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Rubizmo

Methodological guide for identifying factors influencing cluster and network effects

DELIVERABLE N. 5.1

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Summary

In the current global economic status, characterized mainly by an increase in competition, customer's expectations and changes in technology, a rapidly growing number of businesses are moving towards the development of collaborative structures that will help them improve their competitiveness. In this changing environment, clusters and networks are commonly perceived as drivers of economic growth especially in rural areas and in particular for SMEs.

The purpose of this report is to present a practical, though not exhaustive guide for factors influencing business collaboration with a special focus on networks and clusters. The concept of business collaboration and the different types are presented here. It is showcased the main reasons for members to engage in collaboration and the most common benefits from getting involved in such activities. Key steps to begin and proceed with collaboration are also presented.

This report is also a brief analysis of the theory in business collaboration and can be used from the end users of the Tool 3 "Cooperation toolkit" as a reference point to assist in making future choices in terms of partnering with other business and actors.

The present report is finally an introductory to the rest of the work undertaken under Work Package 5, where the real cases of good experiences from the whole consortium will be made available for the creations of two on-line business tools.

Disclaimer

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Introduction

Rural areas are covering the major part of mainland in European countries while hosting more than 20% of their population (Eurostat, 2017). These areas are constantly confronted with a number of economic challenges and problems, including low access to markets, limited range of services, limited job opportunities and labour supply,. Thus, most rural areas are struggling to develop ways to become more sustainable and attractive for company creation, development and cooperation. In this framework, the establishment of companies in their territories is a tool for the rural areas to overcome the above barriers and provide prosperity to their societies.

The first collaboration between businesses coincides with the rise of the industrial revolution in the 18th and 19th centuries. The case of wool industry in Yorkshire is considered as an early example of networking in England (Wilson and Popp, 2003). Alfred Marshall in his book "Principles of Economics" uses the term "industrial districts" to describe companies from various fields located in the same area and the advantages from such localization. Over the years, business collaboration evolved as a very important element in many economies and although the framework of the collaboration led to different types of collaboration (depending on the aim, partners, sector etc), today is one of the most efficient tools for rural sustainable growth (Coppock, 2006).

Overview of businesses collaboration

Burton (2005) defines collaboration as "people working together on non-routine cognitive work."

A simple definition of businesses collaboration is an agreement between entities to work together towards a common goal. It is a process where units share information, resources, and responsibilities in order to maximize outcomes. This way to achieve collaboration goes beyond normal company-to-company processes, but it does not take the form of a legal merger or a full partnership.

The main characteristic of businesses collaborating is initially the existence of a common goal but it is strengthened when innovative ideas, new services, improved products and growth-as part of many- are accomplished.

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Business Collaboration. Source: https://www.smallbusinesscomputing.com/News/Software/the-small-business-collaboration-conundrum.html

In the context of collaboration, both small and large companies can benefit and achieve better results. However, in this paper, emphasis is given in Small and Medium-sized Enterprises for two main reasons. Firstly, SMEs have a major role in economic growth providing new jobs (OECD, 2000) while at the same time guarantee social security (Herte, 2017) and secondly, SMEs have a strong linkage with their surrounding rural areas (Kihonge, 2014).

Collaboration is a way for SMEs to handle a number of issues critical to their survival (new markets, resource gaps, achieve innovation). For many SMEs, collaboration is a way to stay competitive in today's ever-changing business world. However, many large companies are also engaged in business collaborations in order to build competence, product or service, technology, and/or market access. Universities, research institutes and labs now join the new order in business providing critical skills development (education, technology and training).

In this document, different types of collaboration among businesses are presented. These economic phenomena have different economic advantages and disadvantages, different determinant factors and characteristics. A short analysis and description is conducted in the following chapter.

Benefits of businesses collaborating

Working collaboratively can improve business performance and products, enhance staff skills and win new business (new customers).

