THE TRUE VALUE OF A SUSTAINABLE BUSINESS MODEL:

A CASE STUDY OF APPALACHIAN MOUNTAIN BREWERY

by

Benjamin Allen Belk

Honors Thesis

Appalachian State University

Submitted to the Walker College of Business
in partial fulfillment of the requirements for the degree of

Bachelor of Science

May, 2017

Approved by:

____
Tamara Kowalczyk, PhD, Thesis Director

____
Penelope Bagley, PhD, Second Reader

____
Dawn Medlin, EdD, Walker College of Business Honors Director

Table of Contents

Acknowledgements ... 2
Abstract ... 3
Literature Review ... 5
    The Value of Sustainability Transparency ... 5
    Issues With and Limitations of Sustainability Reporting ... 8
    Materiality ... 10
    The True Value Methodology ... 11
    What the Future Might Hold ... 12
Evolution of this Case Study ... 13
    The Original Plan ... 13
    Discussions of Scope ... 14
        AMB ... 14
        KPMG India ... 15
        Dr. Kowalczyk ... 16
    Common Ground ... 16
Mapping the Value of AMB's Externalities ... 18
Why Use True Value Methodology? ... 23
    The Laundry List ... 25
        Economic ... 26
        Social ... 26
        Environmental ... 27
Summary ... 28
Conclusion ... 29
References ... 30

Acknowledgements

A big thanks to Appalachian Mountain Brewery for the opportunity to work with their employees and study the way they do business.

A big thanks to my thesis advisor Dr. Kowalczyk, whose initial guidance led me to this topic, and made a large positive difference in the quality of my Appalachian education.

A big thanks to the College of Business Honors Program for providing the opportunity for students like myself to further explore topics of interest alongside knowledgeable faculty and similarly motivated students.

A big thanks to Appalachian State University for a unique and unforgettable journey through the last four years.

Abstract

This is a case study of Appalachian Mountain Brewery, done in an effort to understand and quantify the true value of sustainable business models and material non-financial disclosure. The objective of the preliminary review of literature was to understand some of the problems associated with sustainability reporting. The research objective was to understand where certain business activities performed by AMB create value for society. The case study was performed in collaboration with executives at AMB, many of whom are Appalachian State graduate Alumni, and with employees at KPMG, a firm that is valuing businesses using non-financial metrics with their "True Value Methodology." The case study uses this methodology and creates a simplified version of a "True Value" report, mapping the value chain of non-financial metrics which materially affect the economic, social, and environmental externalities and impacts that Appalachian Mountain Brewery has on the world around it.

Research around the problems associated with sustainability reporting starts with an in-depth literature review of the value of sustainability reporting and the increased transparency associated with disclosure. A first look into this topic has yielded proven benefits such as: a better reputation, meeting the expectations of employees, improved access to capital, and increased efficiency and waste reduction (EY.com). The review then analyzes some of the challenges that currently surround sustainability reporting, including such matters as materiality and comparability. After this, the review contains an objective examination of KPMG's True Value Methodology of reporting. The review is concluded with a brief look into the future of sustainability reporting.

The research conducted describes the process of working with KPMG to understand their methodology, working with AMB to determine the feasibility and scope of any True Value analysis conducted, and the ultimate conclusion reached around mapping where the externalities created by AMB might create or take away value.

This topic is worthy of study because sustainability accounting is a very popular topic for students Appalachian State, and professionals alike. As an individual, being sustainable and taking care of the earth is a great framework to fall back on for decision making. On a corporate level, most of the environmental challenges in the world today are because of the carelessness and priorities of business, and thus business is the best vehicle for change. This is a “mindset” that AMB has now and has had for some time. This case study further explores why this is so important, and what it is worth.

My advisor is Dr. Kowalczyk, and my second reader is Dr. Bagley. Dr. Kowalczyk’s primary area of research and teaching is sustainability accounting. Dr. Bagley’s main area of research is audit accounting. Both have been very generous in giving their time to this project to help see it through, and have been great resources. They also both led a graduate course on a trip in the summer of 2016, where they worked with the True Value Methodology, and taught it to students as part of a study abroad curriculum.

Literature Review

This literature review begins with an analysis of the value of being sustainable, then discusses some of the challenges that currently surround sustainability reporting, including such matters as materiality and comparability. Further, the review investigates KPMG's True Value Methodology, and concludes with a brief look into the future of sustainability reporting.

The Value of Sustainability Transparency

The value of being sustainable is normally viewed from an intercompany perspective as it relates to the going concern, increasing revenues, or cutting costs to better the financial sustainability of the general course of business for the entity in question. However, sustainability reporting and being sustainable purports benefits which are sometimes more difficult to measure, and might even seem like common sense, but the importance of which cannot be overstated. The following benefits have been reported by companies in the early stages of making an effort to increase the transparency of their sustainability efforts to stakeholders and employees alike.

- A better reputation: A 2011 survey on corporate reputation found that expanding transparency and reporting positive deeds were the two most important ways to build public trust in business. The 2013 Boston College Center for Corporate Citizenship and EY survey revealed that more than 50% of respondents issuing sustainability reports indicated that the reports helped improve firm reputation.
- Meeting the expectations of employees: A 2011 survey conducted by EY and GreenBiz found that employees were a vital audience for sustainability reporting, with 18% of reporters citing employees as a report's primary audience. More than 30% of reporters in the 2013 Boston College Center for Corporate Citizenship and EY survey saw increased employee loyalty as a result of issuing a report.

- Improved access to capital: Recent research found that reporting firms ranked highly for sustainability have Kaplan-Zingales Index scores that are 0.6 lower than the scores for low-sustainability companies. The KZ Index is a relative measurement of reliance on external financing. A lower score signifies fewer capital constraints, meaning they have an easier time financing their own ongoing operations without having to seek external investors.
- Increased efficiency and waste reduction: In a 2012 global survey of sustainability reporters, 88% indicated that reporting helped make their organizations' decision-making processes more efficient through the discovery of areas which could use improvement while exploring the creation of their sustainability report.

