

Sustainability within online and mobile-enabled commerce

How is sustainability being affected in this form of commerce conducted via small and medium-sized enterprises?

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Abstract

This thesis was conducted to assess how the broadening of trade, through Internet-enabled businesses and commerce, was affecting economic, social, and environmental sustainability. It identifies the threats and opportunities associated with the expansion of trade online, in addition to evaluating some of the implications a changing trade and commerce landscape could have on trade rules and policy.

The method used to collect data was a mix of qualitative and quantitative methodologies, consisting of detailed interviews with relevant stakeholders, supplemented by an online questionnaire. A SWOT analysis, as well as the author's own framework was used to analyze the findings.

The main conclusions from this research point to sustainability being positively enhanced by increased online commerce; mainly through economic aspects and inclusiveness of small and medium-sized business in trade. Social and environmental aspects were in some cases deemed to be positively affected, but not to the same extent as economic aspects.

By addressing some of the major impacts stemming from online trade, key stakeholders are well equipped to strengthen the different pillars of sustainability within online commerce. One key area is integrating online trade into international trade policy and harmonizing the laws and rules under which online trade is conducted. Addressing the negative impacts from online-marketplace platform operations and minimizing shipping and transport impacts are also notable areas worth tackling.

Keywords: Online and mobile commerce, sustainability, trade, e-commerce, free trade, Commerce 3.0, SME.

Executive Summary

Many indicators point to a changing landscape in the field of trade and commerce. Global online retail sales (business to customer) surged past the \$1 trillion mark (€756 billion) mark in 2012, with projected online sales accounting for 14% of global retail spending by the year 2020 (eMarketer Inc., 2013; GeSI & BCG, 2012). The global trade setting is increasingly becoming flatter, and the ease of which businesses conduct trade online is bolstered year after year. In addition, the Internet is changing the fundamental ways of doing business as individuals are ever more connected and larger portions of the world's population are online at any given time.

Many forms of businesses are poised to take advantage of these growing market opportunities, in particular micro, small, and medium-sized enterprises (SMEs). No longer is the global trade purely the dominion of large multi-national corporations, but increasingly smaller firms due to Internet-enabled business and online commerce. Simultaneously, corporations large and small are implementing sustainability aspects into their operations, consisting not only of economic issues, but social and environmental matters too. Sustainability in trade has traditionally been looked at in the context of these three aforementioned dimensions, but what has been missing in today's increasingly Internet-enabled trade landscape is how these three dimensions are interwoven into online commerce and trade.

In light of this, the upcoming Transatlantic Trade and Investment Partnership (TTIP) between The United States of America (US) and The European Union (EU) is well poised to take advantage of the changing trade landscape. Sustainability issues in trade should be incorporated into this bilateral trade agreement, in addition to addressing the increased presence of Internet-enabled trade driven by micro, small, and medium-sized enterprises and entrepreneurs.

The extension of trade to also envelope global commerce necessitates a revision of what constitutes sustainability in commerce and trade, in addition to addressing the question of what sustainable trade could look like in tomorrow's marketplace. SMEs in the marketplace may play a significant role in addressing the economic, social, and environmental sustainability challenges facing a modern online commerce and trade.

Research questions:

Firstly, this thesis set out to investigate whether altered forms of trade and commerce existed due to Internet-enabled business and trade, and if this was the case, to assess how the broadening of trade was affecting sustainability within online commerce. Secondly, the identification of opportunities and threats towards economic, social, and environmental sustainability in online commerce was to be explored. Finally, an evaluation was undertaken to assess some of the implications this changing trade landscape may have on trade policy and trade rules.

The research questions leading this research paper were as follows:

RQ1: Is online and mobile-enabled commerce via SMEs changing the notions of sustainability in trade? If so, how?

RQ 2: How is the growth in online commerce via SMEs affecting sustainability in trade, and what future implications could this entail?

Method and research design:

To adequately answer the research questions and to acquire viewpoints from a diverse group of stakeholders associated with online commerce, a combination of qualitative and quantitative data collection methods was used. As was touched upon in preceding paragraphs, this thesis integrates the three pillar model of sustainability, enveloping economic, social, and environmental aspects.

To begin with a literature review of different topics relating to trade, sustainability and sustainable development, SMEs, in addition to technology and online commerce was undertaken. The literature review was an influencing factor for the types data collection methods utilized and in forming the interview questions, as well as the online questionnaire distributed to stakeholders.

It was deemed appropriate to construct a framework to assess the concept of sustainability within SMEs and online trade, see Figure E-1 below. The topics judged to be essential were; sustainability and sustainable development theories; international trade theory and policy; the role of SMEs in commerce; and technology and online commerce. The framework is to a great extent based upon prior work by Ashford & Hall (2011), Harris (2003), Khalili (2011) and Rogers, Jalal & Boyd (2005), as well as the capital model and triple bottom line concepts (Henriques & Richardson, 2004). The decision to create a framework from scratch was not aimlessly decided, but took into account that sustainability within commerce and trade has lacked a concrete definition or understanding.

Sustainability framework: online and mobile-enabled commerce (adapted from Ashford & Hall, 2011; Harris, 2003; Khalili, 2011; Meyer, 2009; Rogers, Jalal, & Boyd, 2005.)					
Indicator		Indicator		Indicator	
E c o n o m i c	An increase economic growth?	S o c i a i	More specialized work-force skills?	E n v i r o n m e n t a i	Result in less environmental degradation?
	More competitiveness?		An increase in wages?		A decrease in non-renewable resource use?
	Increased productivity?		An increase social diversity? (e.g. exchange of culture, knowledge, and ideas)		An increase in resource efficiency?
	Diversification of potential income sources?		Reduced poverty?		A positive effect for climate change?
	An increase in local economic growth? (i.e. economic growth in rural, or sparsely populated areas or regions)		An increase in purchasing power and living standards?		Decreasing transport needs?
	The creation of entrepreneurial opportunities?		Increase amount of jobs?		
			Increased job security?		

Figure E-1. Sustainability framework: Online and mobile-enabled commerce

In addition a SWOT analysis was used to assess the findings collected, and to reveal an overview of sustainability within online commerce. The analysis views sustainability as an aim to which the online market place, its operators, merchants, and even policy official should work towards. This approach gives a snapshot of what the internal strengths and weaknesses of sustainability look like today, as well as a revealing of some of the external opportunities and threats facing online commerce in the nearby future. The SWOT's inputs will come from the data collected through interviews, the short online questionnaire conducted, literature on the subject, as well as the authors own ideas.

Main findings and conclusions:

When researching concepts such as sustainability, with its decades of vague definitions and ambiguities, it comes as no surprise that stakeholders have different views and opinions as to what the concept is and could entail in connection to online commerce. The debate is ongoing as to whether online commerce is actually changing the notion of sustainability in trade. This is primarily due to the fact that not all stakeholders are in agreement that online commerce is changing the foundations of sustainability. Furthermore, the literature and stakeholders' viewpoints were also ambiguous as to the definition of the concept, although the three pillar model of economic, environmental, and social pillars provides a well-established overarching theme. However, there are evident trends in how trade, at least through SMEs, is increasingly being directed online.

Overall the results from this research point to an emerging pattern; that the sustainability of trade is being boosted by Internet-enabled trade and commerce through the economic pillar. Online commerce is positively supporting economic opportunities for SMEs, adding to entrepreneurial prospects, and increased competitiveness in markets. Economic aspects within sustainability and online commerce seem to be more relevant to stakeholders while the other two, social and environmental aspects, tended to produce mixed responses.

The results indicate is that the sustainability focus of many actors in online commerce seems to first and foremost be of an economic and financial nature, i.e. leading to increasing competitiveness, creating entrepreneurial opportunities, diversifying income sources, and producing economic growth. Results in connection with social issues largely focused on the lack of job creation, negative impacts on job security, and neutral effect on living standards and wages. Interestingly, the results did point to specialized work-force skills being positively affected. Likewise, environmental matters are somewhat unclear, but the results indicate a number of positive issues within that aspect of sustainability such as decreasing transport needs and improved resource efficiency.

Online commerce will most likely continue to grow as forecasted and has every potential to lead the trade and commercial setting to a more sustainable way of conducting trade. Predicting how online commerce will evolve and what prospects it may hold in terms of sustainability can be complicated. It does require a significant effort from numerous actors. All stakeholders and actors have a part to play, from the businesses participating in trade, online-marketplace operators, policy officials, to governments.

The main recommendations are listed in the bullet points below:

Macro or external recommendations to stakeholders:

- Address delivery and transport logistics.
- Streamline and simplify cross-border trade solutions for SMEs.
- Adapting to a changing trade landscape.

Micro or internal recommendations to stakeholders:

- Influence how Internet-enabled businesses operate by spreading sustainability expertise, knowledge, and procedures.
- Increase the life-span of products.
- Limit and minimize impacts stemming from Information and Communication Technology (ICT) operations.

Within these recommendations sit three very important actors; SMEs; online-marketplace operators; and government and trade policy officials. One of the key roles is held by online-marketplace operators. They can use their expertise, clout, and reach to influence not only the trade and business being conducted through their own platforms, but other stakeholders outside this loop as well. By utilizing the very same platforms used to support global trade, marketplace operators have an enormous advantage when it comes to influencing SMEs' business behavior and knowledge-base. Setting up online seminars and guides that aid SMEs in creating better business practices and sustainable business models could be a great start. Taking on the challenge of smarter, innovative, and less impacting logistics is a huge step, one that requires all actors involved to participate. In addition, it is imperative that ICT impacts stemming from online platform operations be reduced, and that the progress already made is kept up and bolstered.

Expanding the life-span of goods by selling second-hand products is one way SMEs and online platforms strengthen the sustainability of online commerce. What is more important is for SMEs, entrepreneurs, and all business to be open towards change and integrate flexibility into their operations. By incorporating social and environmental aspects into their business, the end product for these firms could well be improved economic sustainability, and adaptability in the rapid, fast-paced environment of online commerce and trade.

Finally it is vital for trade policy and government officials to adapt and advance trade policy in line with the type of trade being conducted. This requires the stakeholder group to welcome the technological change that has enabled Internet-driven trade, and to acquire policies in line with the type of trade actually happening today. Sustainability issues should be incorporated into these policies to the greatest extent. Moreover, what is needed in trade policy, especially in regards to TTIP, is to adapt to the actual trade being conducted progressively more online. By harmonizing the rules and laws that govern online trade, and by implementing consumer and product legislation based on internationalized and global markets, online trade becomes less constrained, more inclusive, and equal-footed for all; no matter what the size of the business. In addition, by simplifying customs procedures and reducing time delays in cross-border trade, as well as being supportive to environmentally friendly logistic operations, economic and environmental sustainability can progress even further.

Some of these recommendations may be complex and require energy, dedication, finances, and long-term outlooks, but the necessary tools and expertise are available. Through online commerce the economic pillar of sustainability is well-grounded; the next steps require the strengthening and further improvement of all three pillars to truly shift trade into equilibrium.

To move sustainability in online commerce even further in line with environmental, social, and economic equilibrium further research is desirable. Assessing why some of the stakeholders viewed social and environmental aspects in the light that they did could give indication as how to alleviate these short comings. Although the scope of this research paper was not to include end-customers directly, further research into sustainable consumption through online commerce could be greatly beneficial. Additional research, especially action orientated research, into what best practices are in terms of sustainability within SMEs, and how online business and transactions are affecting their sustainability issues and business models, could also produce interesting results.

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Abbreviations

B2C	Business to Consumer
B2B	Business to Business
CO ₂ e	Carbon Dioxide Equivalents
E-commerce	Electronic Commerce
EC	European Commission
EU	European Union
FTAs	Free Trade Agreements
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
ICT	Information and Communication Technology
ITA	Information Technology Agreement
Micro-MNCs	Micro-Multinational Corporations
MTA	Multilateral Trade Agreement
OECD	Organization for Economic Co-operation and Development
SIA	Sustainability Impact Assessment
SMEs	Micro, small, and medium-sized enterprises
TBL	Triple Bottom Line
TTIP	Transatlantic Trade and Investment Partnership
TTP	Trans-Pacific Strategic Economic Partnership
US	United States of America
WTO	World Trade Organization

1 Introduction

1.1 Problem definition

Global online commerce passed the \$1 trillion (€756 billion)¹ mark in 2012, with estimations that 14% of global retail spending will be executed via online channels by (eMarketer Inc., 2013; GeSI & BCG, 2012). Increasingly mobile internet is seen as a game changer, even being cited by an MGI McKinsey report as being one of the most impactful technologies due to its empowerment capabilities across society and social barriers (Chul, et al., 2013). To paraphrase David Rothkopf as quoted in *Hot, Flat, and Crowded* (Friedman, 2008) the world is experiencing something totally new, resembling moments of the democratic revolutions of the Enlightenment or the Industrial Revolutions, with

the revolution in information technology. Rothkopf goes on to state that with these changes come challenges, but challenges, that when addressed correctly, “defined new eras, drove progress, gave birth to new institutions, and separated the winners from the losers” (Friedman, 2008, p. 27).

Micro, small, and medium-sized enterprises (SMEs) are well poised to take advantage of these changes and be able to reach markets otherwise almost unattainable a decade or two ago. According to the McKinsey Global Institute the Internet’s biggest impact for SMEs has been the “great leveler” effect; small firms are now capable of reaching global audiences from day one, something that was not too long ago only the privilege of a few large, global players (Manyika & Roxburgh, 2011, p. 4). Small firms are thus competing with larger ones on a global scale, consequently breeding the concept of micro-multinational corporations (Micro-MNCs) (Bieron, 2013; Manyika & Roxburgh, 2011). However, a clear set of trade policy rules can significantly advance the ease of which SMEs enter new markets with their products and services.

Porter and Kramer (2006) assert that corporations are progressively adopting the notion that they play a large role in handling social and environmental impacts from economic activities; a term most often dubbed sustainability. In a study by the Boston Consulting Group of corporations and sustainability, 37% of respondents said that sustainability related actions had added to their companies’ profits, and that nearly half of the companies had undergone changes to their business models to incorporate sustainability strategies (Kiron, Kruschwits, Haanæs, Reeves, & Goh, 2013).

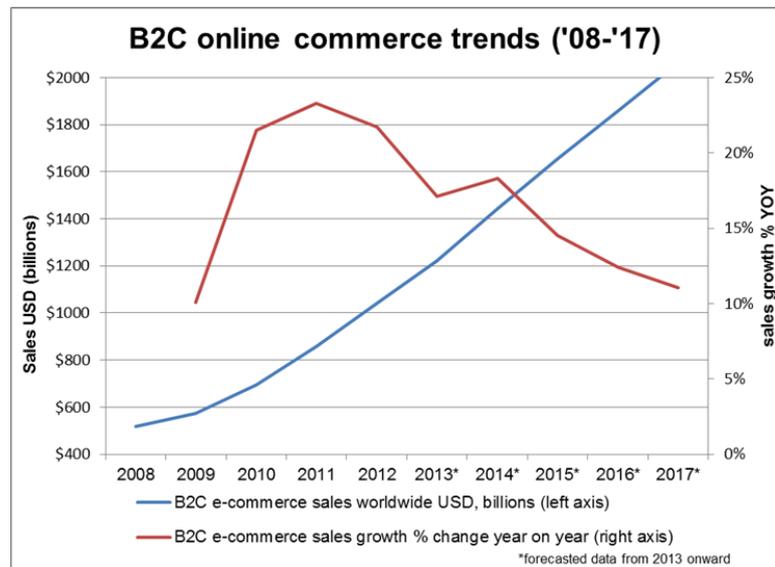


Figure 1-1. Worldwide B2C online commerce growth trends

Source: eMarketer, Inc. June 2013

¹ Given an average EUR/USD exchange rate of 1.30.

Sustainability and sustainable development in the context of trade has most often been looked at in three dimensions: economical, environmental, and societal, although different disciplines focus on additional factors. Naturally, these three dimensions have been defined based on a traditional understanding of what constitutes trade. Lacking is what this may entail in today's increasingly online enabled commerce landscape.

The European Union (EU) and The United States of America (US) have initiated discussions towards a new bilateral free trade agreement (FTA), also called the Transatlantic Trade and Investment Partnership (TTIP). The intention is to not only to reduce trade barriers and standardize regulations between the two biggest economies in the world, but also to add new, different aspects to the international trade arena. According to the European Commission (2013d) the aim is to increase trade and investment between the EU and the US by unleashing the untapped potential of a truly transatlantic market place.

The FTA between the EU and South Korea, the first of the new generation FTAs, lists as an objective "the development of international trade in such a way as to contribute to the objective of sustainable development and strive to ensure that this objective is integrated and reflected at every level of the Parties' trade relationship" (EU-Korea FTA, 2011, sec. 1.1.2(g)). Everything points to sustainability also being one, important, objective of the TTIP. The European Commission (EC) states that sustainability will be addressed by both sides based on their prior work in recent trade agreements (European Commission, 2013a).

We are living in an ever changing world, one of technological, environmental, and economic transformation. The Internet and technology are changing the very foundations of business, commerce, and trade. eBay has coined the concept of "Commerce 3.0" which seeks to capture the third stage of the evolution of commerce where transformative technologies are now delivering on the promises of the Internet to bring global commerce to individuals and micro and small businesses (Wohlsen, 2013).

The fact is that trade is today also made up of global commerce where businesses and consumers are able to transact directly with each other despite geographical distance, giving rise to:

1. "micro multinationals" – leveling the playing field (Bieron, 2013; Manyika & Roxburgh, 2011)
2. "glocalism" – local presence can be sustained through access to global markets (Melin, 2013)
3. "Long Tail Trade" – niche products become commercially viable (eBay Inc., 2012)
4. CO₂e reductions – online stores compared to brick and mortar stores (Climate Group, 2008; Gelobter, 2010)

These ideas as well as numerous other concepts are evolving at a rapid pace, and online commerce too is swiftly evolving across the globe. As developing countries increasingly embrace in particular mobile technologies, global commerce should be expected to constitute a fast growing part of trade in nearly all parts of the world. Figure 1-2 depicts the online commerce sales in different regions of the world. Towards the end of 2013, beginning of 2014 it is forecasted that the Asia-Pacific region will overtake North America as the largest contributing region of business to consumer (B2C) online commerce sales (eMarketer Inc., 2013).

Friedman (2005) argued that the technological revolution was leveling the economic playing field of global economics, by supporting people from all across the globe to compete, connect, and collaborate in ways humanity had never before apprehended could be possible. Furthermore, Lendle, Olarreaga, Schropp, & Vézina (2012) argue that in terms of exporting the world is indeed getting flatter through online commerce. Additionally, trade frictions have been shown to decrease with online commerce compared to traditional offline commerce (Lendle et al., 2012).

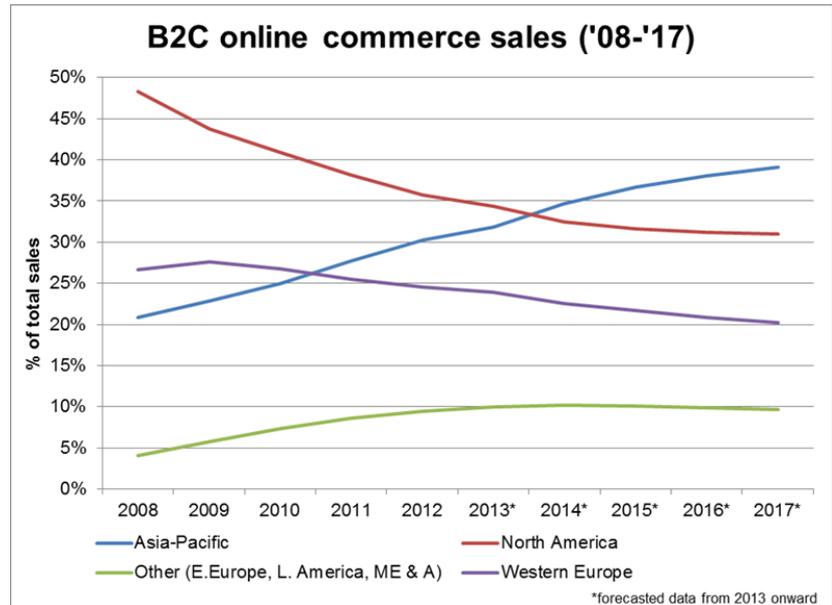


Figure 1-2. Worldwide B2C online commerce sales trends by region.

