

Sustainable value creation in fruit and vegetable companies: A case study

Samir Mili and Tasnim Loukil

*Institute of Economics, Geography and Demography (IEGD)
Spanish National Research Council (CSIC)
Albasanz 26-28, 28037 Madrid, Spain
samir.mili@csic.es, loukil.tasnim@gmail.com*

ABSTRACT

The increasing demand for sustainable products along with environmental and social concerns have prompted fruit and vegetable companies to move from classical to novel, sustainable business models through the implementation of sustainability practices. This study intends to explore this process of change using the Triple Layered Business Model Canvas (TLBMC). The theoretical framework of the TLBMC has been applied in a selected fruit and vegetable Spanish company. Based on the TLBMC depicted for the company, new business models could be generated by innovating strategically in a series of areas to improve the value proposition in terms of sustainability objectives. The suggested model provides an accessible representation of the company business system allowing to guide the creative process of presenting, communicating and implementing business model innovation.

Keywords: Sustainable development; Triple Layered Business Model Canvas; value creation; case study.

1. Introduction

Sustainability has become a key prerequisite for business success as firms are increasingly challenged by environmental and societal pressures. Sustainability constraints force businesses to actively consider issues like resource scarcity, environmental degradation, and social and economic inequalities, as part of their focus. As a result, innovation for sustainability has received much attention from researchers and practitioners (Yang et al., 2017). Sustainability challenges push firms to creatively incorporate effective innovations that help preserving the environment and improving social and economic welfare.

The strategy of sustainability-oriented innovation is implicitly focused on the improvement of the triple bottom line of corporate sustainability, encompassing economic, environmental and social aspects. The integrated changes following this strategy lead to changes in organizations' business models. Moreover, the volatility in consumer demand and the expanded attention paid to natural resources and animal welfare, as well as workers safety, represent additional reasons for firms to shift to sustainable innovation.

Businesses have been frequently looking at sustainability issues from a limited view focusing more on the economic capital as the core of the organization, and failed to reduce the impact of their activities on natural and social capitals (Dyllick and Hockerts, 2002). This allowed the creation of companies economically successful but unsustainable in the long term due to the non-substitutability of the three capitals (economic, social, environmental). Indeed, the failure to reduce the firm's negative impact because of the non-integration of more ecological and social approaches may lead in the long term to a failure in the corporate sustainability.

In this context, Joyce and Paquin (2016) proposed the Triple Layered Business Model Canvas (TLBMC), a holistic tool that combines the economic, environmental and social concerns, and coherently integrates them in the firm's business model (BM). The TLBMC represents a substantial shift in sustainability innovation aligning consistently the traditional (economic) Business Model Canvas (BMC) proposed by Osterwalder and Pigneur (2010) with two new social and an environmental layers. Moreover, this tool helps in overcoming the unconventional sustainability challenges through the conceptualization and connection of various types of value creation modes within a BM perspective, thus it supports the creative development, visualization and communication of sustainable BM innovation (BMI). The three different layers of sustainability presented by

the TLBMC facilitate the understanding and the capture of the interconnections between a business action and its economic, environmental, and social impacts, which leads to creatively present more sustainability-oriented and innovative business models. Within a BM perspective, this sustainability-oriented BM combines life cycle analysis (LCA) and stakeholder management perspective in order to conceptualizing and linking different types of value creation.

2. Purpose and method

This paper assesses how a Spanish fruit and vegetable company integrates sustainability in its business model and the ensuing outcome on value creation performance. It attempts to explore how is sustainability implemented in the company's business model. The study aims at providing knowledge on how to manage environmental and social impacts in value creation processes in the company's business model. It is worth noting that while sustainability principles are an intrinsic part of the company value creation process, there is an undeniable gap in the literature on agri-food companies in this area.

This study expands from the available evidence that introducing sustainability in the process of BMI can provide entirely new ways to create and capture value (Yang et al. 2017). Making sustainability the central element of the business and integrating sustainability concerns and opportunities into the BM can uncover new approaches that will explore new sources of value and profit. In this sense, sustainability efforts when introduced to BMI contribute to value creation at the same time as they satisfy customer needs and make positive contributions to the environment and the society. Therefore, sustainability is needed to create long-term high value (Yang et al., 2017). Sustainable practices offer a foundation for companies for more efficient operations, hence sustainability helps businesses to lower the total cost of their operations (Ericsson, 2020).