"Issues related to sustainability represent the next frontier in corporate reporting." Broadly defined, sustainability reporting includes a company's impacts, risks and opportunities from an environmental, social and governance ("ESG") perspective. In recent years, an increased focus on sustainability-related issues has caused even the most mainstream investors to question whether companies are effectively addressing potential risks to their bottom lines as a result of their operational impact to the environment and society" (glasslewis.com, 2016). This essentially means that investors are now catching on to how sustainability reporting and metrics could affect some of their investments in the long run, and are seeking more information around this subject. "Investors also view corporate sustainability positively. A 2010 survey found that 83% of investors stated that they believe environmental and social factors can have a significant impact on shareholder value over the long term." Thus, it is increasingly important that companies not only consider sustainability issues, but also communicate their sustainability strategies to investors. Sustainability reports are a key vehicle for communicating this information (Glasslewis.com, 2016).

Another article says "How companies tell us about the risk in their company – both financial and non-financial – is the solution to rebuilding trust." After this the article mentions the one place where traditional performance-based reporting falls short: "what it does not address is a company's forward strategy… The best reports mix numbers, stories and learning." Essentially, sustainability accounting is a way for the entire profession to look at the future (SustainAbility.com, 2011).

A 2009 article discusses the role of businesses in sustainable development, and why sustainability itself is actually important, for the earth and for profits: "It is now globally recognized that following a sustainable development path makes good business sense. This entails various approaches. For example, eco-efficiency is based on a common sense proposition that reduces waste and inefficiency in production processes, saves money and protects the environment at the same time" (Paramasivan, 2009). Life Cycle Analysis (LCA) offers a framework for understanding material flaws and potential impacts involved with providing services or products in a closed loop. Sometimes referred to as 'cradle to cradle' or 'cradle to grave', LCA looks at an enterprise in terms of input, throughput and output. This helps to identify inefficiencies that drain profit and produce waste including pollutants (Paramasivan, 2009).

One source discusses five reasons why small businesses – such as AMB – should care about sustainability and keep track of relevant metrics to be able to issue a sustainability report:

1. Because every business must eventually pay attention to sustainability to stay in business.
2. Because a company can obtain more business through commitments to sustainability.
3. Because a company can save on its bottom line.
4. Because a company can add to its top line through innovation.
5. To attract, retain and engage talent (Perkins, 2010).

This article is one of the first to touch on the fact that there is a legitimate business case to be made for the transparency around the analysis that goes into a sustainability report, and how it can help add revenue or reduce unnecessary costs.

Issues With and Limitations of Sustainability Reporting

Sustainability reports sometimes do not accomplish what a company might intend for them to: “What could be less sustainable than reams of reporting that no one reads?” This is a concern voiced in a recent report by strategic think tank and consultancy SustainAbility, which warns that companies are wasting time and money creating ineffective sustainability reports for the wrong audience and the wrong reasons: “So while the drive for corporate credibility and transparency has accelerated the sustainability reporting movement, SustainAbility argues that it’s time to take a step back and revisit the reporting agenda. The report says it’s not about how to “increase reporting,” or how to “make sure more people read sustainability reports,” but to focus on using the reports to drive better decision-making and thereby improve business performance towards sustainability” (Leinaweaver, Jeff). Essentially, the progress companies were making in the creation of sustainability reports has stalled. Audiences are broadening, and many people who used to rely on the sustainability reports to get information about these companies now often utilize outlets such as social media. Many of the interested parties who actually read the sustainability reports are issue-driven non-governmental organizations, and they will never find specific enough information for their “does this company meet our standard for the driving issue of our organization” answer in a report meant to appeal to a much broader stakeholder audience (Mosher, Smith, and Wicker, 2014). Corporations are starting to lose their way in the creation of these sustainability reports: “It’s not about your story, it’s about your impact,” says Carrie Christopher of the Albuquerque-based consulting company Concept Green.

From the perspective of the consumer, one of the most difficult to tackle issues with sustainability reporting today is that the reports between different companies lack comparability. This makes it nearly impossible to know if one companies' certification for green energy use or transition to renewable sources of electricity even mean the same thing as another company making the same claim. "It is helpful in this instance to establish a body of knowledge which can be consistently used and applied, as is the case in professions such as medicine, law, or accounting" (Pojasek, Robert). In accounting, there are Generally Accepted Accounting Principles. Doctors have the study of medicine and the work of many previous individuals to rely on and fall back to when something does not make sense. Lawyers have constitutions and statutes. Sustainability reporting has no standardized reporting guidelines. To make things even more confusing, multiple organizations seek to provide these things to the general public. The Global Reporting Institute has a set of frameworks and standards for disclosure and measurement of different externalities based on categories of industry (GRI.org). The Sustainability Accounting Standards Board has a similar goal, and provides a map of different metrics companies should look into and attempt to measure or quantify, again based loosely on industry (SASB.org). The International Integrated Reporting Council provides a tool for "better" sustainability reporting (integratedreporting.org). Individual accounting firms and sustainability consultants also have their own framework or methodology which seeks to help companies recognize where they fall short, or what externalities the normal operations of their businesses create. Though it is possible to compare these reports, it is very different to contrast the information being reported. As an investor or general consumer of these reports, it makes the information presented seem unreliable and difficult to understand.

