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Investigating the Integration of Environmental Sustainability Factors into a Filipino FMCG Company's Innovation Process

Abstract
As governments pass new environmental laws, more companies in developing countries consider sustainability factors in their products. This case study investigates what a Fast-Moving Consumer Goods (FMCG) company headquartered in the Philippines does to ensure the integration of sustainability factors into its innovation process. While most sustainable innovation studies focus on product innovation, this research also considers the differences in factors focusing on product, packaging, and process innovations. A qualitative, exploratory case study method was used, and a stratified sampling method employed to collect data from interviews with employees from various functions and levels within one of the company's subsidiaries (as well as its annual sustainability report). This methodology enabled a thorough exploration of how sustainability is integrated into the firm's innovation process, providing valuable insights for practice in sustainability-oriented innovation management. The findings show what sustainability factors the company considers and how and where they are included in the firm's innovation process, yielding positive impacts on financial performance, brand image, and employee motivation. The results also show that top management's leadership is highly instrumental in driving this integration and positioning sustainability as a core aspect of organizational strategy and culture.

Keywords: Sustainable Innovation, Green Innovation, Environmental Sustainability, Innovation Process, Sustainability Factors.

1. Introduction

Every year, more and more companies focus on embedding environmental sustainability (ES) into their daily operations and company culture, including their innovation process (Dangelico, 2015). There are several motivations for a company to do this, one of which being that companies now see ES as an opportunity to increase revenues and reduce costs, thus improving profitability from two ends (Jain et al., 2021). Moreover, governments have also started to penalize non-ES companies with higher taxes, such as the Extended Producer Responsibility (EPR) law in the Philippines. Moody and Nogrady (2010) also predicted that in the next two to three decades, governments and regulators will likely force companies to "internalize the external costs" of their products and activities by requiring them to account for and pay for the actual cost of their products (including the cost for producing, transporting, and recycling them). Aside from stricter environmental government regulations, the depletion of natural resources is now forcing companies to innovate to keep their competitive advantage. According to research by Silva and Di Serio (2016), we are approaching the sixth wave of innovation guided by sustainability due to the limited resources that we have. With the recent implementation of environmental laws, Silva and Di Serio (2016) further explain the emergence of the sixth wave by citing that companies need to incorporate sustainability into their organization objectives to gain competitive advantage and probable innovation. As we move into the sixth wave, a combination of new technologies is needed to address the sustainability challenge.

One of the leading technologies is Cleantech (Reis, 2021). In addition, other non-technological industries, such as Fast-Moving Consumer Goods (FMCG) companies must also ride the wave and prepare their innovation processes to incorporate these new green technologies. In their research, Jain et al. (2021) concluded that emerging trends in the COVID-19 pandemic show that consumers are leaning towards sustainability, whether changing to a healthier diet or preferring packaging from renewable sources. Against this background, sustainability has become a critical driver of innovation, and organizations must embed ES concepts in their products. For example, Nidumolu, Prahalad, and Rangaswami (2014) reported that innovations from these governmental sustainability requirements yielded returns from the top and bottom lines. In addition, other authors, such as Xavier et al. (2020), developed a holistic framework to support eco-innovation integration in companies.

Several authors such as, for example, Chen, Despeisse, and Johansson (2020) and Mejia and Kajikawa (2021) emphasize the importance of sustainability to manufacturing firms. However, only a few scholars (e.g. Kalish et al., 2018), discuss how it is integrated into the product innovation process. They argue that sustainability must be addressed at the front end of the innovation process, where critical decisions that impact sustainability (such as materials used and processing) are usually made. This study expands this narrow lens by exploring to what extent ES can be integrated into the innovation process beyond the product by also considering the packaging and manufacturing process. Moreover, Katsikeas, Leonidou, and Zeriti (2016) highlighted the positive effect of top management's commitment to a company's environmental policies on green product innovation strategies. Thus, to investigate top management's impact on the success of green innovation strategies and initiatives, this study investigates the following research questions:

RQ1: To what extent do companies integrate sustainable innovation objectives into their product, process, and packaging innovation process? And with what outcomes?

RQ2: What is top management's role in integrating green innovation into the company's innovation process?

