

# DIGITAL TRANSFORMATION AND SUSTAINABLE ENTREPRENEURSHIP IN FOOD SUPPLY CHAIN

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## Abstract

Food logistics is a critical sub-category, with major implications for society, in which tech entrepreneurs can bring a significant paradigm shift. We will investigate these changes through the concept of green entrepreneurship and by briefly describing the EU strategy called Farm to Fork. In order to demonstrate that the change is already happening, we will present a case study featuring a tech start-up from Romania. The company is a successful application of sustainable entrepreneurship in the logistics and supply chain area and a practical exemplification of the Farm to Fork strategy.

**Keywords:** Digital transformation, Farm to Fork, Tech start-ups, Food supply chain, Sustainability.

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## 1. INTRODUCTION

Entrepreneurship is the blood of any economy in the world. The innovative ideas that become concrete in new companies maintain society and set the course for the future. However, without responsibility and sustainability, this future will be bleak, and future generations may not enjoy the same development. Therefore, a new generation of entrepreneurs has emerged who are driven by profit, like any entrepreneur, but also have a real interest in sustainability. This type of entrepreneurs is present in all industries, but in the transport and supply chain sectors it adds a direct and significant impact. Given the importance of supply chain in today's world, it is very important to investigate how entrepreneurs have begun to transform this sector.

In the literature review, we will point out several aspects related to sustainable, green entrepreneurship. We also argue that the field of logistics is and needs to be an area where tech entrepreneurs can bring about a significant paradigm shift. Food logistics is a critical sub-category with major implications for society. In this context, we will present a case study regarding a start-up in Romania that implements an

integrated logistics platform to connect vegetable and fruit producers with consumers in restaurants. We must mention that the platform is still in a very early stage, in which the business model is tested and improved. As a brand name, the platform is called Verde, a very synthetic and suggestive name. The information presented in the case study was obtained through the interview with the founders according to the framework presented in Annex 1, as well as through the public information available in the media. The author also had access to internal documents and reports of the company.

## 2. LITERATURE REVIEW AND OVERVIEW OF THE PROBLEM

One of the areas where sustainable entrepreneurship can manifest its full potential is the supply chain. Morais and Silvestre (2018) analyse the motivation of advancing sustainable practices in supply chain. The authors distinguish between extrinsically motivated initiatives (driven by financial rewards of social sustainability) and intrinsically motivated initiatives (driven by ethical considerations and values). Moreover, they add another two peculiarities, called "structural collaboration" and "information exchange", maintaining that, basically, good results in such supply chain initiatives cannot be obtained in a close environment.

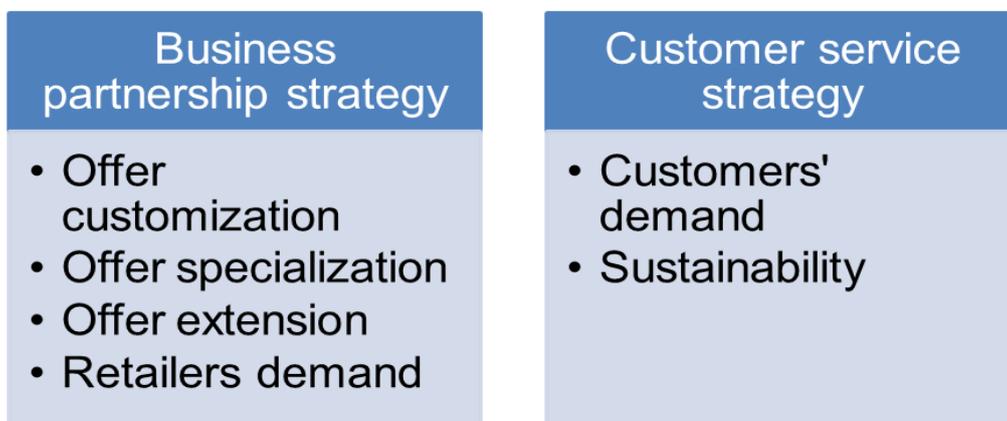
Lotfi, Yousefi and Jafari (2018) list no fewer than 23 references related to green entrepreneurship, from green marketing to green start-ups. One of their research questions is related to green supply chains and the impact on green entrepreneurship and demonstrates a direct link between the two concepts. Typically, the process of improvement in the supply chain begins with cost control, then shifts to agility to meet customer requirements, and ultimately shifts to resilience when mitigating risks. This route is a process of continuous improvement to which the authors propose to add the green dimension. In this new context, sustainable entrepreneurship finds a lot of opportunities for development by enhancing the green dimension. The importance of resilience is also underlined by Rahman and Mendy (2019), especially in the context of the internalization of small and medium-sized enterprises in developing countries. The authors found a strong link between the two factors and analysed various barriers, such as sociocultural differences, which must be addressed in the context mentioned above.

