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# ARGUMENTS IN FAVOR OF MOVING TO A SUSTAINABLE BUSINESS MODEL IN THE APIARY INDUSTRY

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# Abstract:

Today's society faces major challenges in meeting future global food demands and solving biodiversity loss, and it quickly needs to find ways in addressing these issues. The places to look for solutions come from the economic sectors that employ the most powerful pressure on these issues such as agriculture. Apiculture, as a branch of agriculture is being more and more recognized as sustaining human life and contributing to sustainability. However, the sector records a progressive decline of honey bees. Therefore, a rapid restructuring needs to take place in agricultural markets, in general, as well as in apiary agribusinesses. Although important, technological progress is insufficient in providing the necessary changes to achieve long-term economic, social and environmental sustainability, which should be considered both within and between generations. Consequently, sustainable business models encourage sustainable development through a triple bottom line approach and provide an analytical tool for firms into assessing the different aspects that are combined in order to create value. Since literature has paid little attention to the sustainable development in the apiary agribusiness, the present paper aims to link the two using a business model perspective and bring arguments in favor of moving to a sustainable business model.

Key words: Sustainable Business Models, Apiary Agribusiness, Sustainable Development

## 1. Introduction

Nowadays, we live in a modern, dynamic and consumerist society with increasing urbanization prospects, where we consume natural resources every day. Technological and economic progress is vital for development but it needs to be balanced with the needs of society, environment and the long-term effects of these actions. Sustainability aims to maintain a balance between the undertaken actions to meet societal needs and reach progress, and their social and environmental effects. Sustainability is a vast discipline which brings together everyday life aspects from various fields such as business, technology, environment or social sciences.

Sustainability efforts have also been headed towards agriculture especially since studies have concluded that the global demand for food will increase by 70% until 2050 (Dobermann and Nelson, 2013; Food and Agriculture Organisation, 2009). The international community has emphasized the importance of pollinators as an element of agricultural diversity, but also stressed their colonies population decline (Goulson et al., 2008; Potts et al., 2010).

Therefore, the present paper aims to identify the theoretical foundation of sustainability applicable to the apiary sector, to synthesize the main theoretical approaches of sustainability and sustainable businesses, to identify the main actions of the international community which led to generating sustainable policies and financial mechanisms to support agriculture and to identify the main challenges and opportunities of the apiary sector for sustainable development.

# 2. Understanding Sustainability in the Business Environment

The actual and potential damages on the ecosystem began to be better understood during the Second World War, and in 1945 the United Nations Organization was established. Today, the organization aims to contribute to the global sustainable development, along with maintaining peace, providing humanitarian aid and encouraging cross-cultural dialogue. Since January 2016, United Nations has launched a universal call to action with the aim of improving the lives of future generations through 17 goals, also known as Sustainable Development Goals, and in this sense it even complied a guide for businesses on how to implement them (United Nations, 2015). The Sustainable Development Goals serve as a handbook and objective for all countries and are part of the Sustainable Development Agenda 2030.

Among the most relevant goals in the field of agribusiness are goal 2 and goal 12. Goal 2 addresses food security and the promotion of sustainable agriculture. The unproductive practices of harvesting have led to food shortage at global level, which adds to world's population growth prospects. This scenario leads to the necessity of innovative and more productive systems in agriculture that involve a lower degree of waste emission and not only. For this reason, these systems need to be approached from a holistic and integrated perspective. Strongly related to goal 2 is goal 12, which aims to ensure sustainable patterns of production and consumption. These sustainable patterns hint at minimising toxic materials and natural resources usage along with reducing waste and pollution in such a way that it would not harm the needs of future generations.

Not only the United Nations recognizes the importance of sustainability, but also the European Union. The European Union adhered to the need of the Sustainable Development Goals and committed to regularly monitor their evolution in the Union. On this matter, the Common Agricultural Policy is aligned with the Sustainable Development Goals and was established in order to ensure the necessary production and commercialization of food in the community while emphasizing rural development. Although over the last years, the Common Agricultural Policy has experienced a renewal process, the principles that guide it still prevail and consist in market unity, Community preference and financial solidarity. Its 2020 perspectives include reliable

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food production, sustainable management of natural resources and climate policies, and balanced development among community members.

