strategies, the company is taking extreme measures to reduce pollution and greenhouse gas emissions.⁶⁴

⁶² United States Environmental Protection Agency. Wastes - Resource Conservation - Conservation Tools. Carpet. Use and disposal metrics are found at: <https://archive.epa.gov/wastes/conservation/tools/stewardship/web/html/carpet.html>

⁶³ Interface's founder and former CEO, Ray Anderson, describes the story in his quest for sustainability at <https://www.youtube.com/watch?v=OUG4JXE6K4A>

⁶⁴ "Ray Anderson: The Business Logic of Sustainability." TED Talks, February 2009. Accessed April 23, 2016. https://www.ted.com/talks/ray_anderson_on_the_business_logic_of_sustainability?language=en

Product Stewardship

Interface has taken a leadership role with product stewardship in their carpet leasing program, Evergreen Lease™, which creates a closed materials loop and extends product life by leasing carpet tiles to its customers. The program, created in 1995, allows Interface to retain ownership of the carpet, ensuring that the carpet is properly disposed of and that its carpet is not taken to the landfills. Interface installs, maintains, and replaces worn carpet tiles for its customers. Customers lease the service for a fee, rather than purchasing carpet. Old carpet tiles are then recycled back into carpet. This sustainable business model has reduced a tremendous amount of waste.

Clean Technology

With its practice of biomimicry, Interface has been at the forefront of creating new innovations, such as Entropy® and i2® carpet tiles. Biomimicry is an innovative approach that seeks sustainable solutions for humans by observing and imitating nature's countless animals and plants. Through its research and development, Interface's carpet tiles have disorder and random patterns built in, just like the flooring of a natural forest. Combining a single dye lot with a random pattern, tiles can be moved and placed in any direction. These carpet tiles are easy to install, replace, and helps reduce waste.

TacTiles® is another innovation that stemmed from biomimicry. This glue-free installation system came from the inspiration of the gecko, whose million tiny foot hairs stick to any surface at any angle. TacTiles® are a cleaner, faster, and an environmentally friendly alternative to traditional

carpet adhesives. With the elimination of fumes, odor, and mess, Interface has revolutionized carpet installation.⁶⁵

Interface has invested in clean technologies to support sustainable development practices. The innovations of these clean, efficient technologies have brought Interface closer to achieving their Mission Zero[®] promise.

Social Value

Interface supports and embraces human life and recognizes that the sustainable choices we make affect others. The company's commitment to sustainability and minimizing the impact on the environment is reflected in its core values and mission statement.

By improving the environment and focusing on sustainability, Interface's Mission Zero[®] promise is fundamental to the company's culture and has resonated in the hearts of their employees, families, and communities throughout the world. The company has been successful in achieving social value and it continuously looks for better ways to help the environment and its citizens. Interface is viewed as a world leader in sustainability and a responsible steward of the environment.

Financial Value

Capitalizing on their worldwide leadership in design, production, and sales of carpet tiles, Interface has increased their presence and market share throughout the world. The company is

⁶⁵ Interface's TacTiles video showing their environmental footprint can be seen at: <http://www.interface.com/US/en-US/about/modular-carpet-tile/TacTiles-Glue-Free-Installation>

recognized as a global leader in ecological sustainability. The Interface brand is highly popular and profitable. In his “Business Logic of Sustainability” presentation at TED2009, Ray Anderson shared that Interface has measured their progress with sustainability and in a twelve-year span from 1995-2007, the company has increased sales by two-thirds and profits have doubled.⁶⁶

Today, the company continues to be financially strong, as evidenced in their 2015 Annual Report.⁶⁷

"The fourth quarter rounded out a phenomenal year in which Interface posted all-time records for net income and earnings per share," – Daniel T. Hendrix, Chairman and Chief Executive Officer of the Company.

Interface’s focus on sustainability has led to innovative ideas, cost savings, new markets, and profits. According to John Wells, president and CEO of Interface Americas, a subsidiary of Interface, “In many respects, innovation has become a survival strategy for us because we’re not a low-price, commodity player. It’s led to reductions in operating costs and greater value for our customers, which is critical when you make a high quality product.”⁶⁸ As outlined in their investor relations page, Interface “is committed to the goal of sustainability and doing business in ways that minimize the impact on the environment while enhancing shareholder value.”⁶⁹

⁶⁶ “Ray Anderson: The Business Logic of Sustainability.” TED Talks, February 2009. Accessed April 23, 2016. https://www.ted.com/talks/ray_anderson_on_the_business_logic_of_sustainability?language=en.

⁶⁷ Interface’s 2015 Annual Report can be found at: <http://www.interfaceglobal.com/Investor-Relations/Annual-Reports.aspx>

⁶⁸ Stevens-Huffman, Leslie. “Interface Americas: Rolling Out the Green Carpet.” *Smart Business Atlanta*, 10, no. 12 (2013): 18.

⁶⁹ Interface’s Investors Relations commitment statement is found at: <http://www.interfaceglobal.com/investor-relations.aspx>

CHAPTER 5: CASE STUDY NEW BELGIUM BREWING COMPANY

Strategy and Goals for Sustainability

As part of the company's core values and beliefs, sustainability initiatives are at the forefront. New Belgium Brewing Company lists the following core values on their website:⁷⁰

- “Kindling social, environmental, and cultural change as a business role model.”
- “Environmental stewardship: Honoring nature at every turn of the business.”

The vision and inspiration came from a bike trip through Belgium. The company's commitment towards sustainability and minimizing its environmental footprint began at its inception and carries through each day. New Belgium sets ambitious goals towards sustainability initiatives.

“One of New Belgium Brewing's core values is to honor nature at every turn. The health of our community and of our business depends upon the health of the natural environment.” – Jennifer Vervier, Director of Sustainability and Strategy

As a certified B Corporation, New Belgium must “meet rigorous standards of social and environmental performance, accountability, and transparency.”⁷¹

Environmental Value - Proactive Sustainability Processes

In the beer industry, craft breweries face big challenges when considering ways to protect the environment. Although there has been significant improvement in sustainable development

⁷⁰ New Belgium Brewing Company's core values and beliefs can be found at:
<http://www.newbelgium.com/Brewery/company/history>

⁷¹ Information about Certified B Corporations can be found at: <https://www.bcorporation.net/community/new-belgium-brewing-co-inc>

efforts over the past twenty years, breweries use a substantial amount of energy and water.⁷² In the United States, it takes 8-24 gallons of water to produce one pint of beer. Breweries are under immense pressure to find innovative solutions in managing their water usage and addressing sustainability issues. One company that has successfully reduced its carbon footprint and water usage is New Belgium Brewing Company, headquartered in Fort Collins, Colorado.

New Belgium Brewing is the third largest craft brewery in the United States and has been nationally recognized for its sustainability efforts.⁷³ From the very beginning, New Belgium Brewing wanted to be environmental stewards, which turned into becoming more intentional about sustainability. This has led to developing a sustainability management system, which has helped set targets for sustainability goals.⁷⁴ As part of their sustainability management system, the following are some of the processes New Belgium Brewing has in place:⁷⁵

- SmartGrid technology used for its power systems to shut off non-essential power loads reducing energy costs
- Utilizes on-site Process Water Treatment Plant to clean the production of wastewater. This process creates a biogas, a renewable energy source made predominately from methane and carbon dioxide, which provides the company

⁷² Brewers Association, *Water and Wastewater: Treatment/Volume Reduction Manual*, (2011).

⁷³ Doehrman, Marylou. "Brewing Beer and an Ideal Business Model." *The Colorado Springs Business Journal*, (2003): 1.

⁷⁴ Kidwell, Roland. E. and Asia N. Peek. "New Belgium Brewery: Sustaining Earnings, Employees, Environment and Beer Culture." *Journal of Applied Management and Entrepreneurship*, 14, no. 2 (2009): 132.

⁷⁵ New Belgium Brewing Company's environmental initiatives can be found at: <http://www.newbelgium.com/sustainability/Environmental-Metrics/Energy>

about 15 percent of their electricity needs. In essence, the wastewater is turned into energy.