The link between entrepreneurship and the sustainability of the supply chain is also strongly supported by Marshall et al. (2015). The culture of social sustainability is the starting point in the implementation of sustainable practices that are progressing from the simple (e.g., auditing of compliance with supplier sustainability) to the complex (e.g., redefining the supply chain strategy focused on fair trade). This effort can trigger real sustainable management of the supply chain. Entrepreneurial orientation falls between culture and both categories of practices, actually acting as a trigger from saying to actually doing. The authors used a questionnaire administered among top managers, which was first statistically tested for validity, then analysed through a regression model. The environmental values of ecopreneurs have a

direct impact on their supply chain practices. Kirkwood and Walton (2010) present some practical examples of environmentally friendly practices in supply chain management, both on the demand and supply sides. On the same idea, Sabri, Micheli and Nuurb (2018) explore the impact of innovation implementation on supply chain configuration. The authors focus on process innovation and analyse its impact on network design, operations, collaboration and coordination and, last, but not the least, on supply chain strategy.

A special application of green entrepreneurship in the retail supply chain is represented by digital freight transport platforms. This development has been facilitated by the advancement of technology and reflects the profound changes that have taken place in the way people move and use transport services. Without a doubt, platforms such as Uber, Lyft and Bolt have completely changed personal transport, and it is expected that the same trend will follow in freight transport as well. Frehe, Mehmman and Teuteberg (2017) propose the term „crowd logistics”, whereby simple people can act as carriers for a small fee. The participating logistics service provider is normally a technology platform that acts as an intermediary between the beneficiary and the freight interpreter. The authors highlight the technological side of the concept, achievable through technologies such as RFID and GPS and the ubiquitous use of smartphones. As such, this type of service is performed by technology companies and not by classic logistics/freight carriers and is based on the principles of the circular/collaborative economy.

Buldeo Rai, Verlinde and Macharis (2018) analyse how logistics service providers and, in particular, urban logistics players adapt to the new omnichannel strategies. The authors discovered six factors under the umbrella of two strategies, as per Figure 1. The interest in sustainability, as a key factor, is noticeable and in line with other authors.



**FIGURE 1. KEY FACTORS IN URBAN LOGISTICS**

Source: adapted after Buldeo Rai, Verlinde and Macharis (2018)

The start-up presented in the case study is also a perfect illustration of the EU strategy called Farm to Fork. We consider, therefore, that it is necessary to point out some main ideas about this strategy, the space and context of this work not allowing a detailed presentation.

According to the official EU page, the Farm to Fork strategy is at the heart of the European Green Deal, with the aim of making food systems fair, healthy and environmentally friendly. The strategy supports and involves, at the same time, four main pillars, according to Figure 2. The strategy also adds that "new technologies and scientific discoveries, combined with increased public awareness and demand for sustainable food, will benefit all stakeholders".



FIGURE 2. FARM TO FORK STRATEGY

Source: adaptation by official EU page

As can be seen from Figure 2, sustainable food logistics is one of the main pillars of the Farm to Fork strategy. This generates a whole series of opportunities for entrepreneurs that, combined with new technologies, can lead to the development of profitable and sustainable businesses.

The need to implement a strategy in this area results from an extremely simple but persistent problem. At the moment, at EU and national level, the demand for fresh and quality products does not properly meet the supply of such products.

Going into details, we can see that at the level of demand there are several problems. The first is related to the high cost of fresh and healthy food. People do not consume them, first of all, due to the existence of much cheaper alternatives. Secondly, fresh and healthy food has a reduced lifespan by nature. The two

factors have a direct impact on the availability of these products. However, at the level of society there is an increased pressure for responsible consumption and an increase in the quality of food products. At the level of supply, the fragmented nature of the producers is firstly observed. EU statistics show that 2/3 of farms have less than five hectares, and of these, 55% are concentrated in Romania, Italy and Poland. Moreover, they are not connected to each other and with consumers, also having a reduced productivity, which ultimately leads to reduced gains of a maximum of 10-15% of the final price of the product.

As such, we are talking about an economic problem in which supply and demand exist, but they cannot meet effectively and efficiently. The solution should not be sought or imposed by the authorities, but left to entrepreneurs.

### 3. CASE STUDY

As always in the history of human society, the problems in the market have been turned into opportunities by a visionary team of entrepreneurs. Thus appeared the Verde platform, which proposes a marketplace model, based on technology, with a focus on the logistics of fresh food products. From the perspective of the operations, Verde is a digital freight forwarder, thus confirming the findings of the literature.