Source: eMarketer, Inc. June 2013

The mobile internet could affect how five billion people go about their lives, giving them tools to become potential entrepreneurs making the mobile Internet one of MGI McKinsey's most impactful technologies (Chul et al., 2013). Another trend emerging is that more and more of the population at any given time are online or connected via the Internet, along with a change in the platforms people are connecting from; termed hyper-connectivity (Perez, 2013). Today SMEs participating in online and mobile-enabled commerce, hereafter referred to as "online commerce", are almost inherently global, without choice, having their products available online to a vast number of potential consumers.

This transformation or broadening of trade to also encompass global commerce, calls for a revision or re-thinking of what constitutes sustainability in trade and what sustainable trade could look like in tomorrow's marketplace. SMEs play an important role in this marketplace and may have a significant part to play in addressing sustainability challenges in online commerce and trade.

1.2 Objectives and Research Questions

The objective of this research paper is to (1) explore whether altered trade and commerce patterns are changing sustainability in online commerce, (2) identify opportunities and threats towards sustainability if this is the case, and (3) evaluate some of the implications this may have on trade policy and trade rules. The role of online marketplaces in facilitating sustainability in this new era of trade will be examined and a SWOT analysis used to detect what may constitute sustainability in today's commerce and trade. Additionally, this paper is to set the foundation for possible further research into the area, especially with regards to the role of micro- and small enterprises in facilitating sustainability in trade.

The research questions to be used in guiding this research paper are as follows:

RQ1: Is online and mobile-enabled commerce via SMEs changing the notions of sustainability in trade? If so, how?

RQ 2: How is the growth in online commerce via SMEs affecting sustainability in trade, and what future implications could this entail?

1.3 Data and methods

To effectively answer the research questions and to acquire the broadest assessment of economic, social, and environmental sustainability within in online commerce, a combination of qualitative and quantitative data methods was deemed appropriate. Semi-structured interviews were utilized to gain a deeper understanding of the subject area, and conducted with different stakeholders and actors. In addition a short online questionnaire was used to get stakeholder's views on sustainability aspects in online commerce. An inductive approach was used for the assessment of the data collected.

Two frameworks were used to analyze the data collected; the author's own framework constructed from relevant literature and his own ideas, as well as a SWOT analysis. Further discussion on data collection and research methodology can be found in Chapter 2 – Methodology and research design.

1.4 Limitation and scope

The limitations and scope inherent to this research paper are discussed here below.

1.4.1 Limitations

The concept of sustainability is vast, with numerous different definitions and ideologies governing its definition. The approach to the concept of sustainability used in this research paper may not coincide with other researchers' or practitioners' ideas of the subject. Sustainability, for this paper is largely based on the three pillars model, utilizing economic, social, and environmental aspects. See Ashford & Hall, 2011; Harris, 2003; Khalili, 2011; Meyer, 2009; Rogers, Jalal, & Boyd, 2005, among others. For further discussion see section 3.1.

When it comes to international trade agreements, or any international negotiations for that matter, there are numerous agendas to consider. Looking into the implications of online commerce and sustainability on free trade agreements, such as the TTIP, is not a simple task. All viewpoints on this matter cannot possibly be considered in this paper, although an attempt is made to outline the main aspects of their overlap in regards to SMEs and online commerce.

The rapid change in information and communication technology (ICT) and online enabled commerce poses an inherent limitation in itself. SMEs business models, processes, and market venues are rapidly changing which could cause questions, ideas, policies, and frameworks to become outdated quickly (Ryan, 2004).

Language barriers were not a huge issue for this thesis. Most interviewees were either native English speakers or work within sectors where English is the predominant language. Access to stakeholders was more of an issue, especially international trade related stakeholders. However, most potential interview subjects were quite interested in the research topic and were able to make time for a discussion.

1.4.2 Scope

The scope of the study is limited to addressing sustainability in trade, especially sustainability within online commerce through SMEs. The EU defines SMEs as businesses with fewer than 250 employees; the small business category as fewer than 50 employees; and the micro sized business as fewer than 10 employees (CSES, 2012). In addition the SMEs must adhere to specific turnover limits or total balance sheet holding to be categorized as an SME (CSES, 2012)². Furthermore, the focus will be on SMEs within the Business to Consumer (B2C) markets. This categorization will be used throughout this research paper.

Sustainability is, nevertheless, a broad topic often incorporating many different facets or pillars. This paper applies the same reasoning as Hall and Ashford (2011), Harris (2003), Khalili (2011), Rogers et al. (2005), among others, by focusing on the economic, social, and environmental pillars of sustainability. This will inevitably lead to some limitations as to how deep and thorough each pillar can be examined, but each pillar will be addressed in relation to online commerce. Furthermore, the area being researched is potentially a part of further work in the area of sustainability within trade and online commerce.

1.5 Audience

The potential audience for this thesis project is broad. The intended audience, however, are actors or operators providing online commerce platforms, trade policy officials, trade negotiators, SMEs, micro-small enterprises, entrepreneurs, academics interested in the area, and anyone interested in a new perspective of trade, commerce, and sustainability.

This research may be particularly interesting to SMEs and entrepreneurs who are active in online commerce as this paper may provide a glimpse of how other stakeholders in the field view the concept of sustainability in online trade. In addition trade policy officials may be interested in the implications online commerce and sustainability may have on trade agreements. Academics interested in further research on the topic of sustainability in online commerce can perhaps use this research as a starting point and to develop ideas for further research.

1.6 Disposition (outline)

Chapter 1 presents the nature of the problem addressed and the objectives and research questions of this thesis. It identifies research limitations, provides a thesis outline and describes the audience, for which this research may be useful.

Chapter 2 describes the methodology used to collect data to address the research question along with the framework used to analyze the findings of this study.

Chapter 3 contains the review of existing literature and studies. The main gap in research are outlined as well as giving a thorough background of sustainability, trade theory and policy, globalization, the role of technology in commerce, and SMEs.

² The EU's financial ceilings are less than €50 million (\$65 million) for turnover or €43 million (\$56 million) in the case of balance sheet holdings.

Chapter 4 presents the findings from the interviews and the online survey conducted, in addition to tying these findings back to prior literature.

Chapter 5 presents the analysis of the findings using a SWOT analysis and the author's own framework.

Chapter 5 discusses the main conclusions in light of the methodological choices and legitimacy of the study as well as the validity and generalizability of the research.

Chapter 6 concludes this paper by addressing the research questions and the main conclusions, recommendations to stakeholders, in addition to providing suggestions for future research.

2 Methodology and research design

In this chapter the main research design will be outlined. The frameworks used to analyze the data collected will be examined thoroughly as well as the methodology used to collect data.

Kirk and Miller (1986) state that when studying social phenomena different methods of research may often produce different pictures of the subject being studied. Borch and Arthur (1995) illustrate that mixed methodologies can add depth to strategic management models. To adequately answer the research questions posed and to gain the widest perception of sustainability in online commerce, a combination of qualitative and quantitative data methods was deemed necessary. Semi-structured interviews were applied to gain a deeper understanding of the subject area, and conducted with different stakeholders and actors. In addition a short online questionnaire was used to get stakeholder's views on sustainability aspects in online commerce. For the assessment of the data collected an inductive approach was used.

2.1 Frameworks

A literature review was the starting point of this research project along with general discussions with some experts in the field. In addition, the author attended a WTO Workshop on electronic commerce on June 17th to June 18th, in Geneva, Switzerland. This workshop was very informative and provided many interesting perspectives from a diverse group of stakeholders. The databases used for research included LUBsearch, Lund Universities Libraries search engine, Google scholar, google.se, google.is, and gegnir.is. The IIIIEE library was used extensively for hard copies of literature material.

2.1.1 Author's constructed framework

The author's decision to create a framework from scratch was not aimlessly decided, but took into account that sustainability within commerce and trade has lacked a concrete notion or understanding. Many different views of the concept are evident and research within the subject has not, until recently, been the subject of exhaustive research.

The initial discussion, literature review, and construction of the framework all influenced the data collection that was to follow. The interviews and questionnaire, utilized this prior work to a great extent. It provided information as to what questions might be pertinent to ask in the online questionnaire and as a general guidance for the interviews with stakeholders. Further discussion of how the interview questions and online questionnaire can be found throughout the literature review sections.

There is no reason to completely re-invent the wheel; therefore a framework to assess what sustainability in online commerce might look like is partly based on older definitions and research on sustainability. Some of the topics judged to be essential were; sustainability and sustainable development theories; international trade theory and policy; the role of SMEs in commerce; and technology and online commerce. Through prior literature an attempt was made to touch upon the main factors of sustainability, trade, and online enabled commerce. All of these topics served as a basis to evaluate the concept within SMEs and online trade.

This framework is heavily influenced by the three pillar model of sustainability (Ashford & Hall, 2011; Harris, 2003; Khalili, 2011; Rogers et al., 2005), as well as the capital model and triple bottom line (TBL) (Henriques & Richardson, 2004). The TBL concept is linked quite well with online commerce and SMEs, in how economics, social, and environmental functions are all crucial for the on-going concern of firms. In addition, the authors own experience and knowledge on SMEs influenced the framework, on top of which prior literature was utilized too, see for example Bernard, Schott, Bradford Jensen, & Redding, 2007; Nowduri, 2012; Pélissicé du Rausas et al., 2011.

A set of indicators for economic, social, and environmental sustainability in online commerce were constructed based on these models, ideas, and literature. Additional sustainability indicators, deemed necessary, were added based on relative information. These inputs include the creation of entrepreneurial prospects, adding to rural living possibilities (i.e. decreasing the need to move to urban centers), and whether it uses physical, human, and natural capital to benefit society. This framework will be used to analyze the qualitative data gathered from the interviews. A copy of the framework can be seen in Figure 2-1.

Sustainability framework: online and mobile-enabled commerce (adapted from Ashford & Hall, 2011; Harris, 2003; Khalili, 2011; Meyer, 2009; Rogers, Jalal, & Boyd, 2005.)					
Indicator		Indicator		Indicator	
E c o n o m i c	An increase economic growth?	S o c i a l	More specialized work-force skills?	E n v i r o n m e n t a l	Result in less environmental degradation?
	More competitiveness?		An increase in wages?		A decrease in non-renewable resource use?
	Increased productivity?		An increase social diversity? (e.g. exchange of culture, knowledge, and ideas)		An increase in resource efficiency?
	Diversification of potential income sources?		Reduced poverty?		A positive effect for climate change?
	An increase in local economic growth? (i.e. economic growth in rural, or sparsely populated areas or regions)		An increase in purchasing power and living standards?		Decreasing transport needs?
	The creation of entrepreneurial opportunities?		Increase amount of jobs?		
			Increased job security?		

Figure 2-1. Sustainability framework: Online and mobile-enabled commerce

Below the three pillars of the framework will be discussed as well as how prior literature has seeped into it some of the indicators. We will start with the economic pillar and look at some of the indicators constructed and why they were deemed necessary to assess sustainability within online commerce.

Economic pillar

The economic side of the three pillar model of sustainability is often complex, extends beyond purely financial growth, and is closely linked to both the environmental and social pillars (Henriques & Richardson, 2004). Therefore, many aspects need to be considered when it comes to economic sustainability.

Hall and Ashford (2011) and Harris (2003) consider competitiveness and economics as one of the fundamental features of sustainability. The argument can be raised whether or not economic growth as a whole is beneficial to society, but trying to gauge sustainability within the domain of SMEs this indicator was deemed relatively important. In addition, the World Bank concluded that there is a positive association between economic growth and environmental regulation, however not all are convinced that economic growth solves all problems or that it necessarily correlates with economic welfare (Clarke & Islam, 2005; Panayotou, 2000). Nowduri (2012) states that SMEs are deeply involved in distributing economic growth within their respective countries or areas, in addition to ICT supporting SMEs usually becoming increasingly more profitable and competitive than non-ICT enabled SME counterparts. Thus, the indicators for economic growth as well as the indicators related to local economic growth and competition were included for a number of reasons.

Productivity has long been the discussion of economist. Not surprisingly there has been a debate as to whether or not Internet and mobile commerce is affecting productivity, see for example (Chul et al., 2013) for a positive outcome, or Gordon (2012) for a negative outlook on the productivity of Internet-related business. In addition, Internet-enabled business has been touted as a huge boom for entrepreneurs and new business opportunities; thus, giving rise to the indicators for diversification of income and entrepreneurial opportunities (Pélissié du Rausas et al., 2011).

Social pillar

Flatters (2001) concludes that trade and technology may bring about better jobs given the needed skill-sets. The distribution of work-force skills was deemed to be of relative importance as an indicator, as well as that of total amount of jobs created through online commerce and job security issues. Hall and Ashford (2011), Harris (2003) and Rogers et al. (2005) discuss the need for meaningful and well-paid employment and earning capacity. Furthermore, according to Henriques and Richardson (2004) economic activity and growth do not necessarily alleviate poverty. These authors influenced the creation of the indicators for increased wages, poverty reduction, as well as the indicator for purchasing power and living standards through online commerce via SMEs. The indicator for social diversity stems from the author's own ideas and how the increased connectedness of individuals may be resulting in an increased sharing of cultural diversity.

Environmental pillar

Hall and Ashford (2011), Khalili (2011), and Meyer (2009) state that the aim of sustainability should in part be a healthier environment. In regards to environmental sustainability in online commerce the indicators used were a way to approach this pillar from a SMEs retail operations perspective. Meyer (2009) and The Institute of Engineering and Technology (2010) claim that online commerce, and the use of ICT, has the ability to positively impact transport and logistics operations in the online retail setting. Retallack (2003), on the other hand, alleges that online commerce operations could lead to increased environmental problems due to localized goods becoming globalized. The indicators range from impacts on non-renewable resource use and resource efficiency to the effects on climate change, environmental degradation, and transport through online commerce operations.

2.1.2 SWOT

In addition to our own framework a SWOT analysis (hereafter SWOT) was used to analyze the findings and gain a better overview. The SWOT stands for internal Strengths and Weaknesses, and external Opportunities and Threats. The SWOT should not be taken as a static analytical tool, but as

growing and changing part of the development of strategies, management, or ideas, which can be easily converted into practical plans, policy, or strategy (Pickton & Wright, 1998).

In this research paper, the SWOT analysis will assess the main aspects of sustainability in online commerce. It will view sustainability as an aim to which the online market place, its operators, merchants, and even policy official work towards. It looks at sustainability's strengths and weaknesses inherent in online commerce today, while reflecting upon more future-orientated opportunities and threats needed to be considered.

The inputs into the analysis will come from the qualitative data gathered through interviews, the short online survey conducted, literature on the subject, as well as the authors own ideas. From this perspective, online commerce stakeholders can get an overview of possible supplementary steps to increase sustainability in online trade.

2.2 Interviews

Interviews with the relevant stakeholders were conducted during July, August, and September of 2013. Stakeholders were approached to be interviewed by the author during this same period. The interviewees were selected based on their expertise and knowledge of the subject being researched. These include individuals working both in the public and private sector; online business owners and operators; online-marketplace operators; trade organizations; and academia.

A list of interviewed individuals can be found in Appendix I. In total eleven individuals were interviewed. Furthermore, additional individuals were invited to be interviewed, but many declined due to timing issues, while others did not reply to our requests. Interviewees were either approached by the author directly or via a contact within eBay Inc., Hanne Melin.

The semi-structured interviews were all conducted via Skype or phone, and utilized an interview guide to lead the discussion. A copy of the interview guide can be found in Appendix III. The interviews started off on a general note on sustainability and what the concept meant to each individual. Next questions regarding sustainability and online trade were asked, and finally, depending on the subjects background questions regarding trade agreements and trade policy were asked. All interviews were recorded for the author's own records. In the words of Pitchforth, Porter, van Teijlingen and Keenan (2005) qualitative research inevitably results in the emergence of new ideas and ways of viewing the data, thus this of type research can play a crucial role in the analysis process. The hope is that this holds true for this particular research subject.

2.3 Online questionnaire

In addition to the interviews a short online questionnaire was used to gather quantitative data. The questionnaire consisted of eight questions in total; three main matrix-style questions and five background information questions. The matrix style questions were set in a way to gauge the respondent's agreement or disagreement with a particular question, or aspect of sustainability. For example, a question might be asked to what extent a respondent agrees or disagrees with a particular statement about sustainability within online commerce and SMEs. A copy of the survey can be found in Appendix II.

The questionnaire was distributed to all individuals interviewed, as well as other stakeholders. 22 individuals were directly emailed the link. Recipients were also asked to distribute the questionnaire

to colleagues who were familiar with online commerce, SMEs, and sustainability issues. Therefore, it is difficult to measure exactly how many people were invited to take the questionnaire. In total, 15 stakeholders completed the questionnaire which equates to a 68% response rate from those individuals directly e-mailed.

Ideally, a larger number of respondents would have been preferred, but due to time limitations, summer vacations in Europe, and access to stakeholders, participation was low. This point is discussed further in Chapter 5 - Discussion.

3 Literature Review

In this section an analysis of the prior literature of the subject area will be conducted. The concept of sustainability, trade, and e-commerce will be explored in detail. The subsections are as follows: sustainability; trade theory and policy, globalization and FTAs, SMEs, and online commerce and technology.

3.1 Sustainability

In the words of Rogers, Jalal, and Boyd (2005, p. 22) “sustainability is the chosen term to bridge the gulf between development and environment”. Originally the word “sustainability” came from economic disciplines, typically in conjunction with the maximum extraction amount, or sustainable yield, of a particular resource without losing the viability of said resource (Rogers et al., 2005). Even though the concept of sustainability has been used since the 1940’s it is safe to say that the 1987 World Commission on Environment and Development (Brundtland Commission) report put the concept on the map with regards to national and international policy agendas (Khalili, 2011).

The terms sustainability and sustainable development are extensively used, and according to Ryan (2004) basically interchangeably too. The author goes on to describe that the terms are used to “describe an idealized goal for the economy and for human society, to encapsulate a concept of development in balance with natural ecosystems and with the needs of future generations” (Ryan, 2004, p. 15). Sustainability and sustainable development share a common theme. The latter being a process that can lead to sustainability, but the term sustainability in itself could be used in reference to an objective, goal, strategy, or aim accomplished by sustainable development (Horvathy, 2012; Ryan, 2004; Voigt, 2009).

The Brundtland Commission found that development encompassed a set of essential components (peace and security, economic and social development, and governance) and were positively correlated with quality and preservation of the environment (Rolland, 2012). Since the Commission’s report was issued sustainability has played a central role in decisions regarding nearly all areas of development, and even in industry through the institutionalization of the triple bottom line (TBL) (Ryan, 2004). TBL will be discussed further below.

Khalili sums up the concept of sustainability brilliantly:

“Sustainability, by definition, addresses the impacts [of economic development and industrial growth on the existing physical, institutional, and intellectual structure of society and its natural systems] by defining and formulating the relationship between dynamic human economic systems and slower- changing ecological systems, in which human life can continue indefinitely, human individuals can flourish, and human cultures can develop, while the diversity, complexity, and function of the ecological life- support system are protected. Sustainability is also an economic state in which the demands placed upon the environment and natural resources by people and commerce can be met without reducing the capacity of the environment to provide for future generations.” (Khalili, 2011, p. 6)

In the context of a normative concept of sustainability Harris (2003) and Meyer (2009) agree that sustainability should encompass the three elements of economics, environment, and social aspects, but state that they tend to bring about many potential complications to the original, simple definition

of economic development. The goals expressed or implied are multidimensional, raising the issue of how to balance objectives and how to judge success or failure. These three dimensions, according to Harris (2003), are however all equally important to understanding sustainability. Ashford and Hall (2011) concur that these dimensions are the most important drivers of sustainability, pushing it into different pathways and to different places that environmentally driven concerns alone would not necessarily achieve. Figure 3-1 depicts the three main pillars of sustainability and the intersections where sustainability is achieved.

The economic side of sustainability is often complex. It extends beyond purely financial growth, and is closely linked to both the environmental and social aspects of sustainability (Henriques & Richardson, 2004). The authors further argue that the economic benefits created must be viewed from how they are attained, who benefits, and how harm to other elements can be offset.

