

Exploring Supplier Selection to Triple Bottom Line Supplier Development

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ABSTRACT,

Sustainability has become an increasingly critical aspect of business operations, integrating sustainable practices into companies' supply chains. Although TBL supplier development is crucial, it is not entirely clear how companies select their suppliers to conduct supplier development activities to improve their sustainable performance. This bachelor thesis explores supplier selection approaches to Triple Bottom Line (TBL) supplier development. By analyzing insights from five companies with established sustainable practices, this study categorizes suppliers based on supply risk and environmental impact, proposing a framework to guide the selection process. The research highlights various selection approaches, supported by case examples from German and Polish companies. Key findings reveal that cultural and organizational factors significantly influence supplier development approaches, showing that Polish companies demonstrate proactivity in implementing sustainable practices compared to the German companies. Furthermore, the study identifies several critical factors that shape TBL supplier selection strategies, such as regulatory compliance, supplier reliability, and environmental certifications. The focus of future research could look at exploration of how cultural differences influence the approaches and effectiveness of TBL supplier development.

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Keywords

Triple Bottom Line, supplier selection, supplier development, sustainable supplier selection, sustainable supplier development, sustainability

1. INTRODUCTION

In today's global marketplace, sustainability has developed as a leading concern, driven by the growing demands of consumers and stakeholders for products that align with environmental and social responsibility (Pedroso et al., 2021). As a result, companies face pressure to adopt sustainable practices throughout their supply chains. Sustainability was defined by the United Nations Brundtland Commission as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987). Organizations rely heavily on their suppliers to provide the goods, services, and components necessary for their operations. Therefore, because of the growing awareness about the sustainability and ongoing desire for development, Triple Bottom Line can be an effective approach to “improve suppliers’ sustainable outcomes and to improve sustainability in the supply chain” (Pedroso et al., 2021). Moreover, another popular term used for TBL framework is also known as 3Ps: people, planet, and profit (Goh et al., 2020). In this study, terms “sustainable” and “TBL” will be used interchangeably. Both terms refer to practices that prioritize environmental protection, social responsibility, and economic growth.

According to Krause (1997) supplier development is defined as “any effort of a firm to increase performance and/or capabilities to meet the firm’s short- and/or long-term supply needs”. Traditionally, supplier development initiatives have focused primarily on improving operational efficiency, reducing costs, enhancing product quality, and improving relationships with key suppliers (Krause, 1997). However, recently supplier development programs go beyond traditional operational improvements, and also include developments in environmental, social, and ethical dimensions. The example, which includes those sustainable dimensions for supplier development is TBL approach.

The process of selecting suppliers for Triple Bottom Line supplier development is complex and multifaceted, characterized by numerous challenges and considerations. While traditional supplier selection criteria such as price, quality, and reliability remain important, they must now be complemented by sustainability-focused metrics that assess suppliers’ environmental, social, and governance (ESG) capabilities (Dowlatshahi, 2000). Moreover, the selection process must consider the unique context and objectives of the buying organization, as well as the specific challenges and opportunities presented by the supply chain ecosystem (Kabadayı & Dehghanimohammadabadi, 2022). Nevertheless, it might be rather complicated to improve the sustainable outcomes of all suppliers in the existing supply base. Therefore, the buying organization might choose only part of the existing suppliers for TBL supplier development. Selecting only part of suppliers for development is crucial because it allows for efficient resource allocation and focuses efforts on suppliers with the most potential for improvement (Krause, 1997). Since there is no recent literature about selecting suppliers for sustainable supplier development, it is crucial to examine whether still only part of the suppliers is developed or whether it has changed, and now sustainability is visible throughout the whole supply chain.

Although, how does purchasing entity choose existing suppliers to be improved regarding their sustainable outcomes? The process of selecting new suppliers and choosing the criteria as the second stage of the procurement process has been extensively researched. For example, Chai et al. (2013) provides a full overview of decision-making techniques in supplier selection. However, for this bachelor thesis, the research is about supplier selection that happens among existing supply base for the aim to develop suppliers sustainably. This thesis aims to bridge the gap by examining the intersection of sustainability and supplier development. Specifically, the research question guiding this bachelor thesis is:

How are suppliers selected for Triple Bottom Line (TBL) supplier development?

To study this process and answer the research question, interviews will be conducted with 5 different companies located in Poland and Germany. This is done to find out whether there are any differences in business practices and find out whether geographical location has any added effect on the perceived importance of sustainability.

The performance of suppliers directly impacts the sustainability goals of buying organizations and therefore, it is crucial to develop relationship with suppliers that share firm’s commitment to sustainability (Awasthi and Kannan, 2016). Furthermore, the incorporation of environmental and social elements into supplier development efforts reflects an increasing understanding of sustainability and its various implications for business operations (Lu et al., 2012). The pursuit of sustainable supplier development is not only an ethical obligation, but also a strategic necessity in today's business picture. By embracing Triple Bottom Line principles and integrating sustainability into supplier development programs, companies can position themselves to meet the evolving expectations of stakeholders while driving positive environmental and social impact across their supply chains.

2. THEORETICAL FRAMEWORK

2.1 Supplier development for sustainability

Buying organizations and suppliers frequently participate in supplier development programs after making a choice about supplier selection (Cole & Aitken, 2019). As globalization, technological advancements, and evolving market dynamics reshaped the business market, the significance of supplier selections arose beyond traditional criteria. Therefore, factors such as sustainability, corporate social responsibility (CSR) or ethical sourcing practices gained importance. These sustainable practices can be achieved by implementing supplier development methods, which aim to improve supplier performance, capabilities and meet long-term needs of the buying firm (Fernández et al., 2015). Examples of supplier development methods are evaluation and assessment of supplier’s performance, collaboration through training, supplier incentives, and direct financial investments by buying firms (Fernández et al., 2015, Cole & Aitken, 2019). The significance of supplier sustainability has grown extensively for companies, influencing several aspects of their performance, and shaping their reputation among customers (Rogers et al., 2023). Therefore, it can be said

that both buyers and suppliers can benefit from the implementation of supplier development programs (Wagner, 2011). Additionally, buying organizations have to analyze their situation to determine if supplier development is warranted (Handfield et al., 2000).

Since supplier development often requires significant resources, it is better to engage in this process selectively, focusing on chosen suppliers (Chartered Institute of Procurement & Supply [CIPS], 2013). What is more, selecting specific suppliers from the existing supply base for sustainable development, rather than attempting to develop all of them is also crucial for other several reasons such as capacity for improvement, strategic alignment, and risk management. However, the way suppliers are selected for the TBL supplier development programs will be investigated in the following chapters.

