THE ANALYSIS OF A COMPLEX COLLABORATIVE VALUE CHAIN. CASE OF AGROTRANSILVANIA CLUSTER

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Abstract

A multifaceted and flexible partnership established to support the growth of the agro-industrial sector has produced the Value Chain of AgroTransilvania Cluster. Its goal is to aid in the growth of the association's and each member's competitiveness on both domestic and foreign markets. The aim of the article is to propose and set up an adequate strategy for assuring the common development of the AgroTransilvania Cluster. The analysis of internal and external ecosystem of the value chain of the AgroTransilvania Cluster – the material studied - was scrutinized using SWOT Analysis, used, aftercall, as groundwork for TOWS Matrix, completed by PESTEL analysis. The needs of the members of the cluster were identified using Delphi method, through questionnaires. The final result consists in a strategic planning document, so its implementation was assumed by the cluster's members, assuring their involvement in joint, multi- and trans-disciplinary research, development, innovation, technology transfer, service provision, production, increasing visibility and not. The final aim of the strategy is to successfully generate the transition from an emerging cluster to an innovative one.

Key words: collaboration, agri-food, strategic development, agribusiness

INTRODUCTION

The agri-food sector is, probably, one of the most sensitive Romanian economy's sectors, both through its interest at the national and European level, and through the complex issues that its own existence generates (Chifor et al, 2022) [4].

According to the "National Strategic Framework for the Sustainable Development of the Agri-Food Sector and the Rural Area in the Period 2014-2020-2030 - The National Rural Strategic Framework (Presidential Commission for Public Policies of the developmnet of agriculture in Romania/ Comisia Prezidențială pentru Politici Publice de Dezvoltare a Agriculturii în România, 2013) [17] developed by the Presidential Commission for Public Policies for the Development of Agriculture in Romania (where the General Manager of AgroTransilvania Cluster was one the active members) launched on July 1, 2013, Romania's agri-food industry faces significant challenges, the resolution of which necessitates a concerted effort not only at the central level but also at the regional and local levels.

Currently, it is desirable to have an adequate technical development of the rural territory, the localities, and the rural households; to use the local natural resources in the economic circuit; to protect the environment and nature; and, as a result of these, to have an acceptable standard of rural life.

The insertion of the producers from the agro-industrial sector in supply chains takes into account the context of the development of modern agriculture, being the main element around which an overall vision must be built (Arion, F., Muresan I., 2013) [1].

Subsidiarily, it is necessary to ensure a decent standard of living for farming families with the protection of the environment. The

development of non-agricultural branches as well as agriculture-related sectors is directly influenced by the rural economy in general and agriculture in particular because they both represent a sizable market for their upstream and downstream branches (Arion et al, 2017) [2].

The disadvantages of the Romanian food industry are also due to the quasi-lack of strong and recognized national and local brands in terms of quality, but also to the lack of value chain integration of producers, processors, processors and traders (Dumitras et al, 2016) [7].

According to the document developed by the European Commission "Framework for State aid for research and development" (European Commission: DG Competition, 2022) [8], clusters represent groups of independent companies that operate in a specific field and area in order to stimulate innovative activities, by encouraging close relationships, the sharing of resources, and the sharing of knowledge and experience and by contributing to technology transfer, networking and information dissemination among businesses in the cluster.

To encourage and to monitor clusters, the European Commission established the European Cluster Observatory in 2006, providing for the first time both quantitative and qualitative statistical data as well as comparative analyses on the situation of clusters in Europe. It also created the European Cluster Policy Group, which aims to improve, among Member States and the Commission, the degree of understanding of current policy actions in support of achieving a high level of cluster excellence (European Commission: DG for Internal Market, Industry, Entrepreneurship and SMEs, 2021) [9] identifying and evaluating effective and ineffective group support practices, and creating suggestions on how to enhance the Community's development of group policies; assessing international trends in group development and identifying future challenges within group policies in the context of globalization; analyzing the complementarities between the main policies and financial instruments at community level

that support the groups, adopting conclusions and formulating recommendations; but especially the creation of links with the European Alliance of Groups and, as appropriate, with other initiatives in support of groups and group policies and extracting some lessons from their practical experiences (Török, 2015) [19].