A business may work collaboratively to achieve a number of key benefits, most of the times financial ones, some specific examples described below:

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- **Reduce costs.** In many cases companies target to minimize expenses. In a collaborative type, this could be achieved by sharing transportation costs, facilities, equipment and raw materials. It could also mean join efforts to develop new or innovative products.
- **Obtain new resources.** Members gain access to resources that would otherwise be beyond the scope of a single business. This could concern knowledge, technology and the opportunity to share best practice. It also increase the capacity of generating new ideas through the combination of existent resources and diversity of cultures and experiences.
- **Access to new markets.** Individual businesses can face a number of limitations when trying to compete in global markets. Collaborating allows entities to enter markets without the need to make risky investments.

Factors for partners to involve in collaboration

In a competitive and constantly changing economic world, business -in most cases SMEs- find themselves short. Firms, regardless of their sector, location or product/services, often deal with a major challenge that threatens to drive them to bankruptcy. Globalization, poor labour force, outdated operational system, inability to enter markets lead to diminished ability to improve product quality and capture emerging market opportunities. In many cases, firms' efficiency and productivity are low, as they are unable to draw on new sources of technology and information.

Through collaboration, new paths are revealed and firms may be given an extension for the short term or long-term strategies. Normal SMEs collaborate to gain access to markets, improve efficiency, and enter new competencies. One of the main reason for SMEs to collaborate with large enterprises is to gain access to specific technological knowledge or skills (OECD, 2000). On the other hand, one of the most common reasons for larger companies to collaborate with smaller ones is to penetrate new geographical or product markets through innovation. Collaboration is the new source of competitive advantage.

Types of collaboration

The business collaboration has many types that are evaluated in terms of their members, goals, coordination, boundaries, change dynamism, the nature of relationships, the role of knowledge, and competitors (Majava, 2013).

Companies collaborate in various ways. The simplest form is business-to-business by one member buying product or service from one other member. However, in the current economic environment other more complex forms rapidly gain space with

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networks, clusters, triple helixes, ecosystems and innovation hubs to make strong appearances.

Before this document proceed to the analysis of the pre-mentioned types of collaboration), it is important to examine if collaboration structures –especially networks- act as driving forces to support rural development. Rosenfeld (Rosenfeld, 2001), through the example of Italian region of Emilia-Romagna, concludes that since the mid-1980s interfirm collaboration became a widely explored option of rural development supported by policy makers in Europe (Rosenfeld, 2001). Murdoch (Murdoch, 2000) demonstrated in his work that networks although the term may vary in meaning depending the context it is used in, can be a new way (through many different types) to stimulate rural development linking opportunities to problems in these areas.

Business Networks

A business network is a group of companies being in the process of creating value, improve performance and skills through common actions. A network can be defined as an abstract of a structure in which there are a number of nodes that are connected via specific threads (Håkansson and Ford, 2002).

The main aim of networking is to decide on tailored solutions and minimized costs and time. Business networks have no limitations concerning number, size, sector or location. Firms agree on a structure in order to face globalization stress, become more competitive and find new partners having as ultimate goal better economic performance.

Typology of Networks

The NetGrow, a European FP7 funded project, presented a typology of networks shortly described as:

- **Manager Training Network**: Focusses on providing training programs for CEOs of SMEs.
- **National/international Business Booster Network**: Connect companies in the same country/across different countries in order to achieve a better business performance.
- **Regional Business Booster Network**: Connects companies in the same region in order to achieve a better regional business performance.
  - Sector/Chain Competitiveness Improvement Network: Focus is on one sector. The members participating in this network work together in order to beat competitors outside the network by integrating their supply chains and/or investing jointly in advanced technologies.
  - Cross-Sector Competitiveness Improvement Network: Network members also want to improve their competitiveness in their own business but they also collaborate with partners from other sectors within the industry and/or outside the industry.

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- **Project-based Learning Network**: Centralized learning network providing members with joint R&D activities for innovation development.
- **Independent Learning Network**: Decentralized learning network where members come together to exchange ideas and experiences rather than participating in joint projects.
- **Collective Research Network:** Exchange between group of researchers and investigators, for research synthesis and projects.

