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**Mechanisms for seeking supplier's compliance
with MNCs' sustainability standards**

The perspective of ABB in China, India and Mexico

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ABSTRACT:

Multi-national corporations (MNCs) are increasingly seeing their suppliers' practices as part of their sustainability. Therefore, MNCs expect their suppliers to implement sustainable practices. However, many examples of suppliers' violations of sustainable practices depict that MNCs struggle with monitoring the sustainable practices of their suppliers. However, there is no prior understanding of the mechanisms that MNCs use to seek suppliers' compliance with sustainable practices. Therefore, the purpose of this master's thesis is to explore mechanisms that an MNC uses to seek the compliance of its emerging market suppliers with socio-environmental sustainability.

The conceptual framework of this thesis is developed by reviewing the prior literature as well as World Economic Forum publications on supplier-buyer relationships, sustainability in general, MNCs' sustainable practices, supplier-sustainable practices in emerging markets, and managing suppliers' compliance with sustainability based on transaction cost theory (TCT) and social exchange theory (SET). The developed framework consists of six hard mechanisms from TCT (i.e., blockchain, surprise visit, ISO certification, CSR (Corporate Social Responsibility) reporting, penalties, and supplier switching) and three soft mechanisms from SET (i.e., trust, communication, and incentives) which MNCs can use to seek the compliance of their emerging market suppliers with socio-environmental sustainable practices. Based on the analysis of qualitative data collected from ABB about its three suppliers in three different emerging markets (i.e. India, China, and Mexico), results indicate that used mechanisms for seeking supplier's compliance vary between cases, except with few common mechanisms. Further, four new TCT-based mechanisms (own office, third-party audit, taking equity, and warnings) and one SET-based mechanism (i.e. training) for seeking supplier's compliance are found. An integrative analytical framework for seeking supplier's compliance with MNC's socio-environmental standards is developed based on the findings. It helps MNCs' managers and policymakers to understand the roles of several hard and soft mechanisms in seeking the compliance of their emerging markets suppliers with sustainable practices.

KEYWORDS: Sustainability, supplier-buyer relationship, supply chain, mechanisms, supplier's compliance with sustainability standards

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Tiivistelmä:

Kansainväliset suuryritykset (MNC) näkevät enenevässä määrin myös alihankkijoidensa toimet osana pyrkimystään kestäväen kehityksen periaatteiden toteutumiseen liiketoiminnassaan. Kestävien toimintatapojen noudattaminen on osa alihankkijoiden velvollisuuksia ostajayritystä kohtaan. Monet esimerkkitapaukset alihankkijoiden kestäväen kehityksen periaatteiden toteutumisen laiminlyönnistä näyttävät lisääntyneen tarpeen alihankkijoiden vaatimustenmukaisuuden (compliance) valvonnalle. Alihankkijoiden päivittäisen toiminnan kestävyysmonitorointi ja valvonta on haasteellista, sillä suuryrityksen mekaniikka valvonnan toteuttamiseen on vielä kehitysvaiheessa. Aiemmassa liiketaloustieteellisessä empiirisessä tutkimuksessa ei ole selkeää aineistoa kansainvälisen suuryrityksen käyttämistä mekanismeista kehittyvässä maissa sijaitsevien alihankkijoiden compliance-valvonnan toteuttamiseen. Pro gradu -tutkielman päämääränä on selvittää, kuinka kansainvälinen suuryritys voi varmentaa sen alihankkijoiden toimintatapojen kestävyysympäristön ja sosiaalisen standardiston valossa kehittyvässä maissa sijaitsevilla tuotantolaitoksilla.

Tutkielman konseptuaalinen viitekehys on kehitetty uudelleenarvioimalla aiempaa liiketaloudellista kirjallisuutta sekä kansainvälisen talousfoorumien julkaisuja alihankintasuhdeista, kestävydestä, ja compliance-valvonnasta kehittyvässä talouksissa. Teoreettisen tutkimuksen pohjalta pro gradu -tutkielma esittää kuusi taloustoimikustannuksellista sekä kolme sosiaalisen vaihdon teoriaan perustuvaa valvontamekanismia. Taloustoimikustannukselliset mekanismit ovat lohkoketju, valvontavierailu, ISO sertifikaatti, CSR (Corporate Social Responsibility) raportointi, sanktiointi ja alihankkijan vaihtaminen. Kolme sosiaalisen vaihdon mekanismia ovat luottamus, kommunikaatio ja kannustinmekanismi. Empiirisessä tutkimuksessa kerättiin kvalitatiivista dataa kolmelta ABB:n alihankintajohtajalta, kolmesta eri kehittyvästä maasta (Kiina, Intia ja Meksiko). Mekanismissä käytössä on vaihtelevuutta. Data-analyysin innoittamana uuteen viitekehykseen on deduktiivisesti sisällytetty neljä uutta taloustoimikustannuksellista mekanismia (valvontayksikkö, ulkoinen auditointi, omistususuuden kasvattaminen ja seuraamusvaroitus). Myös alihankkijakoulutus lisättiin sosiaalisen vaihdon teorian mekanismina. Uusi integroitu konseptuaalinen viitekehys on kehitetty tutkimustulosten pohjalta. Tutkimuksen tulokset auttavat suuryrityksen päättäjiä ymmärtämään compliance-valvontamekanismissä roolin kehittyvien talouksien alihankkijoiden kestävyysstandardien toteutumisen varmistamisessa.

Avainsanat: Kestävyys, alihankintasuhde, tuotantoketju, valvontamekanismi, alihankkijan compliance-valvonta

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1 Introduction

1.1 Background of the study

Multinational corporations are encouraged to address sustainability-related issues to stay competitive (English & Schooley, 2014). The expectations for sustainable business practices are rising steadily and constantly (Foersti et al., 2014). The non-compliance with sustainability standards can be seen as a risk of reputational harm. The authors (Foersti et al., 2014) continue that various factors have driven this raised awareness, including legislative requirements, stakeholder pressure, and the inner commitment to sustainability. Staying competitive motivates the companies also (English & Schooley, 2014).

ABB is a multinational industrial company, that is divided into four (4) different business areas (Electrification, Motion, Process Automation, and Robotics & Discrete Automation). The company has over 105,000 employees in total. The commissioned master's thesis is done by the sponsorship of ABB Finland. Integrated supply chains have become a crucial component of the competitive landscape as companies are aiming to generate strategic advantages. As a response to shareholder concerns about corporate social responsibility (CSR), many multinational companies (MNCs) are now implementing programs, which aim to ensure that suppliers operate in a socially responsible and ethical way and pay attention to labor and the environment (Boyd et al., 2007). The ABB Supplier Code of Conduct is presented in Chapter 2.2.6.

So far very little research has been done concerning the mechanisms that a multinational corporation can use to achieve sustainability compliance among its suppliers. The gap between the requirements of the Supplier Codes of Conduct and realistic compliance is a major challenge for multinational companies (Jiang, 2009). The prior literature in the field of international business highlights the importance of seeking the suppliers' compliance with MNCs' socio-environmental standards (Villena et al., 2021; Soundararajan

et al., 2021; Delbufalo & Bastl, 2018) but does not provide a comprehensive understanding of mechanisms that MNCs can use to seek their supplier's compliance with socio-environment standards. This thesis aims to fill the research gap by investigating the used mechanisms by ABB in emerging markets. The empirical research is done by conducting interviews with ABB Supplier Quality Managers in China, India, and Mexico. The interviews explore the used mechanisms and the analysis of the findings is used to deductively revise the literature-based conceptual framework of the study.

To start with, why is it important that suppliers comply with sustainability standards? Violating safety or sustainability standards can lead to incidents and contraventions. In the age of social media, the news spreads quickly, and corporate reputations can be lost. The world's largest food company, Nestlé S. A. has lost its reputation and faced boycotts as it has been reported to use child labor throughout the 21st century (Engelbertink & Kolk, 2021). According to Sharipova & Zaynutdinova (2021), involvement in such misconduct harmed Nestle's prestige and subsequently led to lost sales and customers. Often, the external stakeholders do not differentiate the sustainability of the MNC from its suppliers. The external stakeholders hold the focal company also responsible for the whole supply chain. Then any supplier that does not comply with the corporate sustainability standards (CSR) can potentially harm customer confidence and the corporate reputation (Rao, 2002).

Safety standards are critical too. In 2022, a fire broke out at Kaixinga Trading Co Ltd's factory in Anyang China, killing 28 people. According to the article published by The Daily Star newspaper (22.11.2022) the common industrial accidents in China are typically caused by neglected compliance with safety regulations. Then in India, Winstron Corp, which is a supplier of Apple Inc. for the assembly of iPhones, was allegedly engaged in exploitative labor practices. According to a Karnataka state government report (2020), the supplier was using an underpaid labor force, irregular working hours, and the

working conditions were poor in its production units. How could MNCs prevent such incidents from happening and improve compliance with safety and sustainability standards?

Every component of the supply chain, including end-users, investors, MNCs, intermediaries, and suppliers would benefit from mechanisms used for seeking supplier's compliance with safety and sustainability standards. Neglecting safety and sustainability standards leads to severe social violations, losses of human lives, and environmental disasters. The mechanisms bring the needed accountability and compliance to the problem of socio-environmental violations. The target is to make MNCs's suppliers comply with lawful, fair, and sustainable practices in emerging markets.

How can corporate social responsibility standards then be measured and evaluated? The definition of the current sustainability standards must be clear for the entire supply chain. The conventional sustainable measurement practice is to see reduced socio-environmental violations at suppliers' production plants as a measure of improved compliance. However, this approach does not offer solutions for the prevention of accidents. This thesis will explore mechanisms for a Multinational Corporation (MNC) to seek the compliance of emerging market suppliers with sustainability standards. Heinberg (2010) proposes a relevant and topical question in his article "What is sustainability?". According to Heinberg, the word 'sustainable' is broadly used to refer "merely to practices that are characterized to be more environmentally or socially responsible sound than others" (p.1).

Environmental violations result from poor compliance with sustainability standards and unfavorable use of resources. This can cause reputational harm to the company (Lin et al., 2014). ABB measures and collects data on greenhouse gases (GHG) and environmental risks on a global, online data reporting system. The system is used to file reports on

incidents, hazards, environmental performance, and observation tours. The data in the report covers 96 percent of ABB employees (ABB Sustainability Report, 2021).

However, the vitality of the thesis is on the surveillance of compliance of the suppliers in emerging markets. The gained data will be used to test the previous conceptual framework of MNC's compliance-seeking mechanisms in emerging markets. After interviews with ABB representatives, a cross-case analysis will be conducted to compare the findings and draw conclusions that could benefit multinational corporations to enhance their sustainability monitoring.

The value of the research lies in the increasing knowledge of how suppliers are audited and what managerial implications could companies have to better follow their suppliers' practices. Transparency in the supply chain is a distinguished factor from pure visibility (Sodhi & Tang, 2019). The thesis aims to bring both transparency and commitment to sustainable supplier management in emerging markets.

1.2 Research question and objectives of the study

The preceding discussion steers the course of the present thesis. The main research objective of the present thesis is **to explore the mechanisms that an MNC can use to seek the compliance of its emerging market suppliers with sustainability standards.**

Accordingly, the main research question is:

- ***How does a Multinational Corporation (MNC) seek the compliance of its emerging market suppliers with sustainability standards?***

To answer the research objective, specific sub-objectives of this thesis are given below:

1. *The first sub-objective is to study the conceptualization and characteristics of supplier-buyer relationships.*
2. *The second sub-objective is to increase understanding of the conceptualization and types of sustainability, and the importance of supplier's compliance with sustainability standards.*
3. *The third sub-objective is to explore the key mechanisms which MNCs use to seek the compliance of their emerging market suppliers with sustainability standards.*

1.3. Delimitations of the study

According to Cresswell (1994), the delimitations show the boundaries of the research scope. The boundaries are set to pre-determinate the direction of the research. This master's thesis will concentrate on compliance-seeking mechanisms at the upstream of the supply chain. The focus is on the sustainability performance of the supply chain, not on financial outcomes. The third pillar of sustainability (economic) receives only a little attention in this research. Value creation and sustainability marketing are not processed either. At the core of the thesis is sustainable business development – more precisely, sustainable supply chain management. The processed aspects of sustainable supply chain management are related to supplier compliance in emerging markets, which delimits the inspection of later stages of vertical supply chains and other more established markets where multinational corporations source from.

1.4. Definition of key terms

The most common definition of **sustainability**, *“the development which meets the needs of the present without compromising the ability of future generations to meet their own*

needs” first appeared in the World Commission on Environment and Development's report (1987, p.17). This implies that humankind must look after the planet, its resources, and its people to live sustainably. The three pillars of sustainability consider ecological, economic, and social sustainability practices (Barbier, 1987). The umbrella of sustainable development covers human rights, environmental protection, and integrity (ABB Supplier Code of Conduct, 2024).