Within the economic pillar there is also the question of which frameworks or standpoints to consider. Harris (2003) lists ways that a system can be economically sustainable: it must be able to produce goods and services continuously; it must maintain manageable levels of government and external debt; and it must avoid extreme sectorial imbalances which could damage agricultural and industrial production. However, according to Costanza et al., (2012) today we are faced with an economic system based on assumptions from an earlier period of natural, human, and economic limits, one where capital was the limiting factor and natural capital abundantly available. The authors go on to state that the goal of the economic side of sustainability should be to improve human well-being and quality of life.

The discussion also focuses on what models of economics to pursue, such as the current conventional economic model, green economy model, and ecological economics model. All of these models have different ways of measuring growth. The conventional model focuses on gross domestic product (GDP), the green economy model views growth as GDP decoupled from carbon and other energy impacting aspects, while the ecological model perceives growth as a real improvement in sustainable human well-being³ (Costanza et al., 2012). Harris (2003) describes the environmental aspect as a system that can maintain a stable resource base, not overexploiting renewable resources or dominating environmental sink systems, and not depleting non-renewable resources. This applies to the health of ecosystems, biological diversity, and all natural systems crucial to our environment and the earth's as a whole (Harris, 2003; Khalili, 2011).

A conclusion that greatly influenced the online questionnaire used to collect data. With regard to social aspects these models differ to a great extent. According to Moore and Rees (2013), social aspects form some of the biggest challenges to sustainability in society today. The social sustainable system has to address fairness in distribution and opportunity, address health and education services,

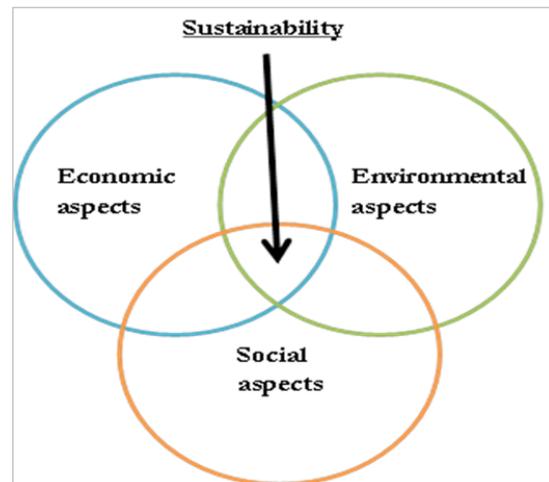


Figure 3-1. The three main aspects of sustainability and their intersections.

³ Using indexes such as the Index of Sustainable Economic Welfare or the Genuine Progress Indicator.

gender equity, and political accountability (Harris, 2003). If viewed from some different economic models, the conventional model views social distribution as something politics should address. On the other hand the green economy model views the process of “greening” the economy as a way to reduce poverty and increase distribution among the population through enhanced agriculture and employment in the green sector (Costanza et al., 2012). In the ecological model this is a primary concern, as economic growth is viewed as detrimental to the quality of life and social capital, as well as environmental well-being (Costanza et al., 2012; Victor, 2010).

This brings us to one more concept, the triple bottom line (TBL). The concept of TBL, coined by John Elkington, is closely linked to sustainability and the different forms of capital, in that it simultaneously addresses economic prosperity, environmental quality, and social equity within organizations (Henriques & Richardson, 2004). It is also a convenient way to look upon how the different types of capital within a business or organization are used in providing goods or services (Jennings, 2004). Henriques (2004) claims that the concept of TBL has two conditions that must be met; one, that the economic dimension cannot purely be considered in financial terms, but in a broader sense; and two, that today’s sustainability impacts must take into account the time dimensions of sustainability. In other words, there is a need to think beyond the accounting year and short term profits, in addition to aligning the business with environmental and social endurance for the long-term survival of the business.

According to Hecht (2007) the need to sustain our economy, protect the environment, and reach our social goals is all interlinked with sustainability, and this must be accomplished without sacrificing one aspect or goal for another. The concept of sustainability is not a static phenomenon to be decided on once and for all, but a dynamic trait where all three pillars intersect in continuous and various ways through time (Henriques & Richardson, 2004). The value added of the concept of sustainability is that it forces us to recognize links and trade-offs, and rather than dealing with each aspect independently, makes each piece a part of the puzzle (Hecht, 2007). This was a key aspect that drove the creation of the short online questionnaire as it was deemed important to gauge stakeholder’s perception of the different pillars were interacting in online commerce. Even though these three pillars, economic, environmental, and social, are the focus of sustainability in this research paper, it is not to say that this outlook is by any means the only perspective to take.

Alternative models of sustainability do exist, others than the three pillars addressed above. Most of these have been developed over the past two decades. For instance, the International Union for the Conservation of nature developed a model dubbed The Egg of Sustainability in which the main parameters are human and eco-system well-being both of which need to be in congruence for sustainability to prosper (Joshi, Ravindranath, Jain, & Nazareth, 2007). Another often cited model is the prism model developed by the Wuppertal Institute in Germany. This model adds another pillar; the institutional vertex, referring to the structures and practices that function within the other three pillars (Meadowcroft, Farrell, & Spangenberg, 2005). Meadowcroft et al., (2005) state that the model is designed in this way to signify the importance of institutions and institutional reform in economic, social, and environmental matters. Similarly, another model used by the UN Global Compact Cities Program, utilized a fourth dimension of sustainability; politics (“Circles of Sustainability,” 2012). It can be inferred that the social aspect in this model has been split into two categories, politics and culture. Most of these models are still interrelated to the basic three pillar model in that they all do address similar characteristics and aspects, as well as requiring each input to be adequately dealt with as a complete system.

3.1.1 Weak versus strong sustainability

It is necessary to understand the different forms of capital employed in sustainability models. The forms included in this research paper are: natural capital, financial capital, human capital, and social capital.

The World Bank's definition of natural capital is the sum of all non-renewable resources (oil, natural gas, coal, and minerals), farmland, forests, and protected areas; resources and ecosystems (Khalili, 2011). Goodwin (2003) defines financial capital as the facilitator of economic production, meaning a system of control of physical capital, and productive capital as the physical assets, goods, and services generated by human production activities of natural capital. Human capital is the productive capacities of individuals. According to Goodwin (2003), the most controversial and most difficult to measure is the social capital consisting of culture, values, knowledge, and mutual understandings. Thus, social capital can be thought of as the investments and services that create the basic framework for society to function (Goodland, 2003).

Tukker (2008) accredits social scientists as stressing the adaptability and preservation of social and cultural systems, natural scientists as defining sustainability in terms of bio-geophysical systems, while economists relate the concept to the preservation of productive capital stock. Ross (2009) argues that due to the enormous challenges facing our planet today the early definitions and understandings of sustainability are too vague and largely too based on malleable policy tools of weak sustainability. Weak sustainability infers that natural capital and human capital are interchangeable, i.e. if one form is draining it can be offset by a surplus in the other (Ang & Passel, 2012). On the other hand, strong sustainability is defined as a concept where natural capital and human capital are complements, and non-exchangeable (Ang & Passel, 2012). Ekins (1993), states that in order to truly provide effective objectives, rules, and decisions there is a need to operate within the ecological capacity of the planet, and move away from the social and economic aspects often associated with sustainability. Ross and Ekins both lean predominantly towards environmental aspects dominating the system, a point that can be argued for and against depending on viewpoints and ideologies. For instance, Ashford and Hall (2011) and Harris (2003) argue for symbiosis between all pillars, and that no single aspect should dominate the equilibrium; thus achieving long-term sustainability.

Moreover, El Serafy (2013) insist that even under weak sustainability, there exists an inherent limit to sustainability's use, in that each form of capital needs to be kept intact for the whole system to run. He further argues that weak sustainability advocates do not necessarily recommend total substitution between natural capital and other capital forms, but that capital or assets used ought to be replaced by similar investments or assets. A so-called sensible sustainability approach, developed by the World Bank, recognizes that natural capital may decrease, but set thresholds of certain stocks that must be maintained (Tukker, 2008). Similarly, sensible sustainability approaches the problem by theorizing that if one stock totally disappears, there will be a collapse in the output. The author concludes that stocks should thus be allowed to build up to higher levels when needed to retain total capital.

The debate between which form of sustainability, weak or strong, may not be central to this thesis topic, but it does bring up interesting notions to be considered. As was concluded in the 2005 Millennium Ecosystem Assessment, human well-being, measured by the Human Development Index (HDI)⁴ was steadily increasing whereas out of 24 ecosystems measured, 15 were being degraded or

⁴ A weighted average of life expectancy, literacy, educational attainment, and gross domestic product (GDP) per capita.

unsustainably used on a global scale (Janetos & Kasperson, 2005). Ang and Passel (2012) bring up an interesting point that if the strong sustainability followers are right and given that natural capital can be seen as diminishing, then the non-substitutability would lead to a decline in human well-being⁵. The opposite seems to be the case from the discussion above, but this may merely be a simplification of a complex reality, see (Raudsepp-Hearne, Peterson, Tengö, & Bennett, 2011).

Ang and Passel (2012) state that there is a fundamental problem in trying to assess empirically which view of sustainability (weak or strong) is correct. Both sides deal with future assumptions and claims that are dogmatic and indisputable (Neumayer, 2010). Perman (2003) reasons that the issue essentially revolves around the significance of technological progress; the weak sustainability supporters believing in technological progress while the strong sustainability supporters are unconvinced.

Harris (2003) goes on to infer that viewed from different perspectives, the debate regarding sustainability needs to address the following; conservation of natural capital, which he states is essential for sustainable economic production; total resource demand and limits to population, along with biodiversity; and social equity such as education, basic health, and participatory democracy. These topics addressed by Harris are very similar to that of Ashford and Hall (2011). What can be concluded from Harris (2003), Henriques and Richardson (2004), and Ashford and Hall (2011) is that through sustainability, social inequities and environmental damage must be mediated, but still concurrently be economically feasible. If one aspect, say the environmental pillar, be emphasized at all costs, it could very well lead to a collapse in economic output thus leading to mass unemployment and other social problems. All aspects are interlinked in ways that complement each other.

3.1.2 Sustainability moving forward

In the 1960's, the concept of sustainability was generally not at the forefront in discussions. Nonetheless Rachel Carson was able to develop many ideas that are quite relevant to us today. Chiefly working with nature, the role of science, and not merely obtaining technological solutions to our problems, but opening up public debate regarding our common challenges (Vaz, 2012). Historically, what is referred to as sustainability today, has even been intertwined with different religious traditions, philosophies, and cultural beliefs; the difference has just been variations in meaning (Mebratu, 1998).

Stallworthy (2008) notes that sustainable development's and sustainability's impact is twofold; integrating environmental and other considerations in to the decision-making process; and moving towards full cost accounting by internalizing environmental impacts of our activities. Sustainable development has, according to Ross (2009, p. 32) "the capacity to set meaningful objectives, duties and roles, and provide boundaries for decision making". This is something that has been implemented into current legislation and international negotiations, by businesses, institutions, and governments alike (Ross, 2009). For instance, one of the United Nation's Millennium Development goals is to ensure environmental sustainability by 2015; likewise the European Union embraces the notion of sustainable development into laws and the Treaty of the European Union (European Commission, 2012a; Ross, 2009). Further discussion on the use of sustainability in trade agreements can be found in the following sections.

⁵ Also known as the environmentalist's paradox

However, the definition of sustainability and sustainable development is often highly contentious, and one nation's interpretation can often be interpreted by another as something completely unsustainable in their view (Ashford & Hall, 2011). Many developing countries view the concept as a hindrance to their comparative advantage and a restriction on the use of their resources for further economic development (Rolland, 2012). El Serafy (2013) states that of course it makes sense for already developed countries to aim for sustainable living standards similar to the one's being enjoyed today, but for developing or low per capita income countries there is the question of relevance and where to set the level of living standards.

As can be inferred the concept of sustainability has often been ill defined and somewhat vague. We have seen from the literature that there are different models of sustainability and many interpretations and most, if not all, touch on the basic three pillars that are the focus in this research paper. Hall and Ashford (2011), Harris (2003), Khalili (2011), Meyer (2009) Rogers et al. (2005), and many others predominantly integrate three main aspects into their definition of sustainability; competitiveness and economics; meaningful and well-paid employment and earning capacity; and environmental health. These were all key aspects and issues which were applied in the data collection of this research. Furthermore, Rogers et al., (2005) points to the necessity for each objective to maximize their benefits, yet inevitably considering each pillar's inherent constraints.

Sustainability and sustainable development is not an exact science, but deals with different pillars and forms of capital. In terms of sustainability in trade we can view the concept as adding to or maintaining the necessary capital, whether it is social, natural, or economic, for our needs today, tomorrow, and the distant future. Within the scope of this research paper this definition, pertaining to economic, social, and environmental pillars, will be utilized. This classification suits online enabled commerce well as it is pertinent to the triple bottom line often associated with sustainability in corporations, including SMEs, as well as emphasizing the balance between natural and social aspects. These concepts and viewpoints were all instrumental in constructing the framework used to assess interviewee's responses, as well as constructing the online questionnaire distributed to various stakeholders. The prior literature on the subject helped form the necessary questions to be asked in order to adequately assess how online commerce was affecting sustainability.

3.2 Trade theory and sustainability

International trade or the exchange of goods and services between multiple parties has grown immensely since the start of the industrial revolution. Today, theories of international trade are largely influenced by classical economics (Adam Smith, David Ricardo, etc.), especially concepts such as specialization and comparative advantage (Costanza et al., 1995). The standard Ricardian trade theory which theorizes that the world will be richer if each nation sticks to its comparative advantage (Reinert, 1996).

3.2.1 Free trade theory

According to Morris (2003) and Vitez (2013) free trade benefits include; allowance for specialization through division of labor; the encouraging of innovation, higher production, and lower prices through competition; lower costs; increased purchasing power; and improved economic growth. The list is even longer if one considers the benefits listed by the World Trade Organization (WTO) which states that trade promotes peace, encourages good government, and increases overall transparency in global business (World Trade Organization, 2009).

Specialization improves efficiency of production and resource allocation, by allowing nations or parties to produce goods and source the resources needed at the lowest costs and in the most efficient way possible (Tupy, 2006). Comparative advantage indicates that countries should produce what they are best at, in terms of the lowest opportunity costs, indicating an inherent link between comparative advantage and specialization. Relative comparative advantage, on the other hand, is the notion that even if one nation or party can make every product more efficiently (absolute advantage), it should only specialize in goods it is most efficient in producing in relative to other nations, and acquire other products through trading (Morris, 2003).

3.2.2 Free trade theory and environment

It is argued by proponents of free trade that the rewards of specialization will bring about economic growth, but also bring about benefits to the environment by creating the necessary means for environmental protection and development (Costanza et al., 1995). This same notion is similar to what has been attributed to Simon Kuznet's pattern of inequality and income, and later the Environmental Kuznet Curve. The notion is that as countries become richer their pollution levels will rise up until a point whereby increased income will lead to less pollution; this is true for air and water pollution, as well as other sources of pollution (Shafik, 1994).

Additionally, the author argues that there are pollution sources (municipal solid waste and carbon emissions) where increased economic growth does not correlate with decrease pollution levels. In a paper by Harbaugh, Levinson, & Wilson (2000) the authors come to the conclusion that for some air pollutants there is not enough evidence of increased economic growth neither helping, nor harming the environment. In an study by Benckekroun & Yildiz (2009) the authors found that benefits from increased economic activity due to trade would outweigh the extra costs of increased environmental damage associated with free trade. Panayotou (2000) thinks this is a clear misinterpretation of an empirical relationship, citing the disregard of environmental thresholds and tipping points by such studies.

Panayotou (2000) states that trade theory has shown that through free trade efficiency of resource allocation is maximized by focusing economic activities towards the least-cost producers. Globalization is driven by trade liberalization and its outcome of freer trade, but according to Panayotou (2000) they are also the major channels through which globalization impacts the environment and environmental quality. Retallack (2003) claims that one of the core problems for the environment is the issue of scale; the transformation of economic activity from the small and localized to the large and globalized is spreading degradation. Agreement, like in so many other subjects, is of course difficult. The World Bank conducted a study on data from 145 countries with regards to environmental policies and economic growth, concluding that there is a positive association between growth and environmental regulation and security of property rights (Panayotou, 2000). By examining Indonesia's potential trade policy reforms and their possible environmental impacts Strutt and Anderson (2000) determine that in terms of air and water pollution the impacts decreased, and reduced resource depletion. The authors go further and state that the economic gains from the reforms and well-targeted environmental and resource policies will certainly bring about gains in social welfare.

The ferocious speeds at which globalization has evolved over the last few decades has contributed to many positive attributes. However, many scholars are not swayed by the argument that the positive aspects of free trade outweigh the negative. For example, Retallack (2003) is not convinced that free trade and economic globalization have led to increased sustainability, on the contrary he states that

the natural environmental burden associated with globalization is speeding up the depletion of the planet's natural resources and is hindering suitable mitigation action from being implemented; even hindering the planet's ability to support future generations. By expanding trade through the industrial market model, he further argues that global environmental damage is spread by globalization to areas that would otherwise have been unaffected.

3.2.3 Free trade theory and higher standards of living

Morris (2003) discusses the notion of free trade bringing about a higher standard of living, but argues that it is completely dependent on whose standard is being considered. Morris (2003) continues to state that around the year 1750 the gross national product (GNP) per capita was similar between developed and developing nations, in the 1930's it was around 4 to 1, and today is about 8 to 1 in favor of developed countries. Additionally many studies have concluded that after a certain point of economic growth the correlation between economic welfare and growth ceases to exist, and actually reduces welfare (Clarke & Islam, 2005). Clarke and Islam (2005) go on to show that even low-middle income countries, such as Thailand, have begun to show diminishing and negative welfare returns from economic growth.

It is argued that inequality has not only risen between countries, but also within countries (Flatters, 2001; OECD, 2012; Wade, 2004). However, according to the OECD (2012) sustainable cuts in income inequality can be achieved if growing employment provides jobs that offer future career prospects, concluding that policies for more and better jobs are as important as ever. Furthermore, Flatters (2001) comes to the conclusion that trade liberalization and technology will not necessarily bring about more jobs, but gives the opportunity for better ones given the needed skill-sets. This was a point deemed important to assess in terms of sustainability in online commerce. The main questions that came to mind were whether online commerce was leading to increased specialized work-force skills, affecting the amount of jobs, and job security implications. These issues would unquestionably have implications for the social-economic spectrum of sustainability.

3.2.4 Free trade theory and today's economy

One can contemplate whether or not comparative advantage will eventually lead to diminishing returns of economic output and sustainability. Reinert (1996) argues that in resource-based activities there will always be a point after which the resources needed will no longer be of the same quality or quantity. Gomes (2003) comes to similar findings. Agrawal (2009) argues that this is due to two factors; first, due to all resources not being of the same quality leading to ever more resource use for the same output; and secondly, because different goods use resources in different proportions.

The classical model of trade and comparative advantage assumes capital and investments are not mobile across borders. Daly, Cobb, and Cobb (1990) and Daly and Goodland (1994) raise the argument that in today's economies capital is mobile, and thus imply that gains from trade, according to traditional trade theory, are outdated. Van den Bergh & Verbruggen (1999) completely disagree, stating that natural and environmental resources are entirely immobile, and that comparative advantage holds true due to capital not being completely and perfectly mobile, as well as countries having vastly different labor characteristics and knowledge.

Agrawal (2009) argues that if a country were to specialize in one product they had comparative advantage in, it eventually could be locked into an activity which would yield less and less, and increase environmental degradation in its quest for those resources. This is something Reinert dubs as the double trap of resource-based nations (Reinert, 1996). The solution, according to him, lies in

building an alternative form of employment, not solely based on one resource or good. As is often the case, theory and reality are not always in agreement, as pointed out by Agrawal (2009), who claims that in reality most countries do not specialize, but instead produce a range of goods and that free trade is still beneficial.

Morris (2003) argues that the theory of comparative advantage is losing its standing in world trade. In his view this is predominantly due to technology, and how the landscape for technology spreading is evolving at enormous speeds. It used to be that technology spread over decades, as was the case with the electric dynamo (a first type of electric motor) in the United States (U.S.) (Chul et al., 2013).

Arthur (1996) agrees with Agrawal and Reinhert, in that today's economies are very much different than they were a few centuries ago; we have moved slightly away from pure production to more knowledge-based economies. He thus argues that we are in an age of increasing returns, one where those who are ahead move further ahead (positive feedback), and those who lose advantage fall further behind. This could well hold in today's Internet and technology driven commerce and trade landscape. These new economies call for different management techniques, different strategies, and different government regulations and policies (Arthur, 1996).