Lately, the speciality literature has paid increased attention to sustainability and sustainable development not only at business level, but also at political and social level. However, the operationalisation of the sustainability concept in the field of business is still emerging. Today, there is a consensus among researchers and practitioners which argues that sustainable development at macro level is unlikely without the sustainable development of organisations. Literature highlights that an integrated and connected view is needed in existing business infrastructures in order to follow the path of sustainable development (Rocha et al., 2007). Understanding and applying business sustainability in the practices and performances of enterprises leads to new business models and sustainability opportunities (Dyllick and Hockerts, 2002). Among the scholars who contributed to the field businesses sustainability are Dyllick Hockerts (2002) who defined the discipline of business sustainability as and 'satisfying the direct and indirect needs of stakeholders of a firm without compromising firm's future abilities to satisfy the needs of stakeholders'.

Technological progress and innovation is definitely necessary for harnessing sustainable development but is not sufficient any more in order to change the direction of organisations in the sense of sustainable development (Anadon et al., 2016). Therefore, the need to find and develop new solutions in business (integrative and competitive through reducing negative externalities and creating positive externalities for the environment and society) arises.

In the contemporary business environment, more and more executives are pursuing sustainability principles that are implemented in the form of developing green products, saving energy and seeking employees retention and motivation (McKinsey, 2011). These actions lead to capturing value either through return on capital or growth. Sustainability is being adopted as a strategic and integral part of businesses. McKinsey (2014) led a global survey with n=2,904 companies which revealed that the largest share (43 percent) look to align sustainability in the overall business values, mission and goals.

The traditional economic paradigm in business strictly considers economic aspects such as efficient processes, minimal cost of resources or strong market positioning that are expected to yield economic value in the form of profit, market share or shareholder value. Introducing the sensitivity element into the economic paradigm has led to business sustainability 1.0 (Dyllick and Muff, 2015) in which social and environmental challenges are addressed, usually by non-governmental organisations, media or legislation. Such challenges may be either risks or opportunities in business, integrated in the existing processes, without modifying the prerequisite of the business. Consequently, even though sustainability is considered in the decision making processes, the objectives focus on shareholders and creating value for them. Business sustainability 2.0 brings sustainability one step closer to businesses though a larger perspective that includes shareholders and social and environmental values. In this respect, value is created as a result of clearly defined objectives and programs that are related to sustainability. In this case, the programs are not only carried out, but also measured and analysed. Business sustainability 3.0 goes further and signals an upgrade of business sustainability 2.0. The key elements of business sustainability 3.0 involve the way businesses may contribute though its products and services to solving sustainability related problems in the society. In other words, business sustainability 3.0 views sustainability challenges as opportunities in addressing social and environmental problems (Dyllick and Muff, 2015).

Sustainability has become more and more a topic of interest for both academics and practitioners over the last decades. A large variety of solutions have been considered or implemented with the aim of fostering economic and social development and reducing or even eradicating environmental damage. These solutions vary and are differentiated by objectives, management or bureaucratic structures, which lead to shortcomings in the existence of a set of instructions though which sustainable development can be accomplished. Consequently, a 'one-size-fitsall' strategy does not work for every organization in implementing sustainability.

In the last decade, practitioners made efforts to accelerate the transition to a sustainable world and have challenged the business environment. There are several active organizations in the field of sustainable development including World Business Council for Sustainable Development (WBCSD). WBCSD is an international organization where over 200 leading businesses from all sectors work together to help member companies achieve success by focusing on sustainability. The organization is also engaged in delivering high-impact business solutions to sustainability issues. Another international organization that helps businesses and also governments is Global Reporting Initiative (GRI). GRI focuses on understanding and communicating the impact that businesses have on sustainable development though what are known as standards for sustainability reporting or GRI Standards. The GRI Standards provide the means for organizations to measure and grasp their triple bottom line and also present information about their contributions to sustainable development through Universal Standards (GRI 101, GRI 102, GRI 103) or Topic-Specific Standards (GRI 200, GRI 300, GRI 400). The GRI Standards are a free public good which is being used in more than 90 countries by thousands of organizations. Standards have also been approached by ISO (International Standards Organization), the world's largest developer of international standards. In the field of sustainable development, ISO 26000 guides organizations on how to perform socially responsibly and helps them to share the best practices and take effective actions.

Resulting from a collaboration between GRI, WBCSD and United Nations Global Compact the Sustainable Development Goals Compass (SDG Compass) was developed to offer organizations guidance on SDG implementation. The SDG Compass aims to assist organizations to align their strategies to sustainability and measure and better understand their contribution and outcome to sustainable development. Organizations contribution is especially followed towards the realization of the SDGs, which define global priorities for 2030. Therefore, the sustainability planning at global level is based on sustainable development at micro level.