According to Helper and Sako (2005), **buyer-supplier relationships** are based on inter-organizational commercial transactions for the purchasing and supplying of goods or services. Well-functioning supplier-buyer relationships require transparency, communication, and mutual understanding of the common good. Buyer-supplier interdependence is an integral component of business marketing (Webster, 1991), and its effectiveness is largely determined by long-term relationships between sellers and buyers (Wilson, 1995).

The term **supply chain** is characterized by OECD as “the network of organizations that cooperate to transform raw materials into finished goods and services for consumers” (10th OECD Roundtable on Corporate Responsibility, 2010, p. 4). The supply chains are concrete flows of material that are processed, transferred, and traded by a series of organizations into products that are of a higher value. The geographically fragmented production process is a norm, as corporations benefit from trade liberalization, reduced capital movement restrictions, and technological advantages. The concept of the value chain is related but still distinct (OECD, 2010).

In this paper, the term **mechanism** refers to the means that an MNC can utilize to seek a supplier's compliance with sustainability standards. The mechanisms are for the coordinating and controlling of the suppliers (Villena et al., 2021). Chapter 2.3 will concentrate on the literature-based mechanisms, Chapter 5.2. will display the empirically revised framework of mechanisms.

Suppliers' compliance with sustainability standards aims to create a cascade of sustainable practices that flow smoothly throughout the whole supply chain (Vilena & Gioia, 2020). The idea is hard to realize in practice and many of the MNCs have – despite being aware of sustainability standards – nevertheless violated them. The practices of lower-tier companies are often worse than those of the first-tier suppliers. The use of unknown sub-suppliers threatens the achievement of sustainable compliance in supply chains that are spall and multidimensional (Govindan et al., 2021). As a greater price gain is possible to be achieved through the enhancement of the entire supply chain (Christopher et al., 2005) likewise the sustainability performance improvement requires betterments in the whole life cycle of the product.

1.5 Previous studies

The area of focus in this paper is novel, and there is no previous research on precise mechanisms that multinational corporations could make use of when they seek supplier compliance in emerging markets. Gimenez and Sierra (2013) conducted a study, titled as "Sustainable Supply Chains: Governance Mechanisms to Greening Suppliers". However, it focuses mostly on environmental performance through two mechanisms – supplier assessment and collaboration, which were both found to have a positive and synergistic effect on the environmental performance of the buying firm.

The lack of academic and empirical research about supplier compliance-seeking mechanisms highlights the need to fill the research gap with scientific research on the theme. So far there has been only general discussion on The World Economic Forum, but valid and research-based studies are not found in academia. The raised concern of sustainability-related issues should be turned into systematic research on achieving supplier compliance with sustainability standards.

1.6 Structure of the Thesis

Chapter 1 provided reasoning, as to why the research of supplier compliance-seeking mechanisms is needed. The research questions and study objectives were defined, and the topic was delimited. The most general terms were discussed, and a brief review was made of the lack of previous research.

Chapter 2.1 will conceptualize and characterize a supplier-buyer relationship. The chapter concentrates on the supply chain as a whole. In Chapter 2.2, the focus will be drawn to the importance of supplier compliance with sustainability. The corporate sustainability standard measurement with a socio-environmental viewpoint is considered too. Chapter 2.3. introduces the literature-based mechanisms (6 hard and 3 softs) for an MNC to utilize when seeking supplier compliance with sustainability standards. The mechanisms are illustrated with a model that describes the means in Chapter 2.4.

Chapter 3 describes the methodology of the research. The research approach, design strategy, data collection techniques, and sampling size are addressed. The research process is presented in Chapter 3.3, and Chapter 3.5. analyses the validity and reliability of the research.

Chapter 4 includes the empirical study. The three embedded cases are studied, and the within-case analysis concludes the selection of used mechanisms. A cross-case analysis (Chapter 4.3) is done to compare the findings, and finally, the achieved sustainability compliance level is analyzed.

Chapter 5 is the conclusion chapter. It validates the theoretical framework of the study. The revised conceptual model of the study is in Chapter 5.2. Then, theoretical contributions and concrete managerial implications are presented. Lastly, directions for future research are suggested. The structure of the thesis is presented in below figure 1.

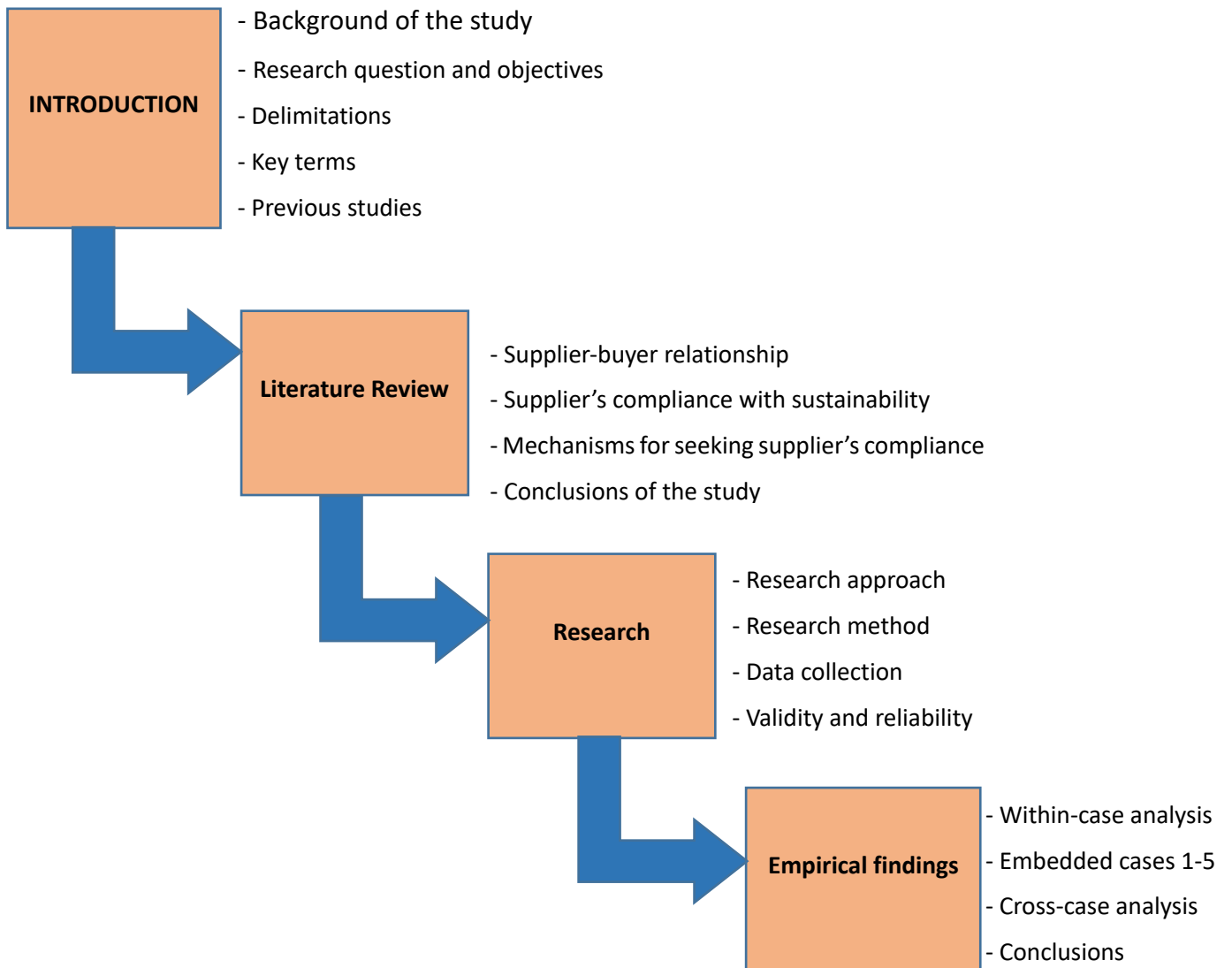


Figure 1. A diagram of the thesis.

2 Literature review

This chapter discusses the prior literature related to supplier-buyer relationships, sustainability, and suppliers' compliance with sustainability. Further, the chapter also discusses the key hard and soft mechanisms from transaction cost (TCT) and social exchange (SET) theories. The chapter concludes with a theoretical model of this study.

2.1 Supplier-buyer relationship

2.1.1 Conceptualization of supplier-buyer relationship

According to Margolis & Laurence (2014), concepts are constituent elements of thought. During the previous few decades, the manufacturing sector has been expandingly characterized by vertical specialization. This means that gradually more tasks are being outsourced to suppliers, which has allowed focal firms to focus on their core competencies (Fossas-Olalla et al., 2013). Manufacturing firms currently purchase more and increasingly complex parts and services from suppliers. The commercial transactions of resources (capital, aid, components, parts, machinery, and material) – goods and services, form the concrete supply chain.

"Real competition is not company against company

but rather supply chain against supply chain"

- Christopher et al., 2005.

The economic competition of today is influenced by intense competition and fast technological development. These result in price pressure and compressed life cycles of products (Lee et al. 2012). According to Henke et al. (2008), internal efficiency improvements are not enough. Christopher et al. (2005) suggest that a greater price gain is possible to be achieved through the enhancement of the entire supply chain. Moreover, supply

chain development means strategic and operational activities that aim to efficiently meet the current customers' requirements. Long-term collaborative relationships with strategically vital suppliers are increasingly popular. At the moment, companies tend to adopt a broader perspective, where the whole of the supply chain is perceived for its potential to cut expenses and generate value (Christopher et al., 2005).

In earlier literature regarding buyer-supplier associations, many factors have been identified as remarkable for the strength of the relationship. From these publications, it is clear that well-functioning long-term relationships are established not only on economic value and financial performance but also on the presence of social value (Autry & Golobic, 2010; Cannon et al., 2010). This finding is supported by Humphreys et al. (2008), who claim that a successful supplier-buyer relationship requires soft and interpersonal skills and technical capabilities. The research objective of this paper – to explore the mechanisms that an MNC can use to seek the compliance of its emerging market suppliers with sustainability standards – will be aimed to be achieved through carefully reviewing different mechanisms for seeking supplier compliance with sustainability. Likewise, the mechanisms can be divided into hard (transaction cost) and soft (social exchange). Both will be introduced later in chapter 2.3.

2.1.2 Characteristics of supplier-buyer relationship

Generally, supply chain relationships create significant value for Multinational Companies (MNCs). It is well-admitted that firms can create and sustain a competitive advantage by cooperating with other firms in a supply chain (Wilson, 1995; Dyer 1997). The supply chain management literature also highlights the key role and influence that a positive relationship between the buyer and the supplier has (Daugherty, 2011; Aurty & Golobic, 2010). What then is the actual value that established and cherished supply chain relationships can create? First, outsourcing inputs from more efficient producers (i.e. suppliers), either internationally or domestically, can be an opportunity to improve

margins. Lower labor costs, better access to raw materials, and more advanced manufacturing of suppliers benefit the MNC (OECD, 2010).

Secondly, a valid motivation for constructing supply chains is the opportunity to enter new markets. The rapid demographical and economic growth in emerging markets presents an international market opportunity. The development of supply chains in developing and emerging markets allows MNCs to gain local presence and brand awareness and reduce the cost of delivery to local consumers (OECD, 2010).

Thirdly, the building of a supply chain relationship can bring along strategic advantages, which include skilled employees, technological expertise, and cooperation possibilities. The use of these assets can improve product quality and support innovations. For instance, research and development (R&D) profits from foreign knowledge that springs from the supply chain (Tate et al., 2009).

What then if the supply chain relationships are weak or poorly functioning? At the moment, the questions of compliance and corporate social responsibility are crucial. The planning and publishing of CSR messages to stakeholders (customers, media, authorities, and non-governmental organizations) are framed as key drivers for enhancing businesses' reputation and image. In contrast, if the company fails in the area of CSR, there will be consequently severe damage to the company's reputation and public image (Jung & Sharon, 2019). A poorly functioning relationship will present higher risks of information hiding and socio-environmental violations (Gligor & Esmark, 2015).

2.2 Importance of supplier's compliance with sustainability

2.2.1 Conceptualization of sustainability

In Chapter 1.4 sustainability was introduced as "the development which meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p.17). The whole concept of sustainability is broader. The lack of clarity in defining the concept of sustainability is a prominent obstacle to sustainability research. According to Ciegis et al. (2009), there are over 100 definitions of the term 'sustainable development'.