In their research to answer the question "Do corporate sustainability practices enhance organizational economic performance?" Maletic et al. (2015) argued that sustainability practices, indirectly through performance outputs (non-financial benefits), generate performance outcome (i.e. economic benefits). Moreover, they reported the highly significance (i.e. important mediator) of innovation performance in the relationships between sustainability practices from the one side and the financial and market performance from the other side.

In addition, sustainability can be a driver of innovation and competitive advantage. To support more the relationship between sustainability practices and value creation, results from the study of Maletic et al. (2015) revealed that sustainability exploitation practices present a positive effect on organizational performance practices, where the measurement of financial and market performance uncover an increase in the return on investment (ROI), sales growth, profit growth rate and market share during the years of adopting sustainability practices. For quality performance measurement, the results showed a positive return where the quality of products has improved, which increased the consumer satisfaction. These sustainable practices pushed the innovation performance of the firm, as well it decreased the environmental footprint of business by increasing the percentage of recycled materials, reducing the resource consumption and the waste ratio, and improving the efficiency of raw materials consumption. For social performance, a remarkable increase in employees' satisfaction and motivation and a decrease in the turnover ratio were proved.

In this perspective, the created and/or captured value through sustainable practices is more than monetary value; it extends to be a sustainable value where it includes necessarily environmental and social benefits. Thus, understanding how sustainability leads to bring out opportunities for value creation requires a framework and a focus on business model innovation not only through technological innovation, but across the entire system. In this study we use the TLBMC as a baseline model for that purpose.

2.1. Case study approach

We proceeded using a case study approach to describe, explain and clarify the main characteristics and dynamics of the phenomenon being studied. Case study method is a popular research technique applied in business studies. It stands as a research strategy and an empirical inquiry that focuses on understanding the dynamics characterizing specific contexts. Consequently, a case study is a research procedure in which one case or a small number of cases are chosen to be studied in their specific context, and the obtained outcomes from these cases are analyzed following qualitative or quantitative techniques (Ghauri, 2004). Case study methodology aims to grasp in detail the specific issues within boundaries of specific environment, organization,

or situation with the identification of essential factors, processes, dynamics, and relationships. Hence, its main objective is to conduct intensive research on a specific case like individual, group, institution, or community (Rashid et al., 2019). The case study describes real-world phenomena rather than developing normative statements.

In business research, case studies are used in the aim of providing insights into an issue, a management situation, or a new theory (Ghauri, 2004). Additionally, case study is a useful method in situations where the research field is not well known and the researcher is engaged in theory building (i.e., for instance, where the research is based on grounded theory, in which theory is created iteratively from observation or, put differently, where theory is generated from data through the discovery of emerging patterns in data (Walsh et al., 2015). It represents a flexible research approach that suits a range of various types of research questions. These research questions take the form of “who”, “what”, “where”, “how” and “why”, and more precisely for case study research it is more like to be appropriate for “how” and “why” questions (Yin, (2003).

In business contexts, three categories of case studies are identified according to their design: explanatory, descriptive, and exploratory (Yin, 2003). The design of a case study is the consistent progression that connects the empirical data with a research question and its conclusions (Abdu Rahim and Wan Daud, 2015). The explanatory case study answers the questions of “how” and “why”. It can be marked out as the relationship between cause and effect, clarifying the way events take place. Descriptive case study illustrates a thorough description of a phenomenon within its situation. It describes culture and sub-culture and aims to discover the key phenomena and to reach an unbiased, true description of the phenomenon that can be generalized to the common lived experiences of others. Meanwhile, the exploratory case study tries to find answers to the questions of “what” and “who”. Data collection in the latter category usually include surveys and interviews.

2.2. Case study selection

Using a non-random, purposive case selection mode (Seawright and Gerring, 2008), we chose the AMC Group which is divided in two main holdings AMC Fresh and AMC Natural Drinks. The motivations to choose this Spanish firm is essentially related to its sustainable performance in the Spanish fruit and vegetables (F&V) sector. In fact, beside the economic layer this business Group moved its attention to the environmental and social aspects, which became a significant part of its mission and vision. The fact that this firm operates internationally also relatively improved the data availability.

Founded in 1931, the AMC Group is a third-generation family firm that occupies the third position in terms of Spanish food international sales. It is a leader in developing and licensing vegetable varieties, production and marketing of fruits, flowers, ice-cream and natural drinks with high value added. The business vision and goal of being an international benchmark in the food industry is manifested through its different activities and approaches that represent its mission and commitment to sustainability, innovation, transparency, and society. The company also seeks through the sustainable process to offer consumers an added-value towards healthier lifestyles.