# 3. Sustainability in the Apiary Agribusiness

Sustainability has become a popular concept, not only in general, but also in the agribusiness sector, and it is based on the 'people, planet, profit' trilogy (Friedrich et al., 2012). There are more than 12 million farmers in the European Union, with a majority of small farmers (European Commission, 2016). On average, the European Union farmer has 12 hectares of land and 70% of farms have more than 5 hectares, which indicates inequalities in the sector.

In order to follow and work towards the Sustainable Development Goals, a productive sector in agriculture is necessary. Agriculture has a central role in sustainable development since it supplies the necessary nutrition to individuals, it deploys the global economy and establishes the relation between society and nature (Kanter et al., 2016).

The modern manager of an agribusiness must embrace the challenges it encounters and integrate immediately in its practices the knowledge it acquires. The management of an agribusiness is not only continuous, but also dynamic and the duties of managers must be approached from a perspective of managerial functions (Beiberlein et al., 2014). From planning to control functions, the positioning of an enterprise should be adapted to consumers demands and market conditions. Thus, when a business goes beyond shareholders and consumers needs and is adapted to societal and environmental needs, then it is considered a sustainable oriented business.

The level of interest for sustainability has grew in response to the increasing number of world population and, implicitly, in response to the increasing resource consumption that lead to a rapid environmental damage and biodiversity loss (Wackernagel et al., 2002). The sustainability of business models, especially in the agribusiness sector, comes as a necessity in finding solutions to meeting global food demand challenges.

Research results warn and call to action as until 2050, the global food demand is estimated to increase by 70% (Dobermann and Nelson, 2013; Food and Agriculture Organisation, 2009), which is why Research and Innovation Programme Horizon 2020 (European Commission, 2011) and United Nations Sustainable Development Goals (United Nations, 2015) consider research and innovation in sustainable agriculture and food security a priority.

Apiculture, as a branch of agriculture deals with managing honey bee colonies in order to obtain products that the hive produces (honey, beeswax, propolis, pollen etc.). A vital process in the industry is pollination, which depends on a series of factors including natural capital management. The pollination process contributes to more than only maintaining and increasing the production of apiary products. It also affects the production of horticultural products, indicating a strong relationship among them.

The international community has recognized the importance of pollinators as diversity elements sustaining human life and pay more and more attention to bees, as they represent the largest share of pollinators. Pollination and its global economic benefits were most recently valued at €265bn (Lautenbach et al., 2012) which highlights pollinators importance and their role in the global food supply. Still, a global

progressive decline of honey bees has been recorded effecting in economic losses and ecosystem damage (De la Rua et al., 2009). Hence, managerial improvement in the apiary industry should be a topic of utmost importance because of its implications in health, nutrition, food security, farmers income and biodiversity preservation.

At global scale, roughly 40% of natural capital is being used for agricultural purposes (Tanentzap, 2015) and more than 200,000 species of plants depend on the pollination process. The main apiary product is honey, but the variety of products extend to pollen, propolis, bees venom, mother bee milk, beeswax and not only.

Apiary activity takes place in all European Union member states and is characterized by diversity in matters of working conditions, agricultural practices and production. After China, the European Union is the largest honey producer worldwide. Thus, the trade balance indicates a trade deficit and the European Union is a net importer of honey with internal production only covering 60% of consumption (European Commission, 2016).

Romania is the largest honey producer in the Union with 35,000 tons of honey produced in 2015, followed by Spain with 32,200 tons and Hungary with 30,700 tons (European Commission, 2016). Romania is an exporting country of honey with 1,47 millions of bee families, having 40,000 registered beekeepers.

Honeybees are among the most important and valuable agricultural livestocks throughout European countries delivering economic value not only as honey producers but also as crop pollinators and the most serious threats in the sector are given by potential diseases and bees health problems (De la Rua et al., 2009). Thus, the decline in the number of bee colonies has multifactorial origins, including apiary managerial practices, climate factors or agricultural land structure. Moreover, at the European Union scale, more than half of beekeepers are over 55 years old (European Commission, 2015) which raises a new challenge. On the other hand, the opportunities of the sector come down to the threats and involve monitoring systems, consistent legislation and policies regarding honeybees preservation or applied research, but are not limited to these.