The three-pillar conception of sustainability (environmental, economic, social) has become ubiquitous (Purvis et al., 2019). Therefore, the firm has to consider the environmental, social, and economic standards in its operations. According to Beattie (2023), the pillars are in symbiosis, and for example, environmental awareness will later be seen as beneficial for social and economic fields. This thesis concentrates on the socio-environmental aspects of sustainability, particularly at the upstream of a global supply chain. The economic dimension receives limited attention.

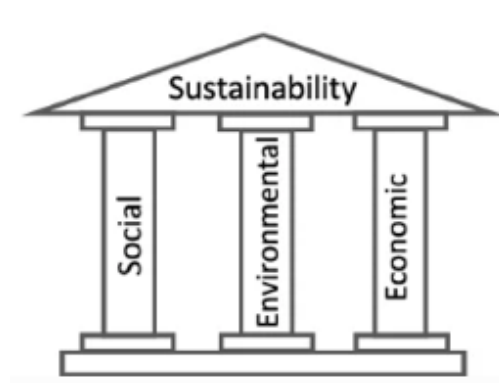


Figure 2. The three pillars of sustainability.

A solid framework for environmental standards is the ISO 14001 certificate, which is the main standard for environmental management from the year 1996. International Organization for Standardization (ISO) has gathered a collection of standards to support environmental management to create common rules for the global markets. Several academic writers have acknowledged that several practitioners in multiple industry sectors implement ISO 14001 requirements to obtain this standard's certification (Riaz & Saeed, 2020; Boira et al, 2018).

According to Benn et al. (2006), the attention to corporate sustainability has tended to concentrate on change at the organizational level. The everyday-life sustainability still begins with individuals, and the literature highlights the importance of attitudes, values, and beliefs (Visser & Crane, 2010). The organizational culture, therefore, needs a sustainable mindset that is owned from top management to the production line.

2.2.2 Importance of supplier's compliance with sustainability

A growing number of focal firms commit to corporate sustainability. The companies specify their commitment to sustainability compliance through implementing corporate sustainability standards (CSS), which usually comprise sustainability policies to comply with legislative requirements and other regulatory necessities (Grimm et al., 2016). The incorporating aspects that exceed the regulatory necessities are usually the sustainability incentives. While MNCs are not directly responsible for the sustainability employed in the factories of their suppliers, the MNCs encounter the "sourcing dilemma". If the firms continue sourcing from these countries, they face public pressure to improve the sustainability standards at their suppliers' production units. On the other hand, as Caro et al. (2017) state, if companies do not source from emerging markets, many workers will become unemployed.

According to Merriman and Sen (2012), the experimental findings propose that sustainability incentives are not assured even when individual financial incentives are enacted. Merriman et al. (2016) continue by presenting two factors that may enhance incentive effects on engagement in (particularly environmental) sustainability objectives: explicit organizational values for sustainability – and the objectives of environmental performance that comply with incentivized financial objectives. When an MNC seeks supplier compliance with sustainability standards, it should consider that organizational sustainability values and standardized actions overlap and that achieving the sustainability standards is also financially motivating. According to the World Economic Forum publication “Supply Chain Sustainability Policies” (2022), supply chain sustainability implies reconstructing the company’s investment strategy and the operational decision-making to attain targets in the sectors of environmental, social, or governmental sustainability.

As a response to the increasing social pressure to act sustainably, MNCs are introducing codes of conduct. The requirement of profitability is still in place, but now the companies should also be decent corporate citizens. According to Pedersen & Andersen (2000), the codes of conduct try to ensure socio-environmentally responsible practices throughout the supply chain. The global supply chains are multidimensional, and the companies in the chain are separated economically, geographically, legally, and culturally. Therefore, the enforcement of codes of conduct is hard. Alongside the introduction of codes of conduct, a number of agency problems can arise, which can lead to non-compliance. In an agency problem, there is a conflict of interests in a relationship where a party is expected to act favorably towards the other party (Jensen & Mecklin, 1976). For example, using recyclable packaging material can be demotivating from the standpoint of the exporter agent, if that does not add value to the particular component of the supply chain. A resolution to the agency problem would be that the interests of the suppliers of the supply chain will be aligned with the codes of conduct.

The asymmetric power relationships pose a threat to the equality in a supply chain (Huo et al., 2017). Implementation of codes of conduct requires motivation and commitment. However, in supply chains, it is not enough that the MNC is dedicated to environmental and social issues (Pedersen & al., 2000). The company must convince the other component firms in the supply chain to practice socio-environmental responsibility too. This might be difficult in a buyer-supplier relationship if the supplier for example has no interest in Corporate Social Responsibility (CSR).

According to Egels-Zandén (2014), whether the codes of conduct actually improve workers' rights is a question of whether MNC's policies are mirrored in practice. According to OECD's Job Strategy (2018), the three areas of focus should be 1) high-quality job promotion, 2) risk prevention, and 3) future preparation for the coming labor market opportunities. The fancy declarations of global alliances should be seen at the grassroots as enhanced working conditions and fair labor market treatment. If the supplier of a value chain is neglecting the compliance requirements of sustainability, may the whole supply chain face negative attention which happened in the case of Chinese Toy Suppliers that Egels-Zandén studied in 2007.

2.2.3 Sustainable supply chain management

Companies with global presence struggle to improve the supply chains' social, environmental, and economic outcomes. Global supply chains pose challenges, which sustainable supply chain management (SSCM) then aims to improve (Koberg & Longoni, 2019). Hartmann and Moeller (2014) state that global firms are also considered increasingly accountable for their suppliers' operations. Both the administrative and geographical distance between the buyer and the supplier is a key challenge in sustainable supply chain management.

The environmental and social outcomes, the health and safety of the employees, and the fulfillment of the whole of the supplier code of conduct need to be frequently assessed at the production unit (Grimm et al., 2014). Another challenge is to gain access to the supply base beyond the front line of suppliers, as even the suppliers in emerging markets can have sub-suppliers, with whom the MNC may not have any contact. Carter et al. (2015) also remind the problem of the lack of labor and environmental legal regulation in emerging markets – even if there is legislation in place, the enforcement can be deficient.

A key action in sustainable supply chain management is auditing. The audit tool is aiming for the supervision of the company's supplier code of conduct. The ABB's audit protocol is sent to the suppliers regularly and the generic protocol includes 30 categorial questions in total, which the supplier then answers on the scale 0-3. The assessment sheet includes questions on legal compliance, child labor avoidance, non-discrimination, wages, working hours, emergency preparedness, noise pollution control, and waste management. The practical assessment is done typically on paper and pen in emerging markets when touring the production site.

The first revision is when the new supplier is onboarded. The element types are divided into mandatory requirements, without which the business cannot be started, and standard ones which are still significant, but non-compliance does not mean that the buyer-supplier relationship would be neglected in the beginning. The generic audit protocol has columns for ABB's clear minimum requirements and scorings guides. In case of non-compliance, ABB has an action plan and a date by which the supplier needs to report the change in the area of non-compliance.

2.2.4 Measuring sustainability performance in emerging markets

The traditional sustainable measurement practice is to see reduced socio-environmental violations at suppliers' production plants as a measure of improved compliance. Porteus et al. (2015) define violations as breaches of local law, industry regulations, or codes of conduct. The social dimension of responsibility includes lawful employment. This stands for no use of child or forced labor and fair working hours (Porteus et al., 2015). Moreover, the health and safety of the workers and freedom of association belong to social sustainability. On the other hand, when measuring environmental performance, the responsibility dimension covers the responsible use of energy, water, and materials (Porteus et al., 2015). Moreover, emissions reduction and circular economy are important also.

While the traditional way to address sustainability compliance has been the use of contractual mechanisms to govern the operational performance of suppliers in emerging markets, formal agreements are found to be ineffective in avoiding socio-environmental violations (Soundararajan et al., 2021). Although there are possibly sustainability-related standards in place in emerging markets, their enforcement is rather weak due to local corruption and weak regulatory infrastructure (Witt et al., 2017). This problem is namely structural and institutional, but from the MNC's side, a more complying supplier-relationship can be achieved by the use of a combination of transaction-cost economics and social exchange theory mechanisms.

The raised concern for sustainability in the suppliers of MNCs in emerging markets is prominent, and the stakeholders are increasingly curious about the everyday life in the production units. The problem is that measuring sustainability performance is often limited until an incident happens. MNCs can be sued in court or forced to pay indemnities, but until something happens, they are not worried. The many industrial accidents in emerging markets (Bangladesh, 2013; China, 2022; Pakistan 2012) show the inevitable need to measure sustainability and safety performance at the production sites of emerging markets.

2.2.5 ABB's Supply Chain Sustainability Framework

In December 2022 ABB published its most recent supply chain sustainability framework. The framework includes 4 different pillars, which cover the areas of decarbonization, circular sourcing, responsible sourcing, and governance and compliance. The target of the low carbon supply chain is to reduce the carbon dioxide emissions by 50 % from main tier 1 suppliers, which account for 70 % of group spend. There, a lot of focus is on transportation and logistics.

Circular sourcing aims to collaborate with the suppliers to recognize more sustainable alternative materials for ABB to implement its sustainability framework. The target is to partner with suppliers to use eco-friendly materials in the products and packaging. Sustainable products are low in carbon dioxide, recycled, or bio-based.

Responsible sourcing is another interesting dimension of sustainability. ABB engages with its suppliers to promote human and labor rights and enhance safety, health, and environmental conditions in the supply chain. ABB is also aiming for a conflict (mineral) free supply chain and focuses surveillance on the suppliers of minerals.

The fourth dimension of the sustainability framework is governance and compliance. The ambition is to guide supplier compliance with ABB regulative standards. Target-setting notices the successful implementation of the global framework in a regional context and mitigating the third-party risks through life-cycle monitoring and risk due diligence.

2.2.6 ABB's Supplier code of conduct

The latest ABB Supplier Code of Conduct has been in place since January 1, 2024. The suppliers of ABB are required to “comply with all applicable laws and regulations” (p.6). The ABB's Supplier Code of Conduct gives the foundation for the suppliers to follow the

principles and requirements of sustainable sourcing. Next, the thesis will present short introductions of the most hazardous sustainability violations, followed by a new framework of mechanisms to manage suppliers' compliance with sustainability.

- The first key areas of focus are material compliance and responsible minerals. According to Barume et al. (2016), conflict minerals are natural mineral resources such as tantalum, tin, tungsten, and gold (3TG), that are vital resources for the electronic and automotive industries. Hofmann et al. (2018) continue "Conflict minerals are those, whose systematic exploitation and trade contribute to human right violations in the country of extraction and surrounding areas" (p. 115). Conflict minerals refer to armed conflicts where the control of these resources is in the game, particularly in the Democratic Republic of Congo in Africa. ABB Supplier Code of Conduct continues, that the company is "committed to sourcing minerals responsibly and minimizing negative impacts on the environment and human health caused by hazardous substances" (p.10).
- Child labor deprives children of childhood. The protective legislation has been in place for a long period, but the local cultural context is more accepting of child labor in countries of higher power distance, such as China and India. The mobilization of public opinion against child labor has been in place since the 1850s (Shukla & Ali, 2006). In the ABB Supplier Code of Conduct, child labor is referred to as work that is physically, morally, socially, or mentally harmful and dangerous and prevents children from schooling.
- Forced labor refers to a situation where the employees are compelled to work unwillingly. Typically, employers use violence, intimidation, debt bondage, and excessive overtime retention of identity papers, or threats to "report the workers to immigration authorities" (ABB Supplier Code of Conduct, p. 16). According to Nolan & Bott (2018) compliance with "emerging legislative regimes" is the best

mechanism to regulate forced labor in supply chains. ABB has zero tolerance for modern slavery and forced labor. Such regulation must incorporate human rights due diligence, encompass detailed disclosure elements, and have serious consequences for failure of compliance.

- Environmental violations result from poor compliance with sustainability standards and unfavorable use of resources. These can lead to the company suffering from reputational harm (Zou et al., 2014). ABB measures and collects data on greenhouse gases (GHG) and environmental risks on a global, online data reporting system. The system is used to file reports on incidents, hazards, environmental performance, and observation tours. The data in the report covers 96 percent of ABB employees (ABB Sustainability Report, 2021). However, the vitality of the thesis is on the surveillance of compliance in the suppliers at emerging markets, which dilemma will be addressed next.