A report carried on by the European Commission Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, Unit F.2: Clusters, Social Economy and Entrepreneurship (Hollanders H., Merkelbach, I., 2020) [11] pointed out the relevance of cluster associations, proving that they are generating, in average, around 35% more productivity, also at most of the exporting industries, at least a half of the employers are integrated into clusters.

The cluster's goals align with both the goals of the Lisbon Strategy and the European Commission's cohesion policies and programs.

Actions to improve knowledge, economic growth and innovation were allocated the sum of 86 billion Euros for the period 2007-2013, and from this allocation, important sums were used to support cluster-type initiatives and infrastructures. Benefiting from these funds, in recent years, around 500 such organizations have been consolidated or created within the European Union.

This article is aiming a scientific gap identified to be the insufficient scientific knowledge the factors that affects the collaborative value chain of an agri-food cluster, especially in Romania.

The remaining of the article is presenting the analysed material (AgroTransilvania Cluster), the validity of methodology used, the main results and discussions, and, finally, the ending conclusions that are to be addressed.

MATERIALS AND METHODS

Material: AgroTransilvania Cluster
The name of the Association is "Clusterul Agro-Food-Ind Napoca", but, for a better visual identity, the AgroTransilvania Cluster trademark was registered at the State Office for Inventions and Trademarks.

Fig. 1. Registered Trade Mark of AgroTransilvania Cluster
Source: Official Bulletin of Industrial Ownership, Section Trademarks and Geographical indications no. 05/2014, p. 219 [14].

With the stated goal of increasing the association's and each member's competitiveness on the national and international markets, the cluster-type associative structure is a non-governmental, non-profit, independent association to support the development of the agro-industrial sector.

In 2019, AgroTransilvania Cluster was subjected to the benchmarking interview under the umbrella of the European Clusters of Excellence Initiative, through a uniform cluster management quality certification tool, in the form of the Performance Label - Cluster Organization Management Excellence Label (Quality Label). By means of benchmarking, an estimate of the cluster's performance was made in relation to other clusters in the same field of activity and it assumed a process of organizational adaptation, aimed at an improvement, a continuous process of identifying the best practices that lead to improved performance. The interview was organized to obtain the Gold Quality Label - Cluster Organization Management Excellence Label, being conducted by certified experts in Cluster Benchmarking. Gold Quality Label - Cluster Organization Management Excellence Label was awarded to AgroTransilvania Cluster later on in 2019.

The visibility of the cluster's activity has steadily improved, becoming more and more attractive to new potential members, from the 20 founding members to a total of 80 members today, and it becomes the subjects of diverse studies as example of good practice (Manukyan I., 2021) [12].

AgroTransilvania Cluster is a member of the Association of Clusters in Romania – CLUSTERO (CLUSTERO, 2023) [6] which represents the interests of the clusters at the national level and is involved in promotion, representation and negotiation activities.

It is also a part of Smart Transylvania, an association that brings together some of the most prominent clusters in the North-West Region, for better flexibility and relationship with regional policies, strategies and structures, a regional structure in the form of a consortium of clusters, Cluj being considered "the capital of clusters" (Neamtu, 2019) [13].

AgroTransilvania Cluster is a member of the Network of Clusters in the agri-food field in Romania, a collaborative network created to support the interests of clusters in the field at the national level and is involved in promotion, representation and negotiation activities.

AgroTransilvania Cluster benefits from the support of its members coming mainly from the economic environment, but also from the scientific, research environment and the authority of the county and local public administration, fulfilling the requests as being included in the category of clusters, according to the "Framework for State aid for research and development" (European Commission: DG Competition, 2022) [8].