The Group is present in more than 100 countries in the five continents. In 2019 the Group’s consolidated sales reached €1,305M, with annual turnover of respectively €473M and €868M for AMC Natural Drinks and AMC Fresh (the non-consolidated sales of each holding were €645M for AMC Natural Drinks and over €1,000M AMC Fresh). The Group objective is to produce fresh products, drinks and natural foods that are healthy, innovative, and meet the requirements of modern and sophisticated customers. The distributed products are developed in sustainable way and comply with the strictest quality standards and sustainability at world level.

The Group owns more than 3,000 hectares of land for its plantations in different continents chosen based on climate and locations that offer the best conditions for growing and harvesting the exclusive varieties developed by the division AMC Fresh. For the aim to stick to the group’s commitments, over 3,000 farmers and producers who make up the Group’s value chain are guided by qualified agricultural engineers of the company who ensure and provide the necessary technical assistance and advice throughout the production process.

The AMC Fresh is the division that focuses on developing, producing and delivering superior quality fresh food and products around the world through innovation and technology. It succeeded the supply chain management efficiently with special attention to consumers and retail solutions. This success is preceded by the innovation in fruit varieties with over 100 patented varieties; AMC Fresh is a world leader in grape and citrus fruit innovation through its own bio-technology companies and its own and licensed agriculture (40,000 hectares of own and licensed farming). The division mission is “to advance a new horizon of sustainable fresh food” with

focus on reducing the environmental impact, enhancing health and well-being as well as the respect and empowerment of people.

The AMC Natural Drinks is the leader in Europe in research, development, production and marketing of refrigerated fruit juices, smoothies and other natural, innovative, functional, high quality bio-active drinks like vegetable drinks. This division includes over 20 firms located strategically in various countries where it serves more than 1,800 active products in over 50 countries through more than 70 retailers in Europe and Asia. It gives a special emphasis to research in order to innovate and develop new products, where more than 150 researchers and technologists succeed to launch more than 400 products in a year. Every launched product pass with an innovative processing, squeezing technology to ensure the maximum freshness, quality, nutrition and uniqueness. These products are packed in five different strategically located international plants in a diversity of formats. The research does not only concern the product but also consumers, markets, and trends. Indeed, the understanding of these elements is a preliminary aspect for the company with the aim of understanding which factors reduce the risks when launching new concepts and guaranteeing the targeting of the right consumer.

The AMC Natural Drinks highlights in its goals the corporate social responsibility (CSR) where there is commitment toward sustainability and the improvement of the five fundamental pillars of the company's philosophy (innovation, sustainability, health, efficiency, talent). Sustainability commitments include the protection of the environment and the preservation of the natural resources by optimizing and controlling every step of the production processes, and the consideration of social aspects working to continuously offer high-quality and nutritious foods to consumers in the aim of ensuring a healthy lifestyle.

In terms of value chain, the Group adopts vertical integration of the activities carried out in the two principal divisions: the AMC Natural Drinks focuses on the innovation and production of natural, healthy fruit juice and vegetable drinks, while AMC Fresh engages in new varieties research and growth and marketing of fruits, vegetables and flowers. Both divisions have a strong customer-oriented approach.

With the aim of reducing greenhouse gas (GHG) emissions in the context of being a sustainable business, the firm continuously invest to adapt new sustainable practices where it implements procedures and managerial measures such as the circular economy, sustainable use of resources, waste prevention through waste management, water reuse, reduction of the use of plastic and innovation of a plastic packing from the peel of citrus fruits. The continuous work to reduce the business negative impact on the environment through various sustainable practices is giving positive results, where between 2015 and 2019 the Group reduced its GHG emissions by 7.7% in its two plants in Spain and The Netherlands.

2.3. Data collection and analysis

Secondary data have been gathered to depict the TLBMC items for the selected company, based on available information about F&V markets and particularly the AMC Group. The collected data have been used to illustrate the three canvases of the TLBMC which have been adapted to the selected company to assess the move toward sustainable value creation. The data have been collected from diverse sources including national and international platforms like Statista, other online databases from national, European and international sources such as the Spanish ministry of agriculture, FEPEX, EUROSTAT, FAOSTAT, WHO, OECD, company reports, published articles from different publishing platforms like ResearchGate and google scholar, seminar papers...