2.3 Theory of managing supplier's compliance with sustainability

2.3.1 TCT and hard mechanisms for seeking supplier's compliance with sustainability

Transaction cost theory (TCT) refers to a theory that accounts for the actual cost of outsourcing production. Transactional mechanisms interpret the economic rationality and supplier-buyer relationship governing via monitoring an incentive-based system (Heide & John, 1992). The transactions are at the core of the business activities and have been so for the entire history of trade. In the transaction cost theory, all the costs are considered when the company is deciding between its production and sourcing. The theory is developed by researcher Oliver E. Williamson (1975). Classical transaction cost economics have a standpoint, where it is not possible to limit the opportunism of other parts of the supply chain. According to Woolthuis et al. (2005) "trust does not yield a reliable safeguard" (p. 813). The authors continue by stating that in classical

transaction cost economics, the investment creates both interdependence and vulnerability in the supplier-buyer relationship. To overcome opportunism or non-compliance of suppliers, theory recommends MNCs to use hard mechanisms to control or suppress the supplier's non-compliance. In the following, mechanisms proposed by TCT are discussed in detail:

- Blockchain

Consumers are increasingly eager to be aware of the sustainability-related factors in the supply chain (Foersti et al., 2014). However, in a global marketplace, customers are usually unaware of the exact sources of a product that is consumed or purchased (Montecchi et al., 2019), and typically the function of value-adding is unclear. The idea of a blockchain is to grow customers' knowledge of the product's provenance. Provenance knowledge – which is information regarding the product's origin, production, modifications, and custody – allows customers to be more assured in their purchasing decisions.

At the core, blockchain is a distributed digital ledger that stores information (data). While any conventional database can store information, decentralization makes a blockchain unique. A copy of a blockchain database is stored in several computers that belong to the same network (Rodeck & Curry, 2022). For an MNC, a blockchain offers another practice to keep an eye on the supplier's sustainability. The suppliers feed information about their daily tasks to the blockchain. The liability of the information is a question, as it is easy for a dishonest supplier to insert false information into the supply chain.

- Surprise visit to the supplier

A surprise visit to an industrial plant is another way to find out about the conditions at the supplier's premises. A surprise visit is a hard governance mechanism, that aims to achieve a truthful picture of sustainability. According to Mitchell (2012), factory visits are not automatic traps for ethical violations but offer possibilities for training and continuing education.

The surprise element makes this mechanism interesting – if the supplier knows about the visit in advance, they can plan the proceedings of the visit. According to Babich & Tang (2012), a planned inspection cannot prevent the suppliers from product adulteration. Supplier assessment in general is a valid way to evaluate the performance of the supplier (Gimenez & Sierra, 2013). The enhancement of trust is fundamental in the buyer-supplier relationship, and a surprise visit does not cherish mutual trust and cooperation. It is a determinative, hard mechanism. A surprise element gives uncovered reality to the MNC representatives, who can then assess the supplier's compliance with sustainability standards.

- ISO certification

As presented in the chapter on the Conceptualization of sustainability (2.2.1.), the International Organization of Standardization (ISO) aims to create common rules for managing business life. Jensson et al., (2022) address the core value that ISO certification brings concerning risk management. ISO standards are valid tools to facilitate manufacturing, measurement, management, commerce, and communication.

Even if a firm gains an ISO certification, there still is a threat of indifference. The findings that Wu & Wu present in the article *ISO Certification and new product success in an emerging market* (2019), confirm that managers need to appreciate the benefits of process management certification in order to overcome information asymmetry. Otherwise, the hindered information on required working conditions may not pass to the labor force, and the sustainability standards are met on paper, but not in the operations.

ISO standardization should be relevant to the particular supplier. Currently, there are 25,379 different ISO standards (www.iso.org, 19.5.2024). For emerging market suppliers, the health and safety standards (for example ISO 45001) and environmental management standards (for example ISO 14001) are the most useful tools. Moreover, the energy management standards (for example ISO 50001) are valid for organizations that are committed to addressing their socio-environmental impact, conserving natural resources and improving energy management efficiency. Suppliers, who have attained these standards, give a guarantee to the MNC that they would not neglect or violate sustainable practices.

- CSR reporting

According to Cote (2021), "corporate social responsibility (CSR) report is an internal- and external-facing document companies use to communicate CSR efforts and their impact on the environment and community" (p. 1). CSR reporting can help an MNC to form a systematic approach to the management of socially responsible activities and to recognize risks and opportunities (Moravchikova, 2015). Thereby, the competitiveness of the company can improve.

A CSR report has to fulfil four main criteria (Moravchikova, 2015). Firstly, *Credibility* can be seen in the commitment of the management, description of corporate policy and liable data collection. Secondly, *completeness* means that a CSR report contains information about all business operations and their impacts on the society and environment. Thirdly, the report should be *significant*. An MNC should maximize the use of quantitative and qualitative indicators to rate sustainability. Fourthly, the CSR report should be *appropriate* (clear and of a moderate length). Therefore, MNCs should encourage their suppliers that they must publish CSR reports regularly, which will help the MNC to supervise that suppliers comply with sustainability standards.

- Penalties

Perhaps the harshest mechanism to seek a supplier's compliance with sustainability standards is penalizing the supplier for neglecting sustainability responsibilities. According to Porteous et al. (2015), buying firms are using penalties when suppliers are found to be in breach of social or environmental standards. Penalty contracts can specify monetary deductions from a base payout if it is determined that contractual specifications have reneged (Eckerd et al., 2018).

Caro et al. (2018) discuss two mechanisms to investigate the need for a penalty. The first is the joint mechanism under which buyers conduct audits jointly, together share the total audit cost incurred, and impose a collective penalty if the supplier fails their joint audit. The second is the shared mechanism, where each buyer conducts audits independently, shares its audit reports with the other buyers, and then penalizes if the supplier has gone wrong in any one of the audits. The auditing protocols need to include the penalty setting measurements for the penalty to have a preventative effect on sustainability and safety performance. The whole idea of penalizing is to express a threat of financial harm.

But what are the penalties then? The writers continue by listing fines, reduction of business, and contract termination as the most common penalties that suppliers encounter. Caro et al. (2018) argue that a punishment for a breach of contract to a non-compliant supplier is among the most effective ways to enhance the following of sustainability standards. On the other hand, penalizing is an external way of motivating. It does not necessarily cherish the inner motivation to develop and improve sustainable practices systematically. Penalties are a typical example of using transaction cost economics to put pressure on suppliers to comply with sustainability and safety standards.

- Supplier switching (desourcing)

The creating and finalizing of supply chain relationships are consistent in a market economy. Even though long-term supplier relationships are optimal for creating trust and credibility, the termination of a buyer-supplier relationship can come into question if sustainability standards are violated. When MNCs seek compliance among their suppliers in emerging markets, should they take no risk of using unbearable resources (child labor, underpaid labor force, or hazardous production sites). If the supplier has not been able to create trust using sustainable resources and by applying socio-environmentally supportable methods (Pagell et al., 2010), then the MNC can finalize the buyer-supplier relationship.

According to Wagner & Friedl (2007), the alternative supplier's opportunities to offer a better output depend on its input materials, labor policies, processes, and production technologies. As a mechanism, supplier switching does not directly enhance sustainable practices. However, the supplier may have to consequently change its operations to a more sustainable manner to acquire a new partner to the supply chain, if an MNC has terminated a previous supplier-buyer relationship. ABB's Supplier Code of Conduct (2024) also includes this

mechanism, as it states that ABB reserves the right to take action against the supplier, including the possibility to suspend or terminate the sourcing relationship.

2.3.2 SET and soft mechanisms for seeking supplier's compliance with sustainability

Social exchange theory (SET) refers to bilateral interaction in social life, where corporate parties aim to collaborate (Homans, 1958). The social exchange theory is a concept that recognizes that the dyadic relationship between two people is evolving through a cost-benefit process. Social exchange theory mechanisms are generally more relationship-oriented and less costly. Theory recommends using soft mechanisms to work closely with supplier to seek compliance with sustainability. In the following, soft mechanisms proposed by SET are discussed in detail:

- Trust

The role of trust in supply chain management is widely emphasized in earlier literature, (Ghosh, 2008; Sahay 2003). At the core of trust is to set the bar of a social violation so high, that the supplier does not dare to break the codes of conduct, because the bilateral level of trust in the supply chain is wanted to be cherished. According to Ghosh (2003), the governance mechanism of trust is shaped by and works with contracts and bargaining power to determine the extent of success that information sharing and material flows in the supply chain can generate.

Inter-partner trust works as a social glue that keeps the parties together. A broad consensus of trust researchers states that trust is a sociological phenomenon that primarily emerges between individuals (Ali & Larimo, 2016). Nonetheless, Ali & Larimo continue that trust can be established also between organizations that

are engaged in collaborative transactions, “if the positive expectations of the intentions or behavior of another (organization) are shared by a dominant coalition of the individuals in both organizations” (p. 89). In that way, when one firm believes in the reliability, fairness, and goodwill of its partner, it then expects consistency, cooperation, and altruism from the other party of the buyer-supplier relationship. Such modes of operation enhance trust from both standpoints. From a social science perspective, trust is viable and a vital element in relational risk mitigation. If there is a high extent of trust, it allows the control to be limited from the more authoritative party of the relationship (Woolhuis et al., 2005).

Gimenez & Sierra (2013) argue that collaborative relationships contribute to developing trust and to a better understanding of the buyers' expectations. The expectations that are targeted at the suppliers are higher than before, as the multidimensional global supply chains have major implications for the well-being of society and the environment (Lehmacher & Pearson, 2015). The non-economic elements of performance, those being the socio-environmental aspects, are then better lightened in a trustable supply chain relationship (Pagell et al., 2010). This will lead to enhanced sustainability, as collaborative efforts with suppliers have a positive link to buying firms' socio-environmental performances (Gimenez & Sierra, 2013). ABB has a Trust Key Performance Indicator (KPI), which indicates the investigations on severity levels 1 and 2 (ABB Integrated Report, 2023).

How can trust and sustainability then be achieved in buyer-supplier relationships? Mutual trust can be created through prolonged and dedicated collaboration, integrating resources, knowledge sharing, and joint research development (R&D) activities (Zhu & Sarkis, 2004). External trust can be created for example by gaining support from another focal firm, top management, or government (Rocha et al., 2007). MNCs' trust in their supplier should make the suppliers not break the trust by neglecting sustainable practices.

- Communication

As presented in the previous section, knowledge sharing is at the core of trust in sustainability management. The importance of communication in sustainable supply chain management is undeniable. According to Gambetti & Giovanardi (2013), communication may offer concrete support at inter-functional levels, such as in the supply chain of a manufacturing company. When an MNC seeks supplier compliance with sustainability standards in emerging markets, the corporation often encounters cultural and linguistic barriers. Effective and barefaced communication will offer a platform for learning and improvement, as both supplier and buyer can have a discourse.

Communication is the best tool to tackle information asymmetries, which are imbalances of knowledge of relevant factors and information among the two negotiating parties. According to Anderson & Narus (1990), communication is both formal and informal sharing of meaningful and timely knowledge between the parties. Communication is a way to increase understanding and knowledge of the internal processes and the external market situation between the different partners (Ali & Larimo, 2016). When there is no information asymmetry in place in the supplier-buyer relationship, partners are well aware about each other's sustainable practices and their level of compliance with sustainable standards. Thereafter, the whole formation of the relationship is more equal, which leads to positive expectations of intentions and behavior and therefore, enables forming of mutual trust and compliance with sustainable practices.

Jadhav et al. (2019) studied achieving supply chain sustainability through communication. The writers found that the construct of supply chain communication does not only directly affect external supply chain sustainability performance, but it also affects the inner operational construct of internal supply

chain sustainability practices. According to their study, these practices were also having a remarkable effect on external supply chain environmental sustainability performance. This indicates that the construct of supply chain communication's effect on external supply chain environmental sustainability performance is also mediated by the construct of internal supply chain sustainability practices. Regular communication between an MNC and suppliers keeps the MNC updated, and helps the MNC to keep an eye on suppliers' compliance with sustainability.

- Incentives

A more motivating mechanism is rewarding suppliers for sustainable operations. Buying firms use incentives to uphold improvement in social and environmental supply performance (Porteus et al., 2015). Lee et al., (2012) state that the most common incentives are (1) preferred supplier status, (2) better terms and conditions in the supplier contract, (3) public recognition, and (4) price premiums.

According to Eckerd et al. (2018), bonus contracts typically have an additional reward that motivates the supplier to reduce waste and inefficiency, and avoid moral hazards. Therefore environmental, economic, and social sustainability can be addressed through incentives too. From the perspective of an MNC in emerging markets, moral hazard avoidance is crucial. Reasonable wages, no use of child labor, and safe and eligible working conditions are all part of ethical sustainability. If these terms are violated, this would certainly cause harm to the public image (Caro et al, 2018). MNCs have then two possible scenarios: penalize violations (transaction cost) or support fair and reasonable treatment of the labor force through incentives (social exchange).