To answer these questions, the researchers conducted a case study of a local subsidiary of a Philippine-based Multinational Corporation (MNC) in the FMCG industry. This listed company is one of the top 50 corporations in the Philippines. For the purpose of this study and to maintain confidentiality, this company will be referred to as Company X. The company was established in 1979 and in 1989 was the first to innovate a popular food product in the Philippines. This innovation enabled them to currently capture a 95% market share for their best-selling product category. In June 2021, the firm became a publicly listed company. They made history by being the most extensive initial public offering (IPO) in the Philippines, raising about $1 billion, and the largest food and beverage company listing in Southeast Asia as of 2021. It was also during this year that they created the sustainability department and appointed a chief sustainability officer (CSO) role. A recent review of academic publications related to innovation in sustainable development by Vatananan-Thesenvitz, Schaller, and Shannon (2019) revealed that most studies were done in developed countries, including those in the Asian region. Hence, this study aims to add to the body of knowledge by exploring the sustainable innovation practices of a company based in a developing country.

2. Literature Review

Following a systematic literature review process, the lead researcher conducted a database search and looked for relevant studies related to sustainability and innovation using the keywords listed in Table 1. The search was done in September 2021 which limited the references in this article to the same year. A total of 531 papers were evaluated using the PRISMA screening method (Page et al., 2021) and 41 papers were included in the study. Using

the database search results, the researchers grouped the papers based on the topics related to the 3 innovation types being investigated (Table 1).

Table 1: Database Search Results

Keyword Combinations	EBSCO*	Google Scholar**	E + GS
Green Product Innovation	31	133	164
Environmental Sustainability + Manufacturing	1	93	94
Packaging Innovation	12	65	77
Sustainability + Production Innovation	23	42	65
Sustainability + Product Innovation	16	41	57
Maturity model + Sustainability	1	19	20
Environmental Sustainability Factors	10	8	18
Environmental Sustainability + FMCG	11	0	11
Eco-Innovation + Integration	0	6	6
Sixth wave innovation	2	4	6
Sustainability + Packaging Innovation	0	5	5
Integrating Sustainability + Product Development	2	2	4
Reuse + Reduce + Recycle + FMCG	0	3	3
Manufacturing Innovation + FMCG	1	0	1
Eco-friendly + NPD	0	0	0
TOTAL	110	421	531

Figure 1 shows a lack of studies on all three innovation types combined in one paper except for one paper from Cheong and Yeoh (2017). Tariq et al. (2017) had a similar finding in their paper, in which they pointed out that most studies lack a clear distinction between green innovation types (i.e., product, process, business model, or service) in their literature review.

Figure 1: Research Papers Based on Innovation Type

- Sustainable Innovation (or Green Innovation)

In this article, the terms 'sustainable innovation' (SI) and 'green innovation' (GI) are used interchangeably depending on the source of the citations. Tariq et al. (2017) identified several definitions of GI quoted from other studies. When summarized, they indicate that GI is the creation of a product, process, or service that adds value to a business and significantly decreases the environmental impact compared to alternatives. In their review, the authors of this study also came across several alternative terminologies for GI, such as sustainable innovation, eco-innovation, ecological innovation, and environmental innovation.

Wang et al. (2021) refer to GI as green technology innovation. They divided this concept into product innovation and process innovation as this provides a better understanding of their respective impacts on economic performance. While they only broke GI down into product and process innovation, unlike almost all previous studies, our research investigates environmentally sustainable innovation project initiatives through three innovation lenses: (i) product, (ii) packaging, and (iii) process.

(i) Sustainable Product Innovation (or Green Product Innovation) – Tariq et al. (2017) describe green product innovation as innovation that results in a product with zero or insignificant effect on the environment and humans throughout its life cycle and outperforms the conventional alternatives.

(ii) Sustainable Packaging Innovation (or Green Packaging Innovation) – Sustainable packaging innovation refers to increasing resource usage efficiency, eliminating waste, and reducing environmental impact via design improvements and using alternative materials (Packaging Innovation, 2007). Packaging is essential in the food industry because it preserves the product throughout the value chain (Ruippo, 2020).

(iii) Sustainable Process Innovation (or Green Process Innovation) – Tariq et al. (2017) describe green process innovation as advancements in processes and technologies that result in the manufacture of goods with zero or less impact on the environment.