Business Clusters

Clusters can be viewed as geographical concentrations of interconnected firms and institutions in a certain field, and the idea of clusters suggests that regions should identify and develop their existing regional competitive advantage (Porter, 1998; Porter, 2000)

Clusters have gained increasing prominence in economic development in the last decades. Geographic concentration is the main driving force when it comes to clustering. Most times firms have the same national or even regional origin. Within a cluster information concerning techniques, resources and technology flows. When firms come together they are able to resolve problems mainly on innovation and knowledge. Members of clusters benefit from their proximity since it allows them to be acquaint with the characteristics of their competitors.

Governments worldwide regard clusters as possible drivers of economic development and innovation (UNIDO, 2013). In many cases, clusters are viewed as competent policy instruments as they allow for resources and funding to be targeted in specific areas with a high growth and development potential that can spread beyond these sites (spillover and multiplier effects).

Main elements of clusters
In the Clusters Policies Whitebook (Andersson T. et al, 2004), seven elements have been adopted as key to our notion of clusters:

- **Geographical concentration**: firms locate in geographic proximity due to hard factors, such as external economies of scale, as well as soft factors such as social capital and learning processes;
- **Specialization:** clusters are centered around a core activity to which all actors are related;
- **Multiple actors:** clusters and cluster initiatives do not only consist of firms, but also involve public authorities, academia, members of the financial sector, and institutions for collaboration;
- **Competition and co-operation:** this combination characterizes the relations between these interlinked actors;
- **Critical mass:** is required to achieve inner dynamics;

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- **The cluster life cycle:** clusters and cluster initiatives are not temporary short-term phenomena, but are ongoing with long-term perspectives, and finally
- **Innovation:** firms in clusters are involved in processes of technological, commercial and/or organizational change.

Whereas not all these elements need to be present, nor are they necessarily desirable, innovation is greatly important for generating the potential benefits of clusters.

Innovative clusters are critically powered by three driving forces:
- New firm creation and technological diversification;
- Inter-actor network creation; and
- Cluster formation.

Benefits flow from opportunities for innovation coupled with the impetus of enhanced productivity and improved business formation. To make use of all these requires processes of both stable and more radical distribution of gains within cluster processes.

Clusters and cluster initiatives are not problem-free though, risks and pitfalls include:
- vulnerability of specialisation;
- lock-in effects;
- creation of rigidities;
- decrease in competitive pressures;
- inherent decline; and
- self-sufficiency syndrome.

Typology of clusters
Macquaint (1996) described four different cluster types (models) based on members and interactions between them:
- **Marshallian cluster model:** this model is rather homogenous, containing small firms that collaborate with each other and its shape and development are influenced by the common market.
- **Hub-and-Spoke cluster model:** this model presents a few firms that dominate the cluster and a number of small surrounding firms that are linked directly to them and supply raw material.
- **Anchored / State centered cluster model:** in this model a group of branches are located in an area in order to benefit from governmental facilities or low costs
- **Satellite Platform cluster model:** this model is defined by the existence of a public, governmental or non-profit organization that dominates the region and the economic relation between cluster members.

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Triple Helix

This type of model consists a university-industry-government collaboration (Leydesdorff, 2000). The argument of triple helix is that it has the potential for innovation and growth once universities undertake prominent role. In this type of collaboration academia, industry and government interact in order to produce knowledge, achieve innovation, create new foundations that develop further spin-offs and become source of economic development.

Business Ecosystem

A business ecosystem is "an economic community supported by a foundation of interacting organizations and individuals—the organisms of the business world" (Moore, 1996). The logic of a business ecosystem is that it can sustain itself without outside inputs or interference. Given time it will adapt and evolve as a living organism. The companies participating in a business ecosystem will develop capabilities in a new framework: they will cooperate and compete to support new products, satisfy customer needs, and finally build succeeding innovations.