- Solar panels provide about 4.5 percent of their annual electricity needs
- Purchases 100 percent of its electricity from wind power
- Invests in energy efficiency and renewable energy projects to help reduce the company's reliance on fossil fuels

New Belgium is proud of the commitment and accomplishments they have made toward sustainable development efforts. In 2014, the company was honored as the “Best of the Best for Environmental Impact.”⁷⁶ Although it is important for a business to be profitable, the most important core value is to be a sustainable business role model, according to Jennifer Vervier, New Belgium's Director of Strategy and Sustainability.⁷⁷ The following are the environmental metrics and their sustainability efforts the company proudly boasts of achieving in 2014:⁷⁸

- Water – Reduced water use per barrel to 3.96:1. In other words, it took only 3.96 barrels of water to make one barrel of beer.
- Waste – Diverted 99.9 percent of the company's waste from the landfill
- Greenhouse Gas Emissions – Reduced by 12 percent

⁷⁶ B Corp's 2014 Best For The World Environmental Impact honorees can be found at: <http://bestfortheworld.bcorporation.net/2014-best-for-the-world-environment-honorees.html>.

⁷⁷ Kidwell, Roland. E. and Asia N. Peek. “New Belgium Brewery: Sustaining Earnings, Employees, Environment and Beer Culture.” *Journal of Applied Management and Entrepreneurship*, 14, no. 2 (2009): 129.

⁷⁸ New Belgium Brewing Company's environmental metrics can be found at: <http://www.newbelgium.com/sustainability/Environmental-Metrics> and the 2015 Sustainability Report found at: http://www.newbelgium.com/files/sustainability/New_Belgium_Sustainability_Brochure.pdf?pdf=sustainabilityreport

- Energy – 12.6 percent of the company’s electricity is produced on-site with solar and biogas

Pollution Prevention

Beer breweries produce large amounts of carbon dioxide, which can cause air pollution, global warming, and health risks. To ensure that its air emissions do not affect the overall air quality, New Belgium has put pollution control devices in place to obtain the lowest emissions possible.⁷⁹ In addition, the company relies on clean water that comes into the brewery to produce the quality beer that their customers desire. In the process, there is a large amount of wastewater that leaves the facility. New Belgium has addressed this by adding an on-site Process Water Treatment Plant to clean all of its production wastewater, thus preventing the water from being polluted.⁸⁰ This on-site water treatment plant uses microbes to treat the processed wastewater. Oxygen-free air basins consume the pollutants and contaminants in the wastewater. This process produces a methane-rich biogas, which is sent back to the brewery to provide the electrical needs for the brewing process.⁸¹

⁷⁹ New Belgium Brewing Company’s air pollution control efforts can be found at: <http://www.newbelgium.com/community/asheville-brewery/faq>.

⁸⁰ Gribbins, Keith. “The growing challenges of brewery wastewater systems.” *Craft Brewing Business*. (2013). Accessed on May 29, 2016 at: <http://www.craftbrewingbusiness.com/equipment-systems/growing-challenges-wastewater-control-craft-brewing/>.

⁸¹ “Waste? Recycled, Reclaimed, Redefined.” Newbury Film Series. (2009). Accessed on June 11, 2016 at: <https://www.youtube.com/watch?v=5CATbSzMuyE>.

Product Stewardship

New Belgium continuously strives to “honor nature at every turn” and in doing so, the company demonstrates innovative improvements for their product and its lifecycle. The company seeks to reduce, reuse, and recycle throughout its product lifecycle. In assessing its packaging decisions, the company considers the total life cycle of materials and systems. New Belgium is a big proponent of extended producer responsibility, which holds the manufacturer responsible for the entire lifecycle of its product. New Belgium has established sustainability goals for its packaging that can be found on its website.⁸²

New Belgium realizes that to reach these rigorous process plans and affect change in the industry, they need to work with their supply chain and consumers. The company’s 2015 sustainability metrics can be found in Appendix B. To better educate its consumers on which container to choose from – cans, kegs, or bottles – the company developed a decision map to help choose the most sustainable option. The decision map can be found in Appendix C.

Clean Technology

Technology is at the core of New Belgium Brewing Company’s success. To meet its sustainability goals, the company must rely heavily on technology. For example, the company analyzes its data to determine how much energy is consumed in its brewing processes, and how much water is diverted into wastewater.

⁸² New Belgium Brewing Company’s packaging reduction goals can be found at:
<http://www.newbelgium.com/files/sustainability/NBBPackagingReductionGoals2014.pdf>

New Belgium Brewing Company strives to be a leader and role model using sustainable technologies. The company's own water treatment plant cleans all of its production wastewater before it enters the city's water system. A byproduct of the water treatment process, methane gas, is captured and converted into electricity for the plant, producing 15 percent of the company's electrical needs.⁸³

Energy costs are a critical component to production costs of any brewing business. Another clean technology that New Belgium utilizes is the use of solar panels, which provide about 4.5 percent of the company's annual electricity needs. There are 1,235 solar panels installed at New Belgium. With the amount of energy that is generated at the brewery, the company could power approximately 215 houses.⁸⁴

Since 1999, the company has been using wind power. New Belgium was the first brewery in the United States to purchase 100 percent of its electricity from wind power.⁸⁵ This has significantly increased the company's sourcing of renewable energy and protects our natural resources.

Finally, New Belgium uses SmartGrid technology to manage its systems and equipment. This technology is used to shut off non-essential power loads when the strain on the municipal power grid is high, thus resulting in a reduction of energy costs. The SmartGrid maintains a two-

⁸³ "New Belgium Brews Up Sustainable Manufacturing." Wonderware Invensys. (2011). Accessed on May 29, 2016 at: http://iom.invensys.com/EN/SuccessStories/SuccessStory_Wonderware_NewBelgiumBrewing_06-11.pdf

⁸⁴ New Belgium Brewing Company's solar panel initiatives can be found at: <http://www.newbelgium.com/Sustainability/Stories/new-belgium-brewing/2014/12/05/Good-Day-Sunshine>

⁸⁵ New Belgium Brewing Company's wind power initiatives can be found at: <http://www.newbelgium.com/Sustainability/Environmental-Metrics/Energy>

way communication with the local power company. This clean technology helps the company to protect the environment, improve the community, and grow their business.⁸⁶

Social Value

In its concern for the environment, New Belgium Brewing Company is tied to its community and the people. Its customers are their neighbors and co-workers and so the company is seen as an important part of society and has a strong concern with social responsibility. The investments the company makes are social initiatives and the company has been recognized nationally for the social value they create.

For the past five years, New Belgium has been recognized as one of the best places to work in the United States.⁸⁷ New Belgium has been empowering their employees to lead a healthy work-life balance and to live bigger and better lives. It is no secret why their staff loves the culture of their employee-owned craft brewery. Some of the perks their employees receive are a free trip to Belgium after five years of service, where the vision for New Belgium Brewing Company began. Ten years of service awards the employee with a four-week paid vacation.

New Belgium creates a great sense of community and shared purpose. Every year the company gives thousands of dollars to non-profit organizations through its grants program,

⁸⁶ New Belgium Brewing. "Sustainability & Environment." (2011). Accessed February 20, 2016.
<https://www.youtube.com/watch?v=BObRPpy6p8o>.