- Sustainable Innovation Success Criteria

GI's most significant success criteria for a business are cost savings, higher productivity, competitive advantage, increased sales, and market share, resulting in higher profits and improved reputation (Dangelico, 2015). Gerstlberger, Knudsen, and Stampe (2013) found that GI is directly linked to production's energy efficiency, leading to lower operating costs. In addition, Tariq et al. (2017) also found that green process innovation, through better use of materials and improved production process, results in higher efficiency and, therefore, lowers costs. Similarly, with regard to competitive advantage, research by Andersén (2021) provides evidence that green product innovation influences the differentiation advantage, which, by his definition, refers to an organization's ability to make products with a better customer-perceived value than its competitors.

It is noteworthy to add that according to Obal, Morgan, and Joseph (2020), market performance resulting from the integration of ES in the innovation process may vary per region. Such was the case when the authors conducted a post hoc analysis to assess the impact. The results showed that North America was the only region with a positive impact on market performance. Other authors who have contributed significantly to the study of integrating ES in the New Product Development (NPD) process are Kalish et al. (2018). According to their research, some companies measure ES success by setting targets for energy reduction, waste reduction, and water usage reduction and participating in external ES standards like the Carbon Disclosure Project, Global Reporting Initiative, and Sustainability Accounting Standards Board. The abovementioned reductions would result in cost savings and a possible higher profit or competitive advantage for a lower price point.

- Research Framework

Using Dangelico's (2016) framework as a starting point, Figure 2 shows this study's framework. It synthesizes Cooper’s Stage-gate® innovation process, the 3 innovation types as well as the environmental sustainability factors and sustainability success criteria. It highlights the most influential stages where ES factors must be integrated to succeed and lists some examples of ES factors for consideration.

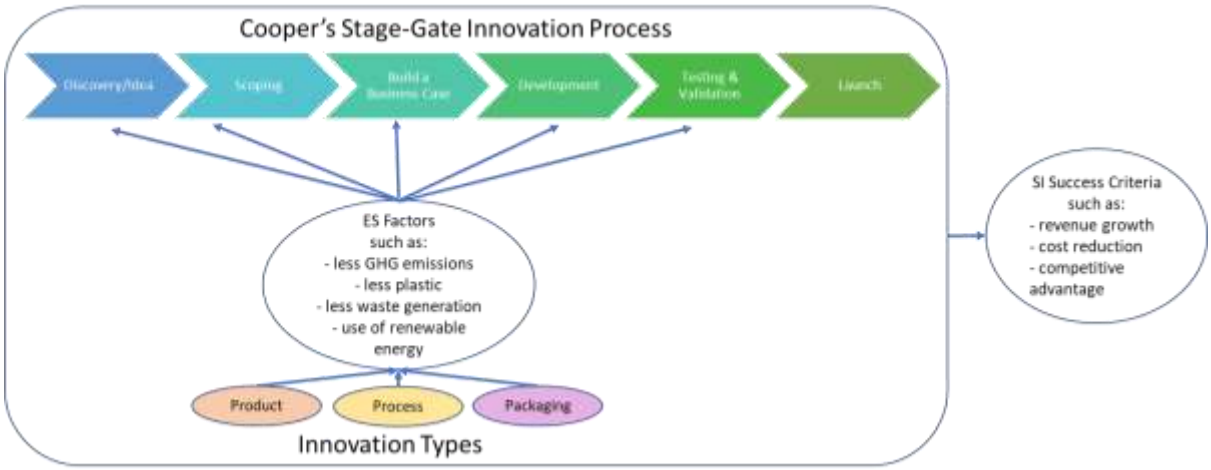

Figure 2: Research Framework

The innovation literature discusses a number of structured innovation methods, such as the Creative Problem-Solving Model (Osborn, 1953; Parnes, 1967) and its variations (e.g., Van Gundy, 2007; Bragg & Bragg, 2005), Design Thinking (Brown, 2008), and X-IDEA (Reis, 2014; Reis & Hunt, 2018). Since Davis, Chelliah, and Minter's (2014) study found that Cooper's Stage-gate® is the most dominant method used in the FMCG industry, it is also used as the reference for the Innovation Process Method in the framework. The researcher proposed integrating the ES factors as early in the innovation process as possible, as Kalish et al. (2018) recommended. A similar strategy was used in the Petala et al. (2010) paper, which focused on businesses incorporating ES into the initial idea screening and scoping phase of the process. However, their additional findings showed that MNCs also consider ES factors at the later stages. Brones (2015) also proposed an ES integration framework where ES factors are integrated in all stages before launch. So, in the context of this study, the researcher considered all the recommended stages and common ES factors identified from the relevant literature and applied them to the research framework. At these stages, all three innovation types (product, process, and packaging) are being created, ensuring that the environmental impact of every aspect of the total product is considered. Based on the database search results, these three innovation types are also the most common innovation types discussed on research papers concerning GI.