Technological progress is important for agricultural development, in general, but in a deficient management scenario its entire potential would not be reached. In this sense, management intends to help the farmer integrate technology in its practice with the aim of maximising both producers and consumers benefits.

At agricultural level, bees represent the most important pollinator species. Therefore, the sustainability of the apiary sector is a current topic which needs more attention headed towards it, considering that it is an aggregate of sustainable apiary enterprises. In the European Union, the apiary sector is underdeveloped compared to other agricultural sectors (European Commission, 2016). The challenges that beekeepers experience in the intra-Community with hives and honey production mostly reflect on small farms and involve higher costs, intense competition given by cheap imports, bee colonies loss, diseases and a degraded natural environment. In addition, traditional practice still constitutes the main means of practice for a large share of beekeepers (European Commission, 2015) since they do not possess modern technologies or knowledge in management.

# 4. Sustainable Business Models as Analytical Constructs for Sustainable Apiary Businesses

The reliance on traditional beekeeping have counteracted the full realization of the income generating capacity of farmers and development of the apiary sub-sector. Consequently, there is a need to develop farmers ability to respond innovatively to unpredictable conditions and to be adaptable to markets requirements. Effective and dynamic governance is critical both to business success and in ensuring that the business meets the expectations of its stakeholders. Apiary businesses are no exception, and one way to achieve an improved governance is through an improved business model.

After the global economic and financial crisis, the impact at the economic and social scale of sustainable business models has been questioned. International organisations (United Nations Industrial Organisation, 2013; World Business Council For Sustainable Development, 2012) and researchers reacted and reassessed how businesses may contribute to sustainable development. At organisational level, the sustainable development concept led to the evolution of other concepts such as sustainable management, corporate sustainability (Dyllick and Hockerts, 2002), sustainable innovation and sustainable entrepreneurship (Schaltegger et al., 2015) and social enterprises.

Sustainable management tackles social, environmental and economic challenges in an integrated manner with the aim of rebuilding organisations and urge them to contribute to a sustainable development (Whiteman, Walker and Perego, 2013). Today, one of the most serious challenges that managers and entrepreneurs deal with are the means though which they can contribute to sustainable development.

In relation to sustainable development the concept of circular economy emerged, which aims for economic growth through an efficient resource use system while maintaining a high value for the final products. An efficient use of inputs leads to cost reduction, but more importantly, it leads to innovation and new business models.

The business model concept has developed during the 90s and has been used as an analytical construct both for practitioners and researchers. The aim of business models is to describe and analyse the way a business proposes, creates, transfers and retains value (Teece, 2010). Literature has identified a series of factors that oppose business model innovation and these include external factors such as competitors, consumers, partners and government behaviour, and internal factors which are related to the organisation and management respectively (Aarikka-Sternroos et al., 2014). Internal factors include financial resources, organisation's capabilities and aptitudes, the mindset, management and cognitions or organisation's risk aversion.

Among various researchers and practitioners there is a consensus that societal sustainable development is doubtful without the sustainable development of organisations. Therefore, attention is now headed from corporate sustainability towards sustainability management, which has become more and more widespread in large organizations (Dyllick and Muff, 2015). So far, it has been established that the current approaches in the field of social corporate responsibility or innovative technological processes are no longer sufficient to renew organisations, industries and societies

toward sustainable development (Boons and Ludeke-Freund, 2013). Consequently, the need for knowledge arises in the field of business models on how they can develop competitive and integrative solutions by eliminating negative externalities and creating positive externalities.

The concept of sustainable development is a dynamic one, which responds to the level of information available but also to society's needs and priorities. In this scenario, the contribution of businesses is rather indefinite since the ability to contribute varies among business dimensions and sectors.

Stockholders theory argues that the main objective of a business is to achieve economic welfare and increase its profits (Friedman, 1970), while others recognized the social role of a business which has led to stakeholders theory development (Freeman, 1983). Maintaining a balance between shareholders interests and society welfare is a real challenge for today's leaders, who are faced with the choice to do what is best for society or do what it needs to be done in order to survive.

From a larger perspective, it is clear that it is in businesses interest to operate in a healthy environment and economy. Although in the emerging countries, sustainable and rapid development is the main concerning aspect, in the developed countries, attention is already headed towards environmental management. Nevertheless, the sustainable development concept needs to be integrated in the processes and policies of a business (Dyllick and Hockerts, 2002) not only because it enables an upgrade to its management methods, but also because it provides new business opportunities.