Methodology

For identifying complexity of the collaborative value chain in case of AgroTransilvania Cluster, there were used the SWOT (Strengths, Weaknesses, Opportunities, Threats) and the PESTEL (Political, Economic, Sociological, Technological, Legal and Environmental) Analysis, based on the consultation of its members, run on 2013, 2015, 2019 and 2021. Then, the information analysed for formulating the future development strategy of the AgroTransilvania Cluster.

The use of SWOT Analysis, also know a SWOT Matrix, is widely used for identifying and for understands the strengths, weaknesses, opportunities, and threats which an entity confronts in a particular moment of time, and a related to a specific sector (Wang et all, 2015) [21]. The data gathered through SWOT Analysis served as the foundation for the TOWS Matrix: Strengths were used to maximize opportunities and to reduce threats.

Weaknesses were reduced by utilizing opportunities and avoiding threats.

The analysis proves its efficiency in the analysis of industrial clusters (Galtsova et all, 2020) [10] of clusters related to agri-food sector (Beloborodko et all, 2015) [3] and of agri-food clusters (Wu, 2014) [22].

PESTEL Analysis, also known as PESTLE Analysis, is framework or tool used useful to evaluate the macro-factors that potentially influences an entity (Yüksel, I., 2012) [23].

The method is widely used for analysing the clusters (Padmore, T., Gibson, H., 1998) [15] and is proved its viability of the agri-food sector, also (Panpatte, S., Ganeshkumar, C. 2021) [16].

Anyway, more scholars appreciate that SWOT Analysis and PESTEL Analysis should be combined (Christodoulou A, Cullinane K., 2019) [5] and even completed with other tools like Analytical Hierarchy Process (Tsangas et al., 2019) [20] or Multicriteria Decision Making (Srdjevic et all, 2012) [18].

The Delphi technique was used as a structured communication framework and forecasting process based on the responses to questionnaires distributed to the members of AgroTransilvania Cluster. An aggregated summary of the previous round's responses was provided to the members, enabling them to modify their responses in light of the group's response. The advantages of expert analysis and elements of the wisdom of crowds were combined in this process.

A similar combination was used for setting up the analysis of the complex factors that affect the collaborative process on the value chain of AgroTransilvania. As, a final result, the strategic objectives of the entity were set up.

RESULTS AND DISCUSSIONS

Between 25.03.2020 and 12.05.2020 AgroTransilvania Cluster applied the questionnaire dedicated to updating the strategy and development of the cluster. In the mentioned interval, a number of 43 entities affiliated to the cluster responded to this questionnaire out of a total of 78 entities. According to the analysed data, over 50% of the cluster's entities were involved in the process of updating the strategy.

The applied questionnaire included a number of 26 questions intended to collect information about the interests of the members regarding subjects such as: the current market, the premises for expansion and development in other markets, products with added value and with certification potential. In addition to the previously mentioned, the questionnaire also focused on innovation capacity and members' intention to get involved in CDI activities.

The first 7 questions were focused on collecting general data about the respondents, so that they requested information about the company, the legal representative, the main and secondary CAEN codes, but also about the financial indicators and the number of employees. Questions 1-7 by their specificity do not require a unitary interpretation, they provide general data about the respondents. Both main and secondary CAEN codes cover the value chain in the agri-food sector, given the fact that the role of the cluster is to integrate the economic actors in the value chain, it is considered that the relevance is given precisely by this diversity of the fields of activity: research institutes, the environment academic, economic agents. Questions 8-10 were aimed at identifying information about the current market and the intention to expand.

It emerged that 67.4% of all respondents sell their products/services on the domestic market, while 18.6% also export, but the main market is the domestic one. The intention of the members is to expand to foreign markets 56.8%, most of them target European markets. Following the analysis of the answers given to the two previous questions, the members' interest in business internationalization can be observed. Even if at the moment the sales market is predominantly national, international expansion is also among their objectives.