The difference between clusters and networks

As it has become clear, business networks and clusters appear in many different forms resulting from their need to promote innovation, their members, the importance of geography and more. Clusters and networks share some common features but also a lot of differences. A relevant idea has been presented in Peltoniemi's work (Peltoniemi, 2004). In this paper, the three mentioned characteristics will be shortly compared.

One of the main issues is the notion of geographic proximity. In clusters, the basic idea is concentration or locality. The geographical aspect stimulates the cluster creation while for business networks the location is typically not relevant.

The goal of the collaboration may also vary between clusters and networks. While in the former, a shared goal from the members could be the driving force, in business networks is clearly not.

Knowledge is a key feature in both models. In networks knowledge is a necessary resource for growth and prosperity in contrast to clusters where it is a desirable outcome.

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Short methodology on how to start a collaboration

Business collaboration methodology. Source; https://www.iblogzone.com/2018/02/learn-how-to-establish-a-business-collaboration-that-really-benefits-your-business.html

Irrespectively members', sector, location or ultimate goal there are (at least) three issues that needs to be considered when starting collaboration. In this paper, a WWH analysis is presented as an overview tool to assist the discussion of how a business starts a collaboration.

WHY: Identify challenge / opportunity
Businesses may enter into a collaborative agreement for a number of different reasons but the first step lies in identifying whether a challenge or an opportunity really exists. A good idea is always to engage in an analysis of business's strengths and weaknesses.

Businesses see collaboration as best suited to achieving four goals (DAMVAD, 2012):
Improve economic efficiency: Most of the times, a business will focus on the potential of increasing productivity or employment and decreasing costs by lowering the costs of labour, material, transfer and supplies. According Owolabi (Owolabi, 2011) a firm may benefit in a number of ways that may include lobbying activities, information on domestic/international product, bank finance and market.
Improve social effects: Companies target socio-economic growth, new solutions to challenges in society related to health, environment or energy. It is argued that through collaboration is possible to handle escalating social or environmental problems concerning material resources, services, talents, energies and organizational knowledge (Pearce& Doh, 2005).

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Improve innovation effects: Although in literature there is a gap concerning all linkages between firms and the innovation actions, the most common include more knowledge, increased R&D activity or patents. According to Pittaway (Pittaway et all, 2004) firms tend to collaborate in order to achieve risk sharing, obtaining access to new markets and technologies, speeding products to market, safeguarding property rights and obtain access to external knowledge.

WHO: Identify Partners
The criteria for searching partners may include businesses with similar understandings, shared values, (long-term) goals/interests and size or capability. The time spent searching for compatible parties reduces possible future conflict within the collaboration.

When discussing business networks in particular, there are two main types:
Vertical networks that relate to collaboration of partners belonging to the same chain (eg. food sector). These networks are well developed based on quality assurance schemes and traceability, though often face difficulties due to high lack of trust;
Horizontal networks that refer to collaboration among firms being primarily competitors. Those networks are well developed when a producer consortium is involved though can be inhibited through strong competition (Gellynck & Kühne, 2010).

Collaboration may be seen in more diversity if the degree of the variety of potential partners from the public, private or non-profit sectors, firms or academia is considered. Beyond business-to-business collaboration which is simplest and most common type, collaboration between universities and the industry is increasing and perceived as a vehicle to boost innovation through knowledge exchange (Ankrah & Al-Tabbaa, 2010), collaboration between private and public sector is also gradually overcomes the relative scepticism and moving to the top of the political and administrative agenda (Sørensen & Torfing, 2012).

HOW: Form the collaboration
As mentioned above, collaborations can take a variety of forms. It is important to identify best suitable model and members to agree on a number of components (leadership, intellectual property, resources, location).

Collaboration can range from informal “handshake” agreements (memorandum of understanding) to formal agreements with lengthy contracts in which the parties may also exchange fair play, or contribute capital to form a joint venture.

Factors that determine the success or failure of business collaboration

Although success is a subjective term depending on one or more set targets, when discussing collaboration some realistic objectives can be identified as success factors. As it is presented in the document titled “A guide to business collaborative

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contracting" prepared by the Government of South Australia, a number of the key characteristics can determine the successful or failure of a business collaboration.