The concept of sustainability has been able to attract attention, especially as a successful strategy in the businesses of tomorrow due to the global economic inequality and resources scarcity. In the business environment, the importance of the progress of society and environmental protection has been highlighted. Also, ecological interdependencies proved to be essential in ensuring a healthy ecological system, which is why sustainability in the field of apiary activities becomes a paramount link in the chain loop.

In the field of sustainability there have been identified common properties that lead to improving sustainability such as change, innovation or adjustment to the operating environment. The ability to innovate in the field of sustainability is necessary in today's business environment and innovation may be implemented either steadily or radically, through disruptive innovation (Adams et al., 2012). Business models innovation develops as a potential mechanism of integrating sustainability in business (Schaeltegger et al., 2015). However, there is a lack of common acceptance in literature regarding business models innovation and sustainable business models (Boons and Ludeke-Freund, 2013). Moreover, the lack of a common perspective and empirical studies makes it difficult for businesses to understand business models innovation and identify and create alternatives.

There are several definitions of business models, but the most common one states that business models explain how a business creates, transfers and captures value (Teece, 2010). Some authors also note that business models allow firms to reconfigure their ability to adapt to change (Teece, 2010) or that business models represent the engine of innovation and a means to sell innovation.

Sustainable innovation involves more than technology. It considers business models, processes, operational procedures, systems, practices and mindsets. Achieving innovation requires an integrated mindset and a reconfiguration of business aspects such as abilities, stakeholder relationships, leadership, organisational culture and knowledge management (Adams et al., 2012).

The creation of sustainable business models involves a number of challenges. These challenges refer to: (1) the triple bottom line, or the co-creation of profits, social and environmental benefits while maintaining a balance between them, (2) the mindset through behavioural norms, rules and performance measurements which restrain the introduction of new business models, (3) resources through managers reluctance of distributing them for testing new business models, (4) technological innovation through its complexity regarding implementation, (5) the relationships with external stakeholders because of the additional efforts required and (6) the instruments and methods of business modelling due to their scarcity (Evans et al., 2017).

A series of key elements need to be considered in the field of sustainable business models such as economic, social and environmental factors and the prioritization of stakeholders needs (Evans et al., 2017). In this case, attention is headed towards business models that create customer superior value and contribute to the sustainable development of the firm, society and natural environment.

Integrating sustainability in business models requires a systemic perspective that involves the global outlook and the relationships between the elements of the system. Such relationships lead, in general, to a group of three or more connected organisations with the aim of achieving own or common objectives (Provan and Kenis, 2007). This networking phenomenon is seen in practice though partnerships, coalitions, strategic alliances, collaborative agreements or inter-organizational relationships. A balanced and integrated system depends on deliberate interaction, partnerships, learning from different stakeholders and networking, so the challenge is now given by the way to successfully achieve these interactions.

Research in the field of sustainable business models innovation is underdeveloped, and therefore it is natural that firms are reluctant to implement an innovative model in real life (Thompson and MacMillan, 2010). In response to this, trial and error, experimenting and learning are suggested as methods to discover new business models and also have a better understanding of them as analysis tools (Baden-Fuller and Morgan, 2010). Still, these methods involve substantial resources such as financial capital and bear risks such as failure. Thus, simulation might come as a solution to help implement business models and experience problems of decisionmaking before applying them to real life.

United Nations Environment Programme (2014) identified over 200 academic reports that indicated a statistically significant and positive relationship between sustainable and financial performance and in reaction to corporate social responsibility pressures, more and more companies publish reports of the triple bottom line and of sustainable development, respectively. However, although there are ongoing efforts to establish a standard reporting, the results in the reports published are exhibited under the measurements of social and environmental governance, especially in the field of

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sustainability, where the measuring instruments are still developing (Evans et al., 2017).

# 5.Conclusion

As a conclusion, over the past decade sustainability efforts in the apiary agribusiness have emerged slowly. Still, there is increasing interest from scholars in innovating sustainable business models and from practitioners and international organizations in ensuring both sustainable development in general and in the apiary sector. Consequently, the aim of the present paper is to provide an integrated perspective of the topic discussed by employing multiple bodies of knowledge from fields of study that include sustainable development, business models and apiary agribusiness. Sustainable development requires more than technological progress and therefore, systemic innovation and the sustainability of business models might contribute effectively in the apiary sector. Also, although the concept of sustainable business models is still emerging, it provides a holistic framework for organizations that enables them to follow the path of sustainable development, especially in the considered sector that has multi-level implications.

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