Most studies done around sustainable supplier development focuses solely on environmental and economic aspects. However, in the recent literature found, the awareness is growing about including also social aspect into sustainability term. Therefore, sustainable supplier development involves integrating economic, environmental, and social considerations into supplier management practices. As highlighted by Zimmer et al. (2015) sustainable supplier development practices now intertwine sustainability considerations with supplier selection and evaluation, emphasizing the importance of not only managing suppliers' sustainability, but also identifying those with the potential for improvement within supplier development programs. In manufacturing settings, supplier development programs have traditionally revolved around objectives such as cost reduction, operational efficiencies, quality management, new technology adoption, and product design. More recently, there has been an increasing focus on integrating sustainability practices into these initiatives (Cole & Aitken, 2019). However, because of the high initial costs and uncertain financial return, firms are frequently resistant to support their suppliers' efforts to promote environmental and social sustainability (Rogers et al., 2023).

In the context of sustainable supply chain management, it is defined as the collaboration among companies throughout the supply chain, combining objectives from all three dimensions of sustainable development (economic, environmental, and social) aligned with the demands of customers and stakeholders (Seuring & Müller, 2008).

Triple Bottom Line supplier development could be focused on environmental, social, or economic dimension. In the environmental aspect it might involve reducing waste generation, using renewable resources, and lowering carbon footprints. The social aspect includes topics such as fair labor practices and safe working conditions. The economic dimension ensures that suppliers contribute to the economic success of both themselves and the buying organization. This includes cost-effectiveness, quality of good or services, and reliability. The more extensive list for sustainable supplier development practices in these three dimensions, which are environmental, social, and economic, can be found in Table 1, based on the literature review by Kumar and Rahman (2015).

Dimension	Practices for supplier development
Environmental	Packaging improvements
	Energy efficiency
	Pollution & emission minimization
	Waste minimization
	Reverse logistics
	Green purchasing
	Reducing input material
	Material substitution
	Eco labelling
	Renewable energy
Social	Better working conditions
	Rights to employees
	Fair trade and transparency
	Education of employees
	Career development
	Work and life balance
	Fair wages
	Employee safety
	Employee health
Women's equality	
Economic	Optimum asset utilization
	Reduction in resource use
	Cost reduction
	Minimum quality-based rejections
	Minimum delayed deliveries

Table 1: Triple Bottom Line supplier development practices based on Kumar and Rahman (2015).

This overview demonstrates that sustainable supplier development can be approached in multiple ways. Additionally, the adoption of sustainable practices is crucial since it can help organizations to gain competitive advantage, improve company image, improve customer satisfaction, as well as might increase profitability (Kumar & Rahman, 2015). On the other hand, a lack of knowledge within the organization is the main barrier for implementing sustainable business practices. Therefore, the

resistance to change can be overcome by increasing awareness about why sustainability is a necessity.

An initiating element for the adoption of sustainable supplier development practices is called a driver. According to Fernández et al. (2015), “using the institutional theory we posit that coercive, normative and mimetic pressures drive firms to adopt sustainable SD practices with the aim of making suppliers more sustainable”. Furthermore, Reuter et al. (2010) identified benefits of a clearly defined supplier development program, these are: suppliers can quickly adapt to buyers’ expectations, the purchasing organization’s reputation is improved, quality of products and components is improved for both firms, and there is lower probability of supply disruption. Therefore, it is crucial to use sustainable supplier development to reduce the risks of environmental pollution and reputation damage, particularly relevant when it comes to important sustainability performance indicators such as waste levels, transportation of hazardous materials, and carbon emissions throughout the supply chain (Ağan et al., 2018).

Furthermore, sustainability interest might differ between countries. According to Kellert (1996), Japanese people are less interested in ecological practices and wildlife conversations, whereas German people are more interested in these areas. Therefore, it can be said that the differences in people’s attitudes regarding the sustainability can also affect the willingness of the companies to engage in sustainable supplier development practices.

To sum up, sustainability is a complex and multifaceted concept that is difficult to define and measure due to its broad scope in environmental, social, and economic dimensions (Hardyment, 2024). Each dimension involves various indicators and metrics that can sometimes be subjective or context dependent. The challenge lies in integrating diverse metrics into a cohesive framework that accurately reflects the sustainability of an organization.

2.2 Triple Bottom Line

When selecting suppliers for supplier development, it is essential to consider the Triple Bottom Line (TBL) approach. TBL is a concept developed by Elkington, which simultaneously considers and balances economic, environmental, and social goals from a microeconomic perspective (Henriques & Richardson, 2013). At the intersection of these three areas, organizations can engage in activities that not only have a positive impact on society and environment, but also provide long-term economic rewards and competitive advantage (Carter & Rogers, 2008). What is more, it suggests that businesses should strive for sustainable practices that benefit people, planet, and profit simultaneously. In the literature found, there are many perspectives of the sustainability, such as the one found by Carter and Rogers (2008), describing four different views of sustainability: risk management, transparency, organizational culture, and strategy. However, “in academia, it is TBL approach that is widely accepted” (Ağan et al., 2018). Additionally, the performance of suppliers directly impacts the sustainability goals of buying organizations (Awasthi and Kannan, 2016). Therefore, it is crucial to develop the suppliers accordingly to the necessities of the buying organization. By adapting TBL approach and examining

environmental, social, and economic performance, organization can enhance their overall sustainability of the supply chain. Therefore, when developing existing suppliers according to TBL approach, it is crucial to assess their capabilities.

The traditional bottom line focuses on financial performance (Goh et al., 2020). While financial performance is crucial for any business, it should not be the core determining factor when selecting suppliers for sustainable development. Instead, when assessing the existing suppliers according to the financial impact, buying organizations should evaluate their supply base based on their performance factors such as: financial stability, cost-effectiveness, and ability to provide quality products or services (Singh, 2014). Therefore, supplier development programs should aim to enhance cost-efficiency and overall financial performance for both parties involved. Furthermore, when evaluating the existing suppliers according to the social impact, there may be variations in social responsibility. When selecting the suppliers for TBL supplier development, organization should consider factors such as labor standards and workers conditions (SAI et al., 2008). Development programs can support suppliers in strengthening their social responsibility initiatives. Lastly, existing suppliers may also vary in their environmental performance and sustainability efforts. Therefore, buying organization should look for opportunities to collaborate with suppliers who demonstrate a commitment and willingness in reducing their environmental impact and adopting sustainable practices (Cherel-Bonnemaïson et al., 2021).

2.3 Supplier selection in TBL supplier development

Supplier selection is one of the most important activities throughout the supply chain. By choosing the right suppliers, organizations can enhance their competitive advantage, strengthen customer relationships, and also drive long-term success. Prior to the early 1990s, procurement strategies and supplier assessment methods were centered around criteria such as price, quality, and delivery (Dowlathahi, 2000). The traditional approach to supplier selection involved numerical, quantitative, and analytical evaluations of suppliers to assess the performance and suitability objectively (Igarashi et al., 2013). However, numerical values may not be the best way to model real-life situations. Because human judgment, like preferences, are often unclear and cannot be precisely quantified, it might be better to use descriptive language instead of exact numbers (Bell et al., 1988). However, as awareness about sustainability throughout the supply chain is growing, it is crucial to also incorporate this aspect.