3.3 GATT, WTO and FTAs

The General Agreement on Tariffs and Trade (GATT) and the World Trade Organization (WTO) are two closely linked and important entities of world trade (World Trade Organization, 2011). The former being the precursor to the WTO and founded in 1947 after World War II by 23 country signatories ("Timeline," 2012). GATT is based on eight rounds of trade negotiations, initially dealing solely with reducing direct tariffs, but in later years has started addressing non-technical barriers to trade (NTBs) too (World Trade Organization, 2011).

From the GATT the WTO was established in 1995, covering not just trade in goods, as the GATT did, but included trade in services, inventions, and intellectual property (World Trade Organization, 2011). The WTO replaced GATT as an international organization, but GATT still exists as the organization's umbrella treaty for trade in goods, updated as a result of the Uruguay Round negotiations (World Trade Organization, 2011). Gallagher (2005) notes that the size and reach of WTO is without question vastly greater than its predecessor; consisting of 159⁶ member states and customs territories. What must not be forgotten is that behind these member states are vast numbers of private businesses, large and small, directly affected by the trading system and rules set up by the organization (Taniguchi & Bohanes, 2012).

Being a member in the WTO, and other free trade agreements (FTAs), places some constraints on decisions taken at the national level (Flatters, 2001). The author argues that these agreements still give nations vast room for national policy decisions on almost all important trade policy related matters. Sustainability and economic growth has been the topic of much debate in the WTO and under the organization's and multilateral trade rule, members can deviate from WTO obligations under the pretense of domestic environmental norms (Rolland, 2012). Rolland (2012) further states that many developing countries have argued against such environmental claims, and that they were mere pretenses for developed countries' trade barriers against developing countries. Similar situations were discussed by Shaw and Cosby (1995).

⁶ According to the newest figures published by the WTO.

Ongoing discussion has been taking place within international trade bodies as to what online commerce actually is and whether it is a good or service. If it is classified as a service, it would fall under the General Agreement on Trade in Services (GATS), under which WTO members would only need to provide access to markets in those sectors which they have made specific commitments in (ITA, 2009; R. H. Weber, 2010). If it was classified as a good however, it would fall under GATT, which requires market access and national treatment for all WTO members (ITA, 2009). It is thus clear that this is a complicated matter which requires a solution as quickly as possible. The results of which have important consequences for the commercial world in whole.

3.4 Globalization and FTAs

It almost goes without saying that trade policy today is immensely influenced by the WTO. Globalization has increased trade significantly, largely based on international division of labor, in large part due to the international spread of knowledge and technology, improved communication and transport costs, as well as the liberalization of trade and investment (Flatters, 2001). Much of today's trade is largely based on several decades of WTO-based, and thus GATT-based, multilateral trade negotiations (Flatters, 2001). Ashford and Hall (2011) assert that globalization affect four specific areas important to sustainable development; production of goods and services; the mobility of knowledge and information; capital mobility; and movement of labor and human resources. All these areas are affected by the increased flow of experiences and information across borders, national, political, or geographical, aided by huge advances in information and communication technology (ICT) (Ashford & Hall, 2011).

Not only does liberalized trade, through less protectionism, add to technology diffusion across borders, but also technological progress through economies of scale, innovation incentives, and minimized repetition in research and development efforts (Grossman & Helpman, 1994). The Information Technology Agreement (ITA) has played a pivotal role in spreading ICT products and infrastructure around the globe (Saez, 2012). ITA committed participants to eliminate customs duties and other charges on information technology paving the way for lowered barriers and ease of access to mobile and internet connected societies (Gallagher, 2005).

Economic theory predicts that the more open economies the more prosperous they are, experience a faster rate of progress, and that the mobility of nations within the wealth hierarchy becomes flatter (Wade, 2004). Panayotou (2000) cited (Hettige, Lucas, and Wheeler 1992) in demonstrating that highly protected economies rather went the way of supporting highly capital-intensive and polluting sectors, while free-trade orientated economies had shown growth in less polluting, more labor-intensive sectors. Moreover, Wade (2004) states that the North versus South, rich versus poor country divide is slowly being removed as globalization spreads. This validates the rationale for the WTO, World Bank, the International Monetary Fund, and other multilateral economic organizations to create the globalized, restriction-less, free-trade playing field (Wade, 2004). Globalization, along with increased free trade, has paved the way for online commerce and the trade conducted online today.

3.4.1 Free trade agreements (FTAs)

Over the last few decades the popularity of engaging in free trade agreements between nations or regions has risen, as a compliment to WTO multilateral agreements. Such agreements do in some way discriminate against outsiders of the agreement and give preferential treatment to nations. These agreements are allowed under WTO and GATT rules if they follow three criteria; trade barriers must

not be raised higher than they were before integration; trade barriers are to be abolished for substantially all trade; and regional integration must be completed within a reasonable length of time (Panayotou, 2000). These are commonly known as free trade agreements (FTAs).

FTAs can have multiple facades, including bilateral agreements, plura-lateral agreements, or even regional trade agreements such as the European Union or NAFTA (North Atlantic Free Trade Agreement). Since the establishment of the WTO in the early 1990's, there has been a surge in FTAs (Potier & Tébar Less, 2008; Urata, 2002). The reason behind this, argues Urata (2002), is due to a complex mix of external and internal factors, as well as economic, political and security-related factors. External factors include securing markets and providing export opportunities for domestic industry, thus enabling economies of scale, while internal factors comprise economic growth from increased export and increased efficiency.

These same measures should be attainable under multilateral trade agreements through the WTO, but Urata (2002) cites several reasons for countries preferring FTAs: (1) they are faster than large scale negotiations, (2) a growing strength of anti-globalization movements especially targeted at the WTO, (3) often fewer participants to negotiate with, (4) and regional FTAs offer a possibility of increased political and economic strength in international arena. Hertel, Walmsley, and Itakura (2012) point to the success of intraregional trade in the EU, NAFTA, and MERCOSUR agreements as another reason for other countries to explore similar agreements. After an FTA has been signed and ratified, they are incorporated into national laws.

3.4.2 New-age FTAs

In the past, trade barriers were mostly dealt with through reductions in tariffs. As the global marketplace progresses it becomes increasingly important to go beyond traditional views and address modern barriers on par with restrictive regulations or standards, and sustainability and environmental issues (European Commission, 2013b). The same can be said of online commerce and internet related trade.

From the turn of the century there has been a shift in how FTAs are constructed. There is a rise in simplified trade procedures and the push for more harmonization of standards, transparency, and simplification at the national, regional, and global level (Kommerskollegium, 2009). Hertel et al., (2012) say that these new-age FTAs also encompass increased collaboration in tourism, education and training, media and broadcasting, and intellectual property. A growing number of these agreements are also dealing with labor and environmental issues, and most OECD members' agreements include some type of environmental aspects (Potier & Tébar Less, 2008).

Now that the US and EU have started negotiations of a new bilateral free trade agreement, TTIP, there seems to be ripe opportunity to hammer in simplified trade procedures in accordance with the kind of trade being conducted. The TTIP is to encompass a range of objectives, including addressing the social and environmental aspects of trade and sustainability, in the context of what has been implemented in each side's existing FTAs so far (European Commission, 2013a). The EC, for instance, is pushing for competitiveness-driven bilateral trade agreements that pose as a stepping stone for future trade liberalization, utilizing WTO work, but taking on issues that are not ready for multilateral discussions (European Commission, 2013b). In addition, there is a focus on alleviating challenges faced by small and medium-sized business in trade development (European Commission, 2013a). The agreement is in many respects going to influence the global trading systems, combining two of the largest economic areas on the globe (Kanter & Ewing, 2013). These trade issues may be

difficult to negotiate with a large number of parties; therefore it is important for TTIP to set the precedence.

3.4.3 Sustainability in new-age FTAs

The new-generation of FTAs have been criticized by some organizations (FTA Watch, bilaterals.org, and others) for leaving sustainability in the background to economic issues, including new EU agreements (Lukas & Steinkellner, 2010). In a WTO hosted conference on E-Commerce, Mr. Lee stated that the new bilateral agreements were in reality not doing anything better with regards to opening the digital economy, it is still too based on outdated WTO architecture (Lee-Makiyama, 2013).

However, there may be a shift in this pattern. A quick look at the newest concluded bilateral FTA between the EU and South Korea reveals what may be in store for the TTIP agreement in regards to sustainability and sustainable development. The EU-South Korea agreement is the first EU FTA that contains a separate sustainability chapter (Lukas & Steinkellner, 2010). One of its main objectives is to “recognize and commit to the notion that sustainable development is an overreaching objective to the development of international trade... and to ensure that this objective is integrated into every level of the Parties’ trade relationship” (EU-Korea FTA, 2011, sec. 1.1.2(g)).

Labor standards and the continuation of ratifying the International Labor Organizations conventions are addressed in the EU-Korea agreement, as well as both sides agreeing to and implementing all multilateral environmental agreements which they are a party to (Cooper, Platzer, Jurenas, & Manyin, 2011). Article 13.1.2 in the agreement addresses how the three pillars of sustainability, environmental, social, and economic are all interlinked and act as key components of sustainable development and sustainability in trade. Furthermore, Article 13.6 reconfirms that trade, between the Parties, should promote sustainable development in all its dimensions, particularly focusing on labor and trade policy coherence, as well as environmentally friendly goods and services.

In addition, the EU stated in their 2006 sustainable development strategy:

“The Commission and Member States will increase efforts to make globalization work for sustainable development by stepping up efforts to see that international trade and investment are used as a tool to achieve genuine global sustainable development. In this context, the EU should be working with its trading partners to improve environmental and social standards and should use the full potential of trade or co-operation agreements at regional or bilateral level to this end” (Hontelez & Buitenkamp, 2006)

Potier & Tébar Less (2008) claim that among OECD members, the EU, Canada, New Zealand, and the US have been the most comprehensive when it comes to environmental aspects in recent FTAs. They even claim that the US are unique in the way that they put trade and environmental issues at par. Since 1999, the EU has utilized Sustainability Impact Assessments (SIA) in their bilateral agreements, assessing the economic, social, and environmental consequences of these agreements (European Commission, 2013c). The development of different issues other than just pure trade barriers in FTAs is significant, but yet environmental aspects remain small in the scale of things, and often developing countries are reluctant to deal with environmental issues within trade negotiations (Potier & Tébar Less, 2008).

Good trade policies are only a part of the set of policies required for sustainability in a globalized economy. Patterns and rates of long-term growth depend on specific levels and the efficiency of investment in physical, human, and natural capital, such as efficient capital markets, and adequate educational, environmental, and resources management (Flatters, 2001). In addition, he argues that good trade policies are the key to ensure that a nation's economy is adept at partaking in global opportunities. Furthermore, outward looking trade policies with increased integration between environmental and trade aspects will result in more sustainable economic growth and enhanced environmental benefit (Flatters, 2001).

Global commerce is characterized by large and increasing volumes of trade in intermediate products⁷ (EC, 2010). Until now the focus of trade negotiations has been on a silo approach: each issue area is addressed as an independent issue, rather than being dealt with from a supply chain perspective (World Economic Forum, 2013). Additionally some global entrepreneurs must deal with several countries simultaneously, adding to the complexity of their operations (Isenberg, 2008). Minimizing these barriers with harmonized trade laws and other similar structures could provide much needed ease for SMEs to operate in a global marketplace. Cross-cutting issues such as online commerce and sustainability need also to be taken into the equation. The problems facing SMEs in international trade and sustainability issues were key components of the interview questions for stakeholders involved in international trade and trade policy. In addition, the relevance of bilateral or regional trade agreements was also given some weight in the interviews because of the increased emphasis on these types of agreements in the last decade or so.

3.5 Micro, small, and medium sized enterprises (SMEs)

The definition of what constitutes an SME varies according to country, region, stock exchange listed versus non-listed companies, and if SMEs should be classified according to employees, turnover, market capitalization, along with many other factors. The United States defines SMEs to be enterprises with less than 500 employees (U.S. International Trade Commission, 2010). This tends to be fairly large in a global sense, thus other areas and countries have followed different classifications. The EU defines SMEs as businesses with fewer than 250 employees; the small category as fewer than 50 employees; and the micro sized business as fewer than 10 employees (CSES, 2012).

SMEs make up a large portion of every country's economy, for instance 58% of the gross added value⁸ within the EU-27 came from SMEs in 2011 (European Commission, 2012b). They are a major source of entrepreneurial skills, innovation and employment, and within the EU-25, almost 23 million SMEs provide around 75 million jobs and represent 99% of all enterprises (European Commission, 2005). SMEs, especially web-based, are particularly adept at creating a broader supply of products by serving specific niche markets, unbound by geographical location (World Economic Forum, 2013). In a recent empirical study on the job creation of SMEs, it was found that in low income countries SMEs account for 80% of formal jobs (Kok, Deijl, & Veldhuis-Van-Essen, 2013). In addition SMEs account for two-thirds of all employment in OECD countries (World Economic Forum, 2013).

⁷ Intermediate products are products or goods that may require further processing or manufacturing before selling to the end customer.

⁸ Gross Value Added (GVA) includes depreciation, rewards to labor, capital and entrepreneurial risk. GVA is what remains when intermediate costs are deducted from sales or turnover.

Bernard, et al., (2007) state that international trade policy has historically been considered from comparative advantage, increasing returns of scale, and consumer appetite for variety, but neglects or pays little attention to the actual firms driving trade flows. The authors go on to state that international trade is rare, pointing out that in the United States in the year 2000, just 4% of the 5.5 million operational firms exported goods or services (Bernard et al., 2007). Large corporations and multinational corporations have both benefited greatly from the internet-enabled technological revolution, but individual consumers and small, upstart entrepreneurs have also been some of the greatest beneficiaries of the Internet's empowerment (Pélissier du Rausas et al., 2011).

In a study commissioned by eBay Inc, Lendle et al., (2012) show that online trade reduces information frictions, hence easing trade across borders, especially for smaller firms. Data even points to online trade resilience; during the drop in trade which was witnessed in 2009. Lendle et al., (2012) calculate that the total exports of eBay companies were much higher than their offline counterparts⁹. Additionally, McKinsey conducted a survey of 4,800 SMEs, their results show that SMEs using web technologies grew more than twice as fast as those companies with minimal web presence; this was held true across all sectors, but especially in commerce (Manyika & Roxburgh, 2011). Internet-savvy SMEs brought in more than twice as much turnover through exports as those that used the internet more sparingly, and these same companies generated more than two times as many jobs too (Manyika & Roxburgh, 2011).

Increasingly, corporations are progressively adopting the notion that they play a central role in managing social and environmental impacts associated with their economic activities; a demand arisen from various stakeholders (Porter & Kramer, 2006). Looking into sustainability within corporations Meyer (2009) points out that the maximization of short-term profits serves the interest of financiers, referred to as the maximization of shareholder value, whereas long-term orientation of companies favors a broader set of stakeholders. Sustainability is a long-term concept, which is why from this perspective there might be a conflict between being orientated towards the interest of shareholders, and following a sustainable company policy (Meyer, 2009).

Sustainable development can also be quite interlinked within SMEs. Nowduri (2012) explains that SMEs are deeply involved in the distribution of economic growth, are able to lessen the aggregation of urban populations and tend to focus more on the just allocation of economic growth throughout an emerging economies. Nowduri (2012) goes on to say that ICT is supporting SMEs becoming ever more competitive while increasing profits, and pushing them increasingly into becoming a major part of their countries' economic growth.

Job creation, increased growth, increased turnover, and the dispersal of economic growth are all characteristics of SMEs conducting business online. The increased market reach of SMEs conducting business through online marketplaces, the influx of corporate sustainability issues, and technological intersections are all involved in enhancing the online marketplace in terms of sustainability.

3.6 Technology, ICT, and commerce

Alan Kay, often deemed one of the pioneers of modern computing reportedly described technology as being “anything that was not around when you were growing up as a kid” (Tomlinson, 2010, p. 62). In the last twenty years ICT has transformed global business as well as consumer's habits

⁹ Based on eBay data from the US.

(Meyer, 2009). Meyer (2009) goes on to states that without the technologies we take for granted (mobile phone, the Internet, computers), the economic development of globalization would not have taken place. At the same time the use of these technologies has contributed to a new consciousness, and created new life styles.

Chances are that that readers of this research paper did not grow up with many of the common place technologies we take for granted today, including the Internet or mobile phones. The impact of technological progress over the last few decades is enormous. The Internet is even comparable to the way the industrial revolutions transformed past societies (European Commission, 2011). Because humans are so adapted to use and develop new tools and techniques, technology can bring about tremendous change to the social status quo (Tomlinson, 2010).

This can have immense implications for all parts of society, whether it is labor aspect, how governments are run, affecting environmental impacts, shifting economies, and even changing how business is conducted. ICT creates new ways of communication, new ways to store, manipulate and analyze data, new kinds of entertainment, and a new way of steering commerce (Tomlinson, 2010). According to The Climate Group (2008) the ICT sector has the capability of making energy consumption and GHG emissions more transparent through its products and services. In the report it is stated that although isolated efficiency gains can be had, it is the packaging of ICT in a complete and holistic set of processes and procedures that will afford the world the greatest impact (Climate Group, 2008). Clancy (2013) and Munishi (2012) point out that many online marketplace providers are addressing some of the negative environmental impacts stemming from data centers emissions and energy consumption. A process that is likely to continue given corporate responsibility trends and possible cost savings in the long-term.

Ashford and Hall (2011, p. 10) cite Joseph Schumpeter's "winds of creative destruction" when addressing the technological changes currently happening; looking into the disruptive, or radical, innovation that may bring about a change in established firms, institutions, and ideas. For instance, this can be seen by the increasing use of ICT in online commerce and international trade. A clear example of disruptive technologies is cited in the Boston Consulting Group's research on the "new internet", in which internet access is no longer a luxury, but where mobile-enabled web access will progressively govern all facets of life (T. Weber, 2012). Increased mobile access to the Internet will change the face of commerce, from a customer's and a seller's perspective equally.

3.6.1 Internet enabled economy and commerce

The internet enabled economy can be thought of as all activities from the creation and usage of internet networks and services; from web activities, telecommunications, software services, to hardware and equipment (Pélessié du Rausas et al., 2011). The total turnover in the Internet economy across the G-20 economies amounted to 4.1% of their GDP, representing \$2.3 trillion (€1.8 trillion) in 2010 (Dean et al., 2012). The Internet is changing the way we make payments, manage data, the way we learn and train, the way we search, and our interactions and how the exchange of ideas is conducted; this is fundamentally different from five years ago, let alone a few decades (European Commission, 2011). This is creating new Internet business models across the globe (Lee-Makiyama, 2013).

A McKinsey report from 2011 showed that the internet enabled economy brought about 21% of the GDP growth from the G8 countries as well as South Korea and Sweden, between the years 2006-2011 (Pélessié du Rausas et al., 2011). The European Commission (2011) claims that, in France, the

same internet enabled economy produces 2.6 jobs for every job cut, and accounts for nearly a quarter of net employment generation. The internet enabled economy is not just aiding growth and jobs, but also having a huge impact on consumer surplus. The McKinsey report (2011) showed estimations that in 2009 consumer surplus from the Internet in the United States equaled \$46 billion (€60 million). Brynjolfson and McAfee of MIT's Sloan Business School question this job creation though, citing that there is a great chance that technology could destroy more jobs than it creates, and that there is an even greater chance of inequality widening (The Economist, 2013).

The real gains from the Internet's growth are linked to people and consumers. The Internet has fundamentally changed the way consumers can compare prices, find instant sales, and locate specific or obscure items without the help of specialists (Manyika & Roxburgh, 2011). Research has shown that prices, can be on average 10% lower than offline due to increased price transparency, and that economic surplus stemming from web services range from \$18 (€13) in Germany to \$28 (€20) in the United Kingdom¹⁰ (Manyika & Roxburgh, 2011; Pélissier du Rausas et al., 2011).