The collected data about the company are detailed in the three canvases of the TLBMC as shown below. The results test the applicability of the TLBMC to the selected firm and the holistic vision that this innovative model offers. Thus, the analysis focuses on the sustainability practices the firm is working with and the benefits it receives from applying these practices, in addition to the detection of areas where the firm needs to intervene. This refers to one of the major objectives from applying the TLBMC which is to identify the environmental and social impact of a firm, and how it is able to reduce the negative impacts and create value to the company and the society as a whole.

3. Applicability of the TLBMC to the study company

The case study deals with the innovation in the selected company BM via the TLBMC to highlight and evaluate sustainability practices in the company. The TLBMC model used has been applied in very few studies which implies an evident lack of published research in this domain.

We carried out an adaptation of the generic TLBMC suggested by Joyce and Paquin (2016) to the study company and its specificities. As can be seen hereafter, the three TLBMC canvases with the nine components of each one, represent the three sustainability dimensions allowing the firm to have a clear, overall and more dynamic vision of its business with regard to sustainability objectives.

Figure 1 shows the social canvas which is directly related to the social layer of sustainability. It investigates the relationships between the AMC Group and its stakeholders from suppliers to consumers. This layer aims to analyze the major social benefits and impacts from using sustainable practices.

Figure 2 summarizes the economic canvas which represents the traditional BMC. This layer focuses on the financial perspective of the Group and how to generate profit while reducing costs. The nine blocks and their items are developed in the canvas.

The third layer of the TLBMC is the environmental which is based on a holistic view of the products of the company from an LCA perspective (Figure 3). This canvas is built with the objective of creating more environmental benefits from introducing sustainable practices.

The AMC Group is following a multi-focus approach. As a major interest it works on being a sustainable business delivering sustainably produced fresh F&V and F&V based products. In order to succeed in delivering these products, the production process is carried out applying innovative sustainable practices.

The Group is also focusing on consumers through employing a consumer-centric approach. It works on providing the best experience to the consumer through the value proposition, the certified quality and the continuous development of products. Taking advantage from the technological advances, the Group provides a platform to facilitate the communication between the AMC Fresh and its consumers; this platform facilitates the understanding of consumers, enhances the company growth and identifies new opportunities.

Another approach is the retail solutions focusing on the retail customers. The Group ensures a flexible business model for each customer. This experience is ranging from short-term agreements to long-term partnerships with retailers.

In order to guarantee the best experience to consumers and the sustainable production, the AMC Fresh constantly works on developing new varieties. In addition, the AMC Natural Drinks works on innovating in the production process, as well as in the packaging where it is working on producing packaging from citrus peels.

The Group is also working on reducing the GHG emissions produced from transportation, processing and farming. To this end, it applies different actions in order to ensure the transition to be a sustainable business, investing in reducing pollution and improving waste management.

Overall, the taken actions by the AMC Group combine the impact across the three pillars of sustainability. The traditional BMC consists of delivering a unique value proposition to the customer, and exclusive experience via the sustainable Fresh F&V and high-quality products. These products are sold almost worldwide through various channels, while ensuring a direct relationship with customers. Innovation is in constant development where the firm continuously develop new products and new ways of production. The AMC Group is largely a sustainable business executing the different production steps with sustainable practices for the purpose of reducing the negative impact on the environment, boosting the social benefits, and increasing the revenue.

Based on the results of the application of the TLBMC framework to the company, each BM layer is analyzed separately, providing multiple insights about the company from financial, environmental and social viewpoints. This analysis assists the company in identifying where it needs to act in order to improve weaknesses and in which stage(s) it needs to innovate. This dynamic is called horizontal coherence.

Similarly, by investing more in the aim of reducing pollution, for example, the company applies vertical coherence combining the consideration of the three BM layers at the same time. This facilitates the identification of new opportunities and where to use strengths to drive business growth.

Both horizontal and vertical dynamics stand as a useful tool for interpreting the impact of implementing sustainable practices. As an example, the TLBMC identifies changes after the practices have begun to be used, and the analysis based on the two dynamics identifies how to manage these changes and whether the feedback is positive or negative.

