



LUND UNIVERSITY

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**Master program in Economic Growth,  
Innovation and Spatial Dynamics**

## **What Can Be Learned About the Development of the Bulgarian Rose Oil Industry by Employing the Cluster Approach?**

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*Abstract: This academic work discusses the factors which affect the development of the Bulgarian rose oil industry by undertaking a cluster approach. The author identifies a list of central, literature-driven factors derived from cluster approaches, which hypothetically influence the abovementioned agglomeration of rose oil producers and related organizations and institutions. Further on, he examines them empirically by conducting seven semi-structured interviews with key players from that economic sector. The purpose of this thesis is to contribute to a better understanding on geographical dependencies by providing a case study for the rose oil industry in the Rose Valley region, Bulgaria.*

*The research finds that indeed there are some factors related to the cluster approach which affect the development of the rose oil industry. The most dominant are the labor market, fair competition, the evolution of the legislation and the scientific work and innovation. Nevertheless, the governmental institutions and the historical persistency of the cluster are viewed as liability. Moreover, the author recognizes a rather specific type of knowledge transfer between the key players which are part of Bulgarian National Association Essential oils, Perfumery and Cosmetics and those who are not. The study provides a model which illustrates these connections.*

*Key words:* economic growth, cluster, knowledge sourcing, innovation, Bulgaria, rose oil industry

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# 1 Introduction

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*The purpose of this section is to introduce the reader to the general concept of the thesis. First, the background is presented followed by problem statement, purpose, research question and delimitations. Moreover, the contributions of this academic work also can be found in this part.*

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## 1.1 Background

The oil-yielding rose (*Rosa Damascena* Mill.) and the derivative product – rose oil – are two of the emblematic symbols of Bulgaria (Kovacheva, Rusanov and Atanasov, 2010). The comparative large scale of production with finest quality established a worldwide recognition for the country in the essential oil sector. Historical records point to the fact that the rose-growing process in Bulgaria started during the sixteenth century with the production of rose water and oil, which was broadly used within the Ottoman Empire. Currently, the industrial cultivation of roses is located in five areas: Karlovo, Kazanlak, Strelcha, Zelinovo and Chirpan. Kovacheva et al. (2010) emphasize that although the family of *Rosa* consists of more than 200 species, only few of them have found application in the essential oil industry. *Rosa Damascena* is considered superior in terms of the quality of the extracted essential oil.

It should be noted, however, that Bulgaria has not been a politically and economically stable country for more than one hundred years. Stanev, Henneberg, and Ivanov (2011) explore how the frequent political changes since 1878 have influenced the economic geography and socioeconomic development of the country. The most recent and recognizable one is the change from planned to free economy in the 1990s. Kovacheva et al. (2010) show that this transition heavily affected the rose oil industry since, previously, the flower harvesting was done by state-owned agricultural co-operatives. The flower processing facilities were also the state's property and the export of the good was under the state's monopole. Nowadays, all rose plantations and processing facilities are private properties. Initially this change had a devastating effect on the industry, since it was highly unsubsidized. However, after 1998 the industry managed to recover and increase the volumes of new investments. Even with a slight decrease in production, currently the rose oil industry still maintains a high position on the world market; even though Aristovnik (2014) notes that some regions in Bulgaria are particularly inefficient given the high level of governmental R&D input and the low output levels. Moreover, the grey economy of Post-communist Bulgaria, which involves activities which are not being declared to the authorities for tax for social security or labor law purposes, harm the functioning of the market economy of the country (Philip, 2014). These facts raise the question of how was the rose oil industry able to maintain its production levels and competitiveness throughout these times of changes.

Considering the fact that Bulgaria and Turkey accredit for eighty to ninety percent of the world supply of rose oil and water, and the oleaginous rose growing is a centuries-old and well established industry in Bulgaria (Kovacheva et al., 2010), this academic research believes that an unrealized cluster might have affected the sustainability and the development of the sector. Furthermore, Kovacheva et al. (2010) claim that a concentration of such business activity and high employment from nearby villages and towns can be recognized in the Rose Valley area. Thus, the author of this paper considers the possibility of a functional cluster for the rose oil and related industries in that region. Nikiforovska (2014) points out that the cluster concept is

believed to be an important tool for regional policy and economic development. It is defined as a modern instrument for competitive advantage; however, it is still not well developed and understood.