Questions 10 - 12 were aimed at identifying products with added value or with certification potential. In Transylvania there is potential for product certification so that through these questions the identification of

potential products was pursued. As can be seen from the answers provided, the members of the cluster have both certified products and services. In addition to the already certified products/services, they also mentioned some products/services with certification potential, which provides the premise that through collaboration and involvement, these advantages can be brought to fruition.

Questions 13 – 25 focused on collecting data on the role and importance of innovation for business, what are the companies' objectives regarding this component. The trend of the markets at national and European level is mainly based on the ability of companies to innovate, so the identification of information regarding this trend and the opinion of the members was considered essential. 79.1% believe that innovation is a basic component for a company to be competitive on the market, while 9.3% do not see it as a factor that can influence the market share obtained by the company, and they believe that a important factor to consider for customer satisfaction is the innovation component, 69.8% of the total number of respondents gave full agreement to the question "is innovation necessary to satisfy customer needs?"

According to the analyzed data, it can be observed that the respondents would turn to consulting in the development of international partnerships and consulting in the field of branding and marketing. In addition to the previously mentioned trainings and training courses as well as consultancy in the development of new services/products/product design are among the services of interest to the members that they would contract.

After analyzing the data collected regarding the innovation component, it can be stated that entities consider innovation important for customer satisfaction and competitiveness. In addition to the mentioned, among the objectives of the companies there is also the CDI component and the fact that they would call on certain innovation services. It should be emphasized that investments in CDI infrastructures would be more attractive if they were financed within the framework of research and development projects. 74.4% of respondents consider it important to create a common brand at cluster level, while 23.3% would prefer the development of brands at company level.

The results of SWOT Analysis and of PESTEL Analyses are complex and the restrictions of a scientific do not allow to present them into details, so the most relevant ones were selected. Each of the findings is further analysed and actions are designed for a better design of the future strategy of the cluster.

SWOT Analysis

The AgroTransilvania Cluster's management and members are both aware of the weaknesses and threats present, but more importantly, they are aware of the significance and necessity of eradicating and mitigating their effects.

For each weak point of the cluster, as well as for each threat, the possibilities to overcome them have been analysed and identified so that the strong points of the cluster can be highlighted and implemented to obtain the greatest advantages by using the potential offered by opportunities.

1. Strengths. There were identified a sum of internal elements that can provide strength to the cluster, including:

- It is a heterogenous consortium of entities, research institutions, universities, companies from various fields, but with common interests and with expertise and experience in the development of the sector.
- It represents a strategic alliance at local and regional level, created and led by/by the need to achieve positive results in economic activity.
- It benefits of the positive image transfer from cluster members to the cluster, among consumers, business partners and the general public.
- It has a distinct and strong local identity.
- It proved openness to the new, to research, innovation, technological transfer and development of cluster members, due to the market openness of most members who are SMEs focused on continuous adaptation to market and consumer requirements.

- It developed strategic and long-term alliances with public administration and education and research institutions.
- It can use a highly qualified permanent team, experienced in conducting studies and implementing development and investment projects, having a positive attitude in solving the problems of the cluster and its members.
- The active involvement of members in the process of ensuring the income of the cluster, through membership fees.
- Acceptance of new members into the cluster is a decision of the majority of members and not of the executive management team.