The SI success criteria are shown on the right of Figure 2 because they are assessed after commercializing and launching the product. Tariq et al.'s (2017) research model has identified several consequences of GI, specifically financial, market, environmental, employee performance, and competitive advantage. The SI success criteria in our research model, which are the most common ones identified in GI research papers, can be further broken down into cost reduction (financial), revenue growth (market), and competitive advantage (market), following the same theory. Other success criteria fall under the ecological aspect, which directly affects the environment, such as reduction in greenhouse gas (GHG) emissions and pollution (water and land) discharge (Pang & Zhang, 2019).

3. Methodology

This research used a qualitative exploratory case study method. The researchers selected this approach because the main objective of this study is to investigate how and to what degree an organization can incorporate sustainability into innovation. According to Yin (2017), this type of research question falls under the second type of "what" question that justifies using a case study method. Another reason to justify a case study method is that it is commonly used for

business-related studies (Yin, 2017). Furthermore, this study fits this criterion because it addresses the business effects of incorporating sustainability into an organization's innovation. The lead researcher chose the corporate case subject of this study (as noted earlier, the company has requested to remain anonymous) because it is one of the most innovative companies in the Philippines. It has also started to integrate sustainability into its products and value chain as part of its commitment and aspirations. Most importantly, the lead researcher was an employee in this company and had a good relationship with the people in the company, including top management. This personal connection helped the lead author gain access to top management. As mentioned above, the case subject is one of the market leaders in the Philippine food industry. Aside from innovating, the company has grown locally and internationally through acquisitions and partnerships, expanding its product portfolio in the process. In addition, it has nine subsidiaries all over the world. The researcher was requested to limit the study to one of the group's new subsidiaries in the Philippines. From the 3,500+ company employees worldwide, the researchers were only allowed to choose participants from one subsidiary with 300 employees. Participants are listed in Table 2 below.

Table 2: Participant's Information

Department	Position	Number of Interviewees	Gender	Age	Years of Service
R&D	Product Specialist	1	F	39	13
Marketing	Marketing Manager	1	F	40	2
Manufacturing	Packaging and Process Development Manager	1	M	48	1
Sustainability	Chief Sustainability Officer (CSO)	1	F	59	34
Executive	President (former VP for Engineering and Manufacturing)	1	M	64	22
TOTAL		5			

The researchers used the stratified sampling method to ensure that the departments involved in the innovation process were represented, allowing for a deeper understanding of the topic. The interviewees were chosen based on their job function related to innovation and their involvement in the subsidiary nominated by the top management. Interviewees from the junior staff to the executives were also chosen to capture the different levels of influence on innovation. To guarantee that all three innovation types were discussed, the R&D and manufacturing staff were also selected based on their areas of expertise. As for the interviewees' experience within the company, their tenure ranges from 1 year to 34 years, with the most junior employee having worked there for 13 years, senior executives having worked there for over 20 years, and managers (department heads) having worked there for 1-2 years.

The lead researcher conducted semi-structured interviews via video calls with the chosen participants. The researcher asked pre-determined and follow-up questions to help probe deeper and allow the interviewees to express themselves better with the possibility of providing answers to the research questions (Hancock & Allgozine, 2006). The questions were grouped into four themes related to the research question. They are (1) Participant Data, (2) Innovation Process, (3) Sustainability related, and (4) Business related. The interviews were supplemented with publicly available documents, such as the annual corporate sustainability report and other information from the company's website. Data analysis was conducted simultaneously with the recording review and revision of the transcription to capture insights as the participants replied to the questions in the recording. Critical statements related to the research question were identified and converted into data using open and axial coding methods.

Actual coding was done using a qualitative digital data analysis tool called MaxQDA. The interview transcripts, recordings, and other documents collected were uploaded into the software. Codes were then assigned to highlighted statements using the software's coding functions. Using the software's visual mapping tools, mind maps were created to find commonalities, and using the grounded theory method, possible answers to the research questions emerged.