Supplier selection remains a complex matter, involving multiple criteria, decision models, and forms of uncertainty (Chen et al., 2006). When it comes to supplier selection for Triple Bottom Line supplier development, it is still unclear how suppliers are selected, because of the lack of papers in literature about this specific issue. Most of the literature found is about new supplier selection and decision-making techniques to choose the right supplier. For example, Classical Multi-Criteria Decision-Making (MCDM) methods have traditionally relied on precise ratings and weights of criteria (Behera & Beura, 2023). Some of the models of the new supplier selection can be also used when selecting the suppliers from the existing supply base for development.

Analytic Hierarchy Process (AHP) is one of the most widely used MCDM methods and is particularly effective in situations where decision-makers need to make complex decisions involving multiple criteria that are difficult to compare directly (Bruno et al., 2012). It is an effective and flexible tool that assists in human decision making and helps in modeling “a complex problem in a hierarchical structure showing the relationships of the overall goal, criteria, and alternatives” (Sharma & Shen, 2012). What is more, the hierarchical structure is beneficial as it allows for a systematic breakdown of the overall problem into essential elements and relationships (Sharma & Shen, 2012). It is worth noting that the hierarchical structure demonstrates “the tendency of human mind to sort elements of a system into different levels and to group like elements in each level” (Sharma & Shen, 2012). The primary reasons cited for using AHP were identified as situations with a limited number of samples and a strong level of consistency in weightings (Yazdi et al., 2022). Additionally, there has been growing awareness about applying AHP method to various manufacturing areas (Sharma & Shen, 2012).

According to Patil et al. (2022) “selecting new suppliers that are already at a high sustainability level may help the focal firm’s supplier sustainability targets, but this does not improve the sustainability of the existing suppliers”. Unlike selecting entirely new suppliers, the challenge lies in optimizing the existing supply base. Optimizing the existing supply base enables buying organizations to achieve greater efficiency, reduce risk, improve innovation and alignment with strategic objectives, therefore, contributing to long term success and growing sustainability (Sarkar & Mohapatra, 2006).

Supplier selection within the existing supply base for TBL supplier development begins with evaluation of the current suppliers to assess their performance and capabilities across economic, environmental, and social dimensions. Before selecting suppliers for their development, the organization should identify a reason and an understanding of why suppliers’ development should be attempted and what it involves (Chartered Institute of Procurement & Supply [CIPS], 2013). According to CIPS, the supplier selection for development should be dependent on 5 factors, which are: category strategy, improvement opportunity, cost & complexity and duration of value fulfillment, and supplier willingness to co-operate. Additionally, supplier selection involves multiple criteria and is rather hard to find one optimal solution (Sharma & Shen, 2012). One of the most suitable decision-making techniques for selecting the most appropriate suppliers for development might be Kraljic Portfolio Analysis, which is the first step of the process map developed by Handfield et al. (2000). The first step is about creating 2x2 matrix with two dimensions: supply risk and profit impact (Sharma & Shen, 2012). There are four categories in which commodities can be found: bottleneck, non-critical, leverage, and critical supplies. Organizations identify products or services that are procured from critical suppliers and analyze their situation if supplier development is warranted. The critical commodities are the main target for supplier development programs because they are difficult to substitute or purchase from other suppliers and purchased in high volumes (Handfield et al., 2000). However, there might be multiple critical suppliers, which subsequently might be ranked according to the previously mentioned AHP method. This method might be advantageous for supplier selection for TBL supplier development, as it combines both

qualitative and quantitative analysis. In the second step of a process map for supplier development developed by Handfield et al. (2000), selection of the supplier happens. A common approach to analyze current suppliers’ performance is Pareto Analysis, which is useful in identifying the suppliers with potential to develop and those critical underperforming suppliers delivering critical supplies, which should be included in supplier development programs.

As this bachelor thesis is focused about TBL supplier development, organizations should not only consider improvement in economic scope, but also in the environmental and social dimensions. Therefore, when selecting the suppliers, buying organizations should take into consideration factors such as suppliers’ labor practices, employees well-being, suppliers’ environmental practices, resources usage and waste management. When analyzing the existing supply base, it is crucial to identify candidates with the potential and willingness for sustainability enhancement. Buying organization should consider the strategic importance of each supplier to the organization’s operations and supply chain resilience. Furthermore, organizations should not always select their best supplier for development as generally “less than best” suppliers are the most appropriate for development (Chartered Institute of Procurement & Supply [CIPS], 2013). Therefore, it can be said that supplier selection for TBL supplier development within the existing supply base involves a systematic evaluation process and collaborative engagement with suppliers to obtain sustainable outcomes.

After a supplier selection decision, the buying organization introduce supplier development programs for the aim to improve their capabilities and serve for the buying firm’s long-term needs (Cole & Aitken, 2019). Based on the literature and the supplier selection model developed by Cole & Aitken (2019), Figure 1. represents the adoption of the supplier selection model. However, it has been adapted to address the research question of selecting suppliers from the existing supply base for TBL supplier development.

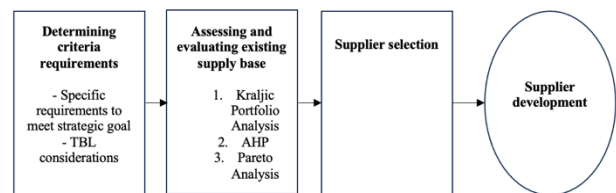


Figure 1: Supplier selection process based on Cole & Aitken (2019)

As mentioned before, one crucial aspect should be taken into consideration, which is the differences between countries in their interest for the sustainable development (Kumar & Rahman, 2015). Therefore, in countries where interest about sustainable topics is low, there is higher probability that the suppliers will not be willing to be sustainably developed. This leads to the following proposition:

Proposition 1: *When supplier’s interest on sustainability is low, suppliers are less likely to be chosen for sustainable supplier development.*

Companies are prioritizing suppliers for sustainable development which are classified as critical because they might have a significant impact on a company's operations. Any disruption or failure from these suppliers can lead to substantial operational risks and reputational damage. Additionally, critical suppliers are often subject to strict regulatory requirements due to their operational impact. Ensuring these suppliers comply with sustainability standards helps companies meet legal obligations and avoid penalties. This leads to the following proposition:

Proposition 2: *Suppliers are selected for TBL supplier development based on a prioritized risk and impact analysis, focusing on those with the highest potential for sustainability improvement and the greatest impact on the company performance.*

Last proposition concerns a systematic evaluation process and collaborative engagement with suppliers to obtain sustainable outcomes. Continuous monitoring ensures that suppliers consistently meet the required standards and helps in identifying weak points in company's suppliers. Additionally, when there is lack of interest and engagement from supplier for sustainable development, buying organization might select another supplier. This leads to the following proposition:

Proposition 3: *Supplier selection and supplier development is a very systematic approach that requires monitoring.*

3. METHODOLOGY: CASE STUDY

3.1 Research design

The design of this bachelor thesis was to conduct an empirical study in the form of a case study. According to Crowe et al. (2011), a case study is a research approach that is used to generate an in-depth, multi-faceted understanding of a complex issue in its real-life context". There are three main types of case study: intrinsic, instrumental, and collective (Crowe et al., 2011). An intrinsic case study focuses on understanding a unique phenomenon, with the researcher defining its distinctiveness. Additionally, the instrumental case study uses a specific case to gain a broader understanding of an issue or phenomenon. Lastly, the collective case study involves studying multiple cases concurrently or sequentially to develop a broader appreciation of a particular issue (Crowe et al., 2011). Conducting case study is a qualitative research approach which according to Rahman (2016), "thick (detailed) description of participants' feelings, opinions, and experiences; and interprets the meaning of their actions". However, it has its limitations such as small sample size, which results in generalizability, data interpretation and analysis is complex and time consuming (Rahman, 2016).