The objectives of the company are as follows:

- A. Connecting and aggregating decentralised capacity. In this way, the platform allows the just-in-time purchase of local, healthy foods with known origins.
- B. Standardisation of market information for product supply and demand planning

Thus, Verde is the first technological platform that integrates the short agricultural supply chain to aggregate and standardize supply, reduce food waste and logistics costs.

Like any marketplace, the platform connects two categories of actors, namely farmers and fresh food customers. Moreover, Verde also provides a series of services to the two categories, according to Figure 3. For these services, the Platform asks for a fee; now, it is 20% on the part of farmers, but in the future, it is also planned to develop other sources of monetization.

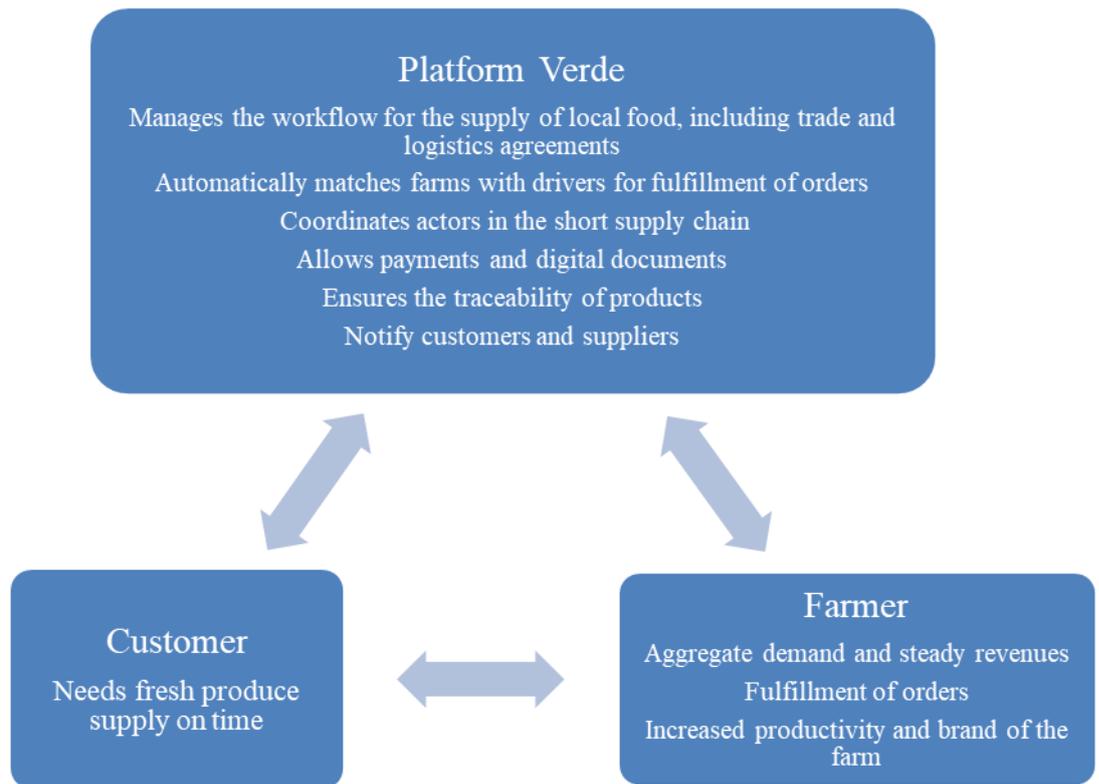


FIGURE 3. MODUS OPERANDI AND BENEFITS OF THE VERDE PLATFORM

Source: Verde strategy

For starters, the ideal customer is the select restaurant, usually run directly by a famous chef, who wants to offer a high-quality menu. This type of restaurant is not content with sourcing from classical sources, but wants to have access to fresh food in a very short time. On the other side of the marketplace is the new type of farmer – young, connected and eager to ensure that his products are valued at their true value. He no longer wants to work through intermediaries, which reduce his profit margin, but wants to be in direct contact with his clients. From the researches of the Verde team, in a classic supply chain with intermediaries, for 1 euro of finished product the farmer gets only 10% of its value. Using the platform, the farmer can reach up to 38%, which is a major benefit.

As mentioned, the platform has just been launched in Romania, in two cities, Bucharest and Cluj-Napoca. So far, traction is good, several dozen farmers and restaurants have been enrolled, which currently trade.

The growth strategy aims at several directions of improvement and development in the future:

- A. Automation of flows and processes – at the moment, some of them are still manual, being carried out in the back-office by the Verde team. The company has a very clear roadmap with deadlines and responsibilities on every stage of development.