A number of economists and economic geographers have tried to define or argue against the cluster concept initiated by Michael Porter in 1990 (Boschma and Kloosterman, 2005; Asheim, Boschma and Cooke, 2011; Martin and Sunley, 2003; Glăvan, 2008; Nikiforovska, 2014). However, based on Lindqvist's (2009) view on clusters and the difference between agglomeration and proximity effects, the author undertakes a more broad perspective on the cluster approach, believing that the discussions on that concept complement themselves instead of denying each other. In this master thesis geographical concentration of core and related industries, as well as knowledge sourcing and other proximity effects, mentioned in the theoretical framework, are considered.

## **1.2 Problem statement**

The Bulgarian rose oil is a key ingredient for the products of many leading companies such as Chanel, Kenzo, Fendi, Dior, Faberge and Bulgari (Kovacheva et al., 2010). However, while looking through the body of literature written on the rose oil industry and regional dependencies (such as the proximity effects described by Lindqvist (2009)) in Bulgaria, it became clear that the area requires further research in order to understand which cluster-driven factors affect that economic sector.. More precisely, a theoretical and an empirical gap was noticed which blocks the opportunities for further elaboration on the issue. The rose oil industry in Bulgaria represents a symbolic field for the country with stable export levels and a concentrated scholar attention might lead to further development in that agricultural sector. As mentioned in the previous subsection, Bulgaria has serious regional development issues and the key for their solution might be recognized in an active economic cluster.

## **1.3 Purpose**

The purpose of this thesis is to contribute to a better understanding on the development of the rose oil industry in the Rose Valley region, Bulgaria. Moreover, its goal is to identify some key issues for future research. By applying the cluster concept, it aims to discuss which factors affect the development of the aforementioned economic sector and to what extent. In order to do so, a geographical agglomeration of the core industry and related actors should be proven.

### **1.3.1 Research question**

Consequently, the research question that this master thesis will tackle is the following:

- Which factors that affect the development of the rose oil industry in Bulgaria can be identified by applying the cluster concept, and in which way do they influence that process?

## **1.4 Delimitations**

Due to time and word count constrains, the study was delimited in three ways. Firstly, since the author was aiming at in-depth qualitative research, 108 possible interviewees were identified (found in the data provided by the Bulgarian National Association Essential oils, Perfumery and Cosmetics – BNAEOPC). Out of this number of organizations, 63 were contacted, considering the relatedness of their business to the researched topic and the contact information availability.

The factor of companies' responsiveness finally limited the number of interviewees to 7. However, the research managed to involve big and small rose oil producers, one of the main research facilities for essential oils, customers, organizations which are member and non-members of BNAEOPC, and a foreign rose oil producer on the Bulgarian market. Moreover, the aim of the thesis is to get a better understanding on the geographical dependencies of the aforementioned industry – not to be conclusive on its findings.

Secondly, the author decided not to interview directly governmental institutions, since the scope of the academic research was going to expand exponentially. The institutional aspect is suggested as a possibility for a further research in the conclusion part of this paper.

Thirdly, the master thesis does not include any quantitative methods of carrying out the research. Although a quantitative approach would benefit the reliability of the study, the qualitative method (via personal interviews) was found to be the most applicable for acquiring relevant information. Moreover, the author would like to stress again that the purpose of the thesis is not finding an answer but understanding and suggesting key issues for further research.

## **1.5 Contributions**

The author recognizes three main areas of contribution. Firstly, this thesis offers some new insights which will enable the reader to better understand the Bulgarian rose oil industry and its factors of success and geographical dependencies. Hopefully, it will manage to identify key issues that would present an interest for economist, economic geographers and economic historians. Secondly, given positive outcomes of the research, this work would suggest factors on which the rose oil industry should elaborate. Lastly, by identifying issues for further academic work in the Bulgarian region, the thesis will suggest points on which governmental policies concerning regional development and supporting mutual industrial growth can concentrate.

## **2 Method and methodology**

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*This chapter contains the general plan of how the research is carried out. The reader can get familiar with the choice of method, as well as the whole research design. Firstly, the chosen research tool is described, followed by a description of the employed methodology.*

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In order to pick the right research tool to properly target the research question, the author turned to the research “onion” framework purposed by Saunders, Lewis and Thornhill (2009). They believe that the secret of picking the right approach lies in peeling the layers of the onion until you get to the core.

The first layer deals with the question of, what is the research philosophy, or in other words – what knowledge does the thesis want to develop and what is its nature. In that regard, this master thesis takes, as Saunders, Lewis and Thornhill (2009) name it, an interpretivistic view. That would mean that the author argues that the complexity of the world cannot be covered by law-like generalizations. Although, a list of factors derived from the cluster approaches for defining a functional cluster is conducted. The thesis does not aim to be conclusive. Rather, its goal is to understand the regional dependencies of the rose oil industry in Bulgaria. Thus, the final answers to the research questions are presented in the form of discussion.