This bachelor thesis was designed to perform a collective case study in order to get in-depth understanding about supplier selection to TBL supplier development. The case study methodology is a suitable approach for this research due to its ability to provide detailed insights into the complexities of the manufacturing industry. By researching the experiences and practices of individual companies, case studies allow for a nuanced understanding of the challenges and opportunities within the sector. Furthermore, a case study offers a deeper and more comprehensive understanding, allowing for extensive

observations of interviewee reactions, both verbal and non-verbal, compared to surveys (Gerring, 2016).

To gather data for this research, a questionnaire will be constructed based on relevant literature and theoretical frameworks. This questionnaire will serve as the primary instrument for data collection, allowing for structured and systematic research into various aspects of supplier selection to TBL supplier development practices. The questionnaire will be designed to capture key information related to supplier selection, performance evaluation, and the integration of triple bottom line principles into supplier management processes.

The selection of organizations for this study will be guided by choosing the companies that are operating in manufacturing sector and commitment to sustainability initiatives, more specifically with supplier development. Within the selected organizations, interviewees will be chosen based on their roles and responsibilities related to supplier management and sustainability initiatives. Key criteria for selecting interviewees will include their involvement in supplier selection and development processes, their knowledge of sustainable business practices, and their ability to provide insights into the organization's approach to sustainable supplier development. Interviewees may include supply chain managers, sustainability officers, procurement specialists, and other relevant stakeholders.

Data collection will involve conducting qualitative interviews with representatives from the selected organizations, followed by transcription and analysis of the interview data. Interviews will be recorded to ensure accuracy and completeness of the data, and transcripts will be generated for further analysis. Additionally, thematic analysis will be employed to identify patterns, themes, and trends within the data, allowing for the generation of insights into supplier selection for TBL supplier development within the manufacturing industry.

3.2 Interview structure

When conducting the interviews for this thesis, all participants were assured of anonymity to encourage honest answers. Interviews that were conducted with representatives from Company 1, Company 2, and Company 3, were carried out in Polish. However, rest of the interviews were conducted in English. Therefore, certain phrases used during the interviews with Polish representatives have been translated into English for clarity. For each interviewee the same questionnaire has been used for a deeper understanding and to identify patterns, similarities within the data. If possible, interviews were recorded using a mobile phone and conducted either via video call or phone call. The interview questions were designed to be open-ended to have detailed and insightful responses.

The questionnaire for the interviews included a range of topics to ensure a comprehensive understanding of supplier selection to TBL supplier development. Background on the sector, organizational size, and geographic operations provided context for the sustainability challenges specific to each industry. Topics on sustainability practices, supplier development practices, and the duration and scope of these initiatives highlighted the organizations' commitment and experience. Subsequently, based on the studied literature in the section 2.3, questions about

supplier selection and prioritization, along with risk and profit impact categorization, were asked to reveal strategic considerations in supplier selection. Assessment criteria for TBL development, economic factors, and evaluation processes for supplier performance were asked to get deeper understanding of supplier selection process for supplier development. Examples of successful TBL partnerships, challenges and barriers in supplier selection, and assessments of social responsibility practices were asked to identify practical insights and identify common obstacles. Lastly, examples of ecological and social practices, along with the main benefits of sustainable supplier development, highlighted organizational motivators to sustainably develop suppliers.

3.3 Data analysis approach

The results of the conducted interviews will be manually transcribed in order to avoid any mistakes that could have occur with programs that automatically convert audio to text. All interviews were interpreted and analyzed between each other to find similarities and differences between companies as well as countries in which they operate. It is worth noting that most of the interviewees did not want to be audio recorded because of the confidential data, therefore, manual notes have been done.

This study was analyzed by using inductive and deductive approaches. The inductive approach involves identifying patterns and themes directly from the data (Azungah, 2018). This method helped to uncover used practices and priorities of each company. On the other hand, the deductive approach tests existing theories or hypotheses against the data (Azungah, 2018). Using both inductive and deductive approaches allowed for a comprehensive analysis. Interpreted and analyzed data has led to the findings which are presented in the following chapter.

3.4 Interviews with companies

The interviewees represent five companies dedicated to sustainability. Company 1 (C1) is a global retailer of tiles, fittings, furniture, cabinets, and organizers, with strong sustainability practices in its Polish sector. Company 2 (C2), a Polish manufacturer of steel racks, wardrobes, and ladders, is confident in its sustainable supply chain changes. Next, Company 3 (C3) operates in Europe, focusing on DIY and interior design products, and is proud of its sustainable initiatives. Company 4 (C4), a German sanitaryware producer, has clear sustainability goals for 2030 and 2050. Lastly, Company 5 (C5), a German manufacturer of steel items, emphasizes its advanced sustainability efforts compared to other German companies.

The first interview was conducted with Company 1 (C1), which operate in the retail trade and sell products such as tiles, fittings, furniture, cabinets, and organizers. Their operations are scattered all around the globe, in continents such as Europe, South America, Africa and Asia. However, interviewee highlighted that not all markets are equally developed, but most of their operations are in Europe, where it is developed the most. Participant of Company 1 is working for the Polish sector. When asked about do they consider themselves as sustainable, interviewee was very proud and self-confident about sustainability practices in their organization:

“I consider it (the company) to be sustainable because the concept of sustainability itself can be interpreted on many levels. We have implemented a very solid code of ethics, this applies to our supply chain, but also to our sustainable operations as a large player on the market (Supplier Quality Manager, Company 1).”

	Function of interviewee	Company size in # employees	Industry	Operating location	Duration of sustainable development programs
C1	Supplier Quality Manager	300.000	DIY sector	Europe, America, Asia	10 years
C2	Specialist in Management	X	Steel manufacturing sector	Poland	12 years
C3	Sourcing Quality Engineer	80.000	DIY sector	Europe	> 3 years
C4	Procurement Leader	50.000	Sanitaryware sector	Europe, America, Asia	2 years
C5	Purchasing Manager	500	Steel manufacturing sector	Germany, Asia	1 year

Table 2: Overview of the selected companies.