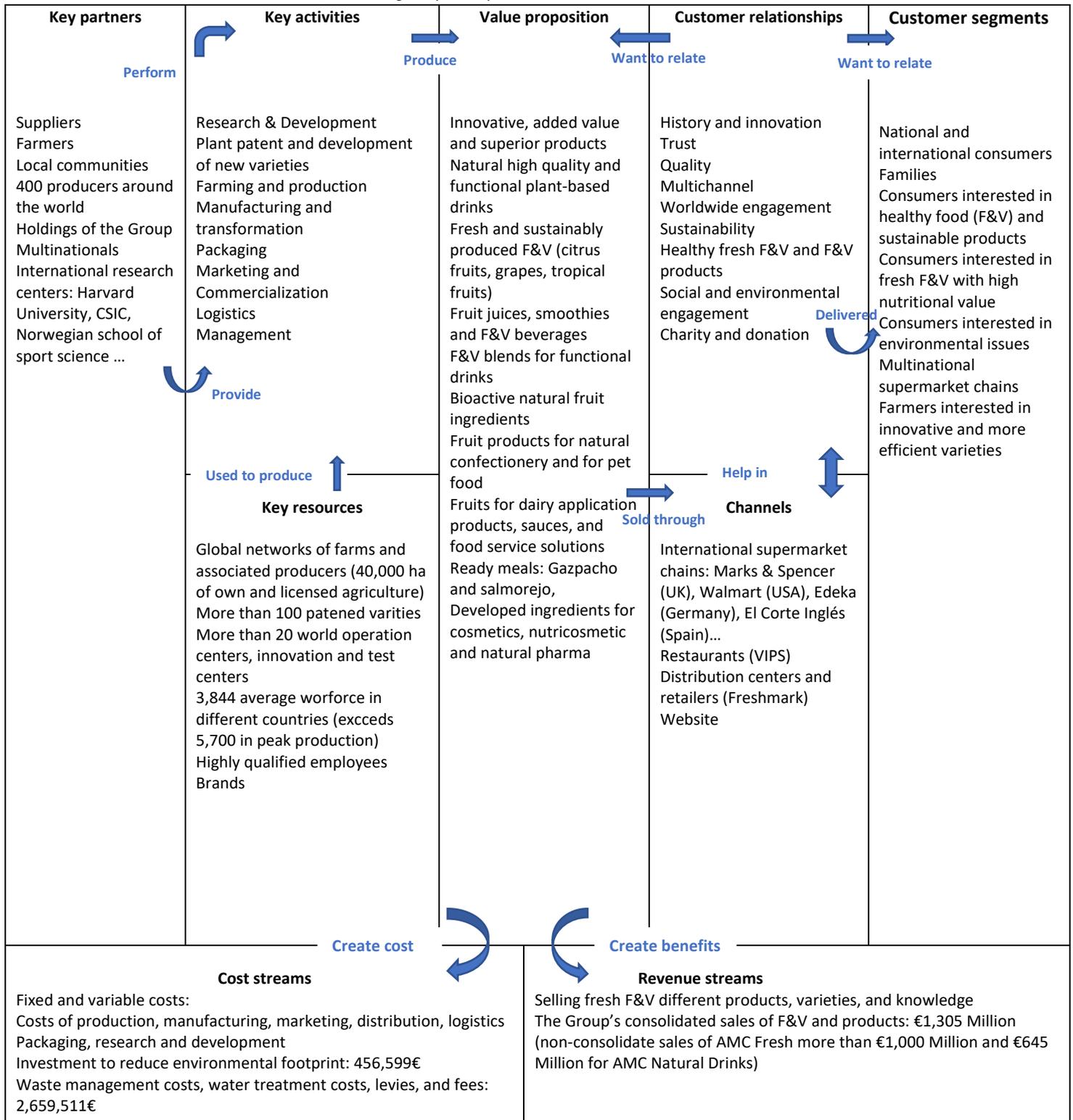


Figure 2: AMC Group economic canvas (own elaboration).