To ensure the validity and reliability of the data collection and analysis, the researchers applied the following combination of strategies:

a) preparing the interview protocol, including interview guide questions;
b) pilot testing via the ethics review board;
c) data triangulation by collecting data from multiple sources;
d) member checking through follow-up interviews and sending findings to participants for feedback; and
e) using the MaxQDA qualitative data analysis software to code and analyze the data.

4. Findings

The findings indicate that this explorative study confirms all the elements in the research framework.

- *Sustainability Culture and Employee Mindset*

Since the company is publicly listed, it must submit an annual sustainability report, also available on its corporate website. However, sustainability has been a priority of the company CEO even before they applied for IPO, as explained by the CSO:

> "*Well, around 2014, our CEO started looking for other business ventures. But particularly on addressing the health angle of our product portfolio. So, he was looking for opportunities to build our healthier and better product portfolio. Better in terms of sustainability. So, he started to have that lens already during that time.*"

Since forming the sustainability department in 2021, they have made significant progress on their targets. They are well on their way to meeting their long-term company sustainability commitments. This success can be attributed to several internal factors that helped to promote sustainability within the company. Before the company could integrate the sustainability factors into its innovation process, it had to establish a sustainability program. However, even before that, it had to start with introducing a new corporate aspiration, with sustainability at the core. As stated on its website, the company "*aspires to improve the well-being of people and the planet and creates sustainable solutions for food security.*" This led the CEO to form a sustainability department. In the words of the CSO), "*It is a clear signal to the entire organization that we are serious about sustainability, and this is not lip service*."

Once the sustainability department was in place, they embedded sustainability into their corporate strategy, operations, and culture. A sustainability campaign was launched to communicate their commitments and strategies to internal and external stakeholders. This campaign helped to generate awareness among employees, shareholders, and corporate partners and built the foundation for the change in the employees' mindset and behavior. Afterwards, the company started to embed sustainability into its daily operations and set up a monitoring system and governance structure. No pushback was observed during the cascade and execution phase. The CSO explained that the reason for this is because she is:

> "*Someone who has developed or built a network within the company. I've been here with the company for a long time already, and I have developed strong relationships with my colleagues, with most of the senior leaders and other employees. So, when I assumed the role and started the rollout in our communications, I somehow did not have difficulty getting their buy-in.*"

This approach helped the integration to be successful, as evidenced by the statements from the Marketing head, who said that "*They (sustainability factors) may not be part of the NPD brief, but they should be part of our DNA in every person*," and the Packaging team head, who stated that "*It's inculcated in the minds of every leader in the organization that we need to look at sustainability factors as well, and it's a good thing about (this company).*"

- Integration into the Innovation Process

The company's regular activities include innovation and new product development. As a result of the sustainability campaign, sustainability factors are now integrated into their innovation and renovation projects, wherein innovation refers to new products (including packaging and or process). In contrast, renovation refers to modifying existing products, packaging, or process. Both project types use the same innovation process, like Cooper's stage gate process, but renovation projects require fewer details and brainstorming at the ideation stage.

The sustainability factors are considered at the beginning of their innovation process, the Ideation stage. When the participants were asked at which stage of the innovation process the sustainability factors were considered, the R&D developer and Marketing head interviewed had similar responses. According to the R&D developer, "*All those considerations (ES factors) are being laid out already so that when we do the conceptualization (Ideation), and we do the product design, we are already aware of what is the expected product that we will launch.*" As to the Marketing head, he stated the following: "*I think sustainability should be at the even at the very start. It should already be incorporated in the initial*."

With the company's sustainability commitments and campaigns, sustainability factors are always considered in design discussions. She further added that:

> "*Packaging is leading projects wherein there is less usage of plastic. But in terms of communicating this to the consumers, what we would communicate would be the fortification (addition of healthier ingredients, i.e., vitamins and minerals)*."

As the Marketing head explained, the company even goes as far as creating a consumer awareness campaign:

> "*There's a project right now that the company is leading about it's unbranded. It's allowing, it's talking about, or encouraging consumers to choose healthy. Because for us, that's our first step. It's not really, you know, that we're using less plastic that's the key message right now. It's more on that, you know, providing them with new, more nutritious options*."

