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Romania's Agro-Food Sector: Issues of Cluster Development and Competitive Positioning

Ionut SARACUTU[1]

Abstract

Economic theory and international practice confirm the role of clusters as catalysts for competitiveness based on innovation and internationalization. European countries are facing the challenge of becoming prosperous societies based on modern, competitive and efficient economies in terms of use and are continuously developing agricultural resources. Mobilizing agro-food actors towards a clean and circular economy, through in-depth cooperation along trade channels such as the use of new technologies, implementation of sustainable solutions plus innovation, are critical for achieving the goal of increasing productivity and responding to the globally growing demand for agro-food products. At regional level, clusters play an important role in making smart specialized operational strategies, facilitating SMEs' access to global markets. This paper aims to identify Romanian agro-food clusters and their competitiveness on the international markets and to answer to the following question: How many agro-food clusters are established in Romania and in which regions of the country? Is cluster formation an engine for the development of the Romanian agro-food sector? Are local clusters internationally competitive?

Keywords: agro-food sector, clusters, agriculture, Romania, competitiveness, development.

JEL Classification: Q13.

1. Introduction

The significant variation of regional economic performance is a specific feature of an economy such as Romania and other Eastern European countries. Numerous theories have been proposed to explain why some regions achieve significantly higher growth rates than others, in Europe or even globally. "In developing countries, there is an active discussion as to the possibility of use of cluster approach to the regulation of socio-economic development of regions. Unfortunately, as of now, cluster projects are not being implemented. However, the role of clusters in the

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[1] Bucharest University of Economic Studies, Bucharest, Romania, saracutuionut@yahoo.com.

development of regions is huge, as they are "growth points" of not only the region but of the whole national economy" (Borisova, Abramova, Zageeva, Popkova, Morozova, Litvinova, 2015).

In the Eastern region of Europe, only Poland manages to compete with the developed countries from Western Europe. This success is due to the growing regional agricultural disparities, which are inevitable consequences of the transformation process and economic growth. The Polish economy is differentiated by the massive economic concentration in 3-4 regions of the country, which generates a quarter of the total gross domestic products. Regarding Romania, it is necessary that companies from the agro-food sector unite their capacities within a national network of clusters in order to support the development at local, regional and international level. Additionally, collaboration with other organizations, cross-sectoral clusters from abroad and development of national and international economic relations and market could lead the Romanian agro-food sector to success. Economic clusters are "geographic concentrations of interconnected companies, specialized suppliers, service, providers, firms in related industries, and associated institutions in a particular field that compete but also cooperate in producing similar products" (Porter, 2000).

The main attributes of this paper derive from the way of systematizing the information. Theoretical aspects are supplemented with examples, financial information, comparative data and results. Firstly, this article aims to identify Romanian agro-food clusters. The geographical concentration of farming activities can promote institutional innovations for farmers. Sharing resources, knowledge, and markets in clustered regions lead to income improvements for farmers (Dadan, Ihle, Heijman, 2017). According to (Porutiu, 2020) the aim of Romanian clusters is to create a regional brand of agro-food products and to be known nationally and internationally. Romania's accession to the European Union in 2007 has created new opportunities to improve the productivity of rural areas. In the European Union, agriculture is one of the main interest areas and the largest area of EU expenditure (Bronisz, Heijman, 2016).

Second, we will examine the competitiveness of Romanian agro-food cluster on the international market. The Romanian agro-food clusters are still at an incipient level. It is necessary to stimulate innovation and collaboration in terms of economic competitiveness, including the acquisition and development of technological equipment for the agricultural sector, food industry and the related sectors, such as Bio economy, renewable energy, environment and climate change, eco-technologies and advanced materials, information technology and communications, in order to finally achieve a sustainable regional development of these sectors, and smart growth conducive to social inclusion (European Cluster Collaboration Platform). We observe the bold and optimistic goals, but it is necessary that these objectives be supplemented with research, promotion, human resources development, the creation of an electronic communication network and the development of national and international economic relations.