From the perspective of the entity issuing these reports, putting them together is simply very time consuming and costly. "Sustainability is affected by every business decision, and understanding all the places it touches and how to measure it is a massive undertaking. Sustainability is connected to a wide range of diverse areas, including organizational behavior, business strategy, operations management, accounting, finance, economics, environmental science, ethics, and social psychology --

just to name a few" (Pojasek, Robert). Given how difficult it would be to compile all this information in a meaningful way from scratch, companies often use one of the frameworks provided by organizations like those mentioned in the above paragraph to give their companies a starting point for classification, measurement, and presentation of these sustainability issues. This presents another problem to business which is inherent in the selection of any one thing among many choices: It puts an entity at risk of picking a framework that might make it look worse than another (Strategic Sustainability Consulting, 2015). No universally accepted solution is currently available. This problem is a large reason that sustainability reporting is currently stalled.

Materiality

In a similar vein to the notion of comparability, there is another challenge for sustainability reporting which is not addressed among the current methods of measurement. This is the accounting concept of materiality. According to the Sustainability Accounting Standards Board, materiality is a fundamental principle of mandated financial accounting disclosure in the United States (sasb.org). The concept of materiality recognizes that some information is important to investors making investment decisions. According to the U.S. Supreme Court, information is material if there is "a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the 'total mix' of information made available" (joneswalker.com). Many of the findings presented in a true value report or a sustainability report might help make a potential investor aware of a material non-financial problem or advantage which could affect investment decisions. These disclosures may relate to the going concern of a business or its industry, among other basic accounting assumptions. It presents another opportunity for companies to create their own definitions around what is important enough to report, and thus leaves consumers of the reports less confident in the fact that they are getting the full picture.

The True Value Methodology

Also heavy on the mind of business leaders and those concerned with sustainability and sustainability reporting is the concept of externalities. Per KPMG's report "A New Vision of Value," externalities, both positive and negative, are increasingly being internalized with significant implications for corporate value creation – both in terms of impact on earnings and changing company risk profiles. The question is, how should companies respond to this trend? Developing a more comprehensive understanding of a company's externalities is a useful first step, but does not in itself equip the company to protect and build its corporate value. In order to do that, companies also need to understand which forces of internalization are most likely to affect them and the potential impact of that internalization. Once companies have a clearer view of their exposure to internalization, they will be in a stronger position to develop strategies that capture value creation opportunities and reduce risk. KPMG has developed the True Value methodology in order to support companies through this process.

Some professional service firms have found a way to purge some of the reporting issues encountered in sustainability reporting, such as materiality, by keeping their sustainability reports in financial terms and framing the discovery of externalities created by an entity as a way to keep the future risk profile of a company in check. This is actually one of the simplest ways to look at the broad picture of a company's sustainability "score" or "net effect." However, something which is easy to misunderstand about this report – a positive sustainability "score" in financial terms does not mean that a company is sustainable. No company is sustainable, truly. All that is meant to be shown through the True Value Methodology is that the company creates more value than it destroys (or the reverse) in the context of financial measurement of material positive and negative economic, social, and environmental externalities.

What the Future Might Hold

While it is unclear exactly what may happen in the future, there is evidence that some of the organizations mentioned above who seek to create a universal body of knowledge and possible legal requirements for disclosure are on the right track.

For example: “The Sustainability Accounting Standards Board was established as a nonprofit organization in July 2011 for the purpose of establishing industry-based sustainability standards for the recognition and disclosure of material environmental, social and governance impacts by companies traded on U.S. exchanges.” The SASB’s aim is for the SEC to require disclosure of its standards in companies’ 10-K filings. According to the SASB, its industry-specific standards are meant to “complement financial accounting standards, such that financial fundamentals and sustainability fundamentals can be evaluated side-by-side to provide a complete view of a corporation’s performance.” Thus, the accounting profession is taking over the way that these metrics are supposed to be reported: alongside the financial statements in a “value-added, value-subtracted” way. Perhaps the SEC will let the SASB go the same way as the FASB and create the first iteration of a group of independently operating professionals with the legal authority to require specific disclosures which relate to sustainability alongside the pre-existing financial accounting disclosures. In fact, in July of last year (2016), The CEO of the Sustainability Accounting Standards Board issued a stakeholder letter regarding a formal SASB response to the SEC during the time of public comment regarding the proposition. This proposition invites feedback on the future of sustainability disclosure, and where the public sees it heading (sec.gov), (SASB.org).

Evolution of this Case Study

The Original Plan

This project has been altered in many ways on its journey to completion. Here is some insight into the progression and development of the original idea and how this evolution actually helped to keep the topic more focused and concise.

This topic was first discovered in a club meeting while mingling with new members. An individual named Jack mentioned to me that a hot topic right now was sustainability, and the triple-bottom-line – "people, planet, and profit." He said it was like accounting, but measuring the net effect of things other than just money. He referred me to the professor whose research revolves most heavily around sustainability, who ended up being my advisor.

Right from the start, Dr. Kowalczyk was very knowledgeable and a great mentor through the writing process. Through her, many different overlapping areas were discovered between sustainability and accounting. The topic selected was something that was relevant to accounting, struck a moral chord with many people currently in industry, and that could be applied professionally in the future – the true value of a sustainable business model.

Dr. Kowalczyk introduced me to a methodology used by KPMG called the True Value Methodology, described in more detail in the actual report below. In brief, a team of professional accountants and consultants would first work with an entity to help them realize what material externalities their business creates in a given period of time under the normal course of operation. These externalities are split up into 3 categories – The net economic effect externalized, the net social effect externalized, and the net environmental effect externalized. The externalized effects are then added to the net financial effect internalized by the entity through its business operations. The team would then provide an analysis about which externalities present the largest risk of internalization in the near future and propose a plan of action to reduce this risk. Lastly they would provide an assessment of corporate (internal) versus societal (external) value creation.

A meeting was set up with an employee of Appalachian Mountain Brewery, who had recently graduated from Appalachian with his Masters in Accountancy, to see if he would be willing to work on this case study and see if this was something that AMB could benefit from having done. AMB is one of the first companies if it's kind to issue a sustainability report, so they already have experience with sustainability disclosure to some extent, and are an industry leader in this way. They chose to use the SASB's guidance for their reporting framework, and presented data around energy, water, supply chain and ingredients, packaging, and marketing.