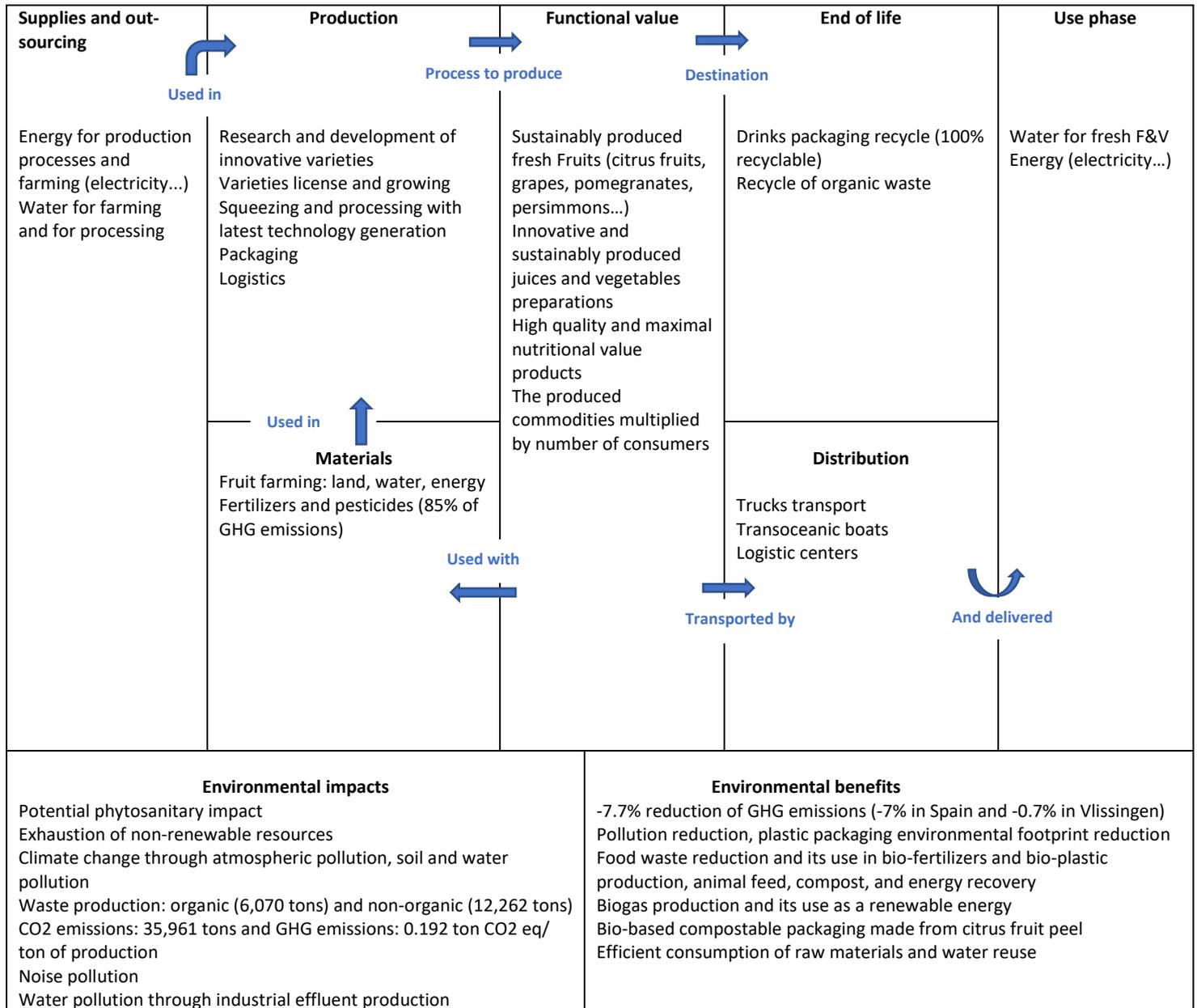


Figure 3: AMC Group environmental canvas (own elaboration).

4. Discussion and conclusion

This study used the TLBMC which is an innovative framework presented as a tool that support the sustainability-oriented business. The model has been applied to the AMC Group which has been chosen as a case study in the F&V industry. The analysis of the three layers of the model lead to constructive conclusions about the effectiveness of the introduced sustainable practices. In line with Joyce and Paquin (2016), the results from applying the TLBMC to the AMC Group showed that this model represents a visual tool that provides a holistic view of the business from the three different perspectives (economic, environmental, social), portraying the negative impacts of the company as well as the created benefits in terms of value.

The TLBMC highlights the connections within the firm which leads to more collaborative approach between the functional and departmental perspectives of the management team. As a visual tool, the TLBMC also facilitates the identification and the capture of the changes resulting from introducing sustainable practices to the firm's BM. It easily allows users to explore the modifications and the impact of these practices. Moreover, the TLBMC qualifies to balance between impacts and benefits across the three axes of sustainability. In this case study, the introduction of sustainable practices such as the carbon footprint reduction generates an increase in the economic cost but also creates benefits in the social and environmental objectives, e.g. reduction of GHG emissions, and fulfillment of consumer needs generating an increase in the firm's sales and revenue.