This choice of philosophy leads to the second layer, namely, the research approach. Since, the author tries to apply a combination of different theoretical considerations concerning the cluster concept, he believes that an inductive approach is the most appropriate and will bring the most meaningful outcome. This way of carrying out the research generates and analyses data and reflects it on theoretical themes (Saunders et al., 2009). Since the cluster concept is highly debatable amongst economists and economic geographers, the author decided to identify the most relevant factors, which together add to an active functional cluster. After the observations are collected, they will be linked to the identified, cluster approach-driven factors. They will be used as a base for further discussion and a suggestion for further research. It should be noted that by using this approach the author avoids the need of narrow generalization.

But how are these observations going to be collected? The author finds the qualitative way of gathering data to be the most applicable, since it provides the required flexibility in the structure to permit changes of research emphasis as the research is carried out. This thesis is defined as an explanatory study, since the purpose of the thesis is to discuss the factors which affect the development of the rose oil industry. This type of study allows a deeper look into the cluster concept, in the sense that the linkages between the actors could be studied and not only the geographical concentration (Saunders et al., 2009).

In that case, Saunders, Lewis and Thornhill (2009) suggest the use of a case study, since it provides deep insides on the researched topic. Robson (2002) describes the case study as a research strategy for investigation of particular contemporary phenomenon from the real world by using multiple sources of evidence. Yin (2003) adds that the boundaries between the studied phenomenon and the theoretical context, within which it is being studied, are not clearly identified. It allows the researcher to get answers on the questions why, what and how.

In order to conduct this case study, the author used semi-structured interviews with key actors from the hypothetical cluster (rose oil producers, cosmetic companies, a research facility and association which combines the aforementioned actors, institutions and educational bodies related to the industry). This rich palette of types of interviewees allowed the research to include several different points of view. Saunders, Lewis and Thornhill (2009) point that the semi-structured interviews allow the researcher to have a list of themes and general questions to be covered, however, for flexibility reasons, these questions may change from interview to interview. The order of the questions may also be different, depending on the flow of the conversation. Moreover, additional questions might be asked in order to explore the research question.

The interviews were carried out face-to-face. Since it is a qualitative study the author considered establishing personal contact to be highly significant for the final result. Furthermore, the interviewees were selected on the bases of their core business. Location was not a factor, since the author wanted to avoid any bias in that sense. The semi-structured interviews were limited to seven. The responsiveness from the companies' side and the time limit also led to the limitation of the number. It is worth mentioning that the data on the industrial conjecture of the rose oil economic sector was mainly delivered by the Bulgarian National Association Essential oils, Perfumery and Cosmetics. This definitely creates bias towards the opinion of the members of the association, since the non-members were not that well presented.

The author of this master thesis is, indeed, aware that there are more limitations resulting from the choice of the method, however they will be discussed in the conclusion chapter. In order to generalize, the approach for data collection chosen for this thesis is qualitative. It involves seven semi-structured interviews with diverse representatives of the hypothetical economic cluster.

### **3 Theoretical framework**

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*This section of the master thesis will build the theoretical body of the research. This literature review will serve as a solid ground on which the author will step in order to carry out the empirical work. Thus, in that part the reader will be able to find various definitions of cluster, followed by discussions on innovation and knowledge sourcing. Finally, a list of factors derived from cluster approaches will be conducted for what this research considers a valid functional cluster, and consequently factors which affect the development of the rose oil industry.*

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#### **3.1 Decomposing cluster**

As Elsner (2005) emphasizes, the “new” economy’s characteristics are not solely identified by high-tech stock markets and a rapid development in the new productive force of information. Rather, they are evident in the real economy’s more fragmented, disembedded (process related to the modernization in which social relation has become highly spread across space and time), deregulated and spatially clustered character. Thus, a considerable amplification of direct interdependencies among economic units can be noted. The outcome of A heavily depends on the behavior of B, and not only on its own decisions. Elsner (2005) claims that these interdependencies have become so intense and ubiquitous that they no longer can be separated from the economy, the corporations, and the policy makers. Actors should be aware of the actions and the reactions of the others. Problematically, these cannot be captured by the ideal markets of the mainstream economists, since the price vectors depend solely on the decisions of all other actors and fail to cope with the direct interdependencies and the interactions between these economic units. As the markets and prices theories fail to diffuse information concerning the coordination between these agents, they entail, in these cases, a potential social cost and prevent proper future forecasting. Hence, the corporate economists constructed individual theories in order to bring that complexity down into manageable pieces. Among these are the local clustering and networking.