Another interview was conducted with representative from Company 2 (C2), which are manufacturing firms that produce racks, wardrobes, and ladders. The interview was conducted with a person that is a consultant and specializes in implementation of sustainable changes across supply chain. The participant was not able to provide information about company size, therefore it is not included in the overview of the selected companies. All companies are located in Poland. The interviewee was also very self-confident about sustainability practices in their companies.

Last interview that was conducted with representative from Poland, is Company 3 (C3). Company 3, the same as Company 1, operate in the retail trade and sell products such as DIY and interior design products. Their operations are focused in Europe, mostly in Poland, Spain, Great Britain, France, and Italy. However, suppliers are located in Poland, Romania, and Turkey. This representative was also very proud and self-confident of its sustainable initiatives. However, interviewee was not sure about duration of sustainable development programs.

Next interviews were conducted with representatives based in Germany. Company 4 (C4) operates in the sanitaryware sector, producing goods such as fittings, fixtures, sinks, and bathtubs. Their operations are scattered in three main regions, which is the European region, mostly operating in Germany, American region; consisting of US, Mexico, and Canada, and Asia region; consisting of roughly 8 countries. Representative confidently stated that they consider company as sustainable and have clearly set goals that want to reach until 2030 and 2050.

Last interview was conducted with representative from Company 5 (C5), which is manufacturing firm specializing in producing all kind of different steel items. Primarily operations are in Germany.

Additionally, suppliers are located in Asia and small percent in North Africa. The representative was very self-confident about sustainability activities done within its organization as well with its suppliers. It is worth noting that they started sustainable development activities with their suppliers roughly 1 year ago.

Since, most of the companies rejected request for the interviews, it was very challenging to find companies that operate in the same industry and agree to share their knowledge. Therefore, industries in which companies operate differ from each other and it must be taken into consideration when answering the research question.

4. ANALYSIS AND RESULTS

4.1 Organizations classify their suppliers according to supplier risk and profit impact

First interview was conducted with the representative from Company 1, who stated that they classify their suppliers according to supplier risk and profit impact, however it is not the case that some suppliers are sustainable, and some are not at all. The following quote has been translated from Polish to English:

“I would not say that we sustainably develop our suppliers in a dual way, in the sense that we focus on some, and a little less on the others where the risk is lower. Of course, where the risk is greater, we take additional measures (Supplier Quality Manager, Company 1).”

Not every production process has the same impact on the environment. Therefore, there is more attention for sustainable development to suppliers that produce any dangerous chemicals or hazardous waste that was created because of the production process. Additionally, other criteria or factors that Company 1 takes into consideration when assessing supplier’s suitability for TBL supplier development programs, are: supplier risk, production type, whether it affects the environment, geolocation, and required legal obligations that depend on international markets. Therefore, suppliers that pose higher risks in environmental, social, or economic dimension are targeted for development to mitigate these risks. Representative of Company 1 stated they evaluate their suppliers from an economic perspective in the supplier selection phase. Factors such as cost efficiency and value generation, play important role in the selection of suppliers, then already chosen suppliers are evaluated from environmental and social perspective. Furthermore, interviewee stated that they regularly perform audits to identify suppliers that are underperforming in being sustainable in the environmental and social dimension.

Interviewee of Company 2 stated that they classify their suppliers according to supplier risk and profit impact to develop their suppliers further sustainably. They stated that critical suppliers are prioritized in sustainable developments, because it is not possible to introduce the same sustainable solutions in all their suppliers. Looking from the economic perspective, they stated that some environmentally friendly solutions would not be profitable, as the price of the final product would increase so much that the customer would not want to buy it. Since they are not required from their clients to environmentally develop these suppliers they are not doing so. Therefore, it can be said that the retailers create pressure to sustainably develop their suppliers.

However, for the rest of the suppliers that Company 1 is not developing in all TBL dimensions, they are developing them in social and economic dimension. Regularly conducting audits to check social conditions and introducing social developments such as improving safety and health conditions or educating employees.

Interviewee of Company 3 stated that they classify their suppliers according to supplier risk and profit impact. They also evaluate their suppliers of production capabilities and efficiency. The following quote has been translated from Polish to English:

“We take steps to be ready for all kinds of problems, we act anticipating various problems and anticipate actions to prevent them. (Sourcing Quality Engineer, Company 3).”

Therefore, Company 3 takes preventive steps with their suppliers to avoid any future problems that could arise. However, this process is very individualized as the company has a broad supply base. The interviewee stated that they also evaluate suppliers from an economic perspective, but as with Company 1, this happens during the supplier selection phase when they also assess their capabilities to become sustainable in all three dimensions.

Representative of Company 4 stated that they classify their suppliers according to supplier risk and profit impact to develop their supplier further sustainably. However, another crucial aspect for them is also supplier location and in which industry supplier operates. Furthermore, Company 4 uses a flag system and assigns a flag to supplier. A green flag is a supplier without any risk, an orange flag is a supplier with medium risk, and a red flag is a supplier with high risk. Therefore, the company focuses their sustainable development initiatives on the suppliers with red flags. Additionally, the interviewee stated that they evaluate suppliers from an economic perspective and have a spend based approach, meaning that they sustainably develop suppliers with whom they have the biggest spend. They adopted this kind of approach because Company 4 has a huge supply base, consisting of few thousand of suppliers.

Lastly, the interviewee from Company 5 stated that they classify their suppliers according to supplier risk and profit impact. Similarly to previous interviewees, they expressed that another crucial aspect is the supplier’s geolocation. The representative noted that they evaluate their suppliers from an economic perspective; however, their focus is more on the combination of good pricing and the supplier’s capabilities to become sustainable. Additionally, the interviewee mentioned that they regularly perform audits to control and identify suppliers that are strongly underperforming in sustainability across TBL dimensions. However, their focus is on third countries (in this case, Asian countries) due to a new regulation from the European Commission that requires companies to disclose environmental, social, and governance impacts across their entire supply chain.

The interviews with representatives from five companies revealed various approaches to sustainable supplier development. Company 1 focuses on classifying suppliers based on risk and profit impact, targeting those with higher risks for additional measures, especially those involved in hazardous production processes. They prioritize economic evaluation during selection

process and conduct regular audits for environmental and social performance. Company 2 also prioritizes critical suppliers for sustainable development due to the impracticality of applying uniform sustainable solutions across all suppliers. They noted that some eco-friendly practices could make products too expensive for customers, leading to selective environmental development driven by client requirements. Instead, they focus on social and economic improvements for other suppliers. Company 3 emphasizes preventive measures and individual assessments due to their broad supplier base. They evaluate suppliers' production capabilities and efficiency, focusing on anticipating and mitigating potential problems. Economic evaluations are integral to their supplier selection process, similar to Company 1, along with assessing sustainability potential across economic, social, and environmental dimensions. Company 4 classifies suppliers by risk and profit impact, using a flag system (green for no risk, orange for medium risk, red for high risk) to focus sustainable development initiatives on high-risk suppliers. They evaluate suppliers economically, prioritizing those with the highest spend due to their large supply base. Lastly, Company 5 also classifies suppliers by risk and profit impact, focusing on geolocation and combining good pricing with supplier capabilities for sustainability. They perform regular audits, particularly in Asian countries, to comply with new European Commission regulations on environmental, social, and governance impacts across the supply chain.