⁸⁷ "The 100 Best Places To Work In 2015." Outside Live Blavely. (2016). Accessed on May 30, 2016 at:
<http://www.outsideonline.com/2034286/100-best-places-work-2015>.

donating \$1 for every barrel of beer sold. New Belgium has donated over \$7 million through its grant programs.⁸⁸ In addition, the company gives 5 to 9 percent of its profits to charities.⁸⁹

Employees are also encouraged to be environmental stewards and give back to their communities. The Beer Scouts are a group of New Belgium employees who sponsor volunteer events to give back and inspire positive change. New Belgium rewards a Beer Scout employee with one hour of paid time off for every two hours of volunteer work. Over the past five years, Beer Scouts have logged over 12,500 volunteer hours.⁹⁰

“New Belgium is the kind of place where you walk through the front door, high-five your co-workers all the way to your desk/lab/machine, and laugh out loud all throughout the day. At the same time, you’re working harder than you ever have at anything else, and it somehow means more. That’s a powerful alchemy.” – Bryan Simpson, New Belgium’s Media Relations Director

Financial Value

As mentioned above, New Belgium Brewing Company is a certified B Corporation, meaning the company is “purpose-driven, and creates benefit for all stakeholders, not just shareholders.”⁹¹ As a privately held, employee-owned company, New Belgium does not share any of its financial information with the public. According to the article, “It’s All About Ownership,” Leigh Buchanan, Editor-at-Large for Inc. Magazine shares that New Belgium made over \$180

⁸⁸ New Belgium Brewing Company’s philanthropy program can be found at: <http://www.newbelgium.com/sustainability/Community/Philanthropy/>

⁸⁹ New Belgium Brewing Company’s community highlights can be found at: <https://www.bcorporation.net/community/new-belgium-brewing-co-inc>

⁹⁰ New Belgium Brewing Company’s Beer Scouts program can be found at: <http://www.newbelgium.com/Sustainability/Community/BeerScouts>

⁹¹ “What Is A Certified B Corp?” Preserve. (2016). Accessed on May 30, 2016 at: <https://www.preserveproducts.com/explore/preserve-101/b-corp-certification>.

million in revenue in 2013.⁹² Although there is no mention of profit the company has made, the company continues to give back generously to their communities and charities. Since 1991, the company has given back more than \$1 million each year.⁹³

Being the third largest craft brewery in the United States, New Belgium has received national attention. The company makes a wide variety of award-winning beers. Being a company with a culture of sustainability and environmental stewardship gains the attraction of many. But that is not why they practice environmental sustainability. New Belgium's Sustainability and Strategy Director, Jennifer Vervier states, "The reason that we do it is not to influence our consumers - we do it because it's the right thing to do."⁹⁴

According to Kim Jordan, Chief Executive Officer at New Belgium Brewing Company, the company has found success in the "combination of profitability, loving and excellence, which in some ways could be seen as sustainability."⁹⁵ Jordan adds, "One of the things that we think is a big societal issue is this widening gap between the haves and the have-nots. And we realized that we had an opportunity to support people owning something that was increasing in value. Shared equity has been an incredibly powerful engine for us." New Belgium uses the worker-ownership structure to preserve their legacy. The company boasts by being more profitable than the industry standards. According to IBISWorld, the brewery industry is expected to experience approximately

⁹² Buchanan, Leigh. "It's All About Ownership." Inc. Magazine. (2013). Accessed on May 30, 2016 at <http://www.inc.com/audacious-companies/leigh-buchanan/new-belgium-brewing.html>.

⁹³ McCambridge, Ruth. "New Belgium Brewery: Corporate Philanthropy With Integrity." Non Profit Quarterly. (2015). Accessed on June 26, 2016 at: <https://nonprofitquarterly.org/2015/07/09/the-new-belgium-brewery-corporate-philanthropy-with-integrity/>.

⁹⁴ Withall, Ryan. "A Splash Of Beer, A Ripple Of Awareness." Yale Center of Business and the Environment. (2015). Accessed on May 30, 2016 at: <http://cbey.yale.edu/our-impact/splash-beer-ripple-awareness>.

⁹⁵ Kidwell, Roland. E. and Asia N. Peek. "New Belgium Brewery: Sustaining Earnings, Employees, Environment and Beer Culture." *Journal of Applied Management and Entrepreneurship*, 14, no. 2 (2009): 128.

\$2.6 billion in profit in the United States in 2016.⁹⁶ Craft breweries make up approximately 15 percent of the market, accounting for approximately \$390 million profit in 2016. In addition, the company has a low turnover rate of just 3 percent.⁹⁷ New Belgium continues to flourish, adding economic value for its stakeholders.

⁹⁶ Petrillo, Nick. "IBISWorld Industry Report 31212 Breweries in the US." IBISWorld. (2016): 4.

⁹⁷ "Brewery Workers Pour Their Hearts Into Business When Given A Stake." PBS NewsHour (2015). Accessed on May 30, 2016 at: <http://www.pbs.org/newshour/bb/brewery-workers-pour-hearts-business-given-stake/>.

CHAPTER 6: CASE STUDY EAST END MARKET

Strategy and Goals for Sustainability

The strategies and goals that East End Market has for sustainability are somewhat different than the other two case studies described in this paper. The founder and owner of this start-up, John Rife, has had roots with urban farming and much of the company's inspiration comes from 'farmpreneurs' who have a focus on sustainability.

One of the company's missions is to "provide the community with sustainable sustenance for quality indulging."⁹⁸ East End Market is a mixed-use urban market development with offices, retail shops, and restaurants – all in one building. In living out his passion with sustainability, Rife runs farm-to-table events, agritourism trips, and gardening classes. East End Market's farm-fresh restaurant, Txokos Basque Kitchen, showcases food entrepreneurs, some local top chefs, and others who have a strong focus on sustainability. Weekly cooking and gardening classes are offered, along with a demonstration and incubator kitchen for vendor use.

The Orlando area is showing a rapid growth with the farm-to-table movement. There has been an increase with the number of independent restaurants that serve locally and organically grown foods.⁹⁹ East End Market has received numerous awards for their sustainability efforts. The company has been practicing sustainability because it is important, not because it is expected.

⁹⁸ East End's mission and vision with sustainability can be found on their website at: <https://www.eastendmkt.com/about/meet-us/> and <https://www.eastendmkt.com/about/>.

⁹⁹ Ballon, Diana. "A Different Side of Orlando." *Taste & Travel*. Issue 16. (Winter 2015). Accessed on May 26, 2016 at: https://www.tasteandtravelmagazine.com/media/issue16/T&T_Issue16_Orlando.pdf

Although the company does not have a mission statement outlining sustainability, their focus on sustainability is really what East End Market believes in and does, according to Rife.

Environmental Value - Proactive Sustainability Processes

Founded in 2012 and located in Orlando, Florida, East End Market is a neighborhood market and food hub that has often been considered a “theme park” for food. The company has been recognized for their sustainable development efforts. In addition to their restaurant, the start-up offers demonstrations, incubator kitchens, and provides opportunities to educate and empower others in sustainability issues. The urban farmer artisans can showcase what their harvested gardens have produced to serve on the table.

The start-up is small in comparison to the other companies analyzed in this study. However, East End Market has remained largely focused on sustainability since its inception and continues to attract foodies and urbanites who are environmentally and health conscious.

The following are some of the sustainability initiatives and processes the company has undertaken:

- Sustainable agriculture with farming back yards to produce organic foods
- Water conservation through use of micro sprinklers and drip hoses in the garden
- Energy conservation through use of automatic light switches
- Recycling
- Waste management – reduction in trash pickups
- Composting program to reduce food waste

Pollution Prevention

As a business that serves food to its customers, East End Market has an understanding of their waste and has properly managed and modified their processes to eliminate the waste to achieve their sustainability goals. The company has set processes in place to reduce their waste management pickups, resulting in a reduction in pollution. In addition, the company has developed a composting program to reduce food waste and air emissions.

Product Stewardship

In its efforts with sustainability, East End Market is committed to product stewardship with its organic farming and composting programs. Their sustainable agriculture with farming back yards have produced organic foods that are served in their restaurant and showcased in their weekly cooking and gardening classes. Food waste fills the landfills, resulting in and creating greenhouse gas emissions and water pollution. To prevent waste and close the loop, leftover food scraps are transformed into compost, which ultimately promotes more organic matter.

Clean Technology

Clean technology can come in many forms. East End Market has incorporated clean technologies to improve their processes and support sustainability. In its efforts to conserve energy, East End Market has installed automatic light switches. Also, the company has helped with water conservation with its use of micro sprinklers and drip hoses in their gardens. The company is committed to their sustainability initiatives and continuously looks for ways to help the environment.