Putting sustainability at the forefront of the AMC Group strategic business plans, coupled with implementing corporate sustainability, has been offering numerous advantages to the Group and its affiliations. This process described in the environmental layer creates a positive return to the environment where it supports the reduction of GHG emissions and waste, responsible use of non-renewable energies, and biodiversity boost. These sustainable practices present social and economic benefits for the company.

In addition, sustainable practices not only benefit the environment, but also the company and to consumers. Developing new varieties as a sustainable practice with low impact on climate change, also increases productivity and reduces costs. Reducing the energy and resource consumption leads to efficiency in the different operations of the firm, which in turn leads to achieving cost savings.

Reducing waste and being transparent are practices that enhance credibility and build strong relationships with different stakeholders of the company. Sustainable practices lead to build more trust and brand reputation, and they also increase the competitive advantage of the organization. The strong reputation of the company through sustainable practices and the certification get from national and international organizations lead to an increase in sales and improvement in the position of the company comparing to other firms, i.e. higher competitive advantage.

Towards being a sustainable business, the AMC Group needs to comply with the Spanish and European regulations and anticipate stricter regulations, as those enacted in the European Green Deal. Complying with regulations also increase the credibility of the firm.

By committing to sustainability, the AMC Group was responding to the needs of consumers of its products. Increased demand for organic and sustainable products is developed as many consumers are more inclined to purchase brands that are sensitive to global warming and produced in sustainable fashion (i.e. eco-friendly products). This commitment to sustainability drives the company to follow a customer satisfaction strategy.

The sustainability practices can lead to reduce cost and increase benefits, but they also lead to increase the engagement of customers. This engagement leads to more recognition of company brands and growth in sales, considering that a satisfied consumer plays the role of communication channel where he/she can promote the product giving a positive feedback.

The sustainable practices also improve the consumer health through the development of new varieties and innovative healthy products while ensuring high quality. Providing healthy and tasty products that comply with consumer needs increase well-being. In the same line, the reduction of pollution, GHG emissions and waste are practices that tend to increase consumer satisfaction.

Conversely, implementing more sustainable practices can be a source of increasing production costs, resulting in higher prices. This is a very serious issue as price increase affects the purchasing capacities of many consumers and their willingness to pay for sustainable products.

The case study performed presents significant consistency and alignment between layers of the TLBMC. While the traditional BMC presents an economic centric approach, this case study reveals that the key for success relies on the equal importance given to the three layers, and the implementation of the appropriate innovations in the economic, environmental, and social dimensions.

The introduced sustainability practices clearly facilitate the shift toward sustainability-oriented business model innovation. The different practices used by the AMC Group have presented positive impacts on the environment, the society and the revenue of the company. From the ecological perspective, these practices are working on reducing the negative impacts of the company on the environment, including GHG emissions and pollution. From a social perspective, the introduced sustainable practices are dealing with the different stakeholders of the company such as employees. These practices ensure better working conditions as well as further professional growth to the employees. This social perspective also improves the transparency of the firm. As for the economic effects, sustainable practices help in cost saving and increasing the revenue. In short, these sustainable practices are applied to reduce negative impacts and increase benefits from the three different perspectives.

Moreover, the fact that the study company is present worldwide provides an idea about the international F&V markets and various types of customers, their engagements and orientations with respect to sustainable F&V and sustainability in general. The international vocation of the company also assists in capturing the national and global differences which also helps in developing the local markets.

The study conducted contributes to the literature about the F&V sector, as well as sustainability practices and the return they offer to enterprises and the impact on the environment and the society. Indeed, entrepreneurs in the F&V sector can benefit from the study to generate more sustainable value. This not only will facilitate the transition to sustainable production, but also will motivate businesses in the F&V and the agri-food sector to innovate their BM in order to shift to sustainable business models.

The findings from the case study analysis are empirical and real-life based which is beneficial for the credibility of the research accomplished. However, the single case study performed, while offering valid results in terms of uncovering the value obtained from implementing sustainable practices in the study company, remain explorative and cannot provide a conclusive and generalizable assessment. Therefore, further case studies are needed for drawing more solid conclusions which also involve comparisons between cases. Moreover, primary data from direct surveys for the top management of companies should be collected and incorporated to the analysis.

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