2. Literature Review

Starting with the 1990s, Michael Porter made an analysis of clusters, carrying out several works on this topic and those with the biggest impact are "The Competitive Advantage of Nations,"1990, "Clusters and the new Economics of Competition", 1998, "Clusters and Competition: New Agendas for Companies, Goverments and Institution", 1998. Currently, most international cluster studies use Porter's work as a model. Michael Porter (Porter, 1990) has shown that it is not enough to interpret only the classical factors of production and to explain the success or failure of a region or a country economy. Economic success linked with innovation, research and sustainable development is influenced by a dynamic interaction of several factors, such as demand conditions; firm strategy, structure and competition; factor conditions; related and supported industries (Serbanel, 2020). Starting from Porter's definition, Otsuka and Ali (2020) reinterpret the definition of agro based clusters as a "geographically proximate and interlinked group of commercial farmers of a product or a group of closely-related products and related interconnected companies for input supply, service provision and processing". Starting from agro-food clusters and agricultural clusters, and going further in the future, we can achieve an advanced classification called agro-industrial cluster in which the products are processed and transformed by industrial factories into finished products or prepared food. According to Otsuka and Ali (2020) "the range of stakeholders connected with each other's is generally longer and the strength of their connectivity is relatively weaker in agricultural clusters than in agro industrial clusters. In agricultural clusters farmer directly purchase input from input suppliers and no value addition and processing is done, because agricultural products are destined for local wet markets and non-quality conscious city markets".

Since Marshall (1920), economists around the world have noted and highlighted three different factors of agglomeration: input-output links, labour market sharing, and information dissemination. These distinct mechanisms, but also the engine of profitability, are associated with cost or productivity benefits for companies. "Taking into account the relationship between the growth of economic activity and the initial level of economic activity in an industry both convergence and agglomeration effects may be present" (Delgado, Porter, Stern, 2014). The three authors wanted to present in their paper called "Clusters, convergence, and economic performance", (2014) that industries in a certain region may be subject to convergence effects due to low productivity and return. The profitability of economic activity may be declining due to the competition cost and congestion costs. Too much corporate presence in an industry related to the size of a region can intensify local competition and harm new start-ups or existing growing businesses. If the price of specialty products raises at all local companies, there could be declining returns due to congestion costs. From another perspective (Porter, Porter, 1998) in the paper named "Location, Clusters, and the "New" Microeconomics of Competition" present us that "the prosperity of a location depends, then, on the productivity of what firms choose to do there. These sets of wages can be sustained and the profits can be earned. Both domestic and foreign firms contribute to the prosperity of a location based on the productivity of

activities they perform there. The presence of sophisticated foreign firms often enhances the productivity of domestic firms and vice versa". The better the quality of the business environment in a region, the more complicated and sophisticated is the competition among firms. Companies can use advanced logistics approaches if in that region or country there is a high quality of transport infrastructure. Companies also need well-educated people and high-quality schools in the regions or countries in which they operate in order to achieve competitive quality strategies. If bureaucracy is cluttered, companies encounter difficulties in their daily activity and this can affect the business. Exactly for this reason governments must encourage the development of business through concrete actions, such as a light bureaucracy and various other facilities. Knorringa and Nadvi (2016) reinforce the idea that there is a risk for those clusters that have been internationally competitive but have not invested in innovation; research and technology have eroded their market position. Analyses realized over time in clusters case especially in developing countries have shown us that success is not guaranteed. Moreover, the involvement of companies within a cluster can increase or decrease, and the profits obtained will not only be differentiated, but can also have a clear impact on the dynamic attempts within the group.

In the research conducted by Hughes and Boys (2015), we find that in less developed agricultural regions, local producers benefit from a high demand for their products. More than that, even the companies related to this sector benefit from growth demand for their products and services. These benefits can occur through two principal channels. The first one is through supply chain links where different components of local economies are affected by local food systems sales. The impact of these links is in farmers' markets, food centres and local food distribution. In this regard, the conclusion is that the impact of the local food system on local employment and income is positive and growing, but the agricultural region is weak and underdeveloped. The second channel can be done directly, through connections between companies or through intermediaries - such as a vocational school supported by the local business environment. The latter can reduce the cost of doing business through what economists call "congestion savings", meaning general cost reductions, due to business which is grouped in a certain area.

3. Methodology

The questions that the article is trying to answer are the following:

- How many agro-food clusters are established in Romania and in which regions of the country?
- Is cluster formation an engine for the development of the Romanian agro-food sector?
- Are local clusters internationally competitive?