Discussions of Scope

Over the course of the next few months, meetings with numerous different individuals were established in an effort to put realistic constraints around the scope of the case study.

AMB

At the first meeting with AMB, there was discussion around where this project should go and if a report using KPMG's methodology would be something they could use. The original thinking was that AMB would be able to put the completed report in the bottom of their next sustainability report along with some goals for improving on the areas that most needed it.

The individual I met with, Alex, had a big part in putting together the sustainability report with a few other executives, and commented on how surprised he was to have gleaned information on so many areas where AMB could improve. This deep dive into the goings-on of businesses and discovery of many places for improvement were the biggest draws for the original issuance of a sustainability report.

A short list was created of material externalities that he thought would be applicable to AMB. This then raised the question of how to go about quantifying, in dollars, the externalities. How do we put a dollar amount on positive economic things like raising standards of living for folks through paying above average employee wages? How can we quantify the negative economic effects of activities like buying from an overseas manufacturer with lower prices? How do we monetize positive social effects like philanthropy? How might someone measure the financial effects of negative externalities like pollution, health and safety of workers, and – one he said there would be no possible way to get a dollar amount on – drunk people?! What about positive environmental externalities arising from alternative energy sources and water recycling, or negative ones cause by greenhouse gas (GHG) emissions, which could include everything from employee commutes to work to the freight they send around the state? What is the negative dollar impact of one unit of GHG? What about the opportunity costs of creating positive externalities through paying a dollar in taxes instead of putting it back into the business? These questions led to the next meeting, with KPMG India.

KPMG India

Through a series of lucky connections, a phone call was set up with a KPMG employee in India who actually worked on a True Value Methodology report with a brewery in Maharashtra, India. He helped establish some externalities that should be examined in the case study of Appalachian Mountain Brewery. Ashish was incredibly helpful, and had great insight into my questions:

- Regarding how to accurately measure externalities, he said to find specific data in a local context and convert the non-dollar externalities into dollars via some sort of financial proxy. Compare national averages with local ones and find a way to tie it to a value.
- Around how to decide what is material enough to include in the report, he said to literally identify all externalities, just "laundry list" them all out, map them to economic,

environmental, or social buckets, and positive or negative within each. Then go through, analyze the feasibility of measurement of each, and choose.

- Around whether the final score was a dollar figure or just relative, he said it really depends on how thorough the records are kept by the entity being evaluated. Usually, he said, it would end up being more on the relative/ballpark side, but each case was unique.
- Around things to easily overlook, he emphasized being sure the information used to establish the financial proxy and create benchmarks is reliable. He suggested that only data from recognized public sources be used.

Dr. Kowalczyk

After discussing feasibility of measuring all those things, and the issues that the study may logically face, like not being able to get certain data from AMB because of minimal historical record keeping, the scope of the study was shrunk slightly from a full analysis using all three parts of KPMG's methodology to something slightly simpler and focusing primarily on the first, which is the part that values the externalities.

Common Ground

Therefore, we decided the case study would be a value map. Beginning with the known externality-inducing activities that AMB does, mapping them to the correct externality "bucket" – economic, social, or environmental – and examining whether each externality would be positive or negative and why. The precise valuation aspect of the externalities discovered was scoped out for the purpose of this study. A value map of AMB's activities has been created, and used to determine *where* and *how* these activities create value.

In the end, this evolution process benefitted this project in a big way. It allowed a narrowing of the focus more on the actual research objective, which was to discover how AMB's sustainable business model, and the way they change their business decisions to align with their model actually creates value for society. Less effort was expended on specific valuation of these externalities, which likely would not have been accurate enough to add value to the report, and would have taken away from the analysis of the specific impacts AMB has made.

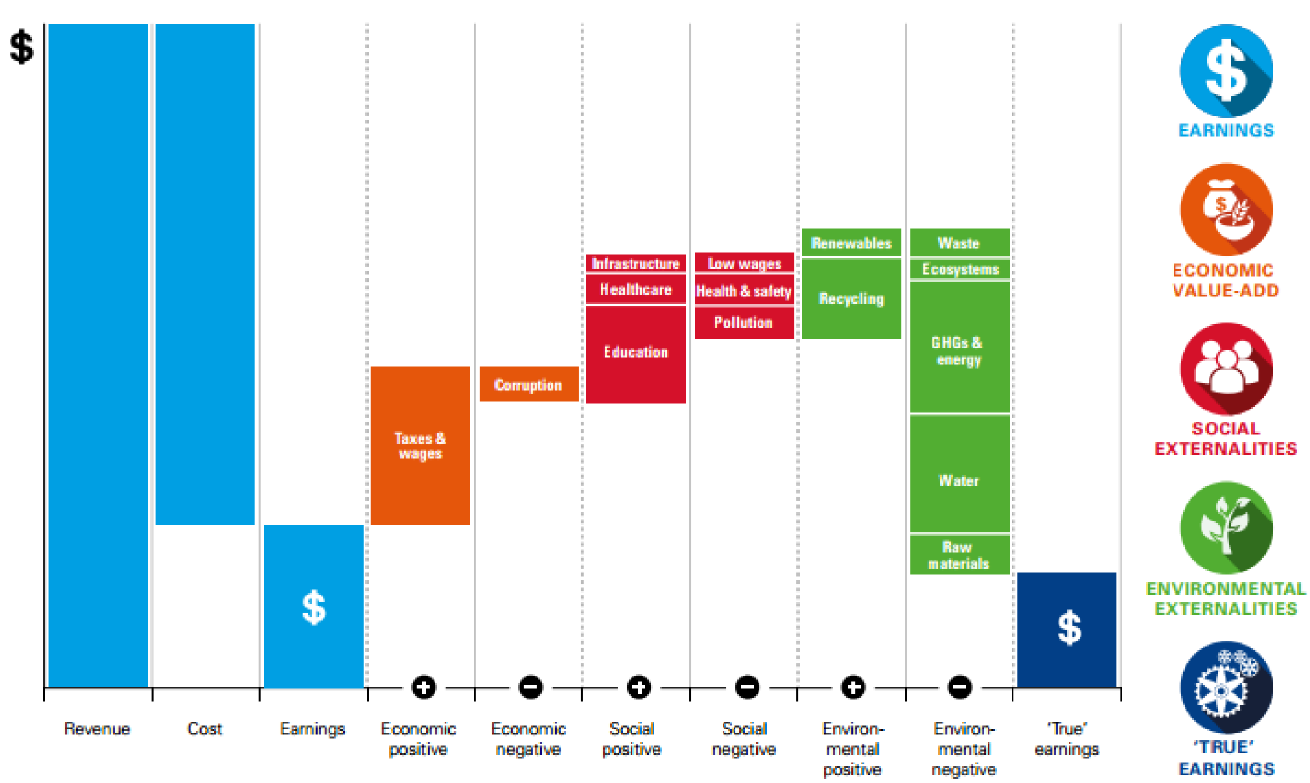
Mapping the Value of AMB's Externalities