- ES Factors

Each technical R&D and manufacturing team (for product, packaging, and process) has sustainability considerations, as can be seen in Figure 3. It is essential to highlight that it is not required to have all these factors included in the product design as some might result in a more expensive overall product cost. As explained by the R&D product developer and company president:

> "*So, there will always be a balance of a sustainable product, process, packaging at an affordable or a reasonable price for the consumers […] We are so mindful and always trying to find a solution, but at the end of the day, we still balance it with the fact that we need to be able to sustain the business as well*."

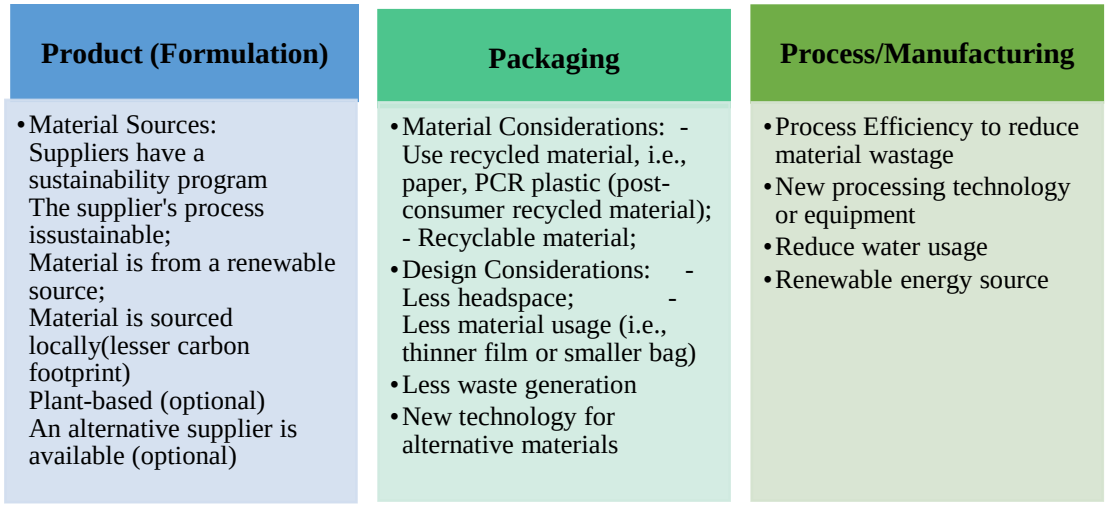

Figure 3: Sustainability Factors

- Success Criteria and Outcomes

Since the company is publicly listed, it must submit an annual report to the Securities and Exchange Commission (SEC). This report includes their sustainability initiatives and status. When the company launched its sustainability program, it made specific commitments which it plans to achieve by 2025. As stated in its 2022 Sustainability report, it has committed to the following:

1) a fifty percent reduction in Greenhouse Gas (GHG) emissions that comes directly from the company's manufacturing operations and energy sources;
2) fifty percent reduction in the water usage in their manufacturing operations;
3) zero waste-to-landfill from their manufacturing operations; and
4) ninety-five percent of the packaging that they use must be recycle-ready.

These commitments are also its success criteria, and they are calculated by measuring the weight or volume of actual reduction in usage per tonnage of a finished product that they produce.

Aside from measuring the sustainability commitments, implementing these sustainability factors has other positive impacts on the business. These can be classified into three categories: (i) financial impact, (ii) brand image impact, and (iii) impact on employees.

(i) Financial Impact – Based on the Sustainability Report that can be found on their corporate website, at the end of the year 2022, its net sales increased by 9.5%. A portion of this can be attributed to the innovative product launches. Aside from the increase in sales revenue, some participants noted significant savings due to some of the company's sustainability initiatives.

They include among others the following:

1) Lower energy cost and consumption from a renewable energy source;
2) Lower plastic packaging costs due to the redesign of the bags, the use of thinner materials, and an overall reduction of its plastic footprint;
3) Less operational material wastage by changing from small to big batch sizes; and
4) The reduction in batch size also resulted in savings in transportation costs because the delivery frequency was also reduced.