To answer these questions and develop this paper, an empirical research was conducted using both quantitative and qualitative methods. To achieve the results of this paper international databases were used (International Trade Centre), which contains a nomenclature of 22 agro-food sectors (Romanian National Committee for

Macro Prudential Supervision, 2020). Statistical analysis will be performed in the form of maps, direct graphs, comparisons and results to demonstrate Romania's competitiveness. The data is free for public access and the creation of a free user account is required. In order to accurately assess agro-food trade at the regional level, I identified the countries that are in trade relations with Romania in terms of global exports and imports of agro-food products, in 2-digit product categories. The analysis is performed for the period 2017-2019, but with a greater emphasis on the years 2018-2019. Although statistical data for 2020 are largely available, but given the pandemic year caused by Coronavirus, I considered that data are not relevant for the present analysis, because worldwide there were difficulties in terms of supply caused by land, sea and air transport blockages and others restriction. Strictly for 2020, another specific and comprehensive analysis is needed.

4. Result and Discussion

At European level, agriculture and food are among the most active areas in terms of innovation projects. The digitization of agricultural and food activities is gaining momentum. The closest project to this paper is SmartAgriHubs - a cluster of over 155 partners, consisting in start-up companies and SMEs, which can get access to technology-testing, financing advice, market intelligence and networking opportunities. The project is divided into nine regional clusters (UK & Ireland; Scandinavia; France; North West Europe; Central Europe; North East Europe; Iberia; Italy & Malta; South-East Europe), in seven sectors and 28 innovation experiments were performed. Thus, it is functioning as a catalyst for changes in the future agriculture, aiming to digitize millions of European farms (https://smartagrihubs.eu).

In the analysis conducted by the Romanian National Committee for Macro Prudential Supervision, in 2020, with the focus on reducing vulnerabilities resulting from increasing trade deficit in agro-food products, 10 action measures have been proposed, among which we find: support schemes offered by the authorities through guarantees offered by credit guarantee funds; financing through European funds and guarantees like SME Initiative and Innovfin; investment in promotion and exports. These facilities are proposed to be offered especially for companies that create food chains, generate local clusters, produce ecological goods, produce goods that are in the Top 10 imports agro-food and others. If these measures are implemented in a short time, first of all Romania would reduce its existing trade deficit in terms of agro-food products and also with the help of a sustainable development corroborated with huge agricultural potential that it has, could achieve surplus in few years.

Romanian clusters are divided into regions, include a few of the country's regions and sum up a number of 7 agro-food clusters (Agro Transilvania Cluster, Cluster Agro-Food Regiunea Centru, Indagrovest, Inomar Cluster, ADR S Oltenia, IND-AGRO-POL Cluster and BioNEst Cluster). At a simple glance, the map indicates that there are 3 regions or gaps in which clusters are not present. The first region is located in the Center-West and includes the counties of Sibiu, Alba, Valcea, Hunedoara and Caras Severin, the gap being quite large. The second region with a

large gap on the Romanian map is represented by the Southern half of Moldova region from counties Bacau to Galati, along with other counties from other regions such as Buzau, Braila, Tulcea and Ialomita. The third gap is located in the Center-North and is represented by the counties of Mures, Bistrita Nasaud, Suceava, Maramures, Satu-Mare and Botosani. In order to develop the agro-food sector, Romania needs clusters in all regions to compete, but at the same time to create a unitary value chain for exports.

Figure 1. Romanian agro-food clusters map
Source: https://agrocluster.ro/.

As Figure 2 shows I performed an analysis of sectors placement using an axis with 3 variables (EUR) and 4 quadrants. Vertically we find market share of world exports between 2018-2019, and horizontally there is the Romanian export growth rate between 2018-2019. Bubbles represent the exported value in 2019. As can be seen in the axis below in terms of exported volumes in 2019, cereals are on first place with a value of 2588110 thousand Euro. On the second place are oil seeds and oleaginous fruits with an exported value of 1080331 thousand Euro. On third place is the live animals sector with a value exported in 2019 of 437450 thousand Euro. Regarding the Romanian export growth rate between 2018-2019, cereals record a 20% increase in 2019 versus 2018, and the growth of this sector worldwide in the same period is 0.6%. Oil seeds and oleaginous fruits register a decrease by 10% in 2019 versus 2018, although worldwide the growth of this sector in the same period is 0.5%. Regarding the Romanian export growth rate between 2018-2019 of live animals, it registers an increase of 16% in 2019 versus 2018, and globally this sector registers an increase of 0.1%. Although Romania recorded significant increases in