2.4 The literature-based framework of the study

The below figure 3 depicts six hard mechanisms from TCT theory and three soft mechanisms from SET which an MNC can utilize to seek the compliance of their emerging markets' suppliers with sustainability standards. All mechanisms aim to achieve the highest possible level of sustainability at the upstream of the supply chain. The mechanisms can be used collaboratively, with each bringing its piece to the demanding attempt to ensure sustainable business practices and especially admissible production conditions in emerging markets.

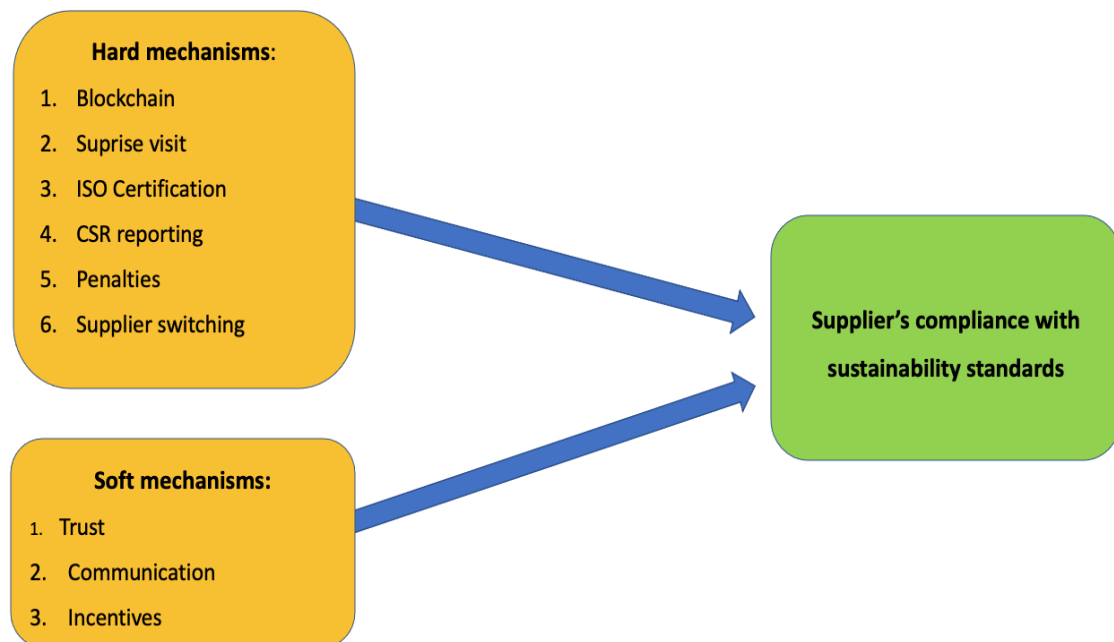


Figure 3. Conceptual model of the study.

3 Research Methodology

3.1 Research approach

The chosen research approach for this thesis was the deductive research approach. It means that the base for the study is formed through existing theory from earlier literature, and then continued with empirical testing. Given the research questions and study objectives, the chosen method of the thesis was mono-method research. The mono-method research designates scientific research that only uses a single data collection technique (Saunders et al, 2009). The chosen data collection technique was conducting interviews with MNC's managers responsible for managing the sustainable practices of suppliers in emerging markets.

At first, the framework was created by reviewing prior literature on the sustainability management of suppliers. The literature was materialized into the conceptual framework of the study (figure 3). The deductive research approach led to first conducting the research interview guide. The interview guide was sent to the corresponding ABB quality managers in the designed emerging markets. Then, the responses by the quality managers were planned to form the basement for the reformulating of the framework. After the framework was revised, the theoretical contributions were addressed, followed by managerial implications for the company, and future research suggestions.

3.2 Research method

The research was conducted using a case study methodology (Yin, 1994) to gain insights into mechanisms which ABB uses to seek the compliance of their emerging markets' suppliers (i.e. suppliers in China, India, and Mexico) with sustainability. According to Bonoma (1985), case research is suitable for exploratory research where

understanding is the primary objective and the phenomenon to be investigated is difficult to quantify, novel, and needs to be studied in an authentic setting. The used technique was conducting interviews with ABB's managers responsible for dealing with sustainable practices of suppliers in emerging markets of China, India, and Mexico. In qualitative research, the core is adopting an "interpretative approach" to reality (Holloway, 1997, p.1). Three sustainability compliance cases from China, India, and Mexico were selected as explanatory substances to validate the testability of the created framework on transaction cost and social exchange theory compliance-seeking mechanisms, and their effect on the achieved supplier compliance level with environmental and social standards.

In qualitative research, the data has primacy and is context-bound. In quantitative research social phenomena are investigated through the use of statistical or numerical data (Watson, 2015). This study follows a qualitative research design, as compliance-seeking mechanisms and sustainability performance evaluation are qualitative. In interviews, a non-judgmental approach is important. The accessed data is sensitive and will need confidential handling of for example suppliers' names and possible socio-environmental violations. Hence, the research brings transparency to ABB's SSBM (Sustainable Supply Chain Management) protocols.

3.3 Research design strategy

The research design strategy follows a single case study methodology with three sub-cases. Case study research is the most popular in business studies (Saunders et al., 2017). The data was collected through three interviews with ABB quality managers in China, Mexico, and India. Then, the data-driven thematic analysis was conducted on the gained information through a cross-case analysis, which aimed at recognizing the used mechanisms in each country, trying to provide further managerial implications to cater to the

sustainable supply chain management in the scope countries. The consistency analysis between the theoretical arguments sourced from the earlier literature and the gained data on the used compliance-seeking mechanisms across cases was utilized to make conclusions. Figure 4 below elaborates on the research methodology strategy process employed for the research.

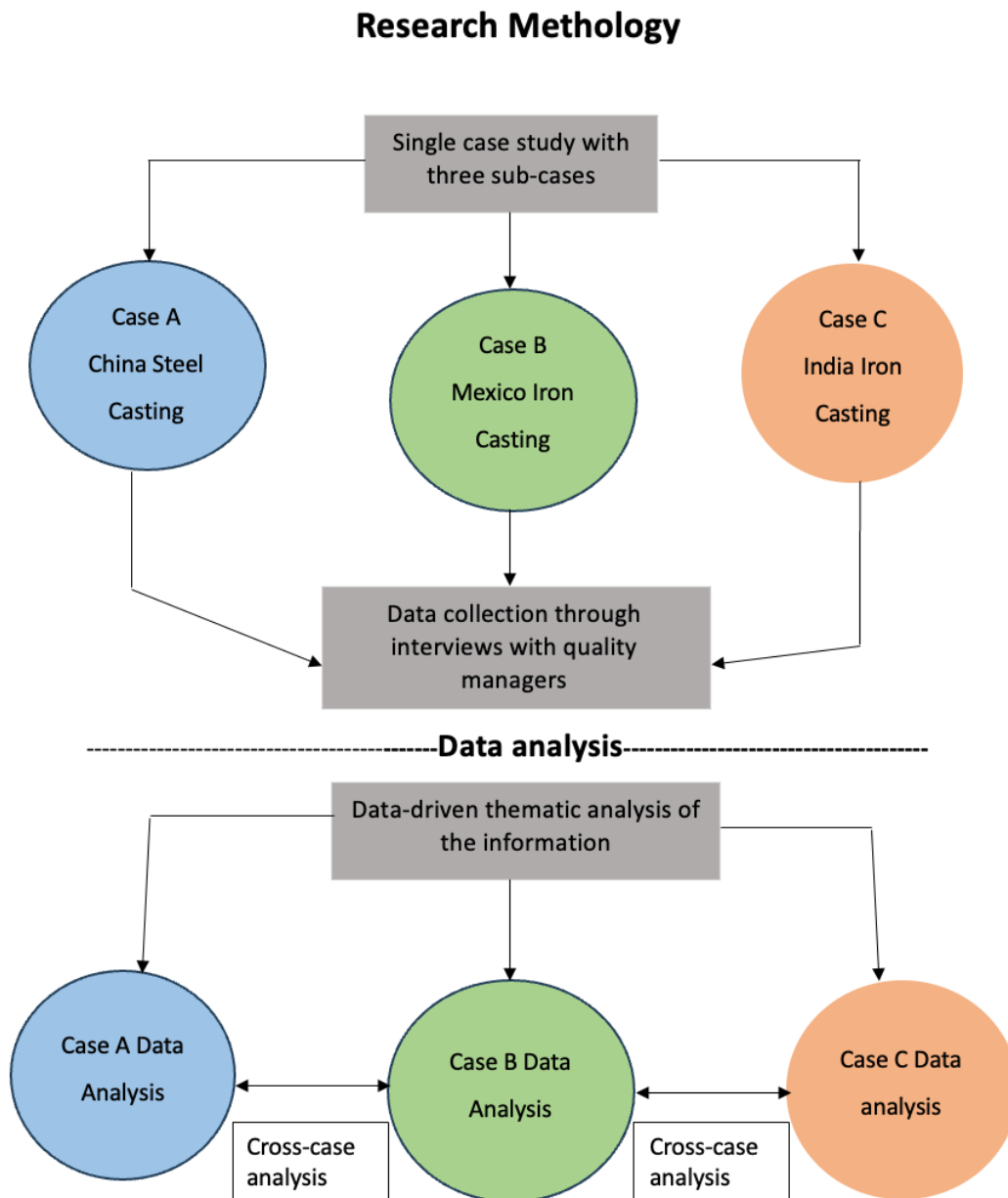


Figure 4. Steps taken in data collection and analysis

3.4 Data collection and analysis techniques and procedures

Semi-structured questionnaires of 26 questions were sent to the corresponding supplier managers in advance. The respondents had at least a week to familiarize themselves with the interview guide. Before the meeting, the interviewees were asked to think of a supplier of average size and role for ABB.

A crucial feature of the research was connecting the data and the analysis. In the latter stage of the research process, the connection was cherished through tentative working methods (Holloway, 1997, p. 10), where the data analysis led to reformulating (i.e. upgrading) the literature-based theoretical framework of the study.

3.4.1 Sampling techniques and sampling size

The sampling technique was convenient sampling, and the sample size was three case studies. Each of the three cases represented a varying geo-cultural context. The cases were unique in the way sustainability management is carried out. Convenience sampling means selecting participants based on availability and readiness (Taherdoost, 2016). As the thesis is done on commission for ABB Ltd., the in-house contacts were valuable for booking interviews with local supplier managers in the target countries.

3.4.2 Data collection

Data collection means gathering information from data sources (Holloway, 1997, p. 45). Some qualitative researchers do not authorize the term "collect data". Mason (1996) refers to "generating data", and Koch (1996) to "making data". The mentioned terms are more realistic, as in this paper the researcher was "actively constructing knowledge" (Mason, 1996, p. 36). Data collected by a survey is usually not as extended if there is no real-life human interaction involved. This is due to the limited number of questions in the survey (Saunders et al., 2009).

In qualitative research, the most common data sources are the interviews (Diciggo-Bloom & Crabtree, 2006). The primary data refers to first-hand information that the researcher generates. The data was accessed by conducting semi-structured live interviews on Microsoft Teams. The interviewees were asked for permission to record the meeting, and the permission was granted free willingly. Later, the recordings were used for conducting the cross-case analysis (chapter 4.4), which then acted as the foundation for the managerial implications (chapter 5.4).

3.4.3 Semi-structured interview model and operationalization

The operationalization was inspired by prior literature and the author's interest in sustainable supply chain management. The semi-structured interview model provided the respondents with the opportunity to provide details about their answers, and open-ended questions allowed the interviewees to give additional and descriptive information. The interview guide consisted of 26 questions and 28 sub-questions. The questions were divided into six different sections.

The interview guide was aimed to be done coherently, in Section A the interviewee gave personal information, and in Section B company information. Section C focused on the buyer-supplier relationship, and Section D on the Socio-environmental characteristics of the supplier. Lastly, Section E investigated the used compliance-seeking mechanisms in the target country, and Section F concentrated on the achieved socio-environmental compliance, that is, the outcomes of the used mechanisms. The used interview guide is attached to the Appendix of the thesis.

3.5 Validity and reliability

The validity of the research lies in connecting the causality of different attributes (Borsboom (2004). The validity of the thesis was ensured by developing interview questions

from prior literature. The interview guide was created in collaboration with the thesis supervisors from Vaasa University and ABB Ltd. According to Watson (2015), validity and reliability involve the estimation and minimization of possible errors that are associated with the research instrument.