2. Weaknesses. Nevertheless, there are factors that are to be kept under control:
- Some cluster members lack the necessary knowledge, expertise, and background to operate a cluster effectively. As improvement actions were identified: Taking part in timely actions that are specific to each member's competencies alongside members of the executive management team.
- Some members' inexperience in raising money for one-time projects. Improvement activities. Improvement actions: Several projects are prepared jointly by the members under the cluster's coordination.
- Some cluster's members lack the necessary experience to manage joint development projects and, implicitly, to function as part of a complex team. Improvement actions: involvement of cluster members in timely actions that are relevant to each member's competencies, along with members of the executive management team.
- Inadequate value chain coverage, particularly in regards to some inputs for the food and agricultural industries, but also in terms of accessibility to consumers. Improvement actions: Enticing new participants, particularly in delicate circumstances. Since its founding, the cluster has grown to include a variety of productive, related industries that supply goods and services to the cluster's commercial sector.
- Due to the need for consultation with and input from every member of the cluster, the large number of members causes a delay in the adoption of decisions. Improvement actions: the cluster members' constant and open communication, reducing the amount of time spent during meetings on understanding the subject of adoption.
- Some of the members, who are SMEs, have limited resources and skills, but a short-term vision of the business, towards survival. Improvement actions: Integrating point views into a common strategy in which each finds its distinct place and increasing the efficiency of the use of resources by integrating them into a value chain.
- Insufficient experience of the young members of the executive team of the cluster to cover the lack of management people, at the time of their unavailability. Improvement actions: Their gradual involvement in the process of adopting decisions and delegating authority to obtain, through their own experience, the necessary skills.
- The existence of a single point of contact for the cluster and several specialized persons for various specific actions. Improvement actions: Using the headquarters of the cluster members as information points on the common activity and organizing the permanence of the activity of the central office.

3. Opportunities. The potential to seize the opportunities that have been identified has a direct bearing on how AgroTransilvania will develop in the future:
- The city of Cluj-Napoca is close by, and it has a sizable local consumer base (more than 300,000 people), to which is added the sizable number of people who are only in the city temporarily (students, businesspeople, visitors, etc.).).
- The land's potential for agriculture and food production, which is underutilized in comparison to the outcomes that can be achieved.
- Promising long-term prospects for the growth of agri-food businesses at local, regional, national, and international levels (driven by the steady rise in agri-food product consumption, particularly in Europe and Asia).
- Local food businesses can develop a medium- and long-term strategy by taking into account global consumption trends and changes in the food market.

- The consumption of processed and innovative food products is increasing worldwide, and by making production processes more efficient, the percentage of transport costs in the total cost is becoming higher, thus there is a tendency to orientate production based on local inputs.

- There will be more demand for the agri-food products that cluster members can provide as a result of the opportunities related to food security, product availability, distinctive flavor, and durability, as well as the current trend of increasing the visibility of product traceability and increasing the attractiveness of local and/or traditional products.

- A more effective use of the resources currently used by cluster members, through integration into the cluster's common value chain and, implicitly, a decrease in the cost of unit production.

- The possibility of accessing financing funds for business development that are only available to associative forms.

- Easier access to innovation, development, research, through immediate access to the final results of the research activity of specialized members (universities, Chamber of Commerce and Industry).

- Facilitation of investment or development projects in partnership, given the partnership already created.

4. Threats. There were found out issues that negatively affects the cluster.

- The absence of sufficient infrastructure for the region's agri-food industry, which would guarantee a balanced presence of colleges, research centers, government organizations, small and medium-sized businesses, and producers. Possible countermeasures include creating a complete network and advertising it by taking part in high-profile events to interested actors and the general public.

- A lack of understanding of the agricultural and agri-food industry in the region, particularly in light of the aggressive land fund fragmentation that results in the instability of productions from both a qualitative and quantitative point of view. Countermeasures: Carrying out the study "A chance for every farmer" to determine the opportunities of the sector and to determine the concrete possibilities of using the available resources in the direction of the development of associative productive forms.

- Multinational corporations engaged in fierce and unfair competition on the Romanian market, particularly in terms of pricing and sales practices, by combining well-built networks that integrate the entire value chain. Countermeasures: Value chain integration of cluster members to reduce production costs and attract development funds.

- Small bargaining power in the face of large retail chains, especially at the level of supermarkets and hypermarkets. Countermeasures: Create a locally and regionally promoted brand that consumers are familiar with, appreciate, and demand from stores. As an alternative, specialized stores with local, traditional and cluster-certified products will be created.

- The cluster members' inability to access cutting-edge production technologies, which drives up production costs. Countermeasures: Pooling human, financial, and capital resources to draw sizable investments that add value for a number of cluster members.