##### **3.1.1 Agglomeration and proximity effects**

In his work, “Disentangling clusters”, Lindqvist (2009) notes that one of the most renowned economic features is the uneven geographical distribution of corporate activities. There are locations with high concentration and ones with visible scarcity.

In this master thesis, the author will deal mainly with agglomerations from one type, namely, of related industries (clusters). Recently the concept of clusters has been predominantly used in the economic literature and used as a dominant tool for the establishment of economic policies (Lindqvist, 2009). A number of initiatives have already been taken with the idea to enhance the dynamics of clusters. Nevertheless, Lundqvist (2009) notes that, although agglomeration and proximity effects are closely related and interdependent, they represent entirely different concepts. Agglomeration is a high spatial density of economic activity, whereas proximity effects are phenomena which affect economic activity through the spatial distance. It should be noted

that the distance range of these densities might differ from case to case. However, agglomeration supports proximity effects, and proximity effects enhance agglomeration.

But how does that work? Agglomeration can be generated in two ways (Lindqvist, 2009): (1) across different geographical scales, such as dense shopping streets; and (2) between various industry scales. On one side, groups of highly specialized activities can be localized in specific parts of a town. On the other side, the geographical concentration might be on a larger scale such as cities. Most probably obvious nowadays is that more than a half of the world's population lives in towns because of these intense clusters of economic activity.

However, the phenomenon of agglomeration is far from a recent creation. It dates back to 1890 and was introduced by Alfred Marshall (1920). In his work he points out to places with highly specialized, predominant trade power, such as the watchmaking industry in Geneva, Switzerland.

Another characteristic of the agglomerations is that they are associated with high historical persistency (Lindqvist, 2009). Industries can be dominant in a city for centuries, and cities can maintain their trade power for millennia. Of course, these places and the related economic sectors have their ups and downs; however these processes are rather slow. However, this characteristic is not applicable to clusters which are not traditional.

Moreover, not all economic activities are affected the same way by agglomerations (Lindqvist, 2009). Some are more concentrated in the financial centers of a city such as banks, and others, like hairdressers, are more widely spread.

Nevertheless, the interesting question concerning this issue is why and how these agglomerations exist? Which are the factors that make economic entities to co-locate? Lindqvist (2009) names these factors proximity effects. Effects that have the same level of impact on every location cannot account for proximity effects, however, the ones that are stronger in shorter distances could.

Again Marshall (1920) is to be accredited for the initiation of this theory. While he was looking at the agglomeration of a particular industry, he noted that collocating economic agents can produce proximity effects, or as he names them – “external economies”. Four such externalities were identified by him: (1) interchange of skills and technologies between competitors and generations; (2) the growth of subsidiary industries (supplying the core industry with specialized inputs) affects the overall development of the agglomeration; (3) a local labor market for specialized goods exists; (4) advantage is gained through shared usage of specialized knowledge and machinery. On the other hand, Jacobs (1969) investigates the proximity effects in the case of a general agglomeration. She claims that the collocation of several business activities attracts and creates new types of businesses, thus leading to economic growth in the cities. A concluding thought the reader should get from both theories is that different types of proximity effects account for the creation of different type of agglomerations.

But what is meant, exactly, by “proximity effects”. Boschma (2005) identifies them as crucial factors that affect the interactive learning and innovation. He claims that geographical proximity is neither crucial, nor sufficient factor for utilizing the aforementioned processes. Nevertheless, the spatial distance might reinforce other types of proximity. This master thesis considers the

geographical proximity to be the aforementioned physical agglomeration of key actors. The proximity effects described by Linqvist (2009) can be linked to the cognitive (the actors create a routinized behavior, in terms of skills and competences, which fosters communication), organizational (available mechanisms, such as networks, that allow the companies to exchange knowledge), social (Socially embedded relations between actors) and institutional (institutional environment at the macro-level and institutional arrangements at the micro-level) types of proximity identified by Boschma (2005).

In that sense, although those two terms are entirely separate notions, the core assumption is that they can mutually reinforce each other in a somewhat circular mechanism (Lindqvist, 2009). Agglomeration enhances proximity effects in a rather obvious way. An example would be the labor market. If the supply and demand for a specific skill exponentially increases, the likelihood for an employee to find an employer, and the vice versa, also rises. The more employees there are in the market, the higher the chance is that the organization will find the right cadre. Respectively, the higher the number of companies, the easier it is for an employee to find the right job for him/her. Therefore, the increased number of firms in one location promotes labor mobility and supports skill development.