4.2 Critical suppliers are prioritized in sustainable developments

Suppliers that are already at high level of sustainability in three dimensions are not prioritized, focus is directed on the firms that are underperforming. Critical suppliers for Company 1 are suppliers that produce any dangerous chemicals or hazardous waste. Therefore, the company takes additional steps to improve the sustainability of their suppliers. Another prioritized supplier for sustainable developments for Company 1, are private label suppliers. They are very comprehensively developing these suppliers in social and environmental dimension. Lastly, the Company 1 prioritizes suppliers in sustainable developments, that are obligated from the legal view to have sustainable certifications so they can be available on the market.

Critical suppliers for Company 2 are wood industry. According to legal regulations in Poland, it is crucial to have transparent supply chain and obtain appropriate certificates in wood industry, such as Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC). Therefore, this company is prioritizing these suppliers in sustainable developments, mostly in environmental dimension.

Company 3 prioritizes suppliers for sustainable development programs that require sustainable certifications because of the legal requirements. Additionally, other critical suppliers are those when there is limited availability of the product on the market. As in the case of Company 1, Company 3 prioritizes suppliers that may produce dangerous chemicals or waste to the environment and humans.

Critical suppliers for sustainable development activities for Company 4, are suppliers that are assigned with a red flag,

possessing high risk. This risk is measured by certain industry standards which define a country risk and in which industry supplier operates. This approach is mostly used for German Supply Chain Act. It is a regulation that strengthens human rights and environmental protection throughout the whole supply chain. For instance, supplier who is located in Mexico has a higher risk than a supplier who is located in Germany, therefore prioritizing these with a red flag. Additionally, Company 4 is also prioritizing suppliers with whom they have the biggest spend, which are mostly direct suppliers. Direct suppliers deliver materials for the final product, whereas indirect suppliers are classified as suppliers who are only indirectly responsible for the final product, such as marketing company.

“We experienced that with suppliers with whom we have the biggest spend, we have the biggest lever of changing them because they have an interest to keep us as their customer (Procurement Leader, Company 4).”

Lastly, Company 5 prioritizes suppliers for sustainable development programs that are located in Asia. These suppliers are underperforming in environmental, social, and economic dimension compared to other suppliers located in Europe. Therefore, the company is focusing their capabilities to improve their suppliers regarding sustainable outcomes.

4.3 Organizations try to engage whole supply base to sustainable supplier development

Representative of Company 1 stated that they sustainably develop their whole supply base. They create a set of sustainability standards and guidelines for suppliers to follow. Therefore, it is not the case that some suppliers are sustainable, and some are not. Company 1 can introduce sustainable programs in all their suppliers, because of the very selective approach in the supplier selection phase. Additionally, their motivator to engage whole supply base for sustainable development are legal obligations, which are not required from all suppliers, but they anticipate any problem that could arise in the future. Interviewee highlights that their internal policies regarding sustainable development are much more rigorous than what is required by law. Furthermore, by engaging all suppliers in sustainable practices reduces the risk of any single suppliers causing a significant issue (e.g., environmental spills, labor disputes) that could harm the company's reputation or operations. Additionally, for Company 1 it is crucial to be sustainable and transparent throughout the whole supply chain. Therefore, by applying sustainable development practices across all suppliers can ensure consistency, at the same time reducing variability in the supply base. Lastly, by developing all suppliers, Company 1 fosters long-term partnerships, leading to more stable and reliable supply chains.

Company 2 tries to engage whole supply base to sustainable supplier development, even when it is not possible to sustainably improve the whole supply base in all TBL dimensions, then they develop their suppliers in economic and social dimension. However, interviewee of Company 2 stated that sometimes there are critical criteria, such as environmental spills, that enable to fully disqualify the suppliers from the existing supply base. Additionally, when Company 2 introduces new standards, they give time to suppliers to decide whether they want to introduce

sustainable solutions or not. If suppliers do not want to be developed, the company resigns from further cooperation and select new suppliers that will be aligned with organizational goals and have capabilities to be sustainable.

Representative of Company 3 stated that already in the supplier selection phase, they evaluate production possibilities and supplier’s efficiency. They have very selective process in the supplier selection phase that ensures that later their whole supply base is sustainably developed. They select suppliers that meet their requirements, have capabilities to be sustainable, and have ethical responsibility regarding employment. When asked is the whole supply base engaged into sustainable supplier development, the following quote has been translated from Polish to English:

“Yes, it is our requirement that we implement these activities (sustainable development) in all market segments, with all suppliers; it is simply our policy (Sourcing Quality Engineer, Company 3).”

Interviewee stated that they systematically sustainably develop their suppliers throughout the whole partnership. Conducting regularly audits to ensure that sustainability is preserved and identifying new goals for sustainable developments.

In contrast to previous interviewees, Company 4 stated that they are not able to sustainably develop their whole supply base as they do not have enough capabilities to implement and then control all their suppliers.

“We have a huge supplier base; we talk here about a few thousand of suppliers. You will never manage to control all your suppliers, so you have to do some sort of prioritization (Procurement Leader, Company 4).”

Therefore, Company 4 focuses their sustainable development activities on suppliers that are assigned a red flag, and undoubtedly lack improvements in matters such as employee safety, health, or pollution minimization. Rest of their suppliers have required standards that allows to cooperate and sell their products on the market. Because of a huge supply base, they rely on required standards and certifications for the rest of suppliers.

Lastly, Company 5 tries to engage whole supply base for sustainable supplier development, strongly focusing on the third countries. Third countries are countries which are not party to any international agreement, such as the European Union. Company 5 is at the beginning of their sustainable initiatives with suppliers. Therefore, they prioritize developing suppliers that are located in Asia. When the third countries suppliers achieve desired sustainable level, they will focus further sustainable developments on suppliers located in Europe, aiming to be sustainable in their whole supply base.

The representatives from five companies shared their approaches to sustainable supplier development. Company 1 sustainably develops its entire supply base through a selective supplier selection process, driven by legal obligations and rigorous internal policies. This comprehensive engagement minimizes risks and ensures transparency and consistency, fostering long-term partnerships and stable supply chains. Company 2 aims to engage all suppliers sustainably, focusing on economic and social

dimensions when full TBL improvement is not possible. Critical factors, such as environmental spills, can disqualify suppliers, and non-compliant suppliers are replaced. Company 3 uses a selective process to ensure all suppliers meet sustainability requirements, conducting regular audits and setting new sustainability goals to maintain these practices throughout their partnerships. Company 4, with a large supplier base of a few thousand, focuses its sustainable development activities on high-risk suppliers, identified by a red flag, who lack improvements in areas such as: employee safety, health, or pollution minimization. They rely on required standards and certifications for the rest. Company 5 tries to engage its entire supply base, particularly focusing on suppliers in third countries, such as Asia. They are at the beginning of their sustainable initiatives; therefore, they aim to develop these suppliers first and then shift their focus to suppliers in Europe to achieve sustainability across their whole supply base.