some sectors between 2018 and2019, decreases can be observed in sectors like: products of animal origin; live trees and other plants; edible vegetables; edible fruit and nuts; sugars and sugar confectionery and others. The main problem is that these decreases are significant, starting from -9% and reaching up to -14%, especially given the fact that they have worldwide overall tendency to grow.
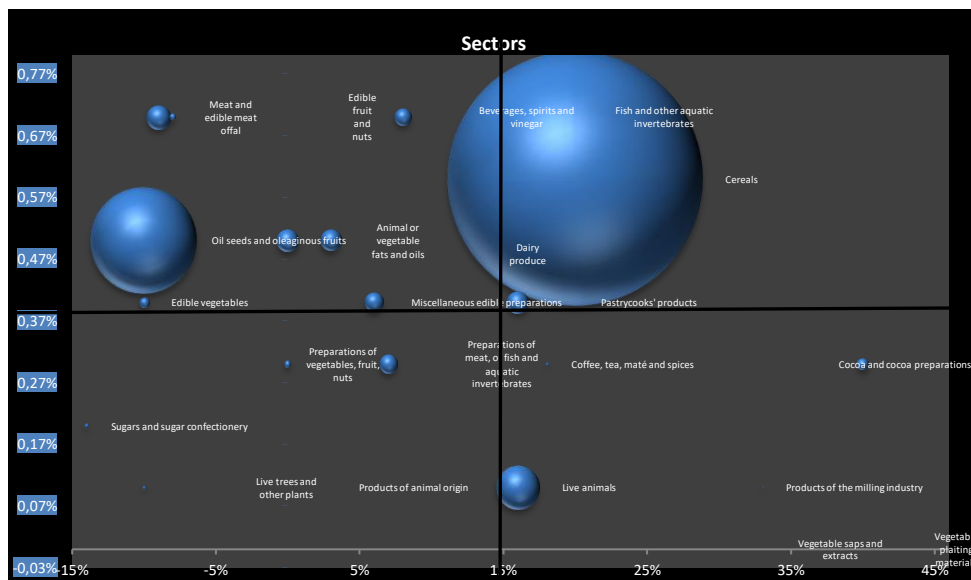

Figure 2. Placement of Romanian agro-food sectors in 2019
Source: Authors' own computation based on trademap.org.