Social Value

One of the most important elements of East End Market's success story is the social value they have created with their sustainability efforts. Because the company's activities are centered on sustainable development, it draws the attraction of millennials and others who show an interest in sustainability and care about the environment. According to Rife, "I think our customers see that we aren't solely profit driven. We would gladly give up some profit for the sake of people and planet." To demonstrate that the company values human life and dignity, they host numerous events, such as events with the Farm Worker Association and Second Harvest Food Bank. The Farm Worker Association aims to protect the rights of farm workers by creating a social environment where "farmworkers' contribution, dignity, and worth is acknowledged, appreciated, and respected through economic, social, and environmental justice."¹⁰⁰ Second Harvest Food Bank is a private, nonprofit organization that collects, stores and distributes donated food throughout six Central Florida counties to those who struggle with hunger.

East End Market features ongoing events and educational courses that can be enjoyed by all members of the community, regardless of age. Many of the educational events that East End Market offers are focused on sustainability, such as classes in understanding our food system, farming and gardening, reducing food waste, and preparing food.¹⁰¹ These educational events are

¹⁰⁰ Farm Worker Association of Florida's vision and mission can be found at: <http://www.floridafarmworkers.org/about-us/vision-a-mission>

¹⁰¹ Buffington, Brent. "East End Market: Orlando's Neighborhood Market and Food Hub." *Vimeo*. (2015). Accessed on May 29, 2016 at: <https://vimeo.com/121090103>.

also empowering people to live a healthier and happier life. A complete list of classes and events can be found on the company's website.¹⁰²

Although small in size with a team of just four: the owner, chief financial officer, general manager, and chef, East End Market is a mighty team making a big impact in the community. The company has about twenty merchants in the marketplace to showcase their food and craft. Each merchant is handpicked based on their values with sustainability being aligned with the values of East End Market.

With their sustainable agriculture systems, partnerships with specific merchants, and educating the public, East End Market is providing a broad range of social value to the community and its stakeholders. Many organizations, such as the Farm Worker Association and Second Harvest Food Bank are also benefitting from the support and relationship they have with East End Market. Although their social factors have not been measured due to the newness of the company, East End Market is certainly positively impacting people's quality of life.

Financial Value

As mentioned above, East End Market is more focused on the people and planet, rather than profit. And this is noticeable to their customers and stakeholders. The East End Market brand is popular and attractive to millennials and others who have an interest with sustainability and the health of the environment.

¹⁰² East End Market's events and classes can be found at <https://www.eastendmkt.com/events-classes/>

When asked about the financial value that its stakeholders receive from the company's sustainable choices, Rife apologizes for not being more interested in the financial value. Rife explains, "I think we attract folks because we aren't focused on the ROI (return on investment)." The company attracts a sustainable-minded audience, which helps to provide financial value for its stakeholders, but that is not the reason why East End Market is doing sustainable practices. According to Rife, "We are doing it because we believe in it...it is what we do." Sustainable development is important to East End Market and they stress that they are not doing it because it is expected. They do it simply because they believe in it.

The company provides a deep discount for event space to non-profit organizations who wish to host their events at East End Market. This becomes lost revenue for the company, however, its merchant tenants benefit from the hundreds of attendees who attend the events each month. In the end, the tenants are happy, event attendees are educated, and the East End Market is empowered. This is the kind of financial value that East End Market likes to see.

Again, Rife seems somewhat apologetic for not being able to provide measurements of financial value for its stakeholders, but he overcomes this by stating the following,

"...maybe that's why we are successful. Don't get me wrong, I am always looking at the numbers and the project is very successful. But I think our focus on the human and sustainability element of what we do, rather than profit, is part of our allure."

The company certainly has been successful in the Central Florida community drawing a lot of attention for their sustainability practices. East End Market is part of an Eco District, which was

recently recognized for a national award, the 2016 Great American Main Street Award, due in part to its sustainability initiatives.¹⁰³

¹⁰³ National Main Street Center. “Main Street America™ 2016 GAMS A Winner Audubon Park Garden District, Orlando, Florida.” (2016). Accessed on May 29, 2016 at: <https://vimeo.com/noticepictures/review/165938682/48ac40f4e8>.

CHAPTER 7: LESSONS FROM THE CASE STUDIES

The case studies presented here can help business leaders as they examine their sustainability initiatives. These case studies represent companies that are leading the way in sustainability and creating value. While each of the companies has different goals and sustainability processes in place, there are several noteworthy attributes these companies have in common.

The business leaders of each of these organizations understand how sustainability has impacted their company. Although the leaders from each of these businesses manage sustainability differently, each take an active approach in seeking opportunities for sustainability into their business practices.

Strategy and Goals for Sustainability

Each of the case studies showcased in this paper has set strategies and goals for sustainability at the inner core of their business to help them operate in a responsible and sustainable manner. They each have strategically incorporated sustainability into their vision and mission, and sustainability is deeply embedded into their cultures. For example, Interface's culture and vision for sustainability is stimulated by its employees, who feel a passion and commitment towards the environment and society. The company's Mission Zero[®] promise - zero environmental impact by 2020 - has transformed Interface and inspired its employees to share their passion with their families and help change their local communities.

New Belgium Brewing Company's commitment to the environment and society began at its inception. The company's sustainability initiatives are part of their core values and beliefs,

which are posted on New Belgium's website, displayed in their lobby, and tug at the heart strings of its employees.¹⁰⁴ The company has set ambitious goals towards sustainability and became a certified B Corporation, demonstrating its commitment to the people, planet, and profit.

Although small in size, East End Market's culture for sustainability is shared by its four employees and is making a big impact in the community. Largely focused on sustainability since its inception, East End Market has been recognized for their environmental efforts. The company has approximately twenty merchants in the marketplace and each merchant is handpicked based on their values with sustainability being aligned with the values of East End Market.

In their drive for sustainability, these companies focus on their goals for sustainability and its impact on the environment. Although each of the companies is different, they each share a unity of commitment in their pursuit of sustainability goals and strategy. Sustainability is at the heart of their organizational cultures, which is supported and embraced by their employees. This leads me to conclude that commitment and conveying sustainability goals to all employees is essential to implementing sustainability plans successfully.

Environmental Value - Proactive Sustainability Processes

In each of the case studies presented here, managers desire to be excellent stewards of sustainability and create value for their stakeholders. These companies have communicated their sustainability activities and engagement to their stakeholders. Because of their investment and

¹⁰⁴ New Belgium Brewing Company's core values and beliefs can be found at:
<http://www.newbelgium.com/Brewery/company/history>.

focus in sustainability, these companies have built a reputation for being environmental stewards and leaders in sustainability.

With Interface's Mission Zero[®] promise by 2020, the company has committed to operate a closed loop flow of carpet materials and eliminate all of its gas emissions.¹⁰⁵ To achieve this enormous goal, the company has set measurable standards and put processes in place, as shared in Chapter 4. Interface's results are based on their successful processes and can be found in Appendix A. New Belgium Brewing Company has been successful in reducing their carbon footprint and water usage. The company proudly boasts of their commitment and achievements toward sustainability. Some of New Belgium's environmental metrics and measured efforts are shared in Chapter 5 and Appendix B.

Each of these companies is an environmental leader in their own right. Interface and New Belgium Brewing Company are manufacturers of their products and have access to the resources to make the necessary sustainability improvements with their operating processes. These two entities represent large and mid-sized companies, which have focused on improving their sustainable development efforts for over two decades. Interface and New Belgium have continuously set challenging sustainability goals and track their progress each year with environmental measurement systems in place. With just four employees, East End Market is a small-sized business that was founded in 2012 and opened its business to the public in 2013. East End Market's commitment to sustainability began at its inception. The company has been recognized for their sustainable development efforts. A few of the sustainability initiatives and processes have

¹⁰⁵ Meezan, Erin "Leaving No Footprints." *The Environmental Forum*, 25, no. 2 (2008): 42-45.

helped the company be successful environmental stewards are developing sustainable agriculture to produce organic foods, composting to reduce food waste, and recycling. With these efforts, East End Market is able to create a platform for sustainable farmers to be successful. Because they are a fairly new start-up and small in size, there is not a measurement system currently in place to track their environmental successes like the other two case studies have done. East End Market has successfully demonstrated, however, that they are environmental leaders and create value for their stakeholders.