(ii) Brand Image Impact –The company plans to include its sustainability initiatives in its brand communications. The CSO explained their expectations from this action and why they believe it to be so in the following statement:

> "*When we finally execute them, we are hoping it will translate to an even stronger brand affinity and brand loyalty because our brands have already established themselves in the market and the hearts of our consumers. So we're hoping now, with these new developments, that the brand is contributing to addressing the environmental concerns that even our consumers share. We hope that they find the brand they love and patronize is responsive and committed to being their partner in reducing their environmental impact as they consume our products more and continuously.*"

(iii) Employee Impact – It is also important to highlight that there is another positive impact aside from the financial impact on the business, which is the impact on employees. Talking about the positive impacts of their sustainability initiatives, the CSO explained that:

> "*The other one is that our employees are more motivated because they see the meaning in what they are doing. That it is not just about the savings that is important to the company, but also its impact, on the positive impact on the environment or how we reduce the negative impact of our operations*."

Indirectly, this will also have some financial impact because their overall performance is better when employees are motivated, and employee turnover is likely to be lower (thus reducing employee replacement costs).

Although the participants were not allowed to share specific numbers, based on their statements, it can be summarized that the overall business impact is positive in terms of savings, more efficient operations, more motivated employees, and a better brand image.

- *Top Management's Role*

The top management has a crucial role in integrating sustainability into the company's strategy, innovation process, and culture. The sustainability initiative came from the top management when the CEO launched the new corporate aspiration with sustainability at the core. He did not just launch this without taking any action to support it. He ensured that key people were in place to support the sustainability program by forming the new Sustainability team led by the CSO. He provided strategic guidance and empowered the leaders, including middle managers, to develop a sustainability roadmap and execute the plan. All these actions resulted in a company culture with sustainability in mind. The Marketing manager further explained the CEO's influence on the sustainability program as she stated that "*The CEO walks his talk. So normally that's really important. So, the CEO doesn't just, you know, talk about it. When he talks about it, he's quite passionate about it. So, it's quite infectious*."

Regarding the innovation process, the top management may or may not provide some new product concepts in the ideation stage, but the final approval to launch comes from them. The R&D developer touched on this as she discussed their ideation stage.

> "*Because that idea will not always be coming from brand. The idea, most of the time, comes from everybody or everyone. Even if that's from production, from the consumer insight, even if that's from the management or top management level*."

In summary, the top management's role is to take the lead and provide the resources and support to integrate green innovation into their innovation process. However, this does not start and is not limited to the innovation process. Their role expands to integrating the green mindset into the entire organization and culture until it is no longer something special but becomes the new norm. With this approach, there is no need for the top management to be involved in all the innovation process stages and focus on the final stage before launch.

5. Discussion and Conclusion

The findings suggest that the successful integration of sustainability factors into the innovation process should not be limited to the innovation process itself, but also integrate the entire organization's operations and culture. Moreover, it is ideal if senior management takes the lead and provides the necessary support and resources to make things happen. With the leaders setting good examples and walking the talk, it is not difficult to change the mindset of the employees to keep sustainability at the core of their actions and decisions.

	Key Finding	Relation to Literature Review and Theories
1	Integration into the company culture and employee mindset	This supports the use of the organizational culture theory as a tool to influence sustainability practices within the company (Zhang et al., 2019).
2	Integration of ES at the early stages of the innovation process	This affirms Davis et al.'s (2014) study that Cooper's stage gate is most commonly used in FMCG companies. Furthermore, it supports Kalish et al.'s (2018) recommendation to consider ES at the early stages of the innovation process.
3	ES factors identified	Although the product and packaging-related factors identified were specific to the subject, the process/manufacturing factors found in this study support the most common factors identified in the research papers referenced in the literature review.
4	Success criteria and outcomes	The success criteria and outcomes identified followed the standard commitments by other FMCG companies as well.
5	Top management's role (i.e. leadership commitment)	This supports Katsikeas et al.'s (2016) findings on the positive influence of top management's commitment to a firm's ES initiatives.

Notably, despite the researcher's limiting the scope of the study and interview questions to environmental sustainability alone, the findings demonstrated the interdependence and mutual influence of the three pillars of sustainability - economic, social, and environmental (Purvis, Mao, & Robinson, 2018). For instance, there is a need for the company to balance the ES factors' cost due to the nation's economic status because of the high inflation rate, as explained by the participant, which is regarded as a component of sustainability's economic pillar. The mindset of consumers, which prioritizes survival and not being hungry, was another issue identified, which is regarded as a component of sustainability's social pillar.