Manyika and Roxburgh (2011) claim that a strong Internet ecosystem – one that fosters competition, encourages innovation, develops human capital, and builds a comprehensive Internet infrastructure and boost access – enables a country to capture the maximum values this technological transformation offers. Online commerce, and basically most commerce today, is becoming deeply rooted in the lives of consumers, business, and citizens alike through increased Internet connectivity (European Commission, 2011). B2C online commerce sales topped \$1 trillion (€756 billion)¹¹ in 2012, and is poised to grow even further over the next years (eMarketer Inc., 2013; Labbé, 2013). Worldwide business to business (B2B) online commerce is estimated at \$12.4 trillion (€9.5 trillion) in 2012 (WTO, 2013).

The crucial aspect to B2C online commerce working properly is that a critical mass of people is online (Teltscher, 2013). This was also found to be true for B2B online commerce (Daniel, Hoxmeier, White, & Smart, 2004). Online commerce does not magically appear, but requires fast, reliable, and affordable telecommunications infrastructure, something many parts of the world are lacking, especially in the developing world (Teltscher, 2013). Environmental footprints can be significantly impacted by online commerce, especially by optimizing transport logistics, reducing overproduction, and minimizing warehouse and storage space (Institute of Engineering and Technology, 2010). The flow of material throughput has been positively impacted, especially through online commerce where considerable untapped potential still resides, and can save energy through logistic operations (Meyer, 2009).

3.6.2 Online commerce impacts

Mingay (2007) and Fichter (2002) look at the sustainability effects associated with the ICT, especially the environmental impacts. They conclude that the impacts form three categories; first order; second order; and third order effects. The first batch is related to direct effects stemming from GHG emission, electronic waste, hazardous substances, and use of non-renewable resources (Tomlinson, 2010). The second category's impact stems from the application of ICT, bringing about positive

¹⁰ The consumer surplus is the value to the consumer of the online services minus any costs associated with using those online services and any form of pollution, i.e. it is the service value of the benefit consumers derive from being able to consume a product or services for a price lower than the most that they would be willing to pay (Pélissier du Rausas et al., 2011, p. 54).

¹¹ Given an average EUR/USD exchange rate of 1.30.

impacts such as substitution of travel and internet-enabled business. There is the possibility that while consumers will make fewer trips to the retailers, there exists a large rebound effect due to the high energy consumption of the ICT needed to make purchases online (Lainer, Partridge, & Vittore, 2012). Similar findings on the rebound effect of ICT products are shown by Plepys (2002). The third order is long-term orientated and looks at the energy intensity, GHG intensity, and material intensity (Mingay, 2007). Gelobter (2010) argues that the growth of online commerce in the last two decades has helped to reduce the United States' energy intensity, or the amount of energy consumed relative to each dollar of GDP. Moreover, ICT could abate climate change, providing a 15% reduction in emissions by 2020, representing more than five times the sector's own carbon equivalent footprint (Climate Group, 2008).

Galea and Walton (2002) argue that there is an inherent difference in the objectives of sustainability and online commerce, the prior arguing for local action while the later encompasses global scope. The authors go on to discuss two perspectives in the relationship between sustainability and online commerce; one in where online commerce displaces only real-world activities such as auto trips or reduction of packaging; and two, potential long-term impacts such as supply-chain transformation.

In a report by Cooler Research (Gelobter, 2010) comparison is made between a regular retail store turning over \$100 million (€75 million) to the equivalent of sales through small, Web-based business. The report concludes that there were savings of approximately 1.400 tons of CO₂e per year through Web-based commerce. This is largely due to the difference in how the goods purchased are moved from the distribution point to the consumer's end location (Gelobter, 2010). It is estimated that twenty percent of all private transportation is due to shopping at physical stores (GeSI & BCG, 2012). Plepys (2002) states that environmental effects of online commerce will ultimately come down to how well the whole system is designed; such as delivery specifications, return rates, population density, and shopping allocations. Gelobter (2010) argues that shipping via trucks to the final destination is far more efficient than each and every consumer driving to the retailers, especially as trucking companies are many times better positioned to maximized efficiency. Findings from (Weber et al., (2009) confirm that online commerce delivery networks use less energy and emits less CO₂ than traditional retail shopping methods. Plepys (2002) furthermore, states that most often environmental implications are not often considered by shoppers, but price and delivery time dominate the decisions to purchase.

Online commerce offers reductions of environmental impacts and emissions through dematerialization. ICT-enabled solutions for online commerce retailers can reduce their CO₂e emissions by an estimated 0.09 gigatons¹², albeit a small fraction of the total anthropogenic CO₂ emissions per year¹³ (GeSI & BCG, 2012). Combining these solutions with ICT-enabled reductions in inventory, packaging minimization, and logistical optimization can have an even greater impact (GeSI & BCG, 2012). One thing that must be kept in mind is that what all these studies mentioned in this section have in common is a set of assumptions and often a limited sphere where these assumptions are being tested. Naturally, online commerce and its impact is highly complex with a large number of variables to consider that are difficult to pinpoint.

¹² A gigaton is equal to one billion metric tons

¹³ According to (Friedlingstein et al., 2010; Marshall, 2012) anthropogenic CO₂ emissions equal 35 gigatons a year.

3.6.3 Hyper-connectivity

Manyika and Roxburgh (2011) argue that the Internet is still in its infancy, and that new technologies are shaping the way people become ever more connected, both to the internet and to each other. In the World Economic Forum in January 2013 a new buzz word was protruding from many mouths; hyper-connectivity. Hyper-connectivity, as described by Perez (2013) is the trend towards ever larger parts of the population being online or connected at any given time, along with a change in the platforms people are connecting from. For instance in 2012, 6 billion connections were made worldwide and \$1.3 trillion in revenue was made through the use of mobile telephony, which has become the largest ICT platform to date (Davidson, 2012). By the end of 2013, it is estimated that 39% of the population (2.7 billion people) will be online (Teltscher, 2013).

The trends in broadband and mobile broadband uptake are staggering as can be seen from figure 3-2. In a matter of a few years mobile-broadband subscriptions have skyrocketed across the globe, from less than 5% around 2007, to an estimated 30% in 2013, and in the developed world this number is just under 75% (Teltscher, 2013). According to the economist Jeffrey Sachs, the mobile phone is a symbol of a new dawn, and its access being the single most transformative tool for development (Akwagyiram, 2013). Davidson (2012) sees this as just the beginning, mobile broadband is going to have a far greater impact than is being realized today; bringing about even stronger economic growth and changing our fundamental patterns of living, learning, and working in every corner of the globe.

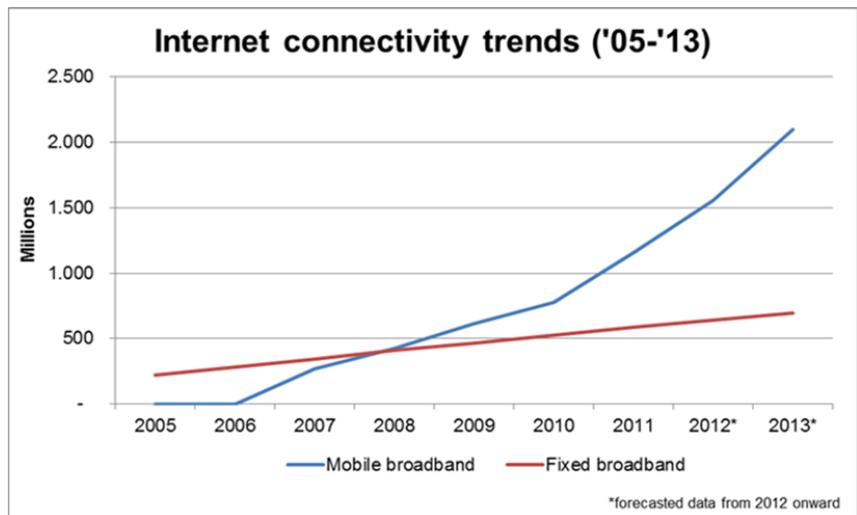


Figure 3-2. Worldwide Internet connectivity trends 2005-2013.

Source: ITU World Telecommunication/ICT Indicators database.

Mobile devices, such as smartphones and tablets, will drive broadband connections, accounting for 80% of connections by 2016 (Dean et al., 2012). Mobile internet is thus poised to be a disruptive technology, changing patterns of consumption, the nature of work, creating new products and services, shifting surplus to consumers, and driving economic growth and productivity (Chul et al., 2013). Questions are still raised about the productivity gains associated with the Internet and Gordon (2012) claims that it has not increased productivity or the standard of living as much as electric lighting or the motor vehicle has. Of course, the Internet is still relatively new, and as pointed out by The Economist it took the industrial revolution over 100 years to fully spread (The Economist, 2013).

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With the huge growth of broadband and the Internet, along with the interconnectedness of economies, commerce as we have known it for the last centuries is in the early stages of transformation. In a report by eBay (2012), the term Commerce 3.0 was coined to embody a new form of commerce, driven in large by technology and a consumer-driven global form of trade. This

new way of doing commerce through the “new” Internet, as Dean et., al (2012) phrase it, is shifting consumers to be more interactive and participatory, no longer limited to developed economies, but enveloping emerging economies at a rapid scale too.

Online commerce allows for searching, comparing, contemplating offerings, and transacting with trust and confidence; through any connected ICT device (eBay Inc., 2012). All sizes of businesses and sellers can trade their products or services without regard for geographical distances. Global trade is shifting, moving away from pure container lad cargo ships to smaller more dispersed actors across the globe. Dean et al., (2012) state that the whole internet experience, including commerce, has become deeply rooted in our everyday lives, reflecting national characteristics, and influencing economics, politics, and society as a whole. This is not to say that a new commerce-utopia has been found, there are of course a number of policy and non-policy related barriers to overcome such as taxes, customs, language barriers, and cross-border data transfers, see eBay (2012), Bieron & Ahmed (2012), and Kommerskollegium (2012) among others for in-depth discussions.

The opportunities for enhanced growth of international trade of goods and services are tangible. Local, yet global market access for SMEs, niche trading opportunities, and aiding in greener growth by allowing for smarter consumer choices and possible circular business opportunities are possible (eBay Inc., 2012; Manyika & Roxburgh, 2011). Trade policy measures including the easing of trade obstacles between consumers and merchants and leveling the trade playing field between merchants across the globe need to materialize (Bieron, 2013; Gelobter, 2010). All of these measures are aided by the Internet and our increasingly connected society to which online commerce owes it existence.

3.7 Research gap

The changing landscape of trade and commerce, and all of the factors and implications which have been discussed in preceding sections, calls for a revision or re-thinking of what constitutes sustainability in trade and what sustainable trade could look like in tomorrow’s marketplace. This research paper will focus on sustainability in online commerce via SMEs, in addition to assessing some of the implications that a new trading landscape may have on international trade policy.

4 Findings

The first step in data collection for this research paper was to conduct interviews. The information gathered from those was used for qualitative analysis. In total, 11 stakeholders were interviewed to gain a deeper, more diverse perspective on the topic of sustainability in online commerce. A detailed list of the individuals interviewed can be found in Appendix I. Semi-structured interviews were conducted, using an interview guide as the template to lead the discussion during the interviews. A copy of the interview guide can be found in Appendix III.

The interview questions were kept similar for each stakeholder, although some flexibility was employed depending on the expertise area of each interviewee. Each interview spanned from 25 minutes to 75 minutes, and was either conducted through Skype or phone. All interviews were recorded for the author's own records.

In addition to semi-structured interviews a short online questionnaire was conducted with each interviewee as well as other stakeholders who were able to provide insight into the subject matter. The survey was used to gauge the extent to which stakeholders thought that mobile and online-enabled commerce via SMEs was affecting sustainability. A copy of the survey questions can be found in Appendix II.

The number of responses from the online survey was minimal, but even so, the sample is thought to reflect fairly the views of a rather diverse group of professionals in the field. A total of 15 stakeholders answered the survey questions. 73% were male, 27% female, with an age range from 20-59 years of age. The majority of respondents worked within the private sector (60%). Approximately half of respondents sold goods or services through online marketplaces. In addition, one respondent trained sellers to conduct commerce in goods and services across online marketplace platforms.

4.1 Sustainability in online commerce

Below are three sections pertaining to the three pillars of sustainability focused on in this research paper. These pillars include economic, social, and environmental aspects. In each subsection to follow, sections 4.1.1 to 4.1.3, the preliminary results of the questionnaire are analyzed and complimented by an evaluation and discussion of what the interviewees added to the subject matter.

4.1.1 Economic aspects

Sustainability, in an economic sense, depends on a great number of factors. From prior literature and the framework constructed for this research these factors can include general economic growth, increased competitiveness of markets, entrepreneurial opportunities, and diversification of potential income sources. Further discussion on the matter can be found in chapter 3.1.

The preliminary results from the online survey showed that with regards to economic aspects, respondents were generally in agreement that online commerce has resulted in a positive increase of economic prospects pertaining to sustainability; at least the economic aspects outline by the author's framework. For instance, most participants agreed or strongly agreed that online commerce has led to an increase in economic growth, and overwhelmingly agree that it has led to increased competitiveness in commerce. On average consumer prices tend to be 10% lower online than offline due to price transparencies online (Manyika & Roxburgh, 2011). These positive indicators are also

evident when respondents were asked about the diversification of income sources and creation of entrepreneurial opportunities stemming from online commerce.

When asked about the potential of online commerce leading to increases in productivity respondents either strongly agreed with the statement or were neutral to the idea. Gordon (2012) points out that productivity gains from the Internet may be much smaller than heralded. Positive or neutral views were observed when respondents were asked about the increase in local economic growth opportunities, i.e. economic growth in sparsely populated areas or rural communities; respondents tended to agree but not decisively. It has been argued that there is an inherent difference in objectives between sustainability and online commerce, in that online commerce drives global actions, while sustainability is of local concern (Galea & Walton, 2002). But what these results point to is added headway to the idea behind “glocalism” whereby a local market presence can be sustained through access to global markets (Melin, 2013). In addition, Henriques and Richardsson (2004) claim that a company’s investment in a local community can serve as a driver of local economic growth, by employment, increasing local supply chains, and adding new skills to the employment pool. Relevant to this point is the fact that access to global markets has enabled business to offset fluctuations in sales during the off-season in their local, home market (Martin, personal communication, August 19, 2013).

Table 4-1 depicts the questionnaire results.

Interviews:

From the interviews conducted with stakeholders it was evident that the economic parts of sustainability in online commerce play a large role. Most characteristics of online commerce were encouraging in an economic sense. However, downsides were pointed out too. According to Adam Mackay of Bluewatersports.com the “whole economic environment is becoming less and less sustainable, and the change is happening at faster rates generally”. Thus trying to keep a consistent business model is becoming increasingly difficult, while economic sustainability from an SME perspective is decreasing due to this rapid change in the commerce environment (Mackay, personal communication, July 8, 2013). On the flip side, Mr. Martin of The Pros Closet commented that being a small business means they are more nimble when it comes to changes in the business, and that apt technological knowledge of employees is crucial in this regard (Martin, personal communication, August 19, 2013).

Mr. Mackay commented that it becomes “challenging to run a company and have employees for set roles, as it is becoming more difficult to alter roles and/or retrain employees in a rapidly changing environment” (Mackay, personal communication, July 8, 2013). For SMEs the economic sustainability of their business is paramount, (i.e. keeping their business enduring) they can only benefit from the fact that through online commerce a new trading opportunity has arisen to reach new markets (Labbé, personal communication, July 11, 2013). Similarly, Harris (2003), Henriques and Richardson (2004), and Ashford and Hall (2011) established that through sustainability, social inequities and environmental damage must be mediated, but these strategies must be economically viable too.

From developing countries’ perspective the economic aspect of online commerce is highly connected to the type of payment and shipping systems incorporated into the whole system. It is also about moving away from “continued business as usual and not adapting to sustainability models by

ways of new ideas and ICT (Dard, personal communication, July 15, 2013). The lack of diversified, electronic payment systems and the cost of shipping are the two of the biggest hurdles to the development of online commerce in developing nations, according to Labbé at The International Trade Centre. There are of course innovative payment solutions like mobile payment or just plain “cash on delivery” to address the former problem, but progress on shipping solutions has been slow and costs are still too high, especially for cross-border online commerce (Labbé, personal communication, July 11, 2013). Effective payment solutions are also of concern to businesses in developed countries, especially those who are transacting across borders. Secure and legitimate transactions have ironed out many of the hazards and trust issues first seen when online commerce started (Martin, personal communication, August 19, 2013).

Table 4-1. Findings: Economic aspects

Economic aspects	Positive feedback	Neutral feedback	Negative feedback
An increase economic growth?	86%	7%	7%
More competitiveness?	100%	0%	0%
Increased productivity?	67%	33%	0%
Diversification of potential income sources?	93%	0%	7%
An increase in local economic growth? (rural, sparsely populated areas)	81%	6%	13%
The creation of entrepreneurial opportunities?	100%	0%	0%

4.1.2 Social aspects

The preliminary results from the online questionnaire on social aspects exposed a slight difference in the outcomes compared to what was observed in the section on economic aspects. Table 4-2 depicts the results. A majority of respondents considered specialized work-force skills to be positively affected by online commerce through SMEs. Within this part of the questionnaire, the overall views were mixed as to how online commerce via SMEs was influencing social issues of sustainability.

The question of job security evoked a fairly negative response; not one individual viewed online commerce as positively affecting job security. On a side note, the positive responses concerning the increase in the amount of jobs created were purely from respondents working in the public sector. The difference in the public/private sector response is interesting. This may be due to what Mr. Mackay mentioned in his interview as the problem with the rapid rate of change in Internet-enabled commerce and online marketing venues, in that it may point to a gap in perceptions between business owners and the public sector (Mackay, personal communication, July 8, 2013). Further observations [anonymous] were aired as to the threat of jobs being lost due to increased efficiency in production and distribution. Mr. Labbé’s comments in the next few paragraphs further reflect these ideas.

Poverty reduction was considered not to be improving through online commerce and SMEs. This is in line with what Henriques and Richardson (2004) concluded; that even though economic activity

and wealth increased, it does not necessarily alleviate poverty. The authors go on to state though that alleviating environmental and social imbalances will require financial resources, resources that will need to be generated through economic prosperity.

Collier and Dollar (2002) in a World Bank study claim that through globalization there is a clear mandate for poverty reduction, in that countries with faster economic growth showed no increase in inequality and faster poverty reduction. Similar findings were revealed in a study on Indonesia by Strutt and Anderson (2000). Wade (2004) does not agree and refutes Collier's and Dollar's calculations, rather believing that inequality and poverty, depending on the way it is measured, is probably rising. What it boils down to may be the different viewpoints of economic theory; neo-liberalism tends to be persuaded by increased globalization while other perspectives may question that assumption. Additionally, according to Reinert (1996) the solution is to build an alternative form of employment, not solely based on one resource or good. Income inequality can be achieved by producing jobs offering future career prospects; free trade and technology can offer this opportunity of better jobs (Flatters, 2001; OECD, 2012). The more open an economy is and integrated with technological progress, the more likely it is to create forward-orientated jobs in an ever evolving knowledge-based economy. If this is the case, increased online commerce might be one of the ways to move onward.

Interviews:

As was evident from the respondents of the questionnaire, interviewees were also not all in agreement on the role online commerce and SMEs play within the social aspects of sustainability. Some stakeholders commented on the role online commerce can have in creating jobs in the developing world, and bolstering local markets, as is the case with the Bangladeshi virtual market for local goods and produce.¹⁴

A negative impact on the social dimension that was mentioned in the interviews was the social implications of retail migrating online, away from the conventional "high street" retail model. Mr. Labbé commented on that the whole pie [retail market] is not necessarily expanding, but online retail is partly replacing brick and mortar retail; this inevitably has dire consequences for employment and job creation, as online commerce tends to be less human resource intensive (Labbé, personal communication, July 11, 2013). This same concern was pointed out by way of an anonymous comment in the online survey.

What must be kept in mind is that online commerce does not necessarily have to increase the total amount of commerce or income nationally (Hill, 2013). Brynjolfsson and McAfee state that there is a great chance that technology could destroy more jobs than it creates, and that there is an even greater chance of inequality widening (The Economist, 2013). However, in a study from France it was concluded that the Internet-enabled economy produced 2.6 jobs for every one job cut (European Commission, 2011).

With SMEs making up a large part of the job creation their increased online presence may be a way to tackle the lingering unemployment problems facing many regions of the world today. In a recent study conducted by Sidley Austin it was estimated that Australian eBay retailers employ up to

¹⁴ See www.amardesheshop.com for further details.