On the other hand, proximity effects also foster agglomerations. Lindqvist (2009) shows three indirect mechanisms through which proximity effects create benefits and, consequently, incentives for companies to co-locate. The first one is related to **growth and survival** – a spatial gathering of firms may lead to mutual growth and an increase in the survival rates, which will lead to increased agglomeration. The second deals with **attraction**. These are external economies which promote a better survival or performance environment, and serve to lure new companies to locate, or old companies to re-locate, forming an agglomeration. The third one is, surprisingly, not connected to gaining economic benefits. Some proximity effects lead to enhanced entrepreneurship, which, on its hand, leads to a potentially increasing number of companies in a certain location. These companies, however, might not be particularly profitable or long lasting. This mechanism is related to the **entrepreneurial entry rates**. In this case, the Marshall's thought on the necessity of economic benefits in an agglomeration might turn out not to be that important.

To sum it up, Linqvist (2009) states that a random set of firms, which happens to co-locate together, is considered an agglomeration. Proximity effects are not essential for the formation of an agglomeration.

### 3.1.2 Historical development of the cluster concept

In 1990, Michael Porter suggested that a new theoretical concept should be suggested for international trade since the factor endowment and price related models of trade failed to capture the fact that countries with similar factor endowment tend to trade more. That is when he proposed the diamond model for competitive advantage, which was related to four key determinants in the environment, namely: (1) **factor conditions** – the factors of productions on predisposal, such as labor and infrastructure; (2) **demand conditions** – competitiveness gained on the bases of local demand (a particularly sophisticated wants and needs, or the customers demand is able to trigger a buying trend in another location; (3) **firm, strategy, structure, and rivalry** – relates to the firms' possibilities to enter and exit the market, on what bases do these

firms compete, and how is the industry structured (often related to specific management styles); (4) **related and supporting industries** – gaining competitive advantage through companies, which not only supply the business, but also may be used as a source of innovation. These four determinants reinforce each other by interacting. The main idea of Porter's concept was to explain the differences between the nations on the bases of trade and competitiveness. However, he also notes that these agglomerations occur on the sub-national level. So, Porter was the first to define "cluster" as a phenomena that happens on a national level and the agglomeration on the sub-national level was a consequence of the efforts of the companies to further strengthen their competitiveness. It should be noted that in his further work he elaborates more on the sub-national aspect (Porter, 1998). Moreover, he clarifies that not only companies are included in the cluster, although they are the core, institutions, universities, and research facilities also play a vital role.

Nevertheless, the Porter's cluster concept (1990) was different compared to the agglomerations described by Marshall (1920) and Jacobs (1969). The difference laid in the fact that he believed that the clusters consist of more than one industry. In his view, that concept involves linked industries and other, important to competition, entities (Porter, 2003). This mechanism is the driving force behind the concentration of these economic agents, meaning that it is an external economy effect. In that sense, the Porter's concept succeeds to integrate both Marshall's view on industry agglomerations and Jacob's – on general agglomerations. Indeed, Lindqvist (2009) believes that the multi-industry dimension is one of the key elements that set out the cluster from the other spatial theories.

Porter's (1990) thoughts on the proximity effect were based on a combination of Marshall's and Jacobs views. He, as well, mentions the labor pooling described earlier, and the related knowledge spillovers. Furthermore, he emphasizes on the fact that the co-location of industries might affect positively the innovation rates. However, the point he differed in was his believe that the strong rivalry between these competitive industries was a core aspect in defining a cluster.

Porter (1990) also does not provide a specified spatial range that defines a cluster. He writes that the geographical scope was dependent on the reach of the proximity effect and was highly case-specific.

### **3.1.3 Why is the cluster concept applicable for economic policies?**

Lindqvist (2009) states that the recent work of economic geographers had a large impact on economic policymakers. Moreover, Porter (1990) supports the idea that the multi-dimensional aspect of the cluster concept makes it a perfect framework for economic policies. Moreover, recently the regional economic development has been really influential (Lindqvist, 2009) and the cluster has been heavily used as a base for measurement. The nature of the local activities has become increasingly important for the economic development. A lot of the OECD countries have used clusters as a framework to their state, regional, province, cities, and local communities' development plans. On top of that, multinational organizations, such as OECD, the World Bank and the European commission also benefit from the use of this spatial theory. Lindqvist (2009) mentions that these cluster policy initiatives have resulted in public-private partnerships aiming to develop clusters. Some of them are mainly focused on the relationship agglomeration-proximity effects and focus on improving the economic performance in already established agglomerations;

and others are interested in the opposite running link (proximity effects – agglomeration) and try to improve the number of organizations and jobs by developing the external conditions.