In an effort to understand how KPMG works with different companies to value the positive and negative externalities businesses create, an exploration was done of case studies performed by KPMG in the past which implemented their True Value Methodology in actual businesses and created legitimate reports. These reports usually contained 3 parts: 1 – An assessment of the Company's true earnings. 2 – An analysis of future earnings which may be at risk, categorized by relative level of risk. 3 – An analysis of how the company might make changes in the future to create better corporate and societal value (kpmg.com, 2014).

The first report examined came from a publication by KPMG called "a new vision of value" (kpmg.com, 2014). In this publication were multiple examples of the True Value Methodology applied to businesses throughout the world. The one I focused on was a case study of a brewery in Maharashtra, India. This was the actual report that Ashish, the individual who helped contribute to this study by providing guidance around valuing externalities, helped to create. This helped me to build a framework for what KPMG looked for in their assessment of this brewery, and I hoped to draw some parallels to what I would later see with AMB. The report first had an overview of key facts and assumptions: The *brewery location*, which discussed how "Maharashtra is a major beer producing area because of its high-quality water sources and proximity to local markets. Climate projections for Maharashtra indicate an increase in severe monsoon rainfall events, which can severely damage crops and reduce transport access across the region. Outside the monsoon season, Maharashtra is expected to be a water-stressed area. India currently has a relatively small beer market, but the beer industry in Maharashtra is seen as a growth sector due to a growing young population, urbanization, rising income levels, and tourism." The *type of facility* is "integrated," because "the one location incorporates all elements of the value chain." The *annual production volumes* at this facility are "500,000 hectoliters of beer, or about 13 million US gallons." The *EBITDA Margin* is "approximately 5% of sales" (A New Vision of Value, p.69).

Next the report got into part 1 – the assessment of the companies true earnings. Their findings were that the "true" earnings of the brewery were 30 percent lower than its financial earnings.

As is customary with this methodology, material positive and negative externalities of economic, social, and environmental varieties have been added to and subtracted from financial earnings to view an overall "true earnings" score. Here is the report developed by KPMG for the Brewery in Maharashtra, India.



Source: KPMG (2014). *A New Vision of Value: Connecting corporate and societal value creation.*

The brewery's material positive externalities (aside from its economic contributions in the form of wages and taxes) come from its education of barley farmers, which enables them to be more productive and results in increased farmer income and quality of life, and its recycling initiatives. Positive environmental externalities are also generated by the brewery's use of agricultural waste as biomass to generate clean electricity, with the excess being supplied to the grid ("A New Vision of Value", p.70).

The brewery's most material negative externality is its GHG emissions. The second most material negative externality is its impact on scarce water resources, both through water used to irrigate the barley crop and the water required to brew the beer ("A New Vision of Value", p.70).

Though very difficult to value, this first part of KPMG's assessment could be extended to include the downstream externalities of the brewery's key product: beer. These are most likely to be in the form of negative social externalities such as health effects of alcohol consumption and alcohol-driven social problems ("A New Vision of Value", p.70).

The report then moves on to step 2 – the assessment of future earnings at risk. This portion of the true value report assesses the extent to which internalization of the externalities identified in step 1 could affect the financial earnings of the brewery. This is done by assessing the likelihood that various externalities will be internalized through the three main forces of internalization (regulations and standards, market dynamics, and stakeholder pressure) and whether that internalization poses a high, medium, or low risk to the earning potential of the brewery. The following was found:

EXTERNALITIES	DRIVERS OF INTERNALIZATION			RISK OF INTERNALIZATION
	REGULATIONS & STANDARDS	STAKEHOLDER ACTION	MARKET DYNAMICS	
Corruption		Labor unrest over bribery and corruption		● Low
Infrastructure, healthcare and education spending outside of company	Government mandates increased investment in local communities	Increased investment in local communities forced by community action		● Low
Education of employees	Government imposes or increases minimum level of spend for employers on employee education	Labor unrest over low levels of employee education		● Low
Low wages	Government mandates wage increases for workers	Labor unrest over pay or working conditions		● Low
Health & safety	More stringent health and safety regulations	Labor unrest or consumer protest over unsafe working conditions		● Low
Pollution	Increases in taxes or fines for pollution	Production halted by community unrest due to pollution		● Low
Renewable energy to grid	Government imposes renewable energy targets			● Low
Recycling	Government imposes recycling targets			● Low
Waste	Government imposes or increases waste taxes			● Low
Ecosystem services	Government imposes more stringent environmental rehabilitation requirements		Critical ecosystems fail resulting in loss of production	● Low
GHGs and energy	Carbon tax imposed		Increases in fuel and electricity costs Increasing power outages Scarcity of power (supply constraint) Scarcity of fossil fuels Increases in fuel costs Extreme weather events lead to lost days of production	● High
Water	Government imposes water taxes		Water shortage increases water price	● High
Use of raw materials			Cost increase of agricultural inputs	● High