50,000 employees (eBay Inc., 2013). During the year 2012 the Australian workforce consisted of around 12 million people, thus the estimated employment through eBay retailers represented just over 0.4% of the total workforce (Australian Bureau of Statistics, 2012).¹⁵

Moreover, through online commerce and worldwide market access there is the possibility for adjustment of seasonal changes in transactions. For instance, Mr. Martin of The Pros Closet stated that their customer base changes with the seasons, depending on where the summer season is at any given time (Martin, personal communication, August 19, 2013). Being able to counter seasonal fluctuations in business transactions definitely has positive implications for job security and permanent employment opportunities; with much less emphasis on the seasonal employee and a more stable business environment.

Another interviewee also pointed out the need for educating business owners and entrepreneurs, especially in the developing world, by preparing them for use of online commerce tools and marketplaces. In this way sustainability could be built directly into the business core values and mentality. As a future medium and form of market transaction, the Internet and online commerce are of central importance for sustainable development; the technology itself does not determine sustainability, but rather its design, use, and regulation does (Fichter, 2002).

Table 4-2. Findings: Social aspects

Social aspects	Positive feedback	Neutral feedback	Negative feedback
More specialized work-force skills?	67%	27%	7%
An increase in wages?	14%	71%	14%
An increase in social diversity? (e.g. exchange of culture, knowledge, and ideas)	40%	33%	27%
Reduced poverty?	36%	29%	36%
An increase in purchasing power and living standards?	50%	29%	21%
Adding to rural living? (i.e. lessen the need to move to urban centers)	57%	29%	14%
An increase the amount of jobs?	29%	43%	29%
An increase in job security?	7%	47%	47%

4.1.3 Environmental aspects

The preliminary results from the online questionnaire of environmental aspects exhibited the same response mixture as in the previous section (social aspects). In general the environmental aspects being questioned evoked a fairly neutral and positive response. Respondents agreed that increased resource efficiency and decreasing transport needs could be a result of commerce being conducted

¹⁵ Total workforce is equal to the number of employed and unemployed individual.

online through SMEs. Several studies have concluded that online commerce can be more environmentally beneficial than traditional ways of shopping (Skapinker, 2012; Velásquez, Ahmad, & Bliemel, 2009; C. L. Weber et al., 2009). Gelobter (2010) concluded that GHG emissions [CO₂e] were lower in Web-based businesses compared to offline counterparts and (C. L. Weber et al., 2009) found the same to be true of online commerce delivery networks compared to offline retail.

An anonymous commenter was concerned that commerce still leads to production of goods and the transportation can also pose a noteworthy threat resulting in negative environmental impact. Naturally, what this commenter stated is true, but there are other venues to address environmental impacts from consumer habits and purchases, and for this paper these issues are beyond its scope.

The results, as seen in table 4-3 seem to point towards environmental aspects playing a moderately important part in sustainability within online commerce and SMEs, in particular, aspects relating to transport needs and resource efficiency. Gelobter (2010) argued that online commerce has aided in the reduction of the United States' energy intensity and that online stores result in less construction. Similar conclusions were realized by Romm (2002).

Interviews:

Interviews with stakeholders pointed towards environmental issues being of vital importance in the sustainability concoction. Even in businesses that did not have specific sustainability objectives, environmental impact (especially relating to shipping) issues were quick to surface during the interviews. Transport logistics was deemed to be of paramount importance to making online commerce functional and doable (Rentzhog, personal communication, July 2, 2013). Rentzhog went on to discuss transport efficiency, and through improvements in logistical and customs procedures, it would be possible to speed up the logistics change, leading to an improved environmental effect. Another interviewee furthermore commented that, in an ideal world “the best environmental case would be to buy from local manufactures and to sell locally, but economically I am of course happy to sell my products rather than them sitting in the warehouse” (Mackay, personal communication, July 8, 2013). It is also about extending the life-cycle of products. According to Mr. Martin there is great potential for online commerce to become more environmentally friendly by selling second hand goods; “the Internet has opened up the possibility for a worldwide rummage sales” (Martin, personal communication, August 19, 2013).

“Thanks to the Internet and digital technologies the opportunities for increased cross-border trade without moving across geographical borders physically has developed; for instance an architect can deliver services across borders or interviews conducted by students through Skype” (Jonströmer, personal communication, July 2, 2013). Cloud computing was mentioned as something that could improve transport logistics¹⁶. Cloud computing can allow for lower costs and increased efficiency, ease of access, and can provide scalable and cost-effective ICT resources; including virtual workspaces (Manyika & Roxburgh, 2011; Pokhriyal, 2013). All of these factors play a huge role for often cash-strapped SMEs, not to mention possible positive environmental side-effects.

¹⁶ Cloud computing is best described as larger-scale, shared ICT infrastructure available via the Internet whereby single servers can be located in one central location (Accenture & WSP Environment & Energy, 2010).

The impacts from ICT and hardware needed to run the online marketplaces, online shops, and other related activities were mentioned as a threat towards greater environmental sustainability in online commerce. Not surprisingly online marketplace providers, such as eBay, are on top of these concerns by implementing data center efficiency measures and building green data centers (Clancy, 2013; Munshi, 2012). The eBay Social Innovation team also commented on how ICT has become a key issue and risen up on eBay's agenda. As data centers represent over half of eBay's carbon and energy footprints the company is actively working on managing the impact and developing new ways of using renewable energy to decrease the environmental impact as much as possible (Lescroft, personal communication, July 11, 2013).

Table 4-3. Findings: Environmental aspects

Environmental	<i>Positive feedback</i>	<i>Neutral feedback</i>	<i>Negative feedback</i>
Less environmental degradation?	50%	36%	14%
A decrease in non-renewable resource use?	43%	43%	14%
An increase in resource efficiency?	57%	36%	7%
A positive effect for climate change?	29%	50%	21%
Decreasing transport needs?	50%	29%	21%

4.2 Online marketplaces, commerce, and SMEs

“In the early days of e-commerce, big businesses were fairly blind to e-commerce and the opportunities that it could offer them...what has changed recently is that larger companies have started to get involved in different e-commerce strategies...with never, younger employees coming on board who are seeing the power of eBay, Amazon, and global e-commerce, these big retailers are making the environment very, very competitive.” (Mackay, personal communication, July 8, 2013).

Sustainability considerations may not be the most urgent matter for SMEs in many parts of the world; especially when other hurdles and obstacles (official merchandise concern, sustaining profits and turnover, shipping, and payment issues) seem to pose a bigger threat. Labbé mentioned that given the opportunity, business in the developing world could be well equipped to make sustainability issues a part of their business models, strategies, and employee's mentality (Labbé, personal communication, July 11, 2013). If possible this may serve as a catalyst to increase sustainability measures within SMEs globally. It has been reported in the literature that businesses with sustainability concerns embedded within their core business models have had more success in implementing sustainability strategies than one's without (Schaltegger, Lüdeke-Freund, & Hansen, 2011). This is not to say that other businesses are doomed, but need to work harder to incorporate sustainability strategies effectively and embroil it as a core value of the company (Baumgartner, 2009; Epstein, 2008; Ganescu, 2012). A clear opportunity lies within reach of online-marketplace operators to aid the spread of sustainability measures across their platforms and directly into the SMEs transacting through them.

Asked whether online commerce could be beneficial to SMEs in the long run, most interviewees confirmed that this was certainly the case. Online commerce is “definitely beneficial to SMEs as long as it is not just the larger players [multi-national corporations] that are dominating the market” (Labbé, personal communication, July 11, 2013). However, there are challenges too. The rapid changes in the online commerce environment, for instance marketing, employment, and bottom line-related issues¹⁷, are all affecting how SMEs operate in this playing field (Mackay, personal communication, July 8, 2013). The age of employees and their familiarity with ICT was mentioned as holding back many businesses from utilizing the opportunities within Internet-enabled commerce and business.

Online commerce, and perhaps digitalization, affects the way we trade. Many of the products and services traded are broken down into more and more pieces resulting in micro trade which is tied into cloud computing and not necessarily seen by the consumer in everyday life. For SMEs and micro-sized enterprises online commerce is a clear and definite opportunity for these companies to reach a global audience, and at a low cost (Jonströmer, personal communication, July 2, 2013). The term randomized trade was mentioned as a term to describe how online marketplaces make it possible for customers to find you, albeit companies must also be very active in traditional sense of trade; marketing its products, and working to get customers to your business (Rentzhog personal communication, July 2, 2013).

Cloud computing was mentioned as a way for SMEs to decrease costs, reduced ICT impact, digitalize goods and products, and shape logistics to better utilize routes and transport methods. According to many stakeholders the opportunities for SMEs are abundant. The new trade channels offer smaller companies vast new markets, contacts, and an opportunity to compete on a global basis; spurring the growth of micro-MNCs (micro-multinational companies). No longer is the realm of international trade purely dominated by the large players, but increasingly SMEs with a global reach and local presence.

4.3 International trade considerations

“E-commerce and digitalization can have a huge effect on helping countries participate in trade, having a more stable trading environment, and more stable growth... in the end this is an important part of sustainability” (Rentzhog, personal communication, July 2, 2013).

The recent trends in trade agreements between countries has been to put more energy into bilateral agreements, trading a bit away from large multilateral trade agreements (MTAs)¹⁸. This has been the case since the latest round of WTO negotiations, or the lack thereof in the case of the Doha rounds (Jonströmer, personal communication, July 2, 2013). The overall consensus of interviewees was that MTAs are much preferred to bilateral deals. Their stance being justified by reasoning that it becomes much easier for all companies to trade between countries if businesses and countries know the rules, or are at least have similar ones.

It almost goes without saying that for SMEs, similar rules between countries are hugely beneficial. FTAs are always incorporated into national law after being ratified. Thus, not having to spend time

¹⁷ Such as profit, turnover, or costs, to name a few.

¹⁸ Bilateral agreements refer to agreements between two countries or regions. Multilateral agreements are between a number of countries.

and energy discerning each and every bilateral trade agreement and national law put in place, but having a “common floor to stand on, and addressing common trade barrier issues” is hugely beneficial to all organizations (Rentzhog, personal communication, July 2, 2013). FTAs can definitely be used as an instrument by policy officials to adhere to similar trade practices and harmonization of national trade laws. The difference of getting bilateral deals done versus getting unanimous agreement from a plethora of countries is of course profound. Moreover, according to Mr. Jonströmer, for some issues it may be better to move in the right direction and use bilateral agreements as a first step towards a wider agreement, including issues of data transfers (Jonströmer, personal communication, July 2, 2013).

Today’s economies have evolved vastly from a few centuries ago. There has been an exchange from a pure production model to the greater inclusion of knowledge-based activities (Agrawal, 2009; Arthur, 1996; Reinert, 1996). Technology and the Internet are definitely having an impact on trade, rapidly changing trade patterns in the last decade, and changing the way business is conducted; yet trade rules have not caught up to this change, albeit slowly starting to adjust to a changing trade setting (Östberg, personal communication, September 3, 2013),

According to Arthur (1996) those economies and firms who are ahead will continue to move further ahead, and those lagging will fall further behind. The intention with the new Transatlantic Trade and Investment Partnership (TTIP) is to not only to reduce trade barriers and standardize regulations between the two biggest economies in the world, but also to add new, different aspects to the international trade arena. Everything points to sustainability and SMEs also being important objectives of the TTIP. The European Commission (EC) states that sustainability will be addressed by both sides based on their prior work in recent trade agreements (European Commission, 2013a).

“Unfortunately TTIP, with all the good wording about 21st century agreement, tends to look like a classical [trade] agreement. The EU mandate is not really encompassing new issues; the US is most likely going to introduce data transfer issue... For instance the Trans-Pacific Partnership (TPP) is trying to address new issues such as international internet trade, or at least trying to utilize that type of thinking which was in place in TTIP in the early stages... Unfortunately somewhere this agreement [TTIP] has slipped back into resembling the old traditional agreements... (Rentzhog, personal communication, July 2, 2013).

It is difficult to tell if TTIP will or will not address new trade issues in line with online commerce, as the negotiations process has just begun (Östberg, personal communication, September 3, 2013). It is important for the EU and US to take this opportunity to truly incorporate today’s trade landscape into TTIP. Good trade policies are key to ensure nations’ economic resilience in a changing, global marketplace, and can serve as a catalyst to interlace environmental and social concerns into more sustainable economic growth developments (Flatters, 2001). After all, these two regions make up the biggest economic areas on our planet; other nations will likely follow in their footsteps. Mr. Östberg agrees, “TTIP, as well as other bilaterals between the big trading players will definitely influence the multilateral talks, as well as the negotiation climate in Geneva [WTO] as well” (Östberg, personal communication, September 3, 2013).

Within the WTO there is work being conducted trying to find a framework to fit online trade policy recommendations, as was mentioned in a recent conference at the WTO, Geneva on June 17-18th of 2013. Some audience members and online commerce practitioners pointed out that the rapid changes in Internet business models and overall ICT could prove as a hindrance to settling on one

single type of framework or policy for online trade; the Internet and online commerce are very dynamic instruments. A strong Internet ecosystem that is built on competition, innovation, expertise, and a solid ICT infrastructure is essential to extrapolating the greatest returns from the technological transformation occurring (Manyika & Roxburgh, 2011). Many positive elements have been realized, including the signing of ITA and the increased distribution of ICT globally, increased competitiveness of markets through online commerce, and the spread of entrepreneurial opportunities through the Internet. Further steps towards harmonization of trade policy are needed.

According to Lee-Makiyama (2013) the digitalization of international trade has not seen its end. Online commerce has grown twice as fast as total retail sales, and this trend is forecasted to continue to grow at this rate for the next five years (Kaplan, 2013). See also table figure 1-1: Worldwide B2C online commerce growth trends. Therein lays a conundrum; “The problem is that a lot of countries tend to focus on red-lines and what should not be in the [trade] agreements, but should rather be thinking how can we now use these agreements to really support the trade we see out there? I think a lot of countries have a very traditional view on how trade is done” (Rentzhog, personal communication, July 2, 2013). Everything points to the growth of online trade continuing on its path.

Furthermore, within the WTO and its members, the ability to stay on top of Internet and digital trade issues depends on whether the multilateral system will continue to work on these digital economies; business has already gone digital where these issues are not properly addressed (Lee-Makiyama, 2013). If this is the case, then this poses a significant problem for SMEs moving forward with technologically driven commerce; without set rules and policies international online commerce could be negatively affected.

5 Analysis

In the section below an analysis of the findings will be conducted using the two frameworks; a SWOT analysis and the author's own framework. The SWOT is used to give a graphical representation of the strengths and weaknesses associated with sustainability in online commerce today, and the future-orientated opportunities and threats associated with it. In Section 5.2 the findings are analyzed according to the author's own framework. The framework is adapted from prior literature and the author's own perceptions of sustainability in online commerce and trade. A detailed discussion of the framework can be found in Chapter 2 – Methodology and research design and a copy of the framework can be found in Figure 2-1.

5.1 SWOT analysis – sustainability in online commerce

The SWOT analysis will assess the main aspects of economic, social, and environmental sustainability in online commerce. It will view sustainability as an aim to which the online market place, its operators, merchants, and governments and policy officials work towards. This perspective gives us a snapshot of what the fundamental internal strengths and weaknesses of sustainability look like today, as well as reflecting upon the future-orientated external opportunities and threats for sustainability within online commerce. Figure 5-1 gives an overview of the SWOT analysis. The inputs into the analysis will come from the qualitative data gathered through interviews, the short online survey conducted, literature on the subject, as well as the authors own ideas. From this perspective, online commerce stakeholders can get an overview of possible supplementary steps to increase sustainability in online trade.

	Helpful	Harmful
Internal	<p><u>Strength</u></p> <ul style="list-style-type: none"> Economic success Influencers of sustainability strategies in SMEs ICT infrastructure in place Mobile penetration Cloud computing 	<p><u>Weakness</u></p> <ul style="list-style-type: none"> Economic aspects too prominent Social and environmental aspects ambiguous Environmental impacts – shipping / ICT operations Social implications – job displacement Global vs. Local issues
External	<p><u>Opportunity</u></p> <ul style="list-style-type: none"> TTIP embracing SMEs and online commerce Mobile commerce solutions Sustainability strategy / business model trends Entrepreneurial opportunities Online marketplace operator's advisory roles 	<p><u>Threat</u></p> <ul style="list-style-type: none"> New FTAs not addressing today's form of trade Unanimous agreement in FTAs difficult Rapid change in ICT & online commerce Unpreparedness to take on online commerce possibilities

Figure 5-1. SWOT analysis.

5.1.1 Strengths

From the findings and analysis above there is evidence that points to strengths of sustainability within online commerce being plentiful. By strengths, the author is referring to the positive attributes of online commerce in terms of what may constitute sustainability today.

Primarily, the online marketplaces' economic potential is great. It can lead to increasing competitiveness in different market sectors, adding to economic growth of SMEs and other businesses, and creating opportunities for individuals all over the globe to transact in a manner not possible two or three decades ago. The potential for large online marketplaces, especially ones concerned with sustainability issues, to influence sustainability objectives of other smaller corporations are within reach. Many of these operators are large MNCs with considerable financial strength, innate values that guide them to be immersed in sustainability matters within commerce.

Interviewees commented on the fast changing business landscape of online commerce and some stated that sustainability issues were not a top priority of their business, other than perhaps financial and economic sustainability. Hence, for large online marketplaces this could be an opportunity to influence the business practices of SMEs' transactions by shifting business behavior into a more socially and environmentally-orientated direction. Consequently, by not only addressing their own operations, but also secondary impacts resulting from transaction through their markets, the strengthening of sustainability's three pillars can be achieved.

In most developed-world markets, ICT infrastructure is decently spread out and in place. The spread of ICT products has been positively supported by the Information Technology Agreement (ITA). It goes without saying that online commerce has greatly benefited from this agreement, and that SMEs across the world are able to transact in a much faster and efficient manner due to it. Where ICT infrastructure is lacking, the mobile broadband connections offer a great way around expensive fixed line broadband. Increased connections and mobility solutions add yet more potential for SMEs and entrepreneurs in the online marketplace, developed world and developing world alike. This offers, at least according to what the results of this research point to, economic growth and entrepreneurial opportunities, increased competition, a diversification of income sources, specialized work-force skills, and reduced impact from shipping and resource efficiency.

It was stated that cloud computing provided SMEs scalable and cost-effective ICT resources. Cloud-based services offer lower environmental impact and more possibilities for SMEs to focus on their core competencies, and thus easing trade (Whitney & Kennedy, 2012). Cloud-based services and goods can be seen as a complement to additional sustainability measures within online commerce and SMEs.

5.1.2 Weaknesses

Of course sustainability within online commerce has its weakness too. It may well be that the economic aspects are too prominent and the prospect of economic success is what may be driving some SMEs to do business online. Interviewees expressed concern about the economic stability for small businesses in online commerce.

In the online questionnaire and during interviews the economic aspects were often well understood, while matters pertaining to the social and environmental aspects often resulted in a broader result; a clouded response difficult to decipher. For instance, some interviewees raised the question of whether online commerce was resulting in an increase in income inequality and decreasing job security. This points to a problem in understanding, to a great extent, this new form of commerce and the intersection of sustainability within it.

With regards to social and environmental issues, shipping matters, the local versus global goods debate, and other environmental impacts were regarded as weaknesses in the online commerce

structure. Shipping was most often mentioned as something that needed to be addressed, and was discussed in some cases in connection with local versus global goods. The environmental impacts from running huge ICT equipment to operate the online marketplaces were also conferred with a negative connotation. The idea of buying and selling goods across the globe, with all the logistical impact which stems from such business models, was seen as a negative aspect of online commerce's sustainability. Additionally, results point to concerns over local goods being shunned for global goods sourced, produced, and transported from many different locations resulting in unnecessary negative impacts. Job displacement or the creation of jobs, along with job security was questioned by stakeholders. The differing views on these social issues were regarded as a weakness in online commerce sustainability.

5.1.3 Opportunities

Many of the opportunities involved for increased online commerce are directly tied to the strengths, and more specifically the weaknesses mentioned above. Mobile solutions for online commerce are one of those topics. By bypassing expensive fixed broadband infrastructure the Internet's vast potential can be brought to the hands of so many more individuals across the globe. The hope is that by doing so sustainability aspects can be bumped into business models across the world; online marketplaces must be willing to accept their role in doing so. Interview results pointed to the need to bridge education gaps in SMEs across the globe when it comes to sustainable business models.