- B. Geographical expansion in Romania and abroad. Thus, five major cities in Romania (Iasi, Brasov, Timisoara, in addition to the existing ones) are targeted. After consolidating the activity in Romania, the next target market is Italy, given the specificity very close to that of Romania.
- C. Generating additional sources of revenue. As mentioned, currently, the platform requires a commission only from farmers. In the future, it is planned to extend the model to restaurants as well as to establish subscription levels, depending on the level of functionalities offered (the so-called freemium model). Last but not least, a marketing component will also be added, through promotion fees for farmers and restaurants.
- D. Scaling the model in other industries and verticals. The strategic question that needs to be asked here is – if the model works for fresh food, why wouldn't it work in other industries? Of course, scaling needs to be looked at on a case-by-case basis, but as long as infrastructure and flows/processes are in place, over a medium and long-term horizon, it is possible to implement the platform in other industries and verticals as well.

#### 4. CONCLUSIONS

In conclusion, the Verde platform is a successful model of sustainable entrepreneurship in the area of logistics and supply chain, practically exemplifying the results obtained in the literature review. Turning problems into opportunities and capitalizing on them into sustainable business is characteristic of any entrepreneur, but in this area, the effort is more than admirable and hopefully to be continued by others. Start-ups like Verde make us believe that the future is sustainable, clean and green!

The paper has certain limitations, as it presents a single, yet representative, case study. We intend to deepen the research by focusing on the processes and the improvements realized by these start-ups through quantitative data and statistical analysis.

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**ANNEX**

Guide to the interview with the founders of Verde Platform

Activity	Comments/Questions	Approximate Time
<b>Purpose of the interview</b>	Identifying and understanding the main aspects and key components of your start-up.	
<b>Introduction</b>	<p>Thank you for agreeing to participate in this interview. We interview you to better understand your ideas and opinions related to your company's business model. There are no correct or wrong answers to any of our questions, we are interested in your own opinions.</p> <p>Participation is voluntary. The interview should last about an hour, depending on how much information you want to communicate. All responses will be shared with members of the research team and we will use the information received from you to build a case study for teaching purposes. You may refuse to answer any questions or stop the interview at any time and for any reason.</p> <p>Are there any questions about what I just explained?</p>	5 minutes

<b>Establishing the Quality of the Interviewee</b>	Before we begin, it would be useful if you could tell me a bit about yourself and your position/role in the company.	5 minutes
<b>Structured topics</b>	<p><b>1. The idea of the business</b> Can you tell me how the idea of this business took shape?</p> <ul style="list-style-type: none"> <li>• What inspired you to start?</li> <li>• What were the fundamental initial elements that led you to hit the road?</li> <li>• Can you outline the directions in the original business plan? How many of these are still valid?</li> <li>• Please highlight the key moments in the evolution of the organization since its appearance to the present.</li> </ul> <p><b>2. Business model in general</b> Can you describe the main activities of the business?</p> <ul style="list-style-type: none"> <li>• What is the operational component of your business?</li> <li>• Can you present the key tasks?</li> </ul> <p><b>3. Business model</b> Can you elaborate on the specific business concept?</p> <ul style="list-style-type: none"> <li>• From your point of view, what do you think is the main differentiator?</li> <li>• Do you think your business has can sustain this differentiator in the long run?</li> <li>• Please outline the limits and risks, but also the opportunities and challenges of the business model.</li> </ul> <p><b>4. Partners and key resources</b> We would like to discuss the partnerships and resources needed to run your business.</p> <ul style="list-style-type: none"> <li>• What are the material and human resources involved?</li> <li>• Can you detail the financial resources needed to start your business? Were external funds involved?</li> <li>• What can you tell me about essential partnerships? How do you select the suppliers and partners you work with?</li> </ul> <p><b>5. Market served</b> How would you describe the market your business serves?</p> <ul style="list-style-type: none"> <li>• Can you define persona buyer?</li> <li>• What is the target customer segments?</li> <li>• How would you define the value proposition of this business?</li> </ul> <p><b>6. Financial situation of the company</b> Is it convenient for you to bring up the financial situation of the company?</p> <ul style="list-style-type: none"> <li>• From a financial point of view, is this a successful business model?</li> <li>• Has the pandemic had implications for the company's results?</li> <li>• Is the company facing financial problems? Can you elaborate/explain the causes/reasons for this situation?</li> <li>• Can you provide us with reports on the financial situation of the company?</li> </ul>	50 minutes
<b>Closing the interview and final considerations</b>	Are there other things you want to add?	10 minutes