The reliability of the data and research increases when the researcher provides a detailed description of the data collection process (Carroll, 2022). The commissioned thesis was conducted in collaboration with ABB Finland. The interview structure was sent to the respondents before the interview. Data analysis was done using statements. There is no clear generalizability of the findings, and also the reliability is limited contextually. A replication logic is employed in the within-case and cross-case analysis (Yin, 2003). This increases the likelihood that the research will result in accurate findings that stem from collected research information. The research followed an exploratory method based on pre-established theory from earlier literature.

4 Empirical findings

4.1 Interviewees' background

All the interviewees are employed by ABB Ltd., hold different management positions in the company, and are experienced experts in the field of supply chain and sustainability management. The target markets were chosen based on the relevance to ABB as a multinational. Convenient sampling and the readiness of interviewees to correspond led to the interviews being arranged with ABB's managers responsible for dealing with sustainable practices in China, India, and Mexico.

The first interviewee was a Chinese Global Chain Sustainability Manager, with an eight-year-long work experience at ABB, and four years in the current position. The interviewee works in the business area of Robotics. The interviewee has also been leading ABB's global sustainable supply base management (SSBM) program. The second interviewee was a Mexican Quality Assurance Manager with 20 years of work experience in the field. ABB acquired another company in May 2023, where the interviewee had worked for the past 19 years. The third interview was with an Indian Export Sourcing and Quality Manager, from Motion Business, with an eight-year-long career in the current position.

4.2 Within-case analysis

The within-case analysis provides a comparison of the use of different mechanisms. The plus sign indicates that the particular mechanism is in use in the case country. At the bottom of the table, the achieved sustainability compliance is evaluated on a scale (1-5).

| Mechanisms | Category | Case A China | Case B Mexico | Case C India |
|---|--------------------------|---------------------|----------------------|---------------------|
| Transaction-cost mechanisms | Surprise visit | | | + |
| | Opening own office | | + | |
| | ISO certification | | + | + |
| | CSR reporting | | + | |
| | Blockchain/self-audit | | + | + |
| | Third party assessors | + | | + |
| | Own supplier audit | + | | |
| | Penalties and desourcing | + | | + |
| | Warnings | + | + | + |
| | Taking equity | | + | |
| Social-exchange mechanisms | Trust | + | + | + |
| | Communication | | + | + |
| | Incentives | + | | |
| | Training | | + | + |
| Social compliance level | | 3 | 3 | 4 |
| Environmental compliance level | | 3 | 3 | 3 |
| Satisfaction with supplier sustainability | | 4 | 4 | 4 |

Figure 5. Graph of compliance-seeking mechanisms.

4.2.1 First embedded case

The interview was conducted on 21st March 2024 on Teams. The interviewee had selected a Chinese Steel Casting manufacturer, which in the thesis is referred to as case company A. The case company has approximately 250 employees and the supplier-buyer relationship with the supplier has been ongoing since 2010. ABB has no investment or ownership in the company, but a long-term, indefinite contract. When asked about the bilateral value of the supplier-buyer relationship, the sustainability manager indicated

that the supplier is a crucial supplier of steel. Likewise, for the supplier ABB is a remarkable buyer, as according to the interviewee, ABB's payments are reliable and on time.

Multinational companies usually apply social codes of conduct for their suppliers. The codes of conduct are often prohibiting the use of child labor, forced labor, excessive working hours, and discrimination. Also, the codes of conduct promote a healthy and safe working environment for employees and fair and timely wages. Furthermore, global manufacturers agree on environmental codes of conduct with their suppliers. The agreements deal with reducing energy, water use, and emissions, managing waste disposal, reducing unnecessary packaging, and using recyclable materials. The ABB's Supplier Code of Conduct gives the foundation for the suppliers to follow the principles and requirements of sustainable sourcing. The company's official code of conduct was presented earlier in chapter 2.2.6. It is entirely in place in the first case study context, in China.

The interviewee gave valuable examples of supplier's non-compliance with social sustainability standards. The mentioned issues were excessive working hours, overtime compensation, and neglect of insurance fees. Also, the paid leave that the employees were allowed was found to have been shorter than the local legislation requires, and in some locations the workshop temperature was too high. The use of helmets was also found to be poor, the reasoning behind the neglect to wear helmets and other protective gear was often the lack of usable and comfortable protection gear. Even though there were helmets for every employee they preferred not to wear them. Overall, the Chinese sustainability manager awarded the supplier with a grade of 3 on a scale (1-5) for compliance with social codes of conduct.

The interviewee told also valuable examples of supplier's non-compliance with environmental sustainability standards. The incidents were for example related to the disposal

of hazardous waste, leakages, and rusting equipment. The interviewee rated the supplier with a grade of 3 on a scale (1-5) for compliance with environmental codes of conduct.

Finally, the interviewee concluded that the suppliers must understand the requirements to increase their sustainability. The MNC must then demonstrate how the supplier can comply, and also carry the cost for the safety and sustainability training. At the bottom end of the supply chain, many of the suppliers are ordinary and often focused on delivering the artifacts to a single multinational only. The interviewee ranked ABB's satisfaction with the supplier's sustainability performance at 4 (1-5), the supplier has achieved the sustainability objectives at 3 (1-5), and ABB has achieved its sustainability objectives with the particular supplier at 4 (1-5).

4.2.2 Second embedded case

The interview was conducted on 26th March 2024 on Teams. The interviewee is a quality manager in Mexico with 20 years of work experience from the field. She had selected a Mexican Iron Casting manufacturer, which is referred to as case company B in the thesis. The case company has approximately 200 employees and the supplier-buyer relationship with the supplier has been ongoing since May 2023. ABB has no investment or ownership in the company, but a long-term, indefinite contract. When asked about the bilateral value of the supplier-buyer relationship, the sustainability manager indicated that the supplier is a crucial supplier of steel. Likewise, for the supplier ABB is a remarkable buyer, as according to the interviewee, ABB's payments are reliable and on time. The supplier relationship was estimated to continue for at least the next five years.

The interviewee told also valuable examples of supplier's non-compliance with environmental sustainability standards. The incidents were for example related to the disposal of hazardous waste. The government regulates the containing of oil-based products, and the preservation of oil products was of importance. The interviewee rated the supplier

with a grade of 3 on a scale (1-5) for compliance with environmental codes of conduct. The ISO14001 standard on environmental management systems was mentioned, but it is not required by ABB Mexico. The interviewee mentioned the compliance with social sustainability of 3 on a scale (1-5). The only issue was the occasional, yet rare incidents.

Lastly, it was concluded that for the supplier to increase their sustainability, they must understand the targets and requirements. The MNC must then demonstrate how the supplier can comply, and also carry the costs for the safety and sustainability training. At the bottom end of the supply chain, many of the suppliers are ordinary and often focused on delivering the artifacts to a single multinational only. The interviewee ranked ABB's satisfaction with the supplier's sustainability performance at 4 (1-5).

The most efficient mechanisms were found to be communication (weekly meetings), performance evaluation, training, and revision. The combination of trust-developing through reliable supply chain actions (paying on time, competitive cost, and price-setting) was found to be the best combination. In terms of communication, the interviewee stated that they used two hours for communication monthly. The supplier's compliance could be still improved through clear defining of targets and buyer's expectations.

4.2.3 Third embedded case

The interview was conducted on 29th March 2024 on Teams. The interviewee is an export sourcing and quality manager in India with 8 years of work experience in the current position. The selected supplier was an Indian iron casting company, which is referred to as case company C. The case company has approximately 100 employees and the supplier-buyer relationship with the supplier has been ongoing since 2015. The average annual spend with the supplier is 3,5 Million US dollars, and ABB has an investment ratio of 40 % in the case of the supplier firm. The supplier has an annual turnover of 25 million US dollars. The contract agreement is renewed every 5 years. When asked about the

bilateral value of the supplier-buyer relationship, the sustainability manager indicated that the supplier is a remarkable supplier of iron. The reasoning behind the choice of supplier was the capability to produce bulk quantities, cost-competitiveness, and qualification.

The most important example of a supplier's non-compliance with environmental sustainability standards was waste management. The interviewee rated the supplier with a grade of 3 on a scale (1-5) for compliance with environmental codes of conduct. The interviewee mentioned the compliance with social sustainability of 4 on a scale of 1-5.

The respondents stated that the supplier is willing to comply with the socio-environmental codes of conduct but may not know which steps to take. At the moment the MNC is not following a certain training plan to develop its supplier's compliance with sustainability standards. However, spontaneous training happens when the company representatives visit the production site. The interviewee proposed that ABB could create a training plan and hire a permanent employee to work as a sustainability consultant on-site. The interviewee ranked ABB's satisfaction with the supplier's sustainability performance at 4 (1-5).

According to the quality manager, out of the used mechanisms, the most effective are the firm's own audits (Supplier Quality Process) and surprise visits (Sustainability Observation Tours). Moreover, the SSBM auditing protocol, which is conducted every three years provides a more generic situational picture. The 41 different parameters of the auditing protocol cover the areas of human rights, child labor, forced labor, health and safety, and fair salaries. When combined with ISO certifications and third-party audits (Bureau Veritas, TÜV Rheinland) the compliance is at an intermediate level, and if they would introduce a training program it could be further increased.

4.3 Cross-case analysis

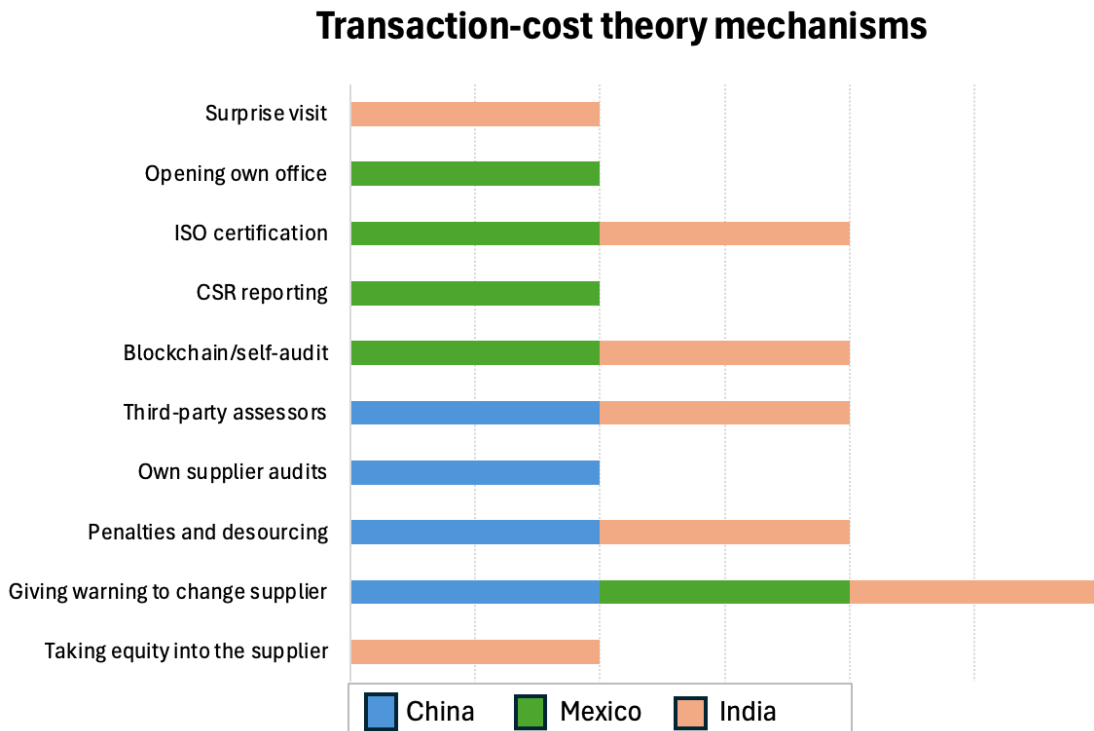


Figure 6. The data on the transaction cost theory mechanisms.

The graph above (figure 6) presents the gained data on the used transaction cost theory supplier compliance-seeking mechanisms. The only mechanism that was found to have been used in each case country was “Giving warning to change supplier”. Each of the transaction cost theory mechanisms was found to have been used in at least one target country. Mechanisms: Surprise visit, Opening own office, CSR reporting, Own supplier audits, and Taking equity were in use in only one country. ABB in India is using seven (7), and Mexico is using five (5) different mechanisms. ABB in China is using only four (4).

The new additions to the earlier literature-based framework of the study were: Opening own office, Third-party assessors, Own supplier audits, Giving warning to change supplier,

and Taking equity into the supplier. The self-audit was combined with the use of block-chain audit as one mechanism.