### **3.1.4 Critiques against the cluster concept**

While looking through the recent academic work of economic geographers and general economists, one is left with the impression that a lot of arguments surround the cluster concept. Boschma and Kloosterman (2005) illustrate many of the scholar uneasiness concerning this theory, or as they name it – “the cluster model”. They mainly disagree with the fact that a loosely defined region should be taken as an important spring of competitive advantage. Tödting and Trippel (2005) note that there is no one-size-fits-all policy model that acts as a theoretical framework in any spatial setting.

One of the issues found in Boschma’s and Kloosterman’s (2005) work is that the cluster concept is mostly treated as a static entity instead of dynamic. The development of this localization of companies is taken for granted and the only way to understand the affairs within is through historical data. Moreover, although Porter (1990) combines the general and industry theoretical concepts about the agglomerations, the debate about differentiating them is still ongoing.

Another point is that none of the cluster models presents a clear spatial distinction which makes it hard for scholars and policymakers to work with that theoretical framework (Boschma and Kloosterman, 2005). In addition, Boschma and Kloosterman claim that the scholars in that field fail to incorporate the negative sides of that theory, and focus mainly on the positive effects. The writers give an example with the possibility of a lock-in effect. The performance of well-developed clusters tends to be interrupted by negative agglomeration economies and make the array highly inflexible. This usually comes with the cost of dropping innovation rates and incapability of coping with external shocks.

In addition, another insurmountable task is the spatial aspect of the cluster. Since spatial processes play a vital role, a clear geographical scale should be presented (Boschma and Kloosterman, 2005). Unfortunately, the task of drawing these boundaries is practically impossible because of the scope of these internal processes and the link with the external world. Consequently, these different spatial scales make the cluster instable over time. Boschma and Kloosterman suggest that in order to deal with that issue the agglomeration should be taken as a result instead of a given.

Martin and Sunley (2003) seem to support these concerns. The lack of both geographical and industrial clear boundaries blurs the definition of a cluster. They continue by putting doubt on how strong should the linkages be between the actors of the cluster and how far their networks can spread. The level of economic specialization of the cluster is also not well defined.

Furthermore, Glăvan’s (2008) critical view on the cluster concept points to another flaw of the theory. He initiates the discussion by saying that Porter’s cluster model since 1990 suggests that the government should put effort in boosting the development of the agglomeration. But could the cluster sustain itself on the bases of the free market without the interference of the government? Glăvan’s study indicates a large amount of marketing failures triggered by the lack of coordination between the individuals – the failure to coordinate changes in order to obtain a common benefit of a better situation. This flaw of the concept is due to the fact that firms should

realize that, in order to improve their performance, the entrepreneurs should understand that their individual success is dependent on the actions of the other market participants. This lack of coordination between the key players in a cluster points to the fact that the government should intervene and fix these market failures.

Glăvan (2008) claims that the cluster approach is widely used for political reasons and not for scientific ones. This theoretical concept fails to cope with the numerical problems that the economic policy in general should deal with. Thus, the cluster concept is rather used to gain political popularity and should not be considered as a refined part of development economics.

Boschma and Kloosterman (2005) also share their concerns on the dominant cluster approach as an empirical study. Mainly this concept is highly theoretical and it is not supported by a large amount of empirical prove. Furthermore, the lack of consensus on the variables related to cluster and how to map a cluster creates a further deepening of the issue. The reason is that the present studies represent particular case studies giving highly specific information which cannot be elaborated in more global terms. The differences in the definitions, spatial levels, and the variables affecting the cluster make a universal study impossible. The scholars work mainly asks for a more standardized way of looking at clusters.

### 3.1.5 Arguments in benefit to the cluster approach

As we have seen in the previous part, the cluster concept has been critiqued for not been precisely defined and that Porter (1990) overlooked the regional agglomeration aspect initially. Lindqvist (2009) finds these arguments baseless and deceptive. He bases his hypothetical view on the fact that nations are economic spatial entities as well and even they differ in size (i.e. Luxemburg and Russia). In that sense, Porter was trying to identify agglomerations on a country level with high dependency on export and export competitiveness. Having that in mind, it does not come as a surprise that the sub-national level was overlooked initially.