The prospects for entrepreneurial and small business ventures in online commerce are likely to continue to grow, especially as evermore aspects of everyday life become intertwined with technology and connectedness. By tackling many of the weaknesses listed in figure 5-1, online-marketplace operators can play pivotal roles in educating stakeholders on sustainability issues in online commerce. SMEs and entrepreneurs are likely to have more concerns over keeping their operations running, hopefully profitable, and may lack time and resources to develop these issues. Marketplace operators can use this as an opportunity to reach out to these firms and demonstrate solutions for added environmental, economic, and social sustainability. Marketplace operators can too add to their knowledge by adapting and learning from best-practice of firms all over the globe.

Additionally, those marketplaces can simplify and streamline logistics to reduce negative environmental externalities from commercial activities. These options may include incorporating greener shipping methods, increasing efficiency of cross-border trade and transport, increasing transparency in product sourcing and production, and addressing the local vs. global good concerns by directing consumers' attention to similar goods closer to home. Many of these options are already in place among online-marketplace operators and will continue to evolve.

With the new age FTAs being discussed in two of the largest economic regions of the world there lies a unique opportunity for greater sustainability objectives and issues to be incorporated into these agreements. Online commerce enables all sizes of corporations to reach a vast, worldwide marketplace at the touch of a button. International trade has moved into the realm of SMEs. The TTIP is ripe with opportunities to include online commerce aspects too; an agreement that actually represents the type of trade happening all across the globe. Trade policy officials and governments alike can unite to truly incorporate increased cross-border trade between nations through SMEs and designing consumer and product legislation that enhances the internationalization of consumers and SMEs alike.

5.1.4 Threats

On the flipside of the possible opportunities, with the new age FTAs comes the danger of the TTIP and other similar trade agreements of not actually addressing online trade and sustainability. Some interviewees pointed out that, TTIP for instance, was beginning to resemble a traditional agreement. If attention is turned to addressing sustainability of online commerce in multilateral agreements, it may be even more difficult to involve these issues. Sustainability, as was discussed in the literature review, is often a hazy term filled with ambiguities and differences in views. Getting a multitude of regions or countries to agree to specifics, not to mention the developed versus developing country debate, can be challenging to say the least.

The rapid change in business models can have a negative effect on the sustainability of business transacting online. It may be difficult for online marketplaces to remedy this, as this characteristic of the Internet economy is basically in the hands of everyone. Chances are that SMEs cannot be bothered too much with sustainability issues other than what is related to aspects of economic nature; their businesses' profit. In addition, it was pointed out that many parts of the world, particularly developing parts, businesses may not be adept to embrace online commerce opportunities, let alone sustainability within that field.

Once more, this detail points to an increased role of online-marketplace operators to remedy many of these issues SMEs do not necessarily consider or have time, knowledge, or funds to resolve; both in regards to sustainability and online commerce benefits. Then again, too much of a push from the marketplace operators could backfire, as business owners may see these issues as dictating how they should run their operations. It is a thin line between success and failure in these matters.

The SWOT analysis gives us an overview of what social, environmental, and economic sustainability in online commerce may entail today, as well as foreseeable prospects and perils facing these issues. The emerging image is one of sizeable potential for increased sustainability in many facets of online trade and commerce. The favorable economic arena and opportunities for improved inclusiveness for SMEs of all sizes to conduct global trade, increased mobile Internet combined with ICT infrastructure and more efficient computing power, are all grounds for added prospects of sustainability in trade. However, this industry has its challenges to overcome before it can truly balance all aspects in a reputable and consistent manner.

Educating SMEs conducting business via online platforms on social and environmental issues can be beneficial for all actors involved. Additionally, environmental impacts stemming from transport and shipping logistics, as well as ICT operation impacts, can be alleviated with smarter layouts, designs, and resource use. Many of these issues, as well as simplifying cross-border trade between nations or regions can be tackled by smart, truly new-age trade agreements and harmonization of national laws. In the case of TTIP, there is a grand opportunity for two of the largest and some of the most developed economic regions on the planet to incorporate the changing trade landscape; one of increased sustainability and internet-driven commerce by small and medium-sized enterprises.

5.2 Author's own framework and summary of results

Below is a summary of the key results. Each sustainability pillar within online commerce and SMEs is addressed, and the main conclusions drawn. The framework constructed by the author is used for this part of the analysis. It can be found in Figure 2-1 and further discussion on how it was adapted can be found in Chapter 2.

Table 5-1. Summary of economic aspects

Economic aspects	<i>Comments:</i>
An increase economic growth?	Yes, that seems to be the case.
More competitiveness?	Yes, definitely.
The creation of entrepreneurial opportunities?	Yes, definitely.
Diversification of potential income sources?	Yes, seems to be the case.
Expand product's life-cycles?	Yes, possibilities are there.
An increase in local economic growth? (i.e. economic growth in rural, or sparsely populated areas or regions)	Most likely.
Increased productivity?	Maybe, interviewees and survey results were inconclusive.

To sum up the section on economic aspects Table 5-1 can be used to see respondents' answers depending on whether the answers were of a positive, neutral, or negative nature. Increased competitiveness and the creation of entrepreneurial opportunities are something respondents were adamantly in agreement with in regard to SMEs and online commerce. Economic growth was also deemed to be increasing due to SMEs and online commerce. This is in line with studies of the Internet economy showing that it has grown to represent 4.1% of worldwide GDP in 2010, and that it accounted for 21% of the GDP growth from G8 countries, in addition to South Korea and Sweden, during the years 2006 to 2011 (Dean et al., 2012; Pélissié du Rausas et al., 2011). Furthermore, prices online were shown to be 10% lower than offline due to increased price transparency aiding further competitiveness (Manyika & Roxburgh, 2011). In addition the opportunity for boosted sales of second hand or used goods was clear, thus bringing about an increase in product's life-cycles and reducing resource use. Increased productivity concerns were aired, which is in line with new studies, see Gordon (2012). Overall, respondents tended to be more on the positive side in this series of questions.

Table 5-2. Summary of social aspects

Social aspects	<i>Comments:</i>
More specialized work-force skills?	Most likely.
An increase social diversity? (e.g. Exchange of culture, knowledge, and ideas)	Not conclusive, tendency to lean towards no.
Reduced poverty?	Data does not point to that conclusion.
An increase in purchasing power and living standards?	Answers distributed evenly across the board, not conclusive.
Increase amount of jobs?	Interviewees pointed out that jobs may be shifting, no real creation. Survey results tended to be negative.
An increase in wages?	Neutral response.
Increase job security?	Results leaning towards no. Interviewees pointed towards rapid changing business environment.

Table 5-2 shows a summary of the analysis of the social aspects. In this section, survey results and interviews point towards a neutral, if not fairly negative view of online commerce’s role in the social aspects of sustainability. The creation of jobs, job security, increasing wages, and poverty reduction were all deemed as being negatively impacted by online commerce via SMEs. Some of these issues may be linked to what interviewees pointed out in regards to the rapid changes in ICT and online commerce business models. Interviewees also commented on the job losses that may be caused by commerce shifting more towards online commerce. Observations in connection with job creation and security seem to point more towards Brynjolfsson’s and McAfee’s hypothesis of technology destroying more jobs than it creates (The Economist, 2013). However, online commerce enables businesses to reach vast new markets, and as was pointed out during the interviews, some of these SMEs can reduce seasonal sales fluctuations via global markets. Not only does this have positive effects on sales, but also might decrease the need for seasonal workers and improves permanent employment opportunities.

Poverty reduction was seen as being negatively affected, similar to Henriques and Richardson’s (2004) and Wade’s (2004) conclusions on poverty reduction and increased economic growth. However, these views are not shared by everyone, see for example Collier and Dollar (2002) and Strutt and Anderson (2000). The one issue that the results point to being positively affected is the accumulation of specialized work-force skills, adding to Flatters’ (2001) conclusion that trade liberalization and technology may lead to augmented and better job opportunities. The hopes are that with the right support this specialization and expertise will lead to increased entrepreneurial and sustainable business growth within online commerce across the planet.

Table 5-3. Summary of environmental aspects

Environmental aspects	<i>Comments:</i>
Decreasing transport needs?	Most likely, but many variables affect the outcome.
An increase in resource efficiency?	Most likely, but many variables affect the outcome.
Result in less environmental degradation?	Mixed results, not conclusive.
A decrease in non-renewable resource use?	Mixed results, not conclusive.
A positive effect for climate change?	Responses were fairly neutral, not conclusive.

Table 5-3 summarizes the results of the analysis of environmental aspects in online commerce. Environmental aspects tended to evoke mixed responses, both during interviews and in the online survey conducted. However, one thing was clear; there is a need to address these impacts as they were deemed to be of relative importance to the overall sustainability in online commerce. Many aspects need to be considered, from ICT and hardware impacts on our environment, to shipping and logistical obstacles, and using inclusive ICT solutions effectively. According to Clancy (2013) and Munishi (2012) online marketplace providers are addressing some of the environmental impacts from data centers. These issues are likely to become even more important in the coming years; both from an environmental point of view and from a business-economic standpoint too.

Results point to transport logistics and resource efficiency to be positively affected by increased online commerce, but many different variables are inherently tied to these issues. The possibilities for expanding product's life-cycles were discussed in the interviews conducted. Moreover, many studies point to online commerce being more beneficial for the environment than offline retail, by emitting less GHG emissions and using less energy (Gelobter, 2010; Velásquez et al., 2009; C. L. Weber et al., 2009). However, what these studies all have in common are a large number of variables and assumptions that may not hold up in actual, real-world settings. There is also the opportunity to extend the life-cycle of goods, by selling second hand. Online commerce brings these used goods to markets all across the globe.

Overall the results point to an emerging pattern within this research. Economic aspects within sustainability and online commerce seem to be more relevant to stakeholders while the other two, social and environmental aspects, tended to produce progressively mixed responses, i.e. across the positive – neutral – negative spectrums. Business owners and operators were often concerned with economic aspects, and did not necessarily feel that other aspects, social and environmental issues, were being positively affected by online commerce.

It is safe to say that there is a definite trend towards increased online commerce (see for example eMarketer, 2013; Kaplan, 2013; Labbé, 2013; WTO, 2013). Opinions and viewpoints differ on whether there is an actual paradigm shift in the way commerce is being conducted online. Thus, the question of whether the evolution of online commerce is shifting the definition of sustainability is problematic to answer ad infinitum.

What the results do indicate is that the sustainability focus of many actors in online commerce seems to first and foremost be of an economic and financial nature, i.e. leading to increasing competitiveness, creating entrepreneurial opportunities, diversifying income sources, and producing

economic growth. Conclusions in relation to social issues were largely focused on the lack of job creation, negative impacts on job security, and neutral effect on living standards and wages. Interestingly, the results did point to specialized work-force skills being positively affected. Likewise, environmental matters are somewhat murky, but the results indicate a number of positive issues within that aspect of sustainability such as decreasing transport needs and improved resource efficiency.

Online commerce will most likely continue to grow as forecasted and has every potential to lead the trade and commercial setting to a more sustainable way of conducting trade. Predicting how online commerce will evolve and what prospects it may hold in terms of sustainability can be complicated. It does require a significant effort from numerous actors. All stakeholders and actors have a part to play, from the businesses participating in trade, online-marketplace operators, policy officials and governments, to the end consumers.

Striving towards increased sustainability in commerce through clever and holistic sustainability approaches could reap impressive economic, social, and environmental rewards, for the entire value chain. In closing, the idea behind sustainability in online commerce is well summed in the following:

“I think of it [sustainability] in terms of how we [the eBay marketplace] are balancing the different pillars, for some products there might be some environmental impacts in shipping that product across the world, but there might be social and economic benefits in doing so as well” (Melin, personal communication, July 11, 2013).

The goal for all actors associated with online commerce should of course be to maximize positive attributes, while balancing and minimizing negative externalities from all operations attributed from the online commerce venue.

6 Discussion

The aim of this research paper is to look into sustainability in online commerce via SMEs and how sustainability within the field is evolving. The starting point for the research was a literature review of prior work in the fields of trade, sustainability and sustainable development, international trade policy, SMEs, and online commerce. This preliminary literature review pointed towards a gap in the research on sustainability, based on three aspects of economic, social, and environmental pillars within online commerce.

From there a framework was constructed to assess sustainability aspects in online commerce. In addition, a SWOT analysis was used to analyze the main aspects of sustainability in online commerce. It views sustainability as an aim to which the online market place operators, merchants, policy officials, and other actors should strive towards. Data for both frameworks were sourced from interviews with relevant stakeholders, as well as an online questionnaire that was distributed to these same interviewees, and other colleagues. An inductive research approach was used in assessing findings and structuring the results.

6.1 Methodological considerations

Using interviews and a short online questionnaire to gather data was deemed appropriate for this type of study. The interviews conducted provided a great deal of insight into how business was conducted online, in different parts of the world, and what different SMEs put emphasis on; their motivations, and drivers. The online questionnaire was crucial in understanding different stakeholders' perceptions and experience of online commerce and sustainability, and it provided a gateway to reach a broader audience that did not necessarily have time for full-length interviews.

The choice of constructing a framework from scratch was not done haphazardly. Considering that sustainability within online commerce may be a subject area that has not, until recently, been studied or researched to a great extent. It may well be that the framework constructed has bypassed important aspects of sustainability within online commerce, although prudence was applied in trying to incorporate all viewpoints within the scope of this paper.

By incorporating both qualitative and quantitative data, a deeper, richer analysis was made possible. Borch and Arthur (1995) point to mixed methodologies as adding depth to strategic management models. An important piece of the research, at least in the author's eyes, was to gain insight into how online marketplaces could increasingly influence sustainability strategies of their own companies, and SMEs doing business through their marketplaces. Even though full strategies are not completely outlined they can give an idea of possible opportunities and threats. Hence, the SWOT analysis was used.

This thesis is in part conducted as a preliminary research on the topic of sustainability and online commerce. Therefore, a broad approach was used to gain the widest perspective possible in the time allocated. Understanding different stakeholders' perspectives, witnessing different business models, contemplating the main sustainability issues in online commerce, and addressing international trade policy are all a part of amassing knowledge and expertise in this area.

Of course the choice of methods can always affect the outcome, especially when gathering data through interviews. There could well be a selection bias in the stakeholders interviewed. For instance, most stakeholders interviewed were based in countries where ICT infrastructure is perhaps more

advanced than in other parts of the world. In addition, interviews conducted over Skype or phone can sometimes lack the personal touch, and the interview conductor can lose out on specific body language.

There is also a question of ideologies when it comes to the concept of sustainability. As was concluded in the literature review, the concept can often be ill-defined, with different emphasis from different philosophies. Some individuals may find the mere notion of suggesting trade-offs between different pillars of sustainability as blasphemy; the strong sustainability creed. Other disciplines will favor pure economic sustainability above all else, with little or no regard for social or environmental concerns.

6.2 Legitimacy of research questions

Two research questions steered this thesis:

RQ1: Is online and mobile-enabled commerce via SMEs changing the notions of sustainability in trade? If so, how?

RQ2: How is the growth in online commerce via SMEs affecting sustainability in trade, and what future implications could this entail?

First off, the question of whether or not online commerce is actually changing the notion of sustainability must be addressed, and then it is possible to answer how. Data from the stakeholders' interviews point towards an ambiguous result since stakeholders' location in the online commerce supply chain effects their perception of sustainability and online commerce.

It is difficult to answer this first question concretely. However, going back to the literature and assessing some of the data gathered from the interviews, there seems to be a shift in the way commerce is being conducted. Estimates point towards 14% of global retail spending being conducted online by 2020 and that retail growth online has been expanding for more than half a decade (eMarketer Inc., 2013; GeSI & BCG, 2012). Moreover, SMEs are able to reach global markets at the touch of a button, selling and buying from a vast array of possible customers and suppliers. Inevitably, this shift being witnessed is going to affect sustainability in trade.

Question two was somewhat easier to answer from the data gathered. Actors saw benefits coupled with the economic dimension of sustainability within online commerce. Differing views were of course evident, but generally social and environmental aspects tended to be thought of as lacking when it came to many of the aspects being researched; at least compared to the positive answers with regards to the economics parts. These two aspects produced mixed responses across the positive – neutral – negative spectrum.

Sustainability is an evolving concept and ICT and Internet-enabled commerce are not set in stone. There are ample opportunities for all stakeholders in the value chain, from consumers, sellers, online-marketplace operators to government officials, to shift this developing form of trade. Steps have already been taken by numerous actors, and these steps will continue to evolve to adequately address the concerns and issues outlined in this study.

6.3 Generalizability of results

Overall the results from this research paper show that numerous aspects of sustainability are inherently linked to online commerce via SMEs. Some aspects, such as economic considerations play a more prominent part in stakeholders' views than others. This section will assess the generalizability of the research results.

6.3.1 External validity

However much care was taken to gain the widest perspective possible, and to include as many stakeholder groups as possible, it is always necessary to take a step back from one's results to ask how relevant these findings are in different contexts. The research is being conducted in a Nordic country setting and speaking with stakeholders in mostly English speaking countries and firms.

It was pointed out by interviewees that issues concerning environmental and social aspects sustainability, especially on the seller's side in developing economies, were not really at the forefront; other issues regarding their businesses were considered more crucial. Economic sustainability issues, on the other hand, were usually regarded as top-agenda items. Furthermore, it was pointed out that these firms are well poised to take advantage of progressive social, environmental, and economic measures, if given the opportunity and shown how.

ICT and Internet businesses are rapidly evolving. Markets, marketing, and business processes are progressing at a much faster pace than before; upheaving many long-founded firms and establishing others as a result. What constitutes sustainability in online commerce today may be outdated in a matter of years.

Differences in culture, attitudes, economic positions, and a plethora of other factors will indubitably have an effect on the results, and affect whether they can be transferred across the globe. Sustainability, in the corporate sense can be viewed negatively by some countries, whereby they question the relevance for their economic well-being (El Serafy, 2013). However, as capitalism progresses and corporations around the world, large and small, start to incorporate more sustainability orientated strategies my hope is that these issues and results become universally understood and transferable.

6.3.2 Internal validity

While the external validity of the results is arguably adequate, at least in the developed world, the internal validity has some weak points. The data gathered through interviews and the online questionnaire has one main drawback; the size of the sample. The analysis, and hence the results, all draw upon the data amassed during the interviews and questionnaire. Of course prior literature also seeps into the results and conclusions drawn. A greater number of interviews and answers to the questionnaire could well change the results and give a clearer view of perspectives, even making it possible to stratify the results. In addition, the complexity of some sustainability issues being questioned and discussed may be a limiting factor as well.

Other methods that might be used in this type of research include, for example, a study of market trade data, exploration on survivorship of online and offline businesses, comparison on job creation for different business sectors, etc. However, these were unavailable for this particular research and thus a mixed method of qualitative and quantitative data was used. In addition, the mixed methods approach was adopted as this paper is to set the foundation for possible further research into the

area. This method was deemed to give a broad overview of stakeholders' viewpoints as well as adding depth to the discussion.

7 Conclusion

In the section below, the research questions guiding this paper will be revisited and an attempt will be made to answer them and discuss the main results. Recommendations for various stakeholders are outlined and ideas for further research aired.

In introducing the objectives of this research paper, the research questions were also outlined. These objectives were to see if there were altered trade and commerce patterns emerging, and assess how they may be affecting sustainability in online commerce. In addition the identification of opportunities and threats associated with these changes were to be analyzed. Finally, an evaluation was to be undertaken to gauge some of the implications this form of trade has, and will have, on trade rules and policy.

7.1 Research questions

The research questions for this paper were as follows:

Is online and mobile-enabled commerce via SMEs changing the notions of sustainability in trade? If so, how?

How is the growth in online commerce via SMEs affecting sustainability in trade, and what future implications could this entail?

Due to the link between those two questions they will be discussed and answered together. With the growth in online trade over the last five years and its continual forecasted growth, research into the dynamics of sustainability aspects of online commerce is prudent, especially the role of SMEs. These small and medium-sized enterprises play a pivotal role in many economies; creating jobs, being a source of entrepreneurial skills, and acting as distributors of economic growth (European Commission, 2005; Nowduri, 2012). SMEs can also be important drivers of sustainability strategies when it comes to online commerce.