- confidence between partners, partnership attributes and degree of participation can affect the stability and long term sustainability of a collaboration,
- conflict resolution, adaptation, joint planning, the sharing of benefits and risks demonstrates the dynamics for the collaboration,
- quality of communication, the sharing of systematic work information can influence companies' strategic choices,
- knowledge abilities and technology have positive effects on performance in innovation and new products' development.

According to Cederholm (Cederholm, 2015), success factors can be divided in three areas that need special attention in order for collaboration to reach best results. Firstly, factors relating to the context of the collaboration and concern the choice of the partner, their objectives and the geographical distance. Secondly, factors relating to the formation of the collaboration and concern the type of the agreement, the commitment among the parties, the available resources and skills. Finally, factors relating to the process of the collaboration and concern the management, the communication efficiency and trust. Some sub-factors that run through the entire collaboration can be knowledge transfer, openness, flexibility and face-to-face meetings.

According to Yoon (Yoon et. all, 2017), performance indicators (quantitative and qualitative) can also be used to measure collaboration success. Collaboration performance indicators may concern finance, innovation, competitiveness and technology.

Business collaboration facilitators for clusters and networks

One of the drivers and at the same time catalysts for business collaboration is the existence of certain facilitators, mainly physical persons but also agencies and stakeholders that act as an intermediate to activate and boost the development of synergies among the various ingredients of the collaboration structure. In order to better understand the relations in such structure, the knowledge transfer mechanisms have to be underlined. These include:

- relations between suppliers and customers
- the formal and informal relations of cooperation between enterprises in specific sectors
- a certain degree of mobility of highly qualified employees at local level between enterprises
- a high degree of creation of spin-offs from enterprises, universities and research centers.

In this sense, knowledge not only flows because of the cooperation among enterprises directly, but also through "vehicles", such as the highly qualified personnel that

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carries the tacit knowledge or the technology driven spin offs that transform the academic or research knowledge into business activity.

Thus, rural areas should pay a special attention to the mobilization, if they exist, or the development, in case of absence, of such catalysts that are crucial for boosting local cooperation effects and spill-overs among companies.

Conclusion

Collaboration is critical in the modern economic landscape. Especially in rural areas it offers many opportunities for economic development with the use of local recourses (employment, material, traditional knowledge, etc.). More important, collaboration can support smaller firms to overcome their difficulties in the economical arena (fewer resources, les technological solutions, loss of funds etc.). Companies but also public authorities and academia engage in many ways of collaboration in order to achieve common goals. There are different collaboration models, depending on a variety of characteristics such as members, dynamics, and goals and furthermore, there are different types on each model.

Recognizing the role of collaboration, through the different models, as a form of economic growth, multiple benefits can be achieved:
- rural development;
- small and Medium Enterprises (SMEs) progress;
- research and innovation at local level improves.

Although different collaboration models facilitate different needs, the features in engaging in this task are quite common. A major threat, the need to enhance knowledge and the opening to new markets are the main motives in searching new allies. In all cases the major benefit of such processes results to gaining financial profit.
The major elements of a business collaboration are presented below:
- business collaboration requires at least two partners (companies, public authorities or academia) working together;
- business collaboration constitutes sharing goals, means and knowledge;
- collaboration can been defined as vertical or horizontal;
- parties engage in different types of collaboration, business network, business cluster, triple helix and business ecosystem, having both similarities and differences.
- members need to decide on the model and the type of the business collaboration depending structure, dynamism, the nature of relationships, and competitors.

It seems that when engaging in collaboration, a W-W-H (why – who – how) analysis could be very helpful in succeeding best collaboration results. The implementation

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of such an analysis can drive the rural area in better assessing the type of collaboration it should best promote, the means to implement it, etc

However, as this report is only based on literature review, it will be later supplemented with real cases and empirical studies that can accompany the rural areas in better understanding and testing the findings for different types of collaborations and the steps of engaging in such an endeavour.

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