In analyzing the various processes that these case studies have incorporated into their operations leads me to conclude that there are many different routes to achieve sustainability. Companies can be proactive and directly impact the environment by changing their policy and using their own resources, or they can work with others to help them pursue their sustainability goals.

Pollution Prevention

In achieving sustainability, businesses must gain an understanding of their waste and make appropriate changes to reduce or eliminate waste whenever possible. Leaders must consider ways to properly manage and modify their processes for the health of humans and the environment.

Since 1996, Interface has made impressive measurable improvements to their carpet making processes by using less energy, emissions, and pollution. Over the past two decades, the company has cut greenhouse gas emissions by 92 percent. The company continues to make outstanding improvements in reducing pollution and greenhouse gas emissions.

New Belgium Brewing Company has made major modifications to its manufacturing processes. The company utilizes pollution control devices to ensure their emissions do not affect the overall air quality and obtain the lowest air emissions possible. In addition, New Belgium has added an on-site Process Water Treatment Plant to clean all of its production wastewater, preventing the water from being polluted.

East End Market sells products and intangible services. The company has set processes in place to reduce their waste management pickups which has resulted in minimizing pollution. In addition, the company has developed a composting program to reduce food waste and air emissions. Although East End Market's service business operates very differently than a manufacturing plant, as in the cases of Interface and New Belgium Brewing, they have demonstrated that pollution prevention can and should be considered for any business regardless of their industry type or size.

Business leaders must seek ways to minimize or eliminate the waste and develop sustainable production methods, as these three case studies have done. I conclude that it is important for businesses to have a clear understanding of their production processes and the waste that is used and emitted in the environment.

Product Stewardship

Product stewardship is another area in which a business focuses on “all environmental impacts associated with the full life cycle of a product.”¹⁰⁶ Managers take responsibility for

¹⁰⁶ Hart, Stuart L. “Beyond Greening: Strategies for a Sustainable World.” *Harvard Business Review*, 75, no. 1(1997): 71.

minimizing impacts associated with the design, production, delivery, use, and disposal for their products.

Interface has discovered and developed new strategies for product stewardship. For example, the company's carpet leasing program, described in Chapter 4, creates a closed materials loop and extends product life by leasing carpet tiles to its customers. Interface retains ownership of the carpet, installs, maintains, and replaces worn units. Old carpet tiles are then recycled back into carpet. This has reduced a tremendous amount of waste.

New Belgium also seeks to reduce, reuse, and recycle throughout its product lifecycle. For example, the company takes responsibility for the entire lifecycle of the materials and systems in its product packaging. To help educate its customers, New Belgium has developed a decision map to help make better sustainable choices in their containers – cans, kegs, or bottles. The decision map can be found in Appendix C.

In its efforts with sustainability, East End Market is committed to product stewardship with its organic farming and composting programs. Their sustainable agriculture with farming back yards have produced organic foods that are served in their restaurant and showcased in their weekly cooking and gardening classes. Food waste fills our landfills, resulting in and creates greenhouse gas emissions and water pollution. To prevent waste and close the loop, leftover food scraps are transformed into compost, which ultimately promotes more organic matter.

Each of these case studies is very different in the way they manage the full life cycle for their products and created a closed loop approach. Through their product stewardship the companies have demonstrated that they can improve efficiency and reduce waste. Business managers should consider ways that their products and services interact with stakeholders and how

it impacts the environment. Managers should make the necessary changes and adopt sustainable development strategies to improve the environment.

Clean Technology

One of the most advanced areas that a business can plan for in addressing sustainability issues is clean technology. While many industries have made significant improvement with pollution prevention and product stewardship, the technology base may have negative consequences on the environment. Businesses must develop advanced, innovative technologies that are environmentally sustainable.¹⁰⁷ Because of the increasing levels of manufacturing growth, businesses should view sustainability as a source for new opportunities to develop new products and processes using cleaner technologies.

One company that is doing just that is Interface. With their Entropy[®] and i2[®] carpet tiles, they have created random patterns so that they can be moved and placed in any direction. In addition, TacTiles[®] is a glue-free installation system that provides a cleaner, faster, and environmentally friendly alternative to carpet adhesives. Interface's clean technologies have eliminated fumes, odor, and reduced waste to help support their sustainable development efforts.

New Belgium Brewing Company has received many awards recognizing their efforts to use clean technology. The company has taken extreme measures in using clean technologies to support sustainability with water conservation, energy efficiency, and waste management. The company invested in their own water treatment plant to clean all of its production wastewater. A

¹⁰⁷ Hart, Stuart L. "Beyond Greening: Strategies for a Sustainable World." *Harvard Business Review*, 75, no. 1(1997): 73.

byproduct of the wastewater treatment process, methane gas, is captured and converted into electricity for the plant. New Belgium uses 1,235 solar panels and wind power to produce a portion of the company's electrical needs. Finally, the company uses SmartGrid technology to manage its systems and equipment. The SmartGrid maintains a two-way communication with the local power company, which shuts off non-essential power loads when the strain on the municipal power grid is high, resulting in a reduction of energy costs.

In its efforts to conserve energy, East End Market has installed automatic light switches. Also, the company has helped with water conservation with its use of micro sprinklers and drip hoses in their gardens. The company is committed to their sustainability initiatives and continuously looks for ways to help the environment.

Clean technology can come in many forms, as demonstrated above. Business leaders should consider their products, services, and processes when considering ways to reduce our natural resources and minimize or eliminate waste. The cases shown here have incorporated clean technologies to improve their processes and support sustainability. Interface has invested in their research and development to develop innovative new technologies to make their carpet tiles more environmentally friendly. Both New Belgium Brewing and East End Market use clean technologies in their operation processes to protect the environment, improve the community, reduce costs, and minimize energy and water usage. I conclude that in their pursuit to reduce natural resources and minimize or eliminate waste, managers should continuously look for ways to innovate or utilize clean technologies.

Social Value

To create social value, a business must uphold human values, referring to the sustainable choices they make and how those choices affect others in a society. When considering social value, leaders should consider the contributions they make or intend to make to society.

For example, Interface supports and embraces human life and its Mission Zero® promise has resonated in the hearts of their employees, families, and communities throughout the world. Their commitment and bold approach to sustainability helped achieve social value.

New Belgium Brewing Company makes investments towards social initiatives, in which the company has been recognized nationally for the social value they create. Every year the company gives thousands of dollars to non-profit organizations through its grants program. In addition, the company gives 5 to 9 percent of its profits to charities. New Belgium rewards employees who give back to their communities and sponsor volunteer events.

To demonstrate their value for human life and dignity, East End Market hosts numerous events, such as events with the Farm Worker Association to protect the rights of farm workers. The company also hosts events for Second Harvest Food Bank, which collects, stores, and distributes donated food to those who struggle with hunger. East End Market offers ongoing events and educational courses focused on sustainability, empowering people to live a healthier and happier life.

In my research, I did not find any particular projects or outreaches Interface has done to create social value for their communities, other than their commitment to the Mission Zero® promise. This is not to say that none exist and if I were to guess, I would presume that they are involved in and support their communities through the company's various programs and

investments. I was unable to find any measurements for Interface's social value. New Belgium has shown a great commitment in giving back to their communities and creating social value with their large financial investments and volunteer work. New Belgium does measure its social value and displays it on their website. East End Market provides social value with its support and partnerships they hold with merchants and organizations, as well as providing educational classes and events focused on sustainability. East End Market's social factors have not been measured due to the newness of the company.

Although they may create social value with programs that help society, it appears that Interface focuses most of their efforts on providing environmental value. New Belgium and East End Market, on the other hand, seem to hold a much broader social mission that they are committed to, in which environmental sustainability is a part of. I conclude that managers need to assess their goals and determine whether their sustainability efforts are part of a broader mission or a separate focus.

Financial Value

Sustainability matters are not limited to just environmental and social matters. As mentioned in Chapter 2, sustainability also refers to economic value. Leaders can strengthen the business by taking a proactive approach to create sustainability strategies that can increase cash flow and profits.