● Low ● Medium ● High

Source: KPMG (2014). *A New Vision of Value: Connecting corporate and societal value creation.*

Notable regulations which could change to affect the company's bottom line include increases in taxes, health and safety regulations, employee training and education minimums, and more stringent environmental rehabilitation requirements. Notable stakeholder action which could change to affect the company's bottom line include much to do with labor and working conditions. Notable market dynamics which could affect the company's bottom line include increases in fuel and energy costs, more power outages, water shortages, and increased costs of agriculture. Many of these could relate directly to internalization drivers which might affect AMB's bottom line in the future, as AMB is also in the business of brewing beer, though their value chain is not as integrated. The above study went more in-depth about each of the potential high-risk negative effects, and included another graph comparing the percentage of gross profit which would be lost if each high-risk were to occur, based on historical findings and patterning ("A New Vision of Value", p.71).

Step 3 was the assessment of corporate and societal value creation – a sort of consultative approach to how this brewery may want to improve in the future and where it might be able to. Here is another chart of their break-down of which investments they recommend and which corporate and societal values are created by these investments:

INVESTMENT	CORPORATE VALUE CREATION	SOCIETAL VALUE CREATION
Increase combustion of agricultural waste to generate energy	**Direct financial returns** Reduction in energy costs (offset against investment costs) **Returns from internalization of externalities** Reduction in exposure to carbon tax, energy tax and price rises	**Reduce negative environmental externalities** Decrease GHG emissions and associated social and environmental impacts **Reduce negative environmental and social externalities** Decrease waste produced and associated social and environmental impacts
Installation of a heat exchanger	**Direct financial returns** Reduction in energy costs (offset against investment costs) **Returns from internalization of externalities** Reduction in exposure to carbon tax, energy tax and price rises	**Reduce negative environmental externalities** Decrease GHG emissions and associated social and environmental impacts
Generation of biogas from residues of brewing and waste-water treatment process	**Direct financial returns** Reduction in energy costs **Returns from internalization of externalities** Reduction in exposure to carbon tax, energy tax and price rises	**Reduce negative environmental externalities** Decrease GHG emissions and associated social and environmental impacts
Shared initiatives with local farmers to replenish water resources and to grow drought-resistant barley that requires less water	**Direct financial returns** Reduction in water costs by using less water **Returns from internalization of externalities** Reduce potential costs of increased water and barley prices due to drought	**Improve positive environmental externalities** Increase availability of water for communities and therefore improve livelihoods

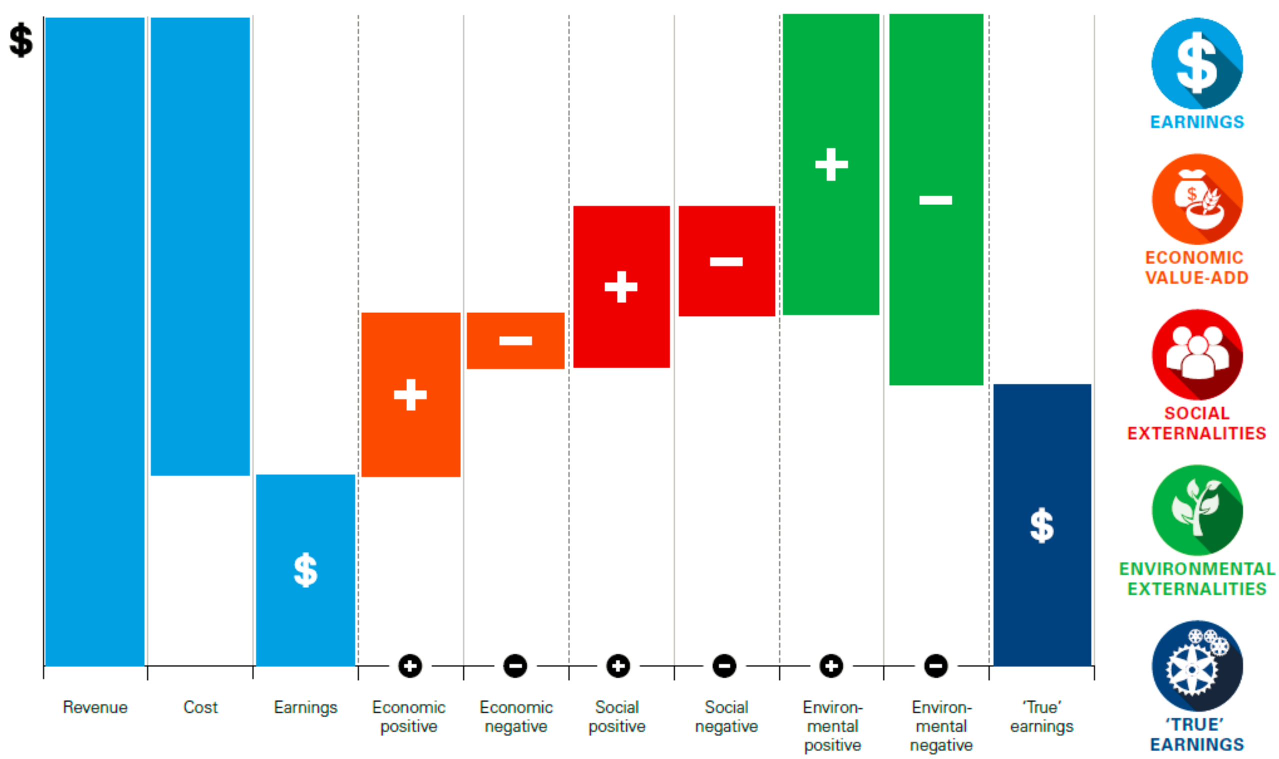
Again, they go into more depth around value creation that could result from some of the most material (predicted) investments and include another chart similar to the secondary chart in part 2 around net present value of returns from internalization of externalities and the direct financial returns or losses from the implementation of these same ideas ("A New Vision of Value", p.72).