The evolution of agro-food exports had a slightly increasing evolution in 2019 compared to 2018 (Figure 3). Although Romania registers an increase in exports in 2019 of 8% compared to 2018, this result is cancelled by the registered increase of imports with 11% in 2019 compared to 2018 (Figure 4). The total value of imports of agro-food products in these two years exceeds 14 billion Euros, while the exports made in the same period register a bit over 11 billion Euros. This negative result is caused by the fact that Romania exports a lot of raw materials and not finished products. Although the quantities of products are large, the value collected has a small gross margin. If the Romanian cluster system worked, and necessary measures were taken by adopting innovative measures, it could lead to a larger gross margin. There are many examples of good practice in Europe, especially in Western countries like Germany and Netherlands that Romania could take over and adapt to its own business model. However, if we look closer, we will find the model of the Polish agro-food sector, which is increasingly globally competitive.
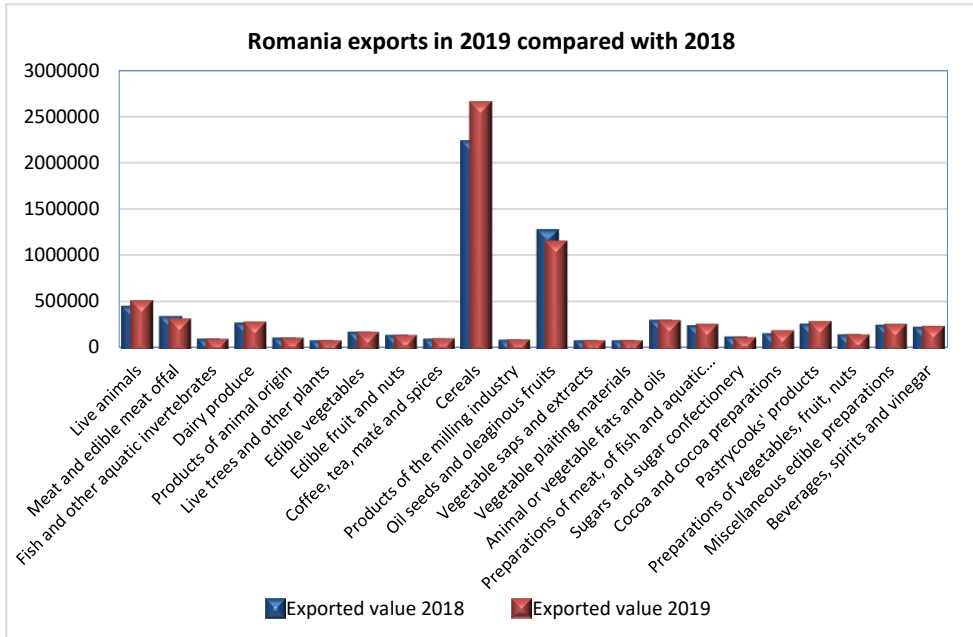
Figure 3. Romanian exports in 2019 compared with 2018
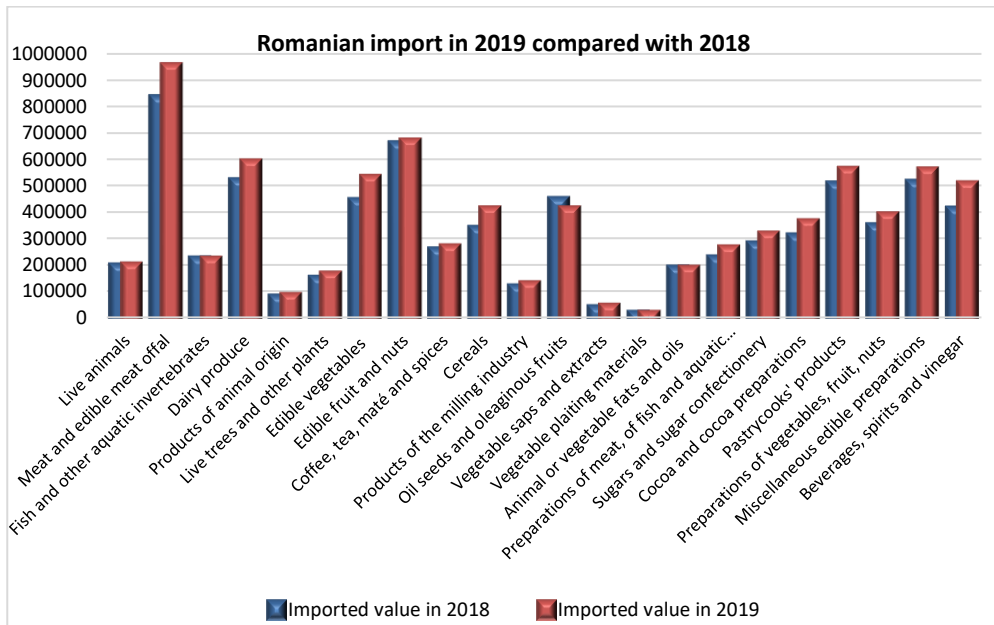*Source*: Authors' own computation based on trademap.org.

Figure 4. Romanian import in 2019 compared with 2018
Source: Authors' own computation based on trademap.org.