- A lack of experienced and technologically qualified workers affects the agri-food industry, and implicitly, the cluster's members. Countermeasures: practical requirements should be compatible with those provided by universities and specialized schools, and cluster members who have graduated from partner universities should have easier access to the labor market.

- Increasing pressure from European and national government agencies to over-regulate "food safety" and consumer hygiene and health issues. Countermeasures: Anticipation, through studies and research results, of these regulations and early preparation of the transition period until their practical application.

- The conservative attitude at the level of the agro-food sector towards innovative technologies and towards their development and implementation requirements (ISO certification, HACCP, etc.). Countermeasures: Promotion of the need for quality certification at the level of the cluster and business

partners, as well as the development of upcoming relationships, particularly with those partners who have high quality standards and are certified.

- The media's campaign against obesity, diabetes, and other illnesses linked to the consumption of food products has an impact on how the activity sector is perceived, particularly with regard to new products that consumers are not familiar with. Countermeasures: Promotion of a personal brand that is linked to a high-quality and wholesome image.

- Potentially intensifying competition with other cluster forms or similar associative forms that will emerge in the future. Countermeasures: The development of skills and abilities generated by the experience of involvement in such structures, which provide a comparative advantage over the newly created structures.

PESTEL Analysis

The way in which external factors leave their mark on the agro-industrial cluster can be observed in the PESTEL Analysis. Like any entity, the cluster is not immune to the influences of political, economic, social, technical, environmental and legislative factors - regardless of whether they are local, regional, national or transnational, and knowing them in order to emphasize the positive effects and diminish the negative ones is a desirable continuous of its members.

Political

The political factors are not to be neglected:
- The lack of a pact on agriculture and the food industry at the level of the political class that is assumed by all political parties.
- Political instability generated by the need to form governing coalitions.
- Reorganization of the central and local administration structures, as an immediate effect of the changes on the political scene.
- The lack of resources available to the territorial structures on the ground as a result of the sharp reduction in the number of employees at the County Agricultural Directorates and other organizations.
- Delays in the establishment and effective operation of the Cluj Chamber of Agriculture due to divergent perspectives on its function.

- Local political interests that are often divergent and aim to achieve competitive objectives in terms of the requested resources.
Possible effects of the political factors include:
- The inconsistency of the cluster's plans and strategies in the medium and long term, leading to reduced levels of efficiency.
- Lack of political support or even political opposition in the application of trans-local projects.
- Lack of coherent and constant and timely information from the territory to be used by cluster members.
Measures identified to be possible used for limiting the effects of political factors are:
- the continuous study of the political environment in order to anticipate the adopted measures.
- staff training in communication, risk management and change management.
- the multidisciplinary and sustainable development of the cluster, so that political changes do not affect its efficiency and effectiveness.

Economic

They are the most obvious one, on frame of this analysis:
- The pressure of multinational companies, which, as a result of economies of scale, impose low prices that are difficult for small companies to match.
- The difficult specific requirements of supermarkets and hypermarkets for local agri-food products (quantity, quality, fluency, packaging, delivery location, marketing prices, etc.)
- The influence of economic interests (prices, bargaining power) is stronger than local interest, such as developing a strong local agri-food sector and renouncing imports
- The relatively low level of wages for highly skilled people which has effects on the migration of skilled labor
- The increase in mobility abroad and the increase in the standard of living lead to an increase in consumer expectations regarding the quality of agri-food products
- The instability of national economic and monetary policies, including the exchange rate and the level of inflation, with direct effects

on the purchasing power of consumers and on foreign trade policy.
- The economic crisis that has the effect of increasing the price elasticity of basic products, such as agri-food products
Possible effects identified are:
- forcing the reduction of production costs even at the risk of reducing quality.
- the need to find alternative ways of marketing the cluster's products.
- the need to adapt the cluster's product offer to face (in terms of presentation, availability, weight, etc.) the competition.
Measures that could balance the economic factors are:
- the continuous study of the economic environment in order to anticipate the adopted measures.
- staff training in economic, marketing, financial, economic analysis.
- investments in public relations and informational campaigns aimed at making regional, traditional goods more appealing than those produced by multinational corporations.