For example, by capitalizing on their leadership in design, production, and sales of carpet tiles, Interface has increased its presence and market share globally. Over a twelve-year span,

Interface has increased sales by two-thirds and profits have doubled.¹⁰⁸ Interface's focus on sustainability has led to innovative ideas, cost savings, new markets, and profits. This has resulted to reductions in operating costs and greater value for its customers and shareholders. Interface has used its environmental sustainability efforts to reduce costs and attract customers, which have resulted in an increase in profits, giving them a competitive advantage.

New Belgium is a privately held, employee-owned company that does not share any financial information with the public. In an interview conducted in 2009, New Belgium's Chief Executive Officer, Kim Jordan, stated that the company has found success in the "combination of profitability, loving and excellence, which in some ways could be seen as sustainability."¹⁰⁹ Jordan adds, "One of the things that we think is a big societal issue is this widening gap between the haves and the have-nots. And we realized that we had an opportunity to support people owning something that was increasing in value. Shared equity has been an incredibly powerful engine for us." New Belgium uses the worker-ownership structure to preserve their legacy. The company boasts by being more profitable than the industry standards and has a 3 percent turnover rate.¹¹⁰ New Belgium continues to flourish, adding economic value for its stakeholders.

East End Market's approach to financial value for its stakeholders is a bit different than the other two companies. When asked about the financial value that its stakeholders receive from the company's sustainable choices, founder and owner John Rife apologizes for not being more

¹⁰⁸ "Ray Anderson: The Business Logic of Sustainability." TED Talks, February 2009. Accessed April 23, 2016. https://www.ted.com/talks/ray_anderson_on_the_business_logic_of_sustainability?language=en.

¹⁰⁹ Kidwell, Roland. E. and Asia N. Peek. "New Belgium Brewery: Sustaining Earnings, Employees, Environment and Beer Culture." *Journal of Applied Management and Entrepreneurship*, 14, no. 2 (2009): 128.

¹¹⁰ "Brewery Workers Pour Their Hearts Into Business When Given A Stake." PBS NewsHour (2015). Accessed on May 30, 2016 at: <http://www.pbs.org/newshour/bb/brewery-workers-pour-hearts-business-given-stake/>.

interested in the financial value. Rife explains, “I think we attract folks because we aren’t focused on the ROI (return on investment).” The company attracts a sustainable-minded audience, which helps to provide financial value for its stakeholders, but that is not the reason why East End Market is doing sustainable practices. According to Rife, “We are doing it because we believe in it...it is what we do.” Sustainable development is important to East End Market and they stress that they are not doing it because it is expected. They do it simply because they believe in it. Their sustainability efforts have drawn a lot of attention in their community, which has helped them become successful. As mentioned previously, New Belgium and East End Market appear to hold a broader social mission for sustainability.

In analyzing the financial values each of these companies offer to their stakeholders, it is no surprise that a publicly traded company, such as Interface, is under scrutiny and pressure to perform well and show financial growth. As private companies, on the other hand, New Belgium Brewing Company and East End Market, have more flexibility in their financial decision-making and operations.

Interface gains the attention and attracts customers who have a concern for the environment, giving them a competitive advantage. In 1994, customers were showing concern and questioning founder Ray Anderson, “What’s your company doing for the environment?”¹¹¹ This became a defining moment for Anderson, who realized that he needed to change the way the company was doing business and take a responsible approach towards the environment. Fast forward over twenty years later and the company has grown substantially into a global publicly

¹¹¹ Interface’s founder and former CEO, Ray Anderson, describes the story in his quest for sustainability at <https://www.youtube.com/watch?v=OUG4JXE6K4A>.

traded business and is the world's largest designer and maker of carpet tiles. Customers are attracted to the company and look to Interface for their sustainable products and processes.¹¹² Many of New Belgium Brewing Company's customers appreciate the proactive approach with sustainability the company takes to improve the environment.¹¹³ Although the enthusiasm towards sustainability has resulted in an increase in customer loyalty and attracts customers, it is not why the company practices environmental sustainability. New Belgium's Sustainability and Strategy Director, Jennifer Vervier states, "The reason that we do it is not to influence our consumers - we do it because it's the right thing to do."¹¹⁴ East End Market's activities are centered on sustainable development, which draws the attraction of many customers and merchants who show an interest in sustainability and care about the environment.¹¹⁵

As companies seek new methods for environmental protection, this often leads to opportunities for innovation, such as the case for Interface. The company relies on innovation as a survival strategy with their competitors. This has led to innovative design processes to create carpet tiles that have disorder and random patterns built in that can be easily installed, replaced, and helps reduce waste. In its quest to become a leader in environmental stewardship, New Belgium Brewing Company fostered innovation to improve their processes and become more

¹¹² Interface's markets are found at: <http://www.interface.com/US/en-US/about/markets>.

¹¹³ Kidwell, Roland. E. and Asia N. Peek. "New Belgium Brewery: Sustaining Earnings, Employees, Environment and Beer Culture." *Journal of Applied Management and Entrepreneurship*, 14, no. 2 (2009): 126-138.

¹¹⁴ Withall, Ryan. "A Splash Of Beer, A Ripple Of Awareness." Yale Center of Business and the Environment. (2015). Accessed on May 30, 2016 at: <http://cbey.yale.edu/our-impact/splash-beer-ripple-awareness>.

¹¹⁵ National Main Street Center. "Main Street America™ 2016 GAMS Award Winner Audubon Park Garden District, Orlando, Florida." (2016). Accessed on May 29, 2016 at: <https://vimeo.com/noticepictures/review/165938682/48ac40f4e8>.

efficient with their operations.¹¹⁶ Unlike the other two cases, East End Market is a fairly new innovative concept in its own right, creating value for its stakeholders with its sustainable development efforts for its mixed-use urban market - all under one roof. Its independent restaurants serve locally and organically grown foods. Although their mission is less financially focused, East End Market clearly attracts customers. Situated in the Audubon Park Eco District, the start-up offers demonstrations, weekly cooking and gardening classes, and incubator kitchens to educate others in sustainability issues. Many people flock to the area to admire the sustainability efforts and concept that East End Market has created.¹¹⁷ Approximately twenty merchants are handpicked based on their values with sustainability to showcase their food and craft.

By efficiently managing their operations, these companies have discovered that they are able to obtain significant cost savings. Interface's innovative strategies have resulted in a reduction with operating costs.¹¹⁸ Because they use renewable materials rather than petroleum-based materials, the company's total energy usage has been reduced by 45 percent and greenhouse gas emissions have been reduced by 92 percent since 1996.¹¹⁹ New Belgium Brewing Company strives to be an environmental leader and role model. The company has experienced a substantial savings in energy costs with its use of solar panels, water treatment process, wind power, and

¹¹⁶ New Belgium Brewing. "Sustainability & Environment." (2011). Accessed February 20, 2016. <https://www.youtube.com/watch?v=BObRPpy6p8o>.

¹¹⁷ Sullivan, Erin. "Audubon Park Garden District Creating An Eco-District." *Orlando Weekly*. (July 16, 2015). Accessed on July 6, 2016 at: <http://www.orlandoweekly.com/Blogs/archives/2015/07/16/audubon-park-garden-district-creating-an-eco-district>.

¹¹⁸ Stevens-Huffman, Leslie. "Interface Americas: Rolling Out the Green Carpet." *Smart Business Atlanta*, 10, no. 12 (2013): 18.

¹¹⁹ Interface's environmental footprint metrics are described at <http://interfaceglobal.com/Sustainability/Our-Progress/AllMetrics.aspx>.

SmartGrid technology used to manage its systems and equipment.¹²⁰ East End Market has efficiently managed their operations resulting in cost savings by conserving energy through the use of automatic light switches, conserving water through its use of micro sprinklers and drip hoses, and reducing waste management trash pickups.

In summary, sustainability is deeply embedded into the cultures of each of the companies showcased in this paper and they have built a reputation for being leaders in sustainability. Although their sustainability efforts are quite different, the companies have gained the attention and attract customers, giving them a competitive advantage. These companies have recognized that proactively managing sustainability helps them achieve a competitive advantage.