Romania's trade deficit related to the agro-food sector is constantly growing, and in December 2019 an amount of over 4 billion Euros had been accumulated (Figure 5). Only in the last 3 years, Romania has registered a trade deficit of agro-food products worth over 3.5 billion Euros. Between 2017 and 2019, an increase in trade deficit can be observed from year to year. This aspect shows that Romania is losing market competitiveness in front of its competitors both at European and global level. This country has only three sectors in which they registered a commercial surplus: cereals sector, live animals and oil seeds and oleaginous fruits. A reason for concern for Romania is the fact that these deficits deepen annually, without seeing a prospect of recovery. The sectors with the largest deficits in the period 2017-2019 are: meat and edible meat offal (-1.7 billion Euro); Dairy produce (-1 billion Euro); Edible vegetables (-1 billion Euro); Edible fruit and nuts (-1.7 billion Euro); miscellaneous edible preparations (-1 billion Euro) and many others. For this reason, we realize that clusters from the agro-food sector do not have an impact in business development, growth and deficit reduction. Thus, it is absolutely necessary to increase the number of clusters, and the Romanian Government to offer facilities and support to these sectors by developing irrigation infrastructure, developing agricultural equipment, supporting start-ups and small and medium-sized companies.
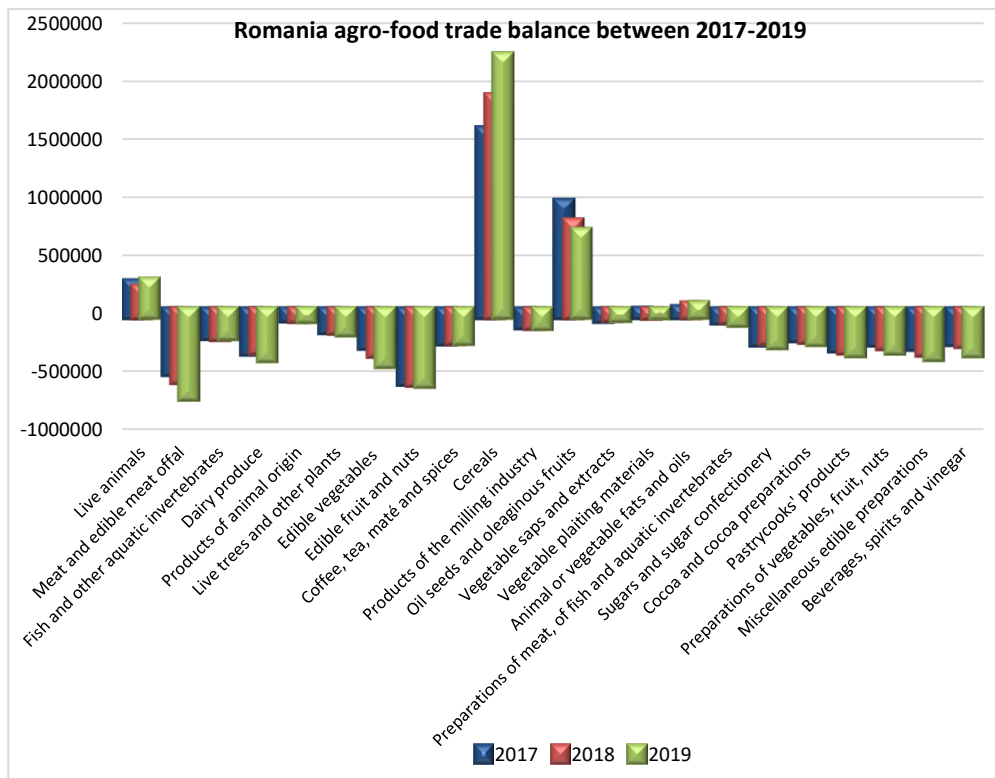

Figure 5. Romanian agro-food trade balance between 2017-2019
Source: Authors' own computation based on trademap.org.

5. Conclusion

Romania has always had different regions from a cultural point of view, but also regarding economic development. These require different policies because the variations across regions are significant. The first step that needs to be taken is to identify existing clusters and to do a SWOT analysis to identify individual strengths and weaknesses. The regions and counties of Romania must be crowded with clusters in order to create an organizational structure that allows the development and concentration of agricultural and economic potential. Farmers' efforts to build clusters or cooperatives together with production factories, distribution companies, traders or key accounts still do not have the desired results. With Romania's entry into the European Union, conditions have changed, and farmers and companies operating in the food industry must develop new business and collaboration models. Undoubtedly, they need a national agro-cluster strategy that will allow them a presence on the world agro-food table.

As observed, Romania is not on a good path in terms of evolution of the agro-food sector. Most governments adopt annual programs, subsidies, financing and guarantees for development, but unfortunately the achievements are few. The current analysis shows a deepening trade deficit reaching over 4 billion Euros in 2019, without taking into account the result of 2020 and how it is caused by the lack of clusters in most regions of the country and by the lack of skilled labour, innovation and technology development. Besides all these problems, Romania also has one of the most divided agricultural areas in the European Union. Thus, the agricultural cooperatives fail to work the necessary surfaces for the production development and sales increase. Additionally, start-ups and small, medium-sized companies need the support of banks in terms of financing the agro-food sector. It is necessary for these companies to regard banks as a business partner where the relationship is win-win for both parties. Unfortunately, at present the Romanian clusters are not the engine for the development of the agro-food sector, as they fail to be competitive on the European and global level.

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