Sociological
- Shifts in the social and demographic makeup of the population that makes up the cluster's and its members' potential consumers.
- Shifts in the culture and mentality of the people who make up the cluster's and its members' potential customers.
- The existence of unfavourable attitudes (non-compliance with hygiene standards, non-compliance with food safety, non-compliance with manufacturing processes) regarding agri-food products, especially local ones that have not benefited from a sustained advertising campaign.
- Fear of involvement in projects, as a result of the lack of previous experience.
- The reluctance of small agricultural producers to join any associative forms for fear of losing their identity and freedom of decision.
- Increasing pressure to ensure food security and safety as a fundamental element of social security.

Possible effects
- The need for continuous and rapid adaptation of the cluster's agro-food products

to the changing demands of consumers.
- Reducing the life cycle of the cluster's products, thus implying increasing investments in innovation and the development of new products.
- Difficulties in creating effective lasting partnerships or in attracting new members and partners to ensure the partnership.

Measures
- The continuous study of the social, cultural and demographic environment in order to anticipate the measures that need to be adopted.
- Staff training in the field of communication, sociology, consumer behavior.
- Investments in advertising and information campaigns in order to create a favorable image and increase the attractiveness of local, traditional products to the detriment of those industrialized globally.

Technological
- The pressure of the emergence of new production technologies both in agriculture and in the food industry sector.
- Increased pressure to ensure and increase the quality of production technologies.
- Rapid obsolescence of production technologies leading to increased pressure to secure funds for investment in new technologies.
- Increasing requirements regarding the reduction of negative externalities of production processes (reduction of pollution, compliance with environmental measures, reduction of soil erosion, reduction of energy consumption, etc.).

Possible effects
- The need to secure investment funds and the accelerated depreciation of investments.
- The need for continuous adaptation of technologies according to safety and environmental requirements.

Measures
- The continuous study of new trends in the development of technologies, in order to anticipate the measures that need to be adopted.
- Staff training in the technical and technological field.
- Participation in events and fairs in order to be up to date with emerging technological

changes.

Legal

- The strong pressure on the national and local business environment generated by continuous changes in legislation at European level
- Delays in the adoption of legislative measures with effects on the instability of the sector
- Problems regarding the inconsistency of some legislative acts in the field.

Possible effects

- inconsistency in the operation of the cluster in the short, medium and long term, due to the legislative ambiguity and instability.
- lack of coherent and constant and timely information from the territory to be used by cluster members.

Measures

- Continuous study of the legislative environment in order to anticipate the effects of the adopted regulations.
- Staff training in the field of knowledge of laws and regulations.

Environmental

- Aggravation of environmental pollution phenomena (with nitrates, soil erosion, water and air pollution, etc.) generated or not by the agro-industrial sector but leading to new quality standards.
- The dependence of the agricultural sector in the area on pedo-climatic conditions and environmental conditions, generated by the lack of anti-hail systems, the lack of irrigation systems, etc.
- The risk of the occurrence of natural disasters (severe droughts, heavy rains, frosts, etc.) that may endanger plant and animal agricultural production, and implicitly the increase of the food industry's dependence on imports.

Possible effects

- the need for active involvement in the preservation and regeneration of the environment, not only in limiting the negative effects on it.
- the need for continuous adaptation of technologies according to safety and environmental requirements.

Measures

- the continuous study of environmental

quality indicators in order to anticipate the measures that need to be adopted.

- staff training in the area of preventing adverse environmental effects.

- coming up with development strategies that are environmentally friendly and spreading the word about them to the public in order to boost the cluster's reputation at the time.

Critical interpretation of the information from the SWOT Analysis and PESTEL Analysis of the AgroTransilvania Cluster leads to the conclusion that both weaknesses and threats can be countered with a very high chance of success by means of the strengths of the cluster and the opportunities available to it.In conclusion, it can be stated that there are the prerequisites not only for the survival of the cluster, but also for a harmonious development in the short, medium and long term.