Nevertheless, it is true that there is no specific spatial limitation of the Porter's cluster, but Lindqvist (2009) does not find this fact restraining. On the contrary, he believes that there is a certain comfort in the incompleteness of this theory as it gives freedom to the investigator and does not serve as an unnecessary limitation. Together with Boschma and Kloosterman (2005), they argue that the geographical range should be kept out the definition of cluster in order for a research to have a meaningful outcome.

The other major issue that Lindqvist (2009) is trying to tackle was related to the vast definitions of a cluster. The problem, as he defines it, does not lay in the geographical scale diversity but rather in the confusion between agglomeration and proximity effects. Swann (2006) draws a good illustration of the cluster concepts and the ways to measure them. She provides a spectrum of concepts that range from “easy to measure but shallow interpretations” to “rich but hard to measure”. She identifies nine cluster concepts going in the previously mentioned order: (1) **co-location**; (2) **co-location and technological proximity**; (3) **input/output table complementarities**; (4) **co-location and superior performance**; (5) **Marshallian externalities**; (6) **network firms**; (7) **labor mobility**; (8) **explicit collaboration**; (9) **informal knowledge spillovers**. Lindqvist (2009) furthermore separates them into three subgroups – from (1) to (3) are related to agglomerations; (4) is a mix between agglomeration and proximity effects; and (6) to (9) are related to the proximity effects.

Finally, Lindqvist (2009) identifies the problem with measuring by saying that different groups of scholars have different definitions of clusters. Supporters of the knowledge spillover theories will claim that there is no evidence of a cluster without them, labor market scholars will insist on delimitation of a cluster by the flow of labor, and proponents of the value chain theory will not consider a cluster without proper output-input relations. Scholars like Cooke (2001) believe that there is no cluster without a proper innovation system in place. That is why Lindqvist (2009) and Boschma and Kloosterman (2005) suggest that the cluster (or the spatial variable) should be taken as a result instead of given.

Li, Chu, Hung, Chang and Li (2010) for example propose a model incorporating few of the major views on the cluster concept. They provide an equilibrium model based on inter-individual networking decisions to tackle the issue with the role of the industrial clusters and the division of labor in the competitive market. However, this model does not include the possibility of monopoly power and the fact that there is a substitution of different specialists.

### **3.1.6 What does this master thesis consider as economic cluster-driven factors which affect the development of an industry?**

This study will mainly try to find an economic cluster which is not bound to a specific administrative region and such that includes other economic sectors which are related to the rose oil industry. For the sake of immersion in the research, this study will borrow a scientific term to describe it, namely, “functional cluster” (Sholl and Stackel, 2009). As Swann (2006) defines it, the investigation strives for a rich but hard to measure approach and focuses both on agglomeration and proximity effects. Thus, based on the theory above, the author has conducted a hypothetical list of factors which describe a functional cluster and, consequently, factors that affect the development of the rose oil industry in Bulgaria:

1. Factors which define a cluster:
  - a. Geographical agglomeration (hypothetically around the Rose Valley);
  - b. Historical persistency of the agglomeration (applicable for a cluster of a traditional industry);
  - c. The agglomeration consists of:
    - i. Core industry;
    - ii. Related and supporting industries;
    - iii. Research facilities;
    - iv. Educational entities;
    - v. Related institution;
    - vi. Customers;
  - d. A distinguishable infrastructure;
2. Factors which affect the development of a cluster:
  - a. Competition between key players;
  - b. The growth of the subsidiary industries supplying the core industry affects the overall development;
  - c. Local labor market for specialized skills;
  - d. Demand conditions – local demand anticipates demand trends in other locations; home market offers a relatively sophisticated and demanding customer (boosting the competitive advantage);

- e. Mutual growth and survival efforts;
  - f. Transfer of skills and inventions between competitors and generations;
  - g. Local knowledge spillovers;
  - h. Advantages gained of shared use of specialized knowledge and machinery;
  - i. Efforts to attract new companies to allocate;
3. Cluster effects – the agglomeration leads to entrepreneurial activity and fosters innovation.

### **3.2 Definition of innovation**

As yet on several occasions the term “innovation” has been mentioned. However, as it is with the cluster concept, in the literature many definitions on what an actual innovation is and what is considered efforts towards innovation exist. Thus, the aim of this section is to provide clarity on what is meant by “innovation” in the paper and what is embodied in the increased innovation rates.