¹²⁰ New Belgium Brewing. "Sustainability & Environment." (2011). Accessed February 20, 2016. <https://www.youtube.com/watch?v=BObRPpy6p8o>.

CHAPTER 8: CONCLUSION

This paper takes a look at three companies who have taken great strides to address sustainability. These companies are the game changers and are admired among business leaders and industries for their vision and leadership with sustainability efforts. Every business is different; however, all businesses can and should adopt sustainability principles into their business operations. Whether the business is a publicly traded company, private company, or an entrepreneurial start up, sustainable development goals should be set and supported.

The paper leaves valuable opportunities for further research. Given the different types of entities presented in the case studies, it would be beneficial to examine their organizational structures and their driving force behind their sustainability decisions. For instance, the carpet industry is considered one of the worst offenders for the environment. How much weight do legal obligations play into the decision making for sustainability goals? Do the shareholders value the sustainability investments and efforts just as much as the customers do? As a whole, are the levels of commitment among the employees for each of the businesses the same? Or, do some organizations show a stronger culture for sustainability and support by their staff? How much authority is given to those individuals or teams who oversee the company's sustainability goals? Are there rewards and incentives the companies provide to their staff for meeting environmental goals?

Another area for further research is to measure their level of motivation for sustainability. All of the companies showcased in this paper have a concern for the environment. However, does their strengthened reputation play a factor into their sustainability efforts? As customers build a trusting relationship and loyalty towards the company's brand for sustainability, does this become

a stronger motivating factor in their drive towards sustainability? How much does success and profitability play into the company's sustainability goals?

The way each of these case studies presented here has integrated sustainability into their business activities and processes can help other managers become motivated and proactive to define sustainability goals for their organizations. These case studies also show that they have successfully achieved social, environmental, and economic value, which helps achieve a triple-bottom-line. This can be beneficial for business leaders to realize that they do not need to be a large company to positively impact the people (social), planet (environmental), and profit (economic). Each of these case studies was able to successfully transform their sustainability investments into sources of competitive advantage. This can be a motivating factor for other business leaders who desire to become proactive in their sustainable development efforts and gain a competitive advantage.

This paper can be beneficial to other businesses who desire to move beyond compliance of the law and become proactive in helping protect the environment for future generations. Through this paper, it is my intention that the readers will have a better understanding of the growing concern for the health of the planet and become responsive to sustainability issues. With the support and proactive environmental strategies from businesses, sustainability, social value, and economic growth can be achieved. In addition, companies can move beyond compliance to achieve a competitive advantage by promoting innovation and attracting customers.

APPENDIX A: Interface's Sustainability Metrics 2015

APPENDIX A: Interface's Sustainability Metrics 2015



APPENDIX B: New Belgium Brewing Sustainability Metrics 2015

APPENDIX B: New Belgium Brewing Sustainability Metrics 2015



SUSTAINABILITY and Business

A FORCE FOR GOOD

NEW BELGIUM

2015 NEW BELGIUM SUSTAINABILITY REPORT

Welcome to New Belgium's annual Sustainability Report, 2015 edition! We've been busy and we're excited to share what we've been up to the past year. First, a mega thanks to each of our 600 coworkers who make these stories possible. Our 100% employee-ownership and open book management business model means we have engaged, proud, and joyful coworkers who weave our values into their work daily. Cheers to each and every one of them, and to each and every one of you for your support. We couldn't do it without you! More info can be found on our website at newbelgium.com/sustainability.



B CORP RECERTIFICATION

Certified

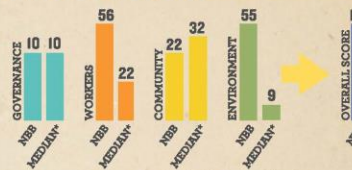
Corporation

We proudly became a Certified B Corporation in 2013, validating our long-held efforts toward being a force for good in the world. B Corps must recertify every two years, taking a magnifying glass to the ways they benefit the community, coworkers & the environment. Our score increased 23 points in 2015, landing us at 143/200! This big jump was driven mostly by our stellar jump from 42% to 100% employee-ownership. Thanks, Kim, for selling the company to us!

We're thrilled to be a part of the change we wish to see in the world. Learn more about the movement at www.bcorporation.net.

B IMPACT REPORT

CERTIFIED SINCE: January 2013



Category	NBB	Median
Governance	10	10
Workers	56	22
Community	32	22
Environment	55	9
Overall Score	143	80

80 out of 200 is eligible for certification
*Of all the businesses that have completed the B Impact Assessment

ADVOCATING FOR THE PLANET

While we keep a watchful eye on the amount of energy & water that we use to get our product to your homes & favorite watering holes, we know it's just as important to advocate for and support healthy water & sustainable energy beyond the brewery's walls.

Here's a couple advocacy highlights for 2014:

- **Clean Water:** We testified in front of a congressional subcommittee about the importance of clean water to our brewery and community.
- **Clean Energy:** Jenn Vervier submitted an op-ed encouraging the adoption of sensible rules around carbon emissions.
- **SUSTY Award:** Recognized by the American Sustainable Business Coalition for our efforts in helping build a more sustainable economic future.

RIDE ON!

Tour de Fat has become an unstoppable force. This costumed bike parade & festival we started more than 15 years ago, celebrating the power of the bicycle as a force for community, transportation, and sustainable movement, has taken on a life of its own. We hope to see you at one of our stops next summer!

- Tour de Fat by the Numbers: \$3.7M – funds raised for bike NPO (\$625,716 in 2014 alone)
- 89% of waste, on average, diverted from the landfill at TDFs
- We've taken 93 cars off the road through the Car for Bike Trade!



SWIMMING UPSTREAM for SALMON SAFE HOPS



Hops are our third main ingredient, and we love them big time. Salmon Safe, a non profit based in Oregon, works with hop farms on the west coast to alter land management practices to better ensure healthy watersheds for native salmon, thereby reducing the impact of the brewing industry.

We're happy to announce that 10% of the hops used in all of our beers by mid-2015 will come from Salmon Safe Certified farms. We're hoping to grow that number over the coming years as the issue grows and gains traction.

2014 \$1 PER BARREL RECAP

Community participation and non-profit support have always been a part of New Belgium. In 1995, we began donating \$1 for every barrel of beer produced to non-profit organizations in communities where our beer is sold.

We have donated almost \$7 MILLION through this program since it began!



BROWNFIELD TO BREWERY in ASHEVILLE

We're building our second-over brewery in Asheville, NC! Just as we did in Fort Collins, we selected an urban brownfield site so we could clean it up and beautify the community. Our buildings in Asheville will be LEED® certified (Leadership in Energy & Environmental Design), meaning they are efficient and innovative as well as healthy and enjoyable spaces for our coworkers & visitors. Check out our solar panels, solar thermal system, and use of reclaimed wood once we open in late 2015!





CALIFORNIA ROUTE & FLOOD RELIEF

In 2014 we were lucky enough to brew California Route, an organic lager that celebrated Patagonia Inc.'s 40th Anniversary! Both of us Certified B Corps, Patagonia & NBB are long-time pals because we both have a ton of fun while conducting our businesses with a commitment to people, communities, and nature. True to this spirit, 100% of profits from this beer benefited flood recovery efforts via the United Way Long-Term Recovery Fund for Larimer County Floods.



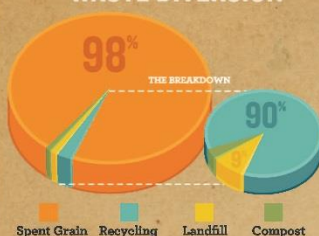
UN- OUR STATS

99.8%

of our waste escapes the landfill and is given a new home after it leaves the brewery.

Most brewers have a high diversion rate because spent grain has value and rarely goes to landfill. That part is easy. The true measure of effort is what happens with the remaining 2%.