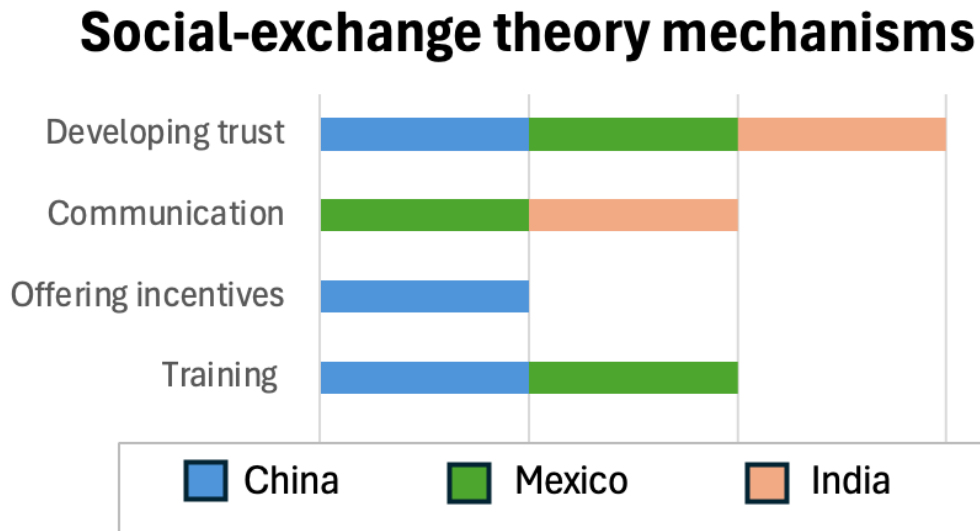


Figure 7. The data on the social exchange theory mechanisms.

The graph above (figure 7) displays the accessed data on the used social exchange theory supplier compliance-seeking mechanisms. On-site, planned training is currently happening in China and Mexico, and in India, there is no particular training plan. However, spontaneous on-site training occurs when the quality managers who are typically living close to the factory premises conduct surprise visits.

The four (4) social exchange theory mechanisms were introduced as relationship-based and more internally motivating approaches to supplier compliance-seeking. Mutual trust can be formed through prolonged collaboration, resource integration, knowledge sharing, and joint Research & Development activities. Then, external trust can be created by gaining support from other focal firms, top management, or government authorities. Communication is unquestionably crucial as previous studies showed that the construct

of supply chain communication impacts both external sustainability performance, and internal supply chain sustainability practices.

Rewarding suppliers for sustainable practices was found to be motivating as bonus contracts generally have an additional reward that motivates the supplier to reduce waste and inefficiency and to avoid moral hazards. That said, socio-environmental sustainability can be addressed through soft, relationship-based, and stimulating mechanisms. Training programs are common methods to improve enterprises in emerging markets (McKenzie & Woodruff, 2014). Most of the studies indicate that existing companies can utilize the practices which are taught in training sessions. The authors state that the magnitudes of training are often modest. In this research, the most socio-environmentally compliant supplier was actually the case company C in India, where the training is only spontaneous and unplanned.

4.3.1 Level of supplier's compliance with sustainability standards

The graph below (figure 8) illustrates the comparison of sustainability performance in each target country. The scaling is (1-5), and the areas of research are social compliance, environmental compliance, and the MNC's satisfaction with the achieved supplier sustainability.

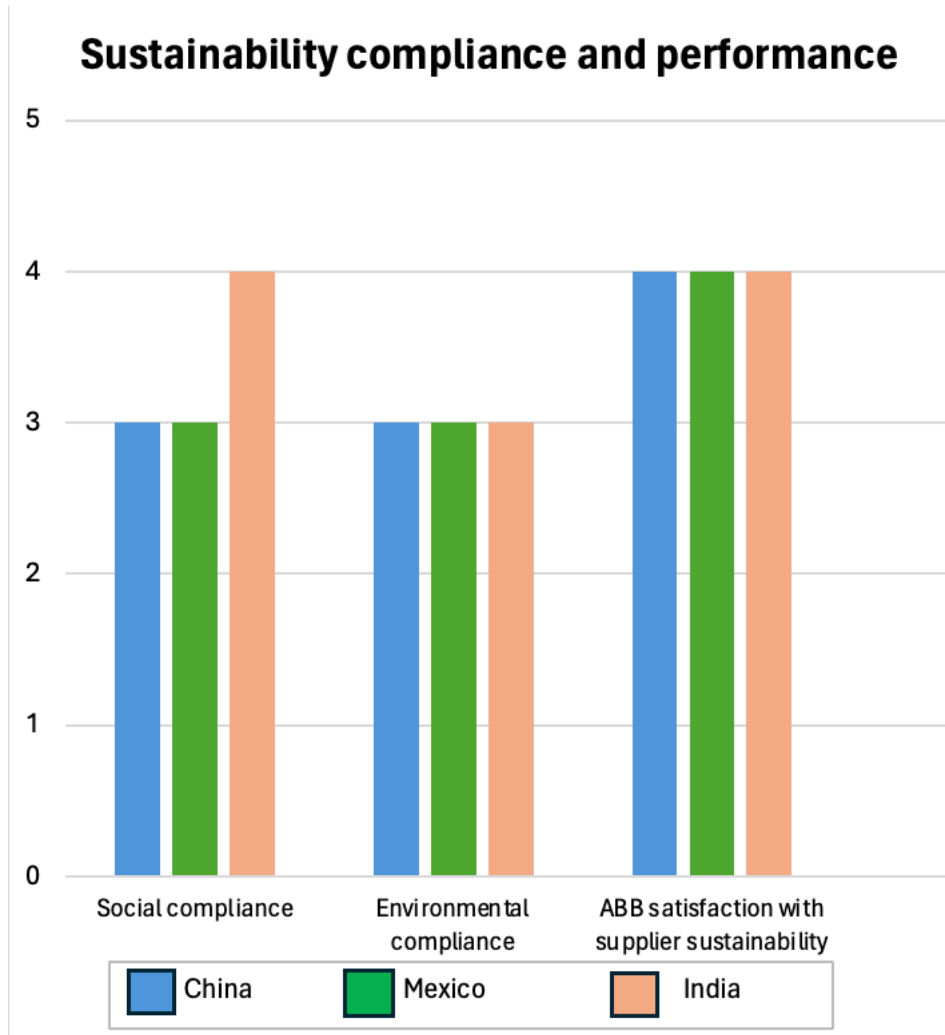


Figure 8. Sustainability compliance and performance comparison.

The first dimension is supplier compliance with social standards. The frame for the performance evaluation is the ABB Supplier Code of Conduct (2024). The case supplier was most compliant with the ABB Supplier's requirements in India. The reasoning is drawn from the use of various (7) different mechanisms. Factually, India is the only country where a supplier visit is in use. The effect on the social compliance of the particular mechanisms emphasizes the usability of surprise visits to tackle possible social violations in countries that do not yet have established employee rights. The most common faults

were excessive working hours, no overtime compensation, shorter paid leaves, the neglect of insurance fees, and rare industrial incidents.

ABB requires its suppliers to share their commitment to protecting the planet and its biodiversity, preserving the resources, and mitigating climate change (ABB Supplier Code of Conduct Implementation Guide, 2024). The second dimension of the graph is supplier compliance with environmental standards. In each of the target countries, environmental compliance was found to be at 3 on a scale of 1-5. This implies a need for environmental compliance training in each of the case countries. However, the third evaluation criterion, ABB's satisfaction with supplier sustainability, was found to be at 4 in all three countries.

5 Conclusion

5.1 Summary of the key empirical findings

One of the most critical findings of this research is related to compliance auditing mechanisms. The auditing protocols that ABB has in place, do not correspond precisely to the ABB's Supplier Code of Conduct. The empirical part (Chapter 4) tested the deductively created framework of the study (figure 3), by using a case study methodology. The empirical research revealed that there are ten (10) transaction cost and four (4) social exchange theory mechanisms that the company uses. In a multidimensional value chain, the MNC has to recognize the essentiality of continuous sustainability adaptation and improvements, train sustainable supply chain management lead assessors, and understand the selection of used mechanisms. The thesis conceptualizes the mechanisms that ABB uses in emerging markets, for the supply managers to coordinate the process of compliance-seeking with sustainability standards.

5.2 Validation of the theoretical framework

The validity of the research, on the other hand, signifies that the metrics used in the research precisely measure things that are initially intended to be measured (Carroll, 2022). The theoretical framework was initially created by reviewing literature related to the topic. The earlier literature found six (6) hard, and three (3) soft mechanisms for seeking supplier compliance with sustainability standards.

Deductively, the framework was tested through empirical research on ABB's supplier units in China, India, and Mexico. After the empirical testing where interviews with company representatives in the target countries were conducted, the framework was revised to include ten (10) transaction cost theory mechanisms and four (4) social exchange theory mechanisms. The more extensive, revised conceptual framework of the study provides a more realistic conceptualization of the compliance-seeking

mechanisms that multinational companies utilize. The conceptualization of the current mechanisms is a needed addition to the field of sustainability in the business context. The revision of the framework is presented below.

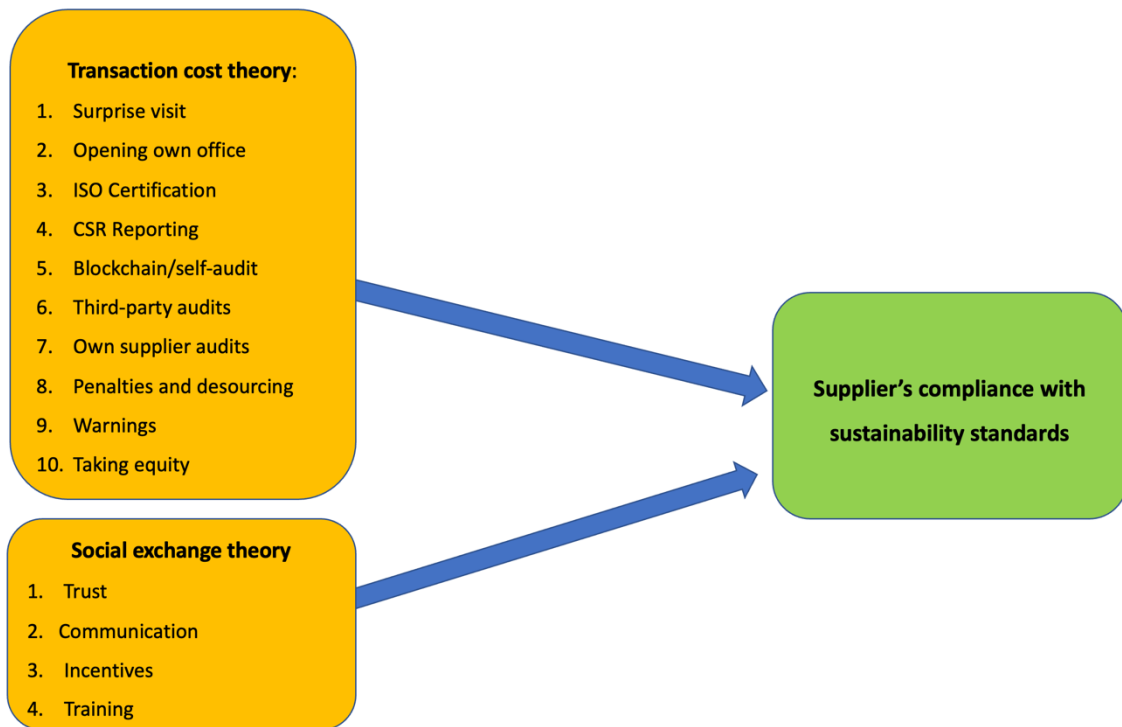


Figure 9. The revised conceptual framework of the study.

5.3 Theoretical contributions

The research question of the thesis was “How does a Multinational Corporation (MNC) seek the compliance of its emerging market suppliers with sustainability standards?”

The master’s thesis’s primary objective was to explore the mechanisms that an MNC can use when it seeks supplier compliance with sustainability standards in emerging markets. This primary objective was achieved by creating the framework of mechanisms and evaluating the usability of each mechanism on a scale of achieved supplier compliance in

terms of social and environmental sustainability. In the empirical part, (Chapter 4) the literature-based framework was revised to better correspond to the reality of compliance-seeking mechanisms.

The first sub-objective was to study the conceptualization and characteristics of supplier-buyer relationships. Chapter 2.1 provided reasoning, conceptualization, and characterization of supplier-buyer relationships. Reviewed articles suggested that a greater price gain is possible to be achieved by enhancing the entire supply chain. Moreover, supply chain development was defined to mean strategic and operational activities that aim to efficiently meet the current customers' requirements. Long-term collaborative relationships with strategically vital suppliers were found increasingly popular. Currently, companies tend to have a perspective, where the entire supply chain is recognized for the potential to cut expenses and generate value. In terms of sustainability, each component of the supply chain should comply with sustainability standards.