The table below presents the overview of the TBL activities mentioned by the representatives that each interviewed company conducts on each of the 3 dimensions. Therefore, it has to be taken into consideration that not all sustainable practices implemented by the companies may be included in the table.

	Practices for supplier development	C1	C2	C3	C4	C5
Environmental	Packaging improvements	X	X	X	X	X
	Energy efficiency					X
	Pollution & emission minimization	X	X	X	X	X
	Waste minimization	X	X	X	X	X
	Reducing input material	X		X		
	Material substitution	X	X	X		X
	Eco labelling	X	X	X		
	Renewable energy					X
Social	Better working conditions	X	X	X		X
	Rights to employees				X	
	Fair trade and transparency	X	X	X		X
	Education of employees	X		X	X	X
	Employee safety	X	X	X	X	X
	Employee health	X	X	X	X	X
Economic	Optimum asset utilization	X		X		
	Reduction in resource use	X		X		
	Cost reduction			X		
	Minimum quality-based rejections	X			X	
	Minimum delayed deliveries		X			

Table 3: Overview of TBL activities that interviewed companies conduct.

In the environmental dimension, all five companies implement packaging improvements, pollution and emission minimization, waste minimization, and material substitution. However, energy

efficiency is only practiced by Company 3 (C3). In addition to that, renewable energy is adopted solely by Company 5 (C5). Employee safety and health are universally implemented across all five companies. This table indicates that while there is a strong emphasis on environmental and social practices among the companies, economic practices are less uniformly applied by the companies.

Moreover, all companies hold several key sustainability certifications that highlight their commitment to responsible practices. They all maintain ISO 14001, an international standard that specifies requirements for an effective environmental management system. Additionally, the companies also follow ISO 26000, a standard providing guidance on social responsibility, which helps to operate in an ethical and transparent manner. Another certification mentioned by Company 2 and Company 3 is Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC). These certifications guarantee that their wood suppliers come from responsibly managed forests.

4.4 Motivation for sustainable development depends on the country

I also conducted two other interviews with representatives from German companies. The first company specializes in producing DIY products, while the second manufactures electric tools. Both representatives stated that their firms are not engaging in any sustainable development initiatives with their suppliers. They believe that these initiatives would not be profitable and thus do not see a financial incentive to pursue them. Additionally, they mentioned that there are no legal requirements that would obligate them for sustainable practices in their industries, which further lower their motivation to adopt such measures. Despite the growing global emphasis on sustainability, these companies prioritize profitability and regulatory compliance over voluntary sustainable development efforts. It is worth noting that Polish companies put stronger emphasis on their sustainable activities implemented with suppliers, being very proud of their achievements and mentioning many examples of their sustainable practices. On the other hand, German interviewees were more cautious and did not seem that self-confident compared to Polish representatives. It was strongly visible in the aspect that Polish representatives were providing numerous examples of their sustainable practices implemented without being asked for ones, whereas German interviewees talked about sustainable practices only after asking about specific practices.

Furthermore, another aspect that was mentioned by representatives of Company 2 and Company 4 is that suppliers also have a key role in engaging in supplier development. This decision does not rest entirely with the buying organization but also depends on the supplier. When suppliers do not want to develop in sustainable way, companies search for new suppliers that meet their expectations and internal standards.

Additionally, from July 2024 new European regulation apply that requires companies to be sustainable. It is primarily driven by the Corporate Sustainability Reporting Directive (CSRD) and the Ecodesign for Sustainable Products Regulation (ESPR). The CSRD requires detailed sustainability reporting, requiring

companies to disclose their environmental, social, and governance impacts with third-party verification, as a result increasing transparency and accountability. Additionally, the ESPR is set to replace the Ecodesign Directive, expanding its scope to include a broader range of products with sustainability criteria focused on circularity, durability, and reparability. Therefore, sustainable supplier development will be required from these companies and will have to be implemented.

5. DISCUSSION OF THE FINDINGS

The purpose of this study was to explore the supplier selection approaches to TBL supplier development of five companies across various industries. The findings revealed diverse strategies personalized to each company's supply chain characteristics and challenges. Additionally, the study revealed various motivators to apply sustainable supplier development depending on the country.

Significant aspect observed is the practice of selecting only a subset of suppliers for development. This approach is crucial for efficient resource allocation and focuses efforts on with the most potential for improvement (Krause, 1997). However, it was noted that only Company 4 follows this strategy. The rest of the companies either develop their whole supply base or aim to do so in the future. The literature does not discuss the concept of sustainably developing the entire supply base. Most existing studies, such as those by Krause (1997) and Sharma & Shen (2012), emphasize the importance of selective development to maximize resource efficiency and impact. In practice, Companies 1,2,3, and 5 demonstrate a commitment to engaging their entire supply base in sustainable way.

Another key result indicates that all companies prioritize supplier risk and profit impact when implementing sustainability initiative. The diverse strategies used to accomplish sustainability goals are highlighted by company-specific approaches, such as Company 4 flag system and Company 1 comprehensive legal compliance. These findings align with the existing literature, which emphasizes risk management and economic evaluation as critical factors (Handfield et al., 2000). Furthermore, critical suppliers are the main target for supplier development programs (Handfield et al., 2000). By adopting a personalized approach to supplier selection for TBL supplier development, companies can more effectively allocate resources and address the most urgent environmental, social, and economic issues within their supply base.

Supplier selection is a complex matter, involving multiple criteria, and it is challenging to identify a single optimal solution (Sharma & Shen, 2012). In practice, Companies 1, 2 and 3 adopt a multifaceted evaluation process for their existing supply base, assessing performance across environmental, social, and economic dimensions. This aligns with the guidance from the Chartered Institute of Procurement & Supply (CIPS), which suggests that supplier selection for development should consider factors such as category strategy, improvement opportunity, cost and complexity, duration of value fulfillment, and supplier willingness to cooperate (Chartered Institute of Procurement & Supply [CIPS], 2013). Additionally, for TBL supplier development, companies consider their unique context, objectives, and supply chain challenges and opportunities, which

aligns with findings of Kabadayı & Dehghanimohammadabadi (2022).

In evaluating social impact, variations in social responsibility among suppliers were evident. Companies emphasized labor standards and working conditions when selecting suppliers for development, supporting the findings of SAI et al. (2008). Development programs in these companies help suppliers to enhance their social responsibility. Environmental performance also varies among suppliers. Companies look for suppliers who are committed to reducing their environmental impact and adopting sustainable practices (Cherel-Bonnemaison et al., 2021). This was evident in the case of Company 2 and Company 4, which look for suppliers that are willing to engage in sustainable development. In addition to that, traditionally, TBL has focused on financial performance (Goh et al., 2020). While financial performance remains crucial, it should not be the sole determining factor in selecting suppliers for sustainable development. Companies in this study evaluate their suppliers based on financial stability, cost-effectiveness, and the ability to provide quality products or services (Singh, 2014). This balanced approach ensures that economic stability is maintained without giving up on sustainability goals.