WASTE DIVERSION



WASTE SENT TO LANDFILL

Grams (g) of landfill waste per hectoliter (HL) packaged



GETTING OUR HANDS DIRTY

Did you know we have over 500 collection points for waste in the brewery? By carrying out an extensive waste audit in 2014, we fine-tuned our waste tracking data & methods, making it easier to identify any remaining roadblocks in our pursuit for Zero Waste. Big kudos to our EH&S coworkers for rolling up their sleeves and takin' the trash out!

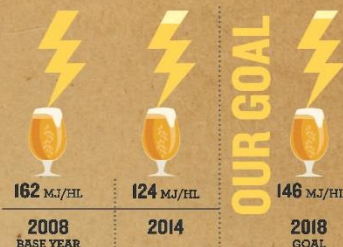
ENERGY INTENSITY

Electricity and natural gas consumed mega joules (MJ) per hectoliter (HL) of beer packaged

12.6%

OF OUR ELECTRICITY is produced on-site with solar and biogas

While still a great number, 12.6% is lower than last year. This is due to a mechanical issue in our co-gen that has been resolved.



INTERNAL ENERGY TAX UPDATE

With our Internal Energy Tax we charge ourselves based on the amount of energy we purchase. That money funds future energy efficiency and renewable energy projects at NEB. Check out our 2014 projects:

1. Insulation & lighting upgrade to make onsite beer cooler over 50% more efficient. Payback is less than 1 year!
2. New 96 kilowatt solar photovoltaic (PV) array. We added 385 solar panels to our existing 831 atop our packaging hall.



WATER INTENSITY

Hectoliters (HL) of water used to make 1 HL of beer

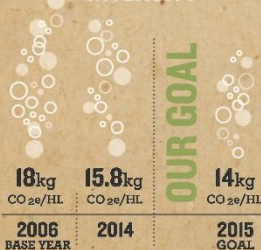


WATER: Measuring What We Want to Manage

We made great strides in reducing our water use ratio in 2014, going from 4.31 to 3.96 barrels of water per barrel of beer. Some of this improvement was based purely on the efficiency of increased production, but some was the result of our efficiency-minded brewers & process analysts.

In 2014, we installed over 20 water submeters throughout the facility to better understand how we are using water. These submeters illuminate which activities and brews are our most water-intensive. The first area for improvement we are tackling is the cleaning process (or CIP) of our vessels. We're in the midst of optimizing the CIP to reduce its water use by as much as 20%.

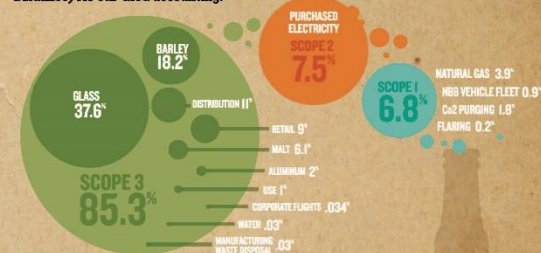
GHG EMISSION INTENSITY



Kilograms (kg) of carbon dioxide equivalents (CO₂e) emitted per hectoliter (HL) of beer packaged. Scopes 1 & 2 only.

2014 GREENHOUSE GAS (GHG) ACCOUNT SUMMARY

The quality of brewing ingredients relies heavily on a stable climate so we aren't shy to advocate for clear, forward-thinking policy that drives innovation and investment in a flourishing future for all. It makes sense, then, that we are doing our part at home to measure and reduce the GHG emissions for which we are responsible. We follow globally accepted guidelines (WRI's GHG Protocol and BIER's Beverage Sector Guidance) for our GHG accounting.



SCOPE 1: DIRECT EMISSIONS

Emissions directly occurring from sources that are owned or controlled by the institution, including: on-campus stationary combustion of fossil fuels; mobile combustion of fossil fuels by institution owned/controlled vehicles.

SCOPE 2: INDIRECT EMISSIONS

Indirect emissions generated in the production of electricity consumed by the institution.

SCOPE 3: INDIRECT EMISSIONS

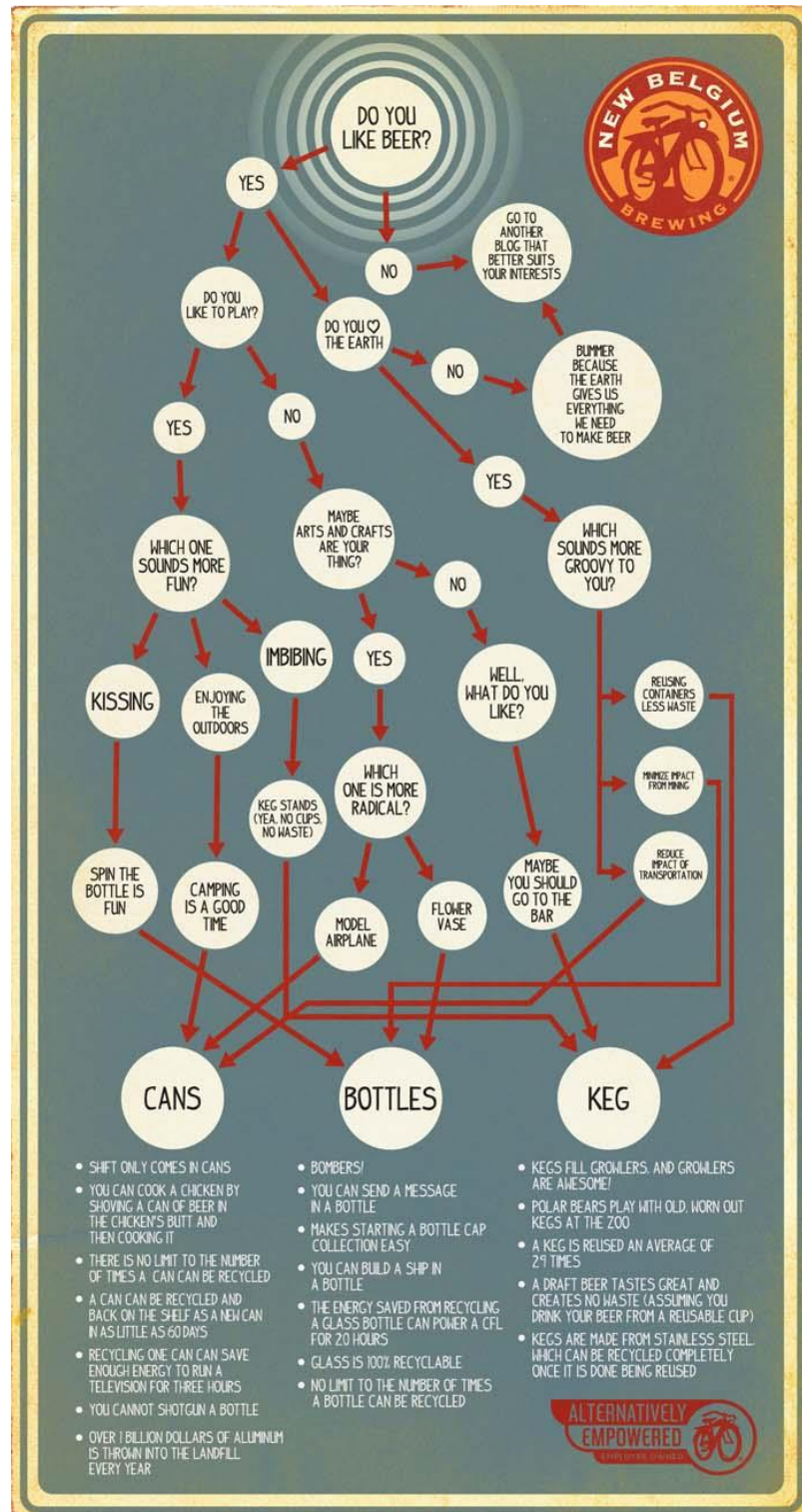
All the other indirect emissions that are a consequence of the activities of the institution, but occur from sources not owned or controlled by the institution.

CAN'T GET ENOUGH?

Thirsty for more info? We understand! More facts & figures are always pouring on our website newbelgium.com/usustainability

APPENDIX C: New Belgium Brewing Container Decision Map

APPENDIX C: New Belgium Brewing Container Decision Map



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