Why Use True Value Methodology?

Through research into the different frameworks and guidelines of different institutions and organizations, an attempt was made to understand what the commonalities were between these different reporting institutions and initiatives, and find a very simple report which created a full-picture understanding of the sustainability of a company without too much explanation getting in the way. Though all the different methodologies have shortcomings, KPMG's True Value Methodology captures beautifully the core issues where all the people in these different organizations are focusing. As the quote by Carrie Christopher says, "it's not about your story, it's about your impact." Many of the sustainability reports currently issued by companies read like 10ks; filled with [unaudited] figures that companies get to throw in and legal jargon that makes everything sound great, and the bad things sound like they are going away and getting better. The methodology used here has no place for that.

The True Value Methodology captures well the idea of quantifying the impact of externalities created by a business and that businesses' net effect on the world around them, which seems to be at the core of every different proposed way to report on sustainability. GRI, IIRC, and SASB – they all revolve around the mapping of value created and taken from society in the form of economic, social, and environmental externalities. KPMG's True Value Methodology starts with the financial earnings of a company for a given period of time, presented as (all the money they made) minus (all the money they spent). In theory, the difference should be their profit, and in a perfect world, would also be positive. From this starting point they investigate and quantify in dollars the most material economic externalities as (all positive economic externalities created by the company) minus (all negative economic externalities created by the company). They then do the same with social externalities, and environmental externalities after that. What is left is the "true earnings" of the company. I like to think of it as a karmic income statement. See the chart following this sentence for a generic visualization of the end product a company may have after this methodology is applied to them:

Figure 11 / A generic 'true' earnings bridge



Source: KPMG (2014). *A New Vision of Value: Connecting corporate and societal value creation.*

This chart represents the skeleton of sustainability measurement. It is a great place to start for an entity which will show where they can improve their business practices and how it can affect people's lives outside of the direct context of the company.

The Laundry List

Just as Ashish recommended on the phone, the first thing to do is make note of every externality that AMB may create from their general business practices. For this list, a combination of GRI standards, since they are so exhaustive, and SASB standards, since that is what AMB used in their sustainability report and is also what I believe will become the future benchmark for sustainability reporting, was used. The material externalities which are most relevant to the business practices of AMB are explained in more detail in each section.

Economic

Economic	
Positive	**Negative**
Taxes	Corruption
Employee wages and benefits	Competition/Monopoly
Community investments	
Procurement practices (supply chain)	

Investments in the community are a huge part of AMB's reputation. They have an entire separate nonprofit organization set up alongside the brewery as a charity funded partly by AMB and their neighboring food truck for the sole purpose of "investing in the communities it serves." Through this nonprofit, AMB has supported the following organizations: Appalachian Voices, Blood Sweat and Gears, Blue Ridge Conservancy, Blue Ridge Women in Agriculture, Boone Area Cyclists, Boone Film Festival, Camp Healing Waters, Carolina Climbers Coalition, and Children's Hope Alliance, to name a few. Every organization supported is a local, community group. This community investment makes up a large majority of positive economic externalities created by AMB.

Social

Social	
Positive	**Negative**
Investment in community infrastructure	Human Health and Safety
Investment in health	Working conditions
Investment in education	
Corporate social responsibility initiatives	
Philanthropy	

Philanthropy is the number one positive social externality by a large amount. It's fairly similar to the community investments economic externality mentioned above, but is much easier to quantify. AMB donates exactly 10% of its net income to charity through the We Can So You Can foundation, and supports all the local organizations and businesses mentioned above, plus many more.

Working conditions is probably the most significant negative social externality, because of the challenging hours that bars are open for and the fact that that would make it harder for an individual to have a productive social life or a comfortable family one, especially with school-age children.

Environmental

Environmental	
Positive	**Negative**
Renewable materials	Non-renewable materials
Energy consumption and source	Energy consumption and source
Water volume and source	Water use and source
Reduction/reuse/recycling/compost efforts	Waste
Use of suppliers by environ. assessment	Emissions; GHGs and Energy

In the environmental sense, it is tough to get a complete picture of a company's impact without detailed reports indicating usage of natural resources. Any of the externalities related to environmental impact could be positive or negative. Per the sustainability report, it is possible to obtain a fairly comprehensive picture, but what is most relevant is water volume and source, since everything that is not barley, hops, or malt in a beer all has to be water, plus all the other ingredients need water to grow!

AMB's sustainability report starts with electricity use, mentioning 594 gigajoules of purchased grid electricity, 23 of solar, 262 of propane, and 1185 of natural gas. That means almost 4% of their electricity is renewable, and around 1% of their total energy consumption.

The report next mentions water. AMB used 266 gallons of water per barrel of beer this year, over twice last year's amount. They mention, however, the start of a cidery business, and the fact that water could be used for many business activities other than brewing beer.

Summary

Appalachian Mountain Brewery's conscious effort to make decisions that align with their sustainable business model does create societal value; economically, socially, and environmentally. Though there are many challenges in the accounting for and reporting of sustainability and its business impacts, AMB is on the right track by using the Sustainability Accounting Standards Board's guidance around metrics and key performance indicators to use in their disclosures. In the future, the SASB may have enough authority to become the overarching standard for sustainability reporting, and will declare it a legal requirement of companies to issue, possibly even in their 10k's, a standard report on their sustainable performance. This will add another dimension to a company's appearance as a worthy investment decision, and should be the true ignition (or the battery-powered equivalent) of a vehicle for change that we start to see in the world which businesses will lead toward a more sustainable future.