Based on these findings, six strategic objectives were determined which, although relatively autonomous, are interdependent and are constitutive of a unitary whole:

OS.1. Expanding RDI capabilities in the bioeconomy sector and enhancing the region's standing as a cutting-edge hub for intelligent specialization on a national and international scale.

OS.2. Fostering the growth of regional and local initiatives to boost the competitiveness of the Transylvanian agro-industrial sector.

OS.3. Developing entrepreneurial skills and ensuring the quality of the workforce.

OS.4. Encouraging the creation and/or development of associative structures.

OS.5. Integration of producers and associative structures in the value chain.

OS.6. Increase qualitative and quantitative representativeness.

By achieving these strategic goals, the cluster will develop and become recognized by the business community in the agro-industrial sector at the local, national, and European levels, especially by providing innovative products and services and by transferring technology to the local, regional, national, international market. It is an objective assumed by the cluster and by each individual member, to focus mainly on selling production to local, internal markets. This will

have the result of improving the visibility and trust in the cluster and its products and services locally, nationally, and intentionally. This will have a positive impact on the economic environment in which it operates. It will also increase the competitiveness of the cluster members relative to the competition by reducing costs as a result of their activity's integration.

The activities of the cluster intended to be carried out in the short and medium term arise from the operational objectives that the cluster proposes to carry out in order to achieve the strategic objectives, and, finally, to put into practice the vision and mission of the cluster, previously mentioned. In order to monitor the results of the actions of the agro-industrial cluster, a series of quantifiable indicators, specific to each individual action, are foreseen (turnover, number of enterprises, value of exports, number of employees, number of employees with higher education, R&D expenses, number of companies that introduced process/marketing/organizational innovation, number of companies that introduced product innovation, number of companies that innovate in partnership, number of patents (trademarks, industrial designs, etc.)). Monitoring includes not only checking the degree to which the proposed results have been achieved, by simply assessing the value of the indicators, but also respecting the time horizon and the budget of resources (financial, human, etc.) foreseen.

CONCLUSIONS

As can be seen, the premises for the development of the members are based both on the expansion on international markets and on innovation activities. The interest shown for R&D activities is due to the fact that in the view of the members, innovation can lead to increasing the competitiveness of companies and also to customer satisfaction.

According to the previously analyzed data, it can be mentioned that the entities want to get involved in CDI activities implicitly by allocating resources. The funded research-development projects, together with state support, can contribute, in the members' view,

to increasing the degree of innovation of economic entities.

The creation of a common brand of the Cluster is a vision shared by the entities in the cluster, and together the internationalization activities and the development of new products and processes of interest to them can contribute to the development and fulfilment of the long-term objectives of the entities.

The study proved the positive effect of collaborative value chains and it can bring new scientific, administrative and practical perspectives on the subject. As can be seen, the cluster should adopt a complex system of quantifiable indicators, easy to follow, in order to be able to continuously monitor their evolution and, if necessary, to intervene along the way in the direction of their correction. Increased economic competitiveness and cluster-wide growth will result from the expansion of the activities and the execution of the planned investments.

It can be concluded that the sustainability of the such initiative as AgroTransilvania Cluster is a desirable *sine qua non* and will be ensured by a good practice within the activities carried out by the cluster, the improvements brought to the sector acquired along the way will be a well-earned asset and will be perpetuated in the years to come.

Future generations will gain from the advantages gained, the investments made, and the information gathered, making them better prepared for the economic environment, as well as the multiplier and multifunctional effect generated by the cluster.

As in the past, the growth of cooperative ties between cluster members and between the cluster and the economic environment will make it easier for people to access not only the labor market but also, implicitly, the exchange of good practices, which is essential for developing the practical skills required for the future growth of the business environment.

The limits of the study imply the fact that the case study is specific and some of the findings of the study cannot be easily replicate or generalised. Similar studies have to be carried on for a better understand of the phenomena.

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