- *Academic Contributions*

This study contributes to the literature by providing evidence for elements in the proposed research framework. First is the identification of which innovation stage ES factors could be integrated. Although the company has chosen to adapt its modified version of the Stage-Gate® model, they have succeeded in coming up with evolutionary and incremental product innovations. The response from the interview also shows the participants' knowledge regarding the sustainability factors to consider, which are similar to Jain et al.'s (2021) findings when they conducted a SWOT analysis of Adidas in their study to understand how they are embedding sustainability into their products. The findings also identified the success criteria and business impact of integrating ES factors into their innovation. The results are similar to the study done by Tariq et al. (2017), wherein the outcomes are categorized under financial, market, environmental, and employee impact.

This study used a different approach to exploring the integration of sustainability in the innovation process by synthesizing the perspectives of product, packaging, and process innovation. However, based on the results, the researchers have concluded that a holistic view of the integration is necessary to balance the overall impact and achieve a final green product design acceptable to both the consumer and the business, which is similar to the conclusion reached by Xie, Huo, & Zou (2019; although they only analyzed the impact of green processes on green product innovation, they also inferred that both types of innovation can enhance a company's financial performance).

Lastly, the findings provide evidence of the significant role of top management in integrating ES into the innovation process, company culture, and employee mindset.

- *Practical Contributions*

Companies are currently looking for information to help them start their engagement in GI (Albort-Morant et al., 2018). As consumer awareness grows, companies must adapt by providing green product options. This paper offers some interesting managerial strategies or approaches when introducing significant changes in a company. The company started as a family business and grew into one of the top corporations in the country. As it moved forward toward becoming a publicly listed company, changes were bound to happen, and usually, long-time employees had difficulty accepting change, especially when it came from newcomers. One of the interesting and surprising approaches was what the CEO did when he chose to put a former marketing head as the new CSO instead of hiring someone with experience in sustainability. This approach proved successful in getting the cooperation of the other functional leaders and managers because of the excellent working relationship that the CSO had with them in her 24 years in the company. This relationship also helped the CSO push for the sustainability agenda with minimal resistance. Jain et al. (2021) had a similar finding in their paper where they provide two conditions for companies to have a successful sustainability-centric innovation; companies should have a sustainability mindset and genuine intent.

This study also provides practical examples of how integrating ES into a company's innovation process can help to achieve some of the Sustainable Development Goals (SDG) specified by the United Nations (UN) (The 17 Goals: Sustainable Development, n.d.). One exciting example and finding was the different approach that the company took to educate the consumers about the benefits of healthier and sustainable products. Their unbranded campaign reduced costs, allowing consumers to try the products and experience their benefits without paying a premium. This project shows the company's commitment to pushing for its sustainability initiatives and moving closer to addressing the 2nd SDG specified by the UN: "end hunger, achieve food security, and improved nutrition." The industry must continue to invest in educating consumers to ensure that sustainability becomes a priority. The demand for green products will increase with the right balance of environmental consciousness and product affordability.

Lastly, it is also good to highlight that integrating sustainability factors into the innovation process is a balancing act. Although most sustainable materials seem more expensive, they still lead to long-term benefits for both the planet and the business, which is similar to the conclusion made by Wang et al. (2021) that Innovation in green technology can significantly boost a company's financial performance. By optimizing the manufacturing processes, packaging design, and product formulation, companies can still reduce costs and produce affordable, sustainable products for mass-based consumers. This optimization also brings the company closer to achieving the 12th SDG specified by the UN, namely, "responsible consumption and production."

- *Limitations of the Study and Future Directions*

Although Company X is one of the top corporations in the Philippines, unfortunately, the researcher was not given access to the primary entity, and the chosen participants were limited to one of the smaller subsidiaries in one industry and in one country. Consequently, it is possible that some of the practices mentioned do not apply to the entire company. Although the lead researcher was formerly employed by this company, the practices appear to be similar to those at the primary entity; however, verification is currently impossible due to restricted access.

Another limitation of this study is that due to the limited number of participants allowed by the company to join, the primary data source for the process innovation was the company's president, the former VP for manufacturing and engineering of the primary entity. Therefore, the data for process innovation comes from the perspective of a manufacturing person and lacks an R&D perspective. However, this does not invalidate the findings as the president could still share process innovation data that they had already done. Another limitation yet is that the lead researcher could only conduct five interviews overall, which is on the lower end but still deemed acceptable and exhaustive as the interviewees concurred on most topics investigated and reached consensus views.

Finally, for future research, the number of participants can be increased, or more than one company may be investigated for comparison.

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