Additionally, the performance of suppliers directly influences the sustainability objectives of the buying organizations (Awasthi & Kannan, 2016). Therefore, it is essential to develop suppliers in accordance with the specific needs of the buying organization. For example, companies use certifications such as ISO 14001, FSC, PEFC, ECO LABEL, ISO 26000, to ensure that their suppliers fulfill given environmental and social standards. However, development decision does not rest entirely with the buying organization but also depends on the supplier.

The findings of this study highlight several common sustainable practices implemented by companies with their suppliers and within their organizations, aligning with the literature by Kumar and Rahman (2015). The most common practices are packaging improvements, pollution and emission minimization, waste minimization, material substitution, better working conditions, fair trade and transparency, education of employees, and ensuring employee safety and health. In addition to that, the economic dimension was not that commonly mentioned by the companies interviewed. Financial performance and cost reduction are crucial business considerations, but they are often not treated as sustainable development practices.

Furthermore, Company 1, 3, and 5 stated that their supplier selection and supplier development are highly systematic processes that require monitoring and continuous improvement. Therefore, companies conduct audits to identify, control, and provide feedback towards sustainable growth. With rest of the companies, these monitoring actions are rather missing or are not that frequent to continuously identify underperforming suppliers.

5.1 Research framework for supplier selection for TBL supplier development

This research framework integrates insights from five companies on their approaches to TBL supplier development, focusing on the selection process and critical factors that guide their strategies. The framework categorizes suppliers based on supply risk and

environmental impact and helps to determine the appropriate selection approach. This is a new contribution as it has not been done before for TBL supplier development. In this context, “supply risk” refers to the potential for disruptions or issues within the supply chain that could negatively impact the organization’s ability to procure needed goods. Supply risk can arise from internal and external factors such as: regulatory compliance, political instability, and supplier reliability (Ho et al., 2015).

The framework was developed by integrating insights gathered from literature review and interviews with companies’ representatives. Figure 2 is a visual representation of the framework, illustrating the categorization of suppliers and the corresponding supplier selection approaches based on supply risk and environmental impact.

Supply Risk / Environmental Impact	High Environmental Impact	Low Environmental Impact
High Supply Risk	<u>Selection Method A:</u> Prioritizing high-spend suppliers and involved in hazardous production processes. → Conduction of regular audits is necessary.	<u>Selection Method B:</u> Targeting suppliers based on geolocation and taking preventive measures. → Complying with new regulations
Low Supply Risk	<u>Selection Method C:</u> Prioritizing suppliers where sustainable certifications are crucial due to legal requirements.	<u>Selection Method D:</u> Maintaining these suppliers with standard procedures and less intensive sustainable development efforts. → Ensuring suppliers meet required standards and certifications

Figure 2: Framework for supplier selection approach to TBL supplier development

Selection Method A: For suppliers with high supply risk and high environmental impact. The examples of that case are Company 1 and Company 4. Company 1 targets suppliers involved in hazardous production processes, such as those producing dangerous chemicals or hazardous waste. They conduct regular audits to ensure compliance with rigorous internal policies and legal obligations. Additionally, Company 4 uses a flag system to prioritize high risk suppliers (red flag), focusing to improve employee safety, health, or pollution minimization. They also prioritize high-spend suppliers to maximize their sustainable impact due to their extensive supply base.

Selection Method B: For suppliers with high supply risk but low environmental impact. The examples of that case are Company 3 and Company 5. Company 5 emphasizes preventive measures and individualized assessments, regularly auditing suppliers’ production capabilities and efficiency to anticipate and mitigate potential problems. Furthermore, Company 5 prioritizes suppliers based on geolocation, particularly those in third countries. They focus on environmental and social dimensions to comply with new European Commission regulations.

Selection Method C: For suppliers with low supply risk but high environmental impact. Company 2 and Company 3 focus on these scenarios. Company 2 prioritizes suppliers in industries such as wood, where environmental certifications are crucial. They implement selective environmental development based on client requirements and economic feasibility. Additionally, Company 3 develops suppliers requiring sustainable certifications due to legal requirements, focusing on those producing hazardous chemicals or waste to ensure compliance with environmental standards.

Selection Method D: For suppliers with low supply risk and low environmental impact. All companies generally maintain these suppliers with standards procedures and less intensive development efforts. These suppliers must meet required standards and certifications to ensure compliance with sustainable development initiatives aligned with overall company policies.

5.2 Contributions, Limitations, and Future Research

This study contributes to the field of sustainable supplier development. Firstly, it offers a comparative analysis of the implemented strategies by five various companies. This research highlights various approaches to prioritizing suppliers for development, such as focusing on high-risk suppliers, those with significant profit impacts, threat to the environment and people, or private label suppliers. Additionally, it highlights the importance of comprehensive evaluation criteria in economic, environmental, and social dimensions, for effective supplier selection and development.

Despite its contributions, this study has several limitations. Firstly, the sample size of five companies may not fully represent the broader industry practices. In addition to that, companies are operating in various industries which may also have impact on the selection practices among firms. Moreover, the data collected is based on information provided from company representative, which may possess bias or inaccuracies. This study also primarily focuses on large companies with resources for sustainable development, potentially overlooking the challenges faced by smaller firms. Lastly, supplier development practices may vary between retailers and manufacture companies, which might have different prioritizations and capabilities.

Future research could address these limitations by expanding the sample size to provide a more comprehensive understanding of supplier selection practices to sustainable supplier development. Additionally, further research could explore how cultural differences between countries influence the approaches and effectiveness of TBL supplier development. Also, investigating factors that motivate suppliers to engage in TBL development activities, such as financial incentives, regulatory pressures or market demand. Furthermore, exploring the effectiveness of different sustainability certifications in various industry contexts can also contribute to future research.

6. FINAL CONCLUSION

In conclusion, this study provides a detailed examination of sustainable supplier selection approaches to TBL supplier development across different companies, revealing a variety of strategies and priorities. It highlights the importance of selecting suppliers for development based on multiple criteria, including supplier risk, profit impact, geolocation, and legal obligations. The findings indicate that while some companies focus on developing a select group of high-risk suppliers, others aim to engage their entire supply base in sustainable practices. This research underscores the significance of integrating economic, environmental, and social dimensions into supplier evaluation and development processes. Despite the limitations, such as the small sample size and potential biases, the study offers valuable insights into sustainable supplier selection and the challenges of achieving supply chain sustainability. Future research should continue to explore diverse company contexts, long-term impacts, and the role of emerging technologies in enhancing sustainable supplier development.

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