When addressing a topic such as sustainability, with its decades of vague definitions and ambiguities, it comes as no surprise that stakeholders have different views and opinions as to what the concept is and could entail in connection to online commerce. The debate is ongoing as to whether online commerce is actually changing the notion of sustainability in trade. This is primarily due to the fact that not all stakeholders are in agreement that online commerce is actually changing the foundations of sustainability, as was established in the interviews conducted. The literature and stakeholders' viewpoints were also ambiguous as to the definition of the concept, although the three pillar model of economic, environmental, and social pillars provides a well-established overarching theme. Different philosophies regarding trade, economics, the environment, ecology, as well as politics, all share a common theme; viewing the concept of sustainability with different glasses and hence place emphasis on different issues and aspects. However, evidence does point to a change in how trade, at least through SMEs, is increasingly being directed online.

The international trade and commerce playing fields were previously dominated by large institutions and multinational corporations. The rise of online commerce is closely linked to the significant upsurge in Internet connectivity and advances in ICT in the last decades (see figure 3-2). What has evolved is trade and commerce that is bound only by businesses' and industries' ingenuity, policy, and customer demand. For SMEs this transformation of commerce has resulted in a flatter world of trade, one where small businesses and entrepreneurs have almost infinite access to new markets,

diversification of incomes sources and ideas, and other opportunities once only available to the largest corporations. However, an online commerce utopia is not here just yet.

Inevitably, the evolution of trade, retail, and commerce increasingly conducted online has implications for the broader sense of economic, social, and environmental dimensions of sustainability. Some issues tend to be positive, while others tend to have undesirable implications.

What the results from this research points to is that online commerce is positively supporting economic opportunities for SMEs, adding to entrepreneurial prospects, and increased competitiveness in markets. With increased market access SMEs have the possibility to serve international markets at the same time as attending their local markets too, and thus, according to Nowduri (2012) aid in the distribution of economic growth. Seasonal fluctuations in sales can be offset through reach into new global markets, leading to more permanent employment. Economic prosperity will of course not solve all issues, but it is a way to amass the financial assets sometimes required to improve environmental and social imbalances.

Even though economic prospects stemming from online commerce were generally deemed to be beneficial to SMEs, a few concerns were aired. One of the most prominent concerns was the rapid changes associated with the Internet business environment and ICT advancements, which was having implications for economic sustainability, employment, and long-term forecasting.

Social implications such as job losses and lack of job security were deemed to be negatively affected by increased online commerce. Free trade has often been criticized for not bringing about a higher standard of living, nor aiding the reduction of poverty. The results point to these issues not being addressed by online commerce, yet interestingly, the results also pointed to specialized work-force skills being positively affected. If this is the case, and with the right support and tenacity, these skills and expertise can potentially lead to encouraging outcomes in the case of poverty reduction and raising living standards. The old adage, give a man a fish and he feeds for a day, teach a man to fish and he can feed himself indefinitely, comes to mind.

Environmental issues within online commerce were always quick to surface when speaking with stakeholders, even within businesses that did not consider sustainability a top-agenda item. Shipping logistics and resource efficiency was deemed to be positively affected, in that online commerce was resulting in less negative environmental impact. Studies have shown that online commerce emits less GHG compared to purely offline counterparts, but they may not necessarily be concrete proof. Environmental impacts from ICT hardware needed to operate the online marketplaces play a significant role in the whole impact scenario, but are being addressed to some degree by marketplace operators.

The Internet economy is growing larger, accounting for over 4% of worldwide GDP in 2010. Likewise, online retail and commerce are progressing rapidly too. It is estimated that 14% of retail will be conducted online by the year 2020 (GeSI & BCG, 2012). With this growth the question of how sustainable these business practices are certainly become pertinent. Not surprisingly the results from this research point to economic factors, such as competitiveness, economic growth, and financial stability, to be a large part of what business owners deem essential. The results also point towards social and environmental issues not being at the forefront of sustainability within online commerce. However, what is discernible is that sustainability within online trade is largely driven by the economic pillar, especially with respect to micro and small businesses participating in a truly

global commerce marketplace. The realm of international, global trade has shifted from being purely dominated by MNCs, to be more inclusive and offering entrepreneurs, micro, and small and medium-sized enterprises the economic opportunity to conduct their business at a global level.

Taking these results into account, the forthcoming free trade agreement, TTIP, between the US and the EU should seek every opportunity to incorporate online commerce issues and sustainability into the negotiations. This is true particularly for SMEs who are increasingly conducting trade on a global scale. Not only could this provide an added boost to the two regions' economies, but equip all forms of businesses with the necessary guidance and harmonization of trade rules to adequately adapt to the resilience needed in an ever-changing, fast paced, and interconnected global marketplace.

With the Internet and online commerce still in its infancy, there is boundless potential to move this form of commerce even further, both in terms of sustainability and improving trade practices and policy. The potential implications for online marketplaces are immense. Striving towards increased sustainability in commerce through clever and holistic sustainability approaches could reap impressive economic, social, and environmental rewards, for all stakeholders in the value chain. This is true of online-marketplace operators, businesses conducting trade online, and trade policy officials, in particular in regards to the TTIP. These aspects will be discussed in the recommendations section below.

7.2 Recommendations

What the results point to is that economic, social, and environmental sustainability within online commerce may not have reached its ideal place, for the moment. However, they do demonstrate that sustainability within Internet-enabled trade is to a large extent centered on economic prospects and aspects of sustainability, including competitiveness, inclusiveness for businesses of all sizes, and new market opportunities for these firms. The Internet economy and online commerce are still evolving, rapidly, but nevertheless are malleable and readily able to adapt. There is boundless potential to move this form of commerce even further into sustainable territory. Sustainability within online commerce may be complex issue, with a number of different stakeholders and actors who all have their own needs and agendas to administer. The economic, social, and environmental pillars of sustainability can be strengthened beyond what is being witnessed today by key actors progressively working towards parallel aims. A few of the main recommendations are listed in the bullet points below, and subsequently discussed in further detail depending on stakeholder groups.

Macro or external recommendations to stakeholders:

- Address delivery and transport logistics by: focusing on greener transport options and purchasing goods closer to home.
- Streamline cross-border trade by: simplifying customs, reduce time delays, and making it easier for SMEs to conduct this type of trade.
- Adapting to a changing trade landscape.

Micro or internal recommendations to stakeholders:

- Influence how Internet-enabled businesses operate by: spreading sustainability expertise, knowledge, and procedures.
- Increase the life-span of products.

- Limit and minimize ICT operations impacts.

7.2.1 Online-marketplace operators

It was noted that SMEs can often be drivers of change due to their agility when it comes to taking on new forms of business models and adapting to changes in operating environments. However, SMEs are often limited by financial, time, and expertise constraints, hurdles which large MNC online-marketplace operators might not encounter to the same degree. These marketplaces are often run by large multinational firms, as is the case for the eBay marketplace. Online-marketplace operators play a pivotal role in effectively strengthening all aspects of sustainability within online trade.

Such firms have significant expertise and clout when it comes to businesses trading through their platforms, in addition to being in a perfect position to influence smaller companies. Marketplace operators could thus influence SMEs transacting through them to adopt and spread sustainability measures on a massive scale. By utilizing the very same platforms used to support global trade, marketplace operators have an enormous advantage when it comes to influencing SMEs' business behavior and knowledge-base. Setting up online seminars and guides that aid SMEs in creating better business practices and sustainable business models could be a great start. These corporate - SMEs sustainability guides could be put forth in simple and manageable ways for firms with limited time and capital to incorporate these measures effectively and efficiently.

Some of these nudges can be in the form of educating sellers, and likewise consumers, on product sourcing and production, boosting transparency for these concerns. Placing emphasis on expanding the life-cycle of products could be another way for operators to bolster economic and environmental aspects of sustainability, comparable to the Common Threads Partnership between Patagonia and eBay whereby used outdoor goods are re-sold. Another option could be to address the local versus global product debate by suggesting similar goods or products consumers are searching for, located closer to the customers' delivery location. However, care must be taken not to push too hard for fear of SMEs and entrepreneurs feeling hard-pressed and not in control of their firms' operations.

What was pointed out in interviews and literature was that many marketplace operators have begun to address the environmental and social impacts stemming from their energy and emissions. To address sustainability in online trade, operators should make sure that emphasis kept on reducing and optimizing environmental impacts stemming from ICT operations as much and as quickly as possible. With today's hefty use of fossil fuels in shipping goods and products across the globe the inevitable GHG emission and resource use are miss-aligned with sustainability aims. Small steps have been taken to reduce packaging waste and extending packaging life-cycles, all of which play an important role.

To truly combat the negative externalities from transport and shipping, innovative logistics and modern transport ideas should be emphasized. The question of how to achieve these logistical improvements is tricky, and needless to say this research paper did not, nor was it trying to uncover such a holy grail. What can be said is that marketplace operators could work towards simplifying shipping for SMEs, possibly setting up central logistics centers in large metropolitan areas to facilitate increased efficiency in shipping and transport from these locations. The possibility to calculate whether it is prudent to ship directly from seller to customer or through the centralized distribution centers should be fairly easy to implement using ICT solutions. Moreover, it may be

beneficial to partner with the large, global logistics and shipping companies to form, test, and implement new, innovative ways to address these issues.

7.2.2 SMEs

SMEs are not all created equal, neither are online marketplaces. That is the beauty of the capitalistic system and each individual's freedom to choose what their business should focus on. Whether it is orientated towards pure profit making in the financial sense, a community standpoint, sustainability, or any other aspect chosen by the owners and/or stakeholders, it is up to the owners/stakeholders to choose. With increasing demand and trends for corporate responsibility, SMEs trading online can be influenced to adopt greater sustainability measures, hopefully leading to greater economic, social, and environmental benefit. Nevertheless, it will be up to each business to decide if it should go this route.

SMEs, and all forms of corporations for that matter, should be open to change and incorporate flexibility into their business models. Take notice of different business models incorporating additional environmental and social matters into their operations. Likewise, businesses can support and encourage product transparency initiatives in relation to sourcing, production, labor conditions, and so forth. The end product could assist corporations in handling and adapting to the fast-paced, ever-changing online marketplace in addition to strengthening the sustainability pillars of Internet-enabled trade.

7.2.3 Policy and governmental officials:

Trade policy, too plays a pivotal role in moving sustainability of online commerce further. Moreover the Transatlantic Trade and Investment Partnership (TTIP) can be seen as an ideal place for implementing and promoting up-to-date notions of sustainability in trade, especially with regards to SMEs and Internet-enabled trade. Flatters (2001) pointed out that in a rapidly changing, global marketplace, good trade policies needed to ensure nations' economic resilience, and that policies intertwining environmental and social concerns can serve as a catalyst for more sustainable long-term economic growth.

Embracing technological change is necessary for trade policy to at least be close to what is actually happening in trade today. Setting policies that incorporate the fast paced world of online commerce and Internet-businesses is crucial, and can have sweeping impacts on business all across the globe. Sustainability issues should of course be incorporated into these new policies as much as feasibly possible, but it is crucial to adjust to the new realm of increased connectivity and digitization of online trade.

It is essential for the EU and US to take this opportunity to truly incorporate today's trade landscape into TTIP. If the aim is to genuinely "unleash the untapped potential of a truly transatlantic market place" it surely needs to incorporate online commerce to a great extent; making it possible for citizens and corporations of the regions to conduct trade on either side of the pond, without prejudice to location or size (European Commission, 2013d, p. 1). This aim can be accomplished by harmonizing the rules and laws by which SMEs and other business forms conduct online trade in, and by designing consumer and product legislation that addresses the increasingly internationalized and global markets consumers and SMEs function in. In addition, long-term and simplified policies for SMEs related to their nations business and tax laws are crucial for these small and medium-sized firms to be able to make long-term plans and projections.

If implemented these procedures could significantly improve social implications of trade by addressing issues of inclusiveness and equal opportunities for all businesses, entrepreneurs, and customers enabled by Internet-driven commerce. Likewise, these measures could easily lead to further strengthening of the economic stance of Internet-enabled business. In addition, by simplifying customs procedures and reducing time delays in cross-border trade, as well as being supportive to environmentally friendly logistic operations, economic and environmental sustainability can progress even further. These two regional economic super powers are leaders in trade and sustainable business practices, and with a firm precedent set, other regions, countries, and businesses will follow.

The recommendations being argued by the author are by no means straightforward and easy to implement. Stakeholders' views differ significantly depending on their position in the commerce value chain; they have different ideas about what the concept of sustainability should entail, and differing views on corporate responsibility and the role of corporations in this conundrum. This requires many actors to combine forces; trade policy to incorporate online commerce to a much greater extent; marketplace operators to use their clout and influencing power; and businesses to be open to changing their operations to include sustainability issues (economic, social, and environmental aspects equally). If these recommendations are implemented and these complex issues dealt with properly, the results can lead to progressively strengthened pillars of sustainability.

Just because something is complex, or difficult, does not mean it should be shunned. Rather the opposite is true, and the complexity and difficulty should be embraced to find solutions to these challenging situations facing our society today. It does not matter whether it is viewed from a business, governmental, social, environmental, or any other perspective. We owe ourselves and coming generations the freedoms and amenities this planet has to offer.

To paraphrase Bertrand Russell's words; the technological and trade orientated change we are in is inevitable; it is the progress by which sustainability issues will be addressed that is problematic (Russell, 1984). The necessary tools and competences are at our disposal. Key stakeholders and actors should take the initiative and stride towards strengthening each pillar of sustainability in online commerce and trade. It is up to individuals, companies, governments, and other organizations to transform this challenge into a realm of equilibrium between economic, social, and environmental issues facing sustainability in online commerce.

7.3 Further research

As this thesis is conducted in part as preliminary research into online commerce and sustainability, further research will undoubtedly yield further insight into this complex and intertwined subject matter. New research questions could assess why stakeholders tended to view the social and environmental aspects of sustainability in the light they did. Job security could also be one aspect to be looked at in further detail, even studying the effects of online commerce on job creation, in absolute value terms. Thorough quantitative analysis of economic growth and well-being from online commerce could be studied in much more detail as well.

Even though this thesis did not focus on the customer side of online commerce these aspects should also be considered for further research. Sustainable consumption has been researched before, see for example (Mont & Plepys, 2008; Tukker et al., 2008). Further research could be conducted on how online trade and online retail plays into sustainable consumption. In addition, it may be interesting to

delve down further by splitting up research into product categories, not just in terms of sustainable consumption but also in terms of economic, social, and environmental sustainability in each categories value chain.

Looking into the how SMEs have been affected by recent online commerce trends could be beneficial. For instance, detecting whether SMEs' survival rates differ between offline and online businesses could produce interesting results. Of course it may be difficult to find SMEs without an online presence in the near future. Another option would be observe whether online retailers are growing in such a way as to become dominant on the market, edging out other smaller businesses. Additional, research, and more precisely action orientated research, into what best practices are in terms of sustainability within SMEs, and how online business and transactions are affecting their sustainability issues and business models, could also produce interesting results.

The field is vast and complex, yet incredibly interesting due to the abundant possibilities interlined with SMEs, the Internet, technology, and online commerce.

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Appendix I

Anonymous	Online retailer	Vietnam	Skype	1.7.2013
Magnus Rentzhog	National Board of Trade - Sweden (Kommerskollegium)	Sweden	Skype	2.7.2013
Henrik Jonströmer	National Board of Trade - Sweden (Kommerskollegium)	Sweden	Skype	2.7.2013
Adam Mackay	bluewatersports.com	United Kingdom	Phone	8.7.2013
Martin Labbé	INTRACEN (International Trade Centre)	Switzerland	Skype	11.7.2013
Annie Lescroat	eBay Inc.	United States	Phone	11.7.2013
Tyler Spalding	eBay Inc.	United States	Phone	11.7.2013
Lorin May	eBay Inc.	United Kingdom	Phone	11.7.2013
Raphael Dard	INTRACEN (International Trade Centre)	Switzerland	Skype	15.7.2013
Nick Martin	The Pros Closet	United States	Phone	19.8.2013
Sven Östberg	Ministry for Foreign Affairs Sweden	Sweden	Phone	3.9.2013

Appendix II

1. What is your gender?

- Female
- Male

2. What is your age?

- 20-29
- 30-39
- 40-49
- 50-59
- 60-69
- 70+

3. Do you currently work in the private or public sector?

- Private sector
- Public sector
- If other, please specify

4. Do you or your company trade in goods or services through online marketplaces?

- Yes
- No
- If other, please specify

To what extent do you agree or disagree with the following.

Is mobile and online-enabled commerce via small and medium-sized enterprises (SMEs) resulting in:

	I strongly agree	I agree	Neither nor	I disagree	I strongly disagree
An increase in economic growth?	<input type="checkbox"/>				
More competitiveness?	<input type="checkbox"/>				
Increased productivity?	<input type="checkbox"/>				
Diversification of potential income sources?	<input type="checkbox"/>				
An increase in local economic growth? (i.e. economic growth in rural, or sparsely populated areas and regions)	<input type="checkbox"/>				
The creation of entrepreneurial opportunities?	<input type="checkbox"/>				

6. SOCIAL ASPECTS

To what extent do you agree or disagree with the following.

Is mobile and online-enabled commerce via small and medium-sized enterprises (SMEs) resulting in:

	I strongly agree	I agree	Neither nor	I disagree	I strongly disagree
More specialized work-force skills?	<input type="checkbox"/>				
An increase in wages?	<input type="checkbox"/>				
An increase in social diversity? (e.g. exchange of culture, knowledge, and ideas)	<input type="checkbox"/>				
Reduced poverty?	<input type="checkbox"/>				
An increase in purchasing power and living standards?	<input type="checkbox"/>				
Adding to rural living? (i.e. lessen the need to move to urban centers)	<input type="checkbox"/>				
An increase the amount of jobs?	<input type="checkbox"/>				
An increases in job security?	<input type="checkbox"/>				

7. ENVIRONMENTAL ASPECTS

To what extent do you agree or disagree with the following.

Is mobile and online-enabled commerce via small and medium-sized enterprises (SMEs) resulting in:

	I strongly agree	I agree	Neither nor	I disagree	I strongly disagree
Less environmental degradation?	<input type="checkbox"/>				
A decrease in non-renewable resource use?	<input type="checkbox"/>				
An increase in resource efficiency?	<input type="checkbox"/>				
A positive effect for climate change?	<input type="checkbox"/>				
Decreasing transport needs?	<input type="checkbox"/>				

Appendix III

Interview Question Guide

Background

This questionnaire forms part of research under a Master Thesis Project conducted by Saemundur Karl Finnbogason at the International Institute for Industrial Environmental Economics (IIIIEE), Lund University, Sweden.

The Thesis Project explores the **issues** of an altered pattern of sustainability in trade in view of how the Internet and technology are influencing the trading landscape.

Your contribution to the research is greatly appreciated. Please respond to any question of relevance to you.

General questions

Sustainability has generally been defined addressing three main aspects, or pillars. These pillars tend to include economic aspects, social aspects, and environmental aspects.

1. In your view/experience, how can trade relationships between countries promote / advance sustainability?

Merchants and consumers increasingly interact and transact using online and/or mobile technology solutions and services. Searching, finding, researching, matching, establishing trust, paying; these activities which are core to any transaction are facilitated and improved through technology.

2. How would you describe the way the Internet and technology are influencing or changing the area of trade more generally, e.g. do you see or expect to see new ways of trading, new or changed trading patterns, new trade actors?

Sustainability and trade

1. In the intersection of trade and technology/the Internet, do you see opportunities for sustainability?
2. In the intersection of trade and technology/the Internet, do you see challenges to sustainability?
3. Which stakeholders or actors could play a role in promoting/advancing sustainability when trade becomes increasingly “powered” by the Internet and technology solutions?
4. Can this form of online and mobile-enabled commerce be beneficial to SMEs and other small businesses / entrepreneurs?

Trade agreements

1. In your view, are bilateral trade agreements better suited than multilateral or regional free trade agreements in dealing with the new digital business and trade forms?
2. Could and should the new generation FTAs do more to promote or include mobile/online enabled commerce?
3. Could and should the new generation FTAs be used to encourage more sustainability-oriented trade patterns and behavior?
4. Do you see any complications as a result of online and mobile-enabled commerce and the new generation FTAs?