Conclusion

As a result of this research, Appalachian Mountain Brewery gains a better understanding of where the work they do creates value in the community and world around them. I have a better understanding of how to cope with the evolution of an idea, and grow with its changing purpose. I also have a better understanding of how to efficiently research topics, stay on target with goals, and stay open to feedback throughout. I accomplished a gainful understanding of what I set out to learn more about, and have contributed to the body of knowledge around this topic in a way which people who come after me to do similar work should find beneficial. All this accomplished my objective in a way I feel is very wholesome. I was able to research a topic which, upon reflection, does have meaning, is important, and ties very closely to my major area of study, which is accounting. I hope that I am able to carry forward some of this knowledge into my career, and make a difference in the accounting for sustainability in the capital markets.

References

AMB. (2015). Appalachian Mountain Brewery Sustainability Report. Retrieved September, 2016, from http://appalachianmountainbrewery.com/sites/all/modules/custom/amb_core/modules/amb_home/files/AMB_Sustainability_Report_2015.pdf

Ayers, A. (2011, March 15). Why Your Company Should Produce a Sustainability Report – Blog | SustainAbility. Retrieved September 21, 2016, from http://www.sustainability.com/blog/why-your-company-should-produce-a-sustainability-report

Bartels, W. (2014, November 3). The essentials of materiality assessment. Retrieved September 21, 2016, from https://home.kpmg.com/xx/en/home/insights/2014/10/materiality-assessment.html

Fields, B. J. (2016, July 1). re: concept release on business and financial disclosure required by regulation S-K. Retrieved from https://www.sec.gov/comments/s7-06-16/s70616-25.pdf

Friend, A., & Longon, B. (2011, April). "U.S. Supreme Court Holds Statistically Insignificant Information can be "Material" Under Federal Securities Law" Retrieved September 21, 2016, from http://www.joneswalker.com/news-publications-677.html

G. (2014, April). In-Depth: Sustainability Reporting. Retrieved September, 2016, from http://www.glasslewis.com/assets/uploads/2014/03/In-Depth-Sustainability-Reporting-2014.pdf

G. (2016, March). In Depth: Sustainability Reporting. Retrieved September, 2016, from http://www.glasslewis.com/wp-content/uploads/2016/03/2016-In-Depth-Sustainability-Report.pdf

In, B. O. (today). HOPS Income Statement | Balance Sheet | Cash Flow | APPALACHIAN MOUNTAIN Stock - Yahoo Finance. Retrieved September 21, 2016, from https://finance.yahoo.com/quote/hops/financials?ltr=1

K. (2014). A New Vision of Value. Retrieved September, 2016, from http://www.kpmg.com/ZA/en/IssuesAndInsights/ArticlesPublications/Risk-Compliance/Documents/KPMG_ANewVisionofValue_web.pdf

Kueller, A. (2015, January 13). 4 Reasons Why Corporate Sustainability Reporting Might Be a Waste of Time — Strategic Sustainability Consulting. Retrieved from http://www.sustainabilityconsulting.com/blog/2015/1/13/4-reasons-why-corporate-sustainability-reporting-might-be-a-waste-of-time

Leinaweaver, J. (2015, January 6). Is corporate sustainability reporting a great waste of time? | Guardian Sustainable Business | The Guardian. Retrieved from https://www.theguardian.com/sustainable-business/2015/jan/06/corporate-sustainability-reporting-waste-time

Millar, M. (2016). The Pros and Cons of Sustainability Reporting, by Michelle Millar. Retrieved from http://hotelexecutive.com/business_review/3695/the-pros-and-cons-of-sustainability-reporting

Paramasivan, D. T. (2009, October 31). Sustainability Reporting. Retrieved September 21, 2016, from http://www.articlesbase.com/ethics-articles/sustainability-reporting-1404240.html

Perkins, K. (2010, October 13). 5 Reasons Why Small Businesses Should Care about Sustainability. Retrieved September 21, 2016, from https://www.greenbiz.com/blog/2010/10/13/5-reasons-why-small-businesses-should-care-about-sustainability

Pojasek, D. B. (2007). A Framework For Business Sustainability. Retrieved September, 2016, from http://isites.harvard.edu/fs/docs/icb.topic541380.files/Business Sustainability.pdf

Rogers, J. (2016, July 6). Letter from the CEO: SASB's Response to the SEC - Sustainability Accounting Standards Board

SEC.gov. (2016). SEC.gov | SEC Concept Releases. Retrieved from https://www.sec.gov/rules/concept/2016/33-10064.pdf

See Change » SustainAbility. (n.d.). Retrieved from http://sustainability.com/our-work/reports/see-change/#.VJSyO0DKAY

Sustainability Accounting Standards Board. Retrieved from https://www.sasb.org/letter-ceo-sasbs-response-sec/

The IIRC | Integrated Reporting. (n.d.). Retrieved from http://integratedreporting.org/the-iirc-2/

The Value of Sustainability reporting. (2013, February/March). Retrieved September 21, 2016, from http://www.ey.com/Publication/vwLUAssets/EY_-_Value_of_sustainability_reporting/$FILE/EY-Value-of-Sustainability-Reporting.pdf

White, A. L. (2005, June 20). New Wine, New Bottles: The Rise of Non-Financial Reporting. Retrieved September, 2016, from http://asulearn.appstate.edu/pluginfile.php/1616678/mod_resource/content/1/Articles_/New Wine New Bottles - Nonfinancial Reporting.pdf

Why is it important? (2016). Retrieved September 21, 2016, from http://www.sasb.org/materiality/important/