The second sub-objective was to increase understanding of the conceptualization and types of sustainability, and the importance of supplier's compliance with sustainability standards. The three-pillar conception of sustainability (environmental, economic, social) was introduced. The pillars are in symbiosis, and for example, environmental awareness will later be seen as beneficial for social and economic fields. It was found that the raised concern for sustainability in the suppliers of MNCs in emerging markets is prominent, and the stakeholders are increasingly curious about the everyday life in the production units. While MNCs are not responsible for the sustainability of the factories of their suppliers at first hand, the MNCs have the accountability to ensure that the working conditions are safe, the workforce has fair treatment, and the production is not violating the environment.

The third sub-objective was to explore the key mechanisms that MNCs use to seek the compliance of their emerging market suppliers with sustainability standards. Blockchain,

ISO certification, and CSR reporting are information-based mechanisms. The mechanisms are hoping to add sustainability by applying supervision. In a blockchain, ISO certification, and CSR reporting, the supplier is forced to provide information about everyday life practices at the production unit. The mechanisms can be used collaboratively – for instance, blockchain can be used to collect information for later CSR reporting, which will possibly lead to an ISO certification.

In contrast, surprise visits, penalties, and supplier switching are more determinative hard mechanisms. The mechanisms are based on supervision and are also more authoritative. The MNC wants to hold the power and remain the favorable negotiation setting in these mechanisms. The surprise visits can happen unexpectedly, penalties may set heavy duties on suppliers and the switching of a supplier can be a finishing touch for the current supplier's operations.

The most focal theoretical contribution was the finding that MNCs also use other determinative, hard mechanisms that are based on the transaction cost theory. Warnings were found to be used in each of the target countries. Taking equity means that the MNC would acquire a certain amount of ownership in the supplier company. This mechanism was used in India. Own supplier audits by the MNC were in place in China, where the self-assessment of suppliers is done through the SQP (Supplier Quality Process). ABB's supplier assessment method is called SQP, and its purpose is to evaluate a supplier by auditing health and safety, human rights, quality management, process development, production execution, and transportation. The target of the audit is to investigate the most crucial risks at the supplier's premises and determine a risk mitigation plan to address the potential risks systematically (ABB Global Supplier Quality Manual, 2023). The third-party audits by companies called TÜV Rheinland and Bureau Veritas were discovered in China and India. Additionally, training was in use in China and Mexico and included in the framework as a social exchange theory mechanism.

5.4 Managerial implications

The research strengthens the importance of supplier compliance sustainability surveillance in emerging markets. The auditing protocols that ABB has in place, do not correspond exactly to the ABB's Supplier Code of Conduct. The standardization of the global codes of conduct will provide ABB with stronger tools to require socio-environmental compliance across the globe. Then, the paper gives reasoning on why the use of mechanisms can vary in different country units. The renewed theoretical framework of the study gives a more established compaction of all the compliance-seeking mechanisms that ABB uses. The social compliance advantages are primarily in the fewer accidents and lower insurance fees. Also, there will be less need for aftercare of the incidents, and therefore less legal expenses. In practice, the follow-up savings scale to substantial financial savings when fewer incidents and socio-environmental violations occur. On the other hand, when incidents occur, aftercare is even more important so that the accidents do not recur.

The presence of the Multinational company is important at the premises. The multinational companies should demonstrate how the supplier can comply, and also carry the cost for the safety and sustainability training. Complying with safety and sustainability standards is expensive. However, through the systematic use of the tools that the revised framework of the study presents – a corporation like ABB can achieve significant cost savings. First, the enhanced and more coherent compliance-seeking mechanisms are a step forward in ensuring reputation (Lin et al., 2014). Second, implementing the revised model of the study will provide the MNC with clear financial benefits as the scale advantages are related to improved health and safety as well as fewer accidents.

Auditing protocols should be standardized. One of the business areas of ABB, Motion, has been qualifying its own lead assessors to conduct sustainable supply chain management (SSBM). The lead assessors are then administering the auditing protocols in the high-risk emerging markets. By training and qualifying new lead assessors to other

business areas too, ABB could promote continual construction of expertise among its assessors and enhance formal and tacit knowledge on sustainability auditing. The alliance of assessors can then establish corporate-wide social consensus around sustainable use of material, human rights due diligence and assessment protocols (Canning et al., 2019).

In a global and evolving value chain, the MNC has to recognize the essentiality of continuous sustainability adaptation and improvements (ABB Integrated Report, 2023). Concentration on the most crucial “Main Tier 1” supplier will be beneficial for ABB as they account for 70 % of the group spend. Holistically, the violations are prone to happen at the supplier’s units that are under less surveillance and where there are fewer compliance-seeking mechanisms in place (Baldwin, 2004). Adhering to the sustainability framework to identify human rights risks and potential impacts will play a crucial role, just like implementing appropriate measures to mitigate the effects. Following internationally recognized frameworks related to minerals, metals, and child labor, like the Swiss Ordinance on Due Diligence and Transparency will enhance the company’s integrity, as well as adopting the principles of the Universal Declaration of Human Rights (UN, 1948).

5.5 Directions for future research

This paper's study area is still novel. A closer investigation of the usability of each mechanism would provide relevant knowledge to academia, and MNCs could alter their decisions based on data from the workability of the mechanisms. Future studies could verify the liability of the presented framework. Is the presented conceptualization of the study relevant to seeking the highest level of sustainability and enhanced safety at the bottom end of global supply chains?

Digital storage of sensitive data is another aspect that future research could look into. Precisely, blockchain technology is a distributed digital ledger that contains data. While

any ordinary database can store information, decentralization makes a blockchain extraordinary. Several computers that belong to the same network store a copy of the data (Rodeck & Curry, 2022). The potential of blockchain technology to increase data liability and transparency requires a closer and more extensive investigation.

This thesis focused on the socio-environmental performance of suppliers in emerging markets. Furthermore, additional research could focus on the economic performance of the suppliers who are secured to comply with sustainability standards through the use of compliance-seeking mechanisms. How will the implementation of a particular mechanism impact economic performance?

In Chapter 1.3 the topic was limited to concentrate on compliance-seeking mechanisms at the upstream of supply chain. However, hazardous and unsustainable practices are present throughout the supply chain. Future research could take a closer look at the sustainability performance of the middle agents and mediators of the supply chain, and possibly provide a model to seek their compliance with sustainability standards. Still, the inspection of later stages of vertical supply chains will give more overall understanding of the effects of sustainability compliance in the whole of the supply chain.

The purpose of any stock-listed, publicly owned company is to generate profit for the shareholders (Wenstøp & Myrmel, 2006). In the business context, future research can direct toward the possible gains that multinational companies will get by resourcing compliance-seeking mechanisms. Lastly, studying the effects of Sustainable Supply Chain Management (SSBM) auditing on socio-environmental violations and financial savings should close another relevant research gap.

5.6 Limitations

The qualitative nature of the conducted research poses certain limitations to the standardizability of the research. Also, the study covers suppliers in only three different emerging markets. The lack of first-hand information on whether there is direct communication between ABB representatives and local suppliers is another limitation of the study. However, the countries are socio-culturally different by nature, and provide a solid foundation for the generalizability of the research topic.

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Figures

Figure 1. A diagram of the thesis.

Figure 2. The three pillars of sustainability. From Purvis, B., Mao, Y., & Robinson, D. (2019). Three pillars of sustainability: in search of conceptual origins. *Sustainability science*, 14, 681-695.

Figure 3. The conceptual model of the thesis. Mechanisms for seeking supplier compliance with sustainability standards. From Ali, T. & Lehtihuhta, O. (2023).

Figure 4. Steps taken in data collection and analysis.

Figure 5. Graph of compliance-seeking mechanisms.

Figure 6. The data on the transaction-cost theory mechanisms.

Figure 7. The data on the social-exchange theory mechanism.

Figure 8. Sustainability compliance and performance comparison.

Figure 9. The revised conceptual framework of the study.

Appendix

INTERVIEW GUIDE:

SECTION A: Your introduction

Tell me about yourself:

- 1) Your name:
- 2) Your job title:
- 3) Number of years in current job with ABB:

SECTION B: Your company information

Tell me about your company:

- 4) Your company name:
- 5) Your division:

SECTION C: Information about supplier you have chosen

Tell me about one average supplier with typical challenges with compliance sustainability standards.

- 8) Supplier's name:
- 9) Supplier's country:
- 10) Supplier's primary industry:
- 11) Number of employees in the supplier's company:
- 12) Annual turnover of supplier in 2023 (in million USD):
- 13) When did the relationship start with this supplier?
- 14) Why did your firm select this supplier? (competent, trustworthy, socio-environmentally responsible)
- 15) Average spending with this supplier every year (in million USD):
- 16) Your investment/ownership ratio in supplier firm (0-100%):
- 17) Do you have a short-term or long-term contract agreement with the supplier:
- 18a) Year the contract signing with the supplier:
- 18b) Year the contract ending with supplier
- 18c) For how long does your firm plan to continue buying from this supplier (in years):
- 19a) If your relationship with this supplier dissolves today, to what extent your firm can find another supplier for the same components? (Very low 1-5 Very high)
- 19b) If your relationship with this supplier dissolves today, to what extent your supplier can find another buyer for the same components? (Very low 1-5 Very high)

SECTION D: Socio-environmental characteristics of supplier

20) Manufacturers from developed countries usually develop some socio-environmental codes of conduct for their suppliers:

A) What kind of social codes of conduct did your firm agree with this supplier

(e.g., child labor, forced labor, excessive working hours, healthy and safe working environment of employees, employees fair and timely wages, lack of discrimination etc.)?

B) What kind of environmental codes of conduct did your firm agree with this supplier

(e.g., Reducing energy, water use and emissions; managing waste; reducing unnecessary packaging; using recyclable material, etc)?

21) If I give you a scale with one being very low and 5 being very high, how would you rate the:

A) level of supplier's compliance with your social codes of conduct? 1) very low, 2) low, 3) medium, 4) high, 5) very high. Can you give some examples of non-compliance?

B) level of supplier's compliance with your environmental codes of conduct? 1) very low, 2) low, 3) medium, 4) high, 5) very high. Can you give some examples of non-compliance?

SECTION E: Mechanisms to seek supplier's compliance with codes of conduct

22) One of the greatest problems is that there is no guarantee that the supplier stays compliant with your socio-environmental standards. Kindly indicate what strategies/mechanisms your firm has used to ensure the supplier's compliance with your socio-environmental standards. A general list of proposed strategies/mechanisms is given below.

Hard mechanisms:

- a) Giving surprise visits to supplier's factory to ensure compliance (no/yes-how often?)
- b) Opening a small office in the supplier factory to ensure compliance (no/yes)
- c) ISO/other certification/s related to socio-environmental responsibilities (no/yes)
- d) Corporate Social Responsibility (CSR) reporting (no/yes)
- e) Self-audit by supplier and reporting to your firm through internal software (i.e. blockchain technology) (no/yes)
- f) Third-party audits (no/yes)
- g) Firm's own supplier audits (SSBM, SQP, etc.) (no/yes)

- h) By adopting a complete contract (i.e. specifying the rights/duties of both parties to prevent non-compliance, stipulating guarantees, specifying penalties against the breaching party) (no/yes)
- i) Giving warning to supplier for switching supplier (no/yes)
- j) By taking equity into the supplier firm (no/yes-how much?)

Soft mechanisms:

- k) Developing trust-based relationship with the supplier (Low trust 1-5 high trust on the supplier in terms of fulfilling socio-environmental standards)
- l) Level and frequency of communication between you and the supplier in terms of events/changes that may affect the socio-environmental responsibilities (Low quality 1-5 high quality; Low frequency 1-5 high frequency)
- m) Offering incentives to suppliers for socio-environmental compliance, like offering long-term contracts etc. (no/yes)
- n) Training supplier for effective fulfillment of socio-environmental responsibilities (no/yes)
- o) Others?

23) Out of these used mechanisms, which are found to be most effective in terms of seeking supplier's compliance with socio-environmental standards?

24) Which combination of mechanisms results in the highest level of supplier compliance?

25) How much time is spent on ensuring the particular supplier compliance with socio-environmental standards? (1-5 or hours per month)

SECTION F: Outcomes

26a) What would help the suppliers to increase their compliance?

26b) How satisfactory was your firm's relationship with the supplier firm? (1-5)

26c) To what extent has your supplier achieved the sustainability objectives? (1-5)

26d) To what extent has ABB achieved its sustainability objectives with the supplier? (1-5)