Tödting and Grillitsch (2014) claim that, in many cases, innovation is considered in narrow terms. What they meant was that only the technological generation of new products and patents is treated as a novelty. However, this conceptual framework fails to capture the performance of many companies. Both scholars emphasize on the fact that innovation should be considered in a broader perspective. That would include process, market and organizational novelties.

But why is innovation promoted so heavily in the literature and by governments? These novelties are highly important for the economic development of an industry and sustaining individual competitiveness (Vega-Jurado, Juliao-Esparragoza, Paternina-Arboleda and Velez, 2015). And as defined previously by Porter (1998) the competition is core to the development of a cluster. But in order to efficiently promote an innovation system, an active interaction between stakeholders (government, companies and universities) is necessary. Furthermore, Vega-Jurado et al. (2015) claim that the development of economic activities is highly dependent on the existence of an adequate supportive framework (i.e. financial support programs and intellectual property rights).

However, achieving an innovation advantage is not the only concern a company or an industry would have. Madsen and Leiblein (2015) carry out a research on which factors contribute to sustaining this advantage. In particular, they are studying how the operating experience of a company, the experience of its partners, and the patent stocks affect the sustainable innovation competitiveness. Their argument is that innovation and experience generally show social complexity and path dependence, thus they believe that the both have a positive effect on sustaining that advantage. When it comes to the third investigated factor, they consider it to further promote that persistence, since it provides a legal barrier for imitations.

After running their empirical test, Madsen and Leiblein (2015), indeed, found a positive relation between the internal and partner experience, and sustaining innovation advantage. They demonstrate that 1.7 to 2.6 years are needed to overcome ninety-nine percent of the innovation advantage linked to the individual experience and 1.5 to 8.4 years to overcome ninety-nine percent of the advantage associated with the partners’ experience. Although the test did not show a significant positive effect on the relationship with the patent stock, it still proves that information transfers between closely related organizations are highly important.

Nevertheless, one should not ignore the fact that in this master thesis the investigated industry is a traditional sector in Bulgaria. Massis, Frattini, Kotlar, Petruzzelli and Wright (2016) show, that innovation through tradition should not be neglected. A lot of innovation managers are generally advised to forget the past and make path for the new. The scholars, however, disagree by saying that this act might significantly limit the innovation potential and destroy alternatives connected to previous knowledge. They claim that there are potential benefits from searching in the past for developing new ideas for innovation. Moreover, customers tend to look for products and services connected to the past, from more stable and less chaotic times, to satisfy their current needs. Thus, organizations might benefit from former knowledge by touching upon positive feelings and create innovative functionalities. In that sense, one may see the traditions in the traditional industries not as a liability but rather just as another resource which promotes innovation activities.

In conclusion, this paper takes a rather broad perspective on innovation. It includes not only technological and process innovation but marketing and organization innovation as well. It is not only limited to closed innovation systems, where the research and development initiatives are only conducted within the company, using their own research labs. Moreover, the market diffusion of the innovation is done only by the firm's own marketing and sales departments (Herzog, 2011). The study also includes open innovation systems, where the companies rely more on external organizations for these processes, as well as searching for funding. These organizations might not be only private but public as well. The cluster concept is seen as it promotes these innovation initiatives and the fact that a traditional industry is studied in this paper, does not present a limitation but rather an advantage for the organizations in the sector.

### **3.3 Knowledge sourcing**

Since Röttmer (2011) claims that economic clusters gain innovation potential from the innovation capabilities on the network level, knowledge exchange was found to be highly important to the research. Thus, this master thesis should elaborate on which kinds of knowledge sourcing are the most relevant when acquiring information in a cluster and on which spatial level can the information be found?

Malmberg and Power (2005) try to answer these questions in their work "(How) Do (Firms in) Clusters Create Knowledge?". Since knowledge is believed to be the main source of competitiveness for clustered firms and industries, they decide to test three hypotheses: (1) local inter-organization collaboration is responsible for the creation of knowledge in clusters; (2) another source of knowledge is the intense rivalry and increased competition in the cluster; (3) spillovers in the cluster, resulting from the sociability and mobility of the individuals, creates knowledge. Moreover, Malmberg and Power (2005) claim that the combination of the globalization of markets and the increased specialization of labor make knowledge creation and innovation important. Additionally, if a company faces a particular problem it will turn to suppliers, competitors, customers or other actors, to get help with specifying and solving the issue. In that sense, innovation mostly occurs with the interaction between various stakeholders. The scholars believe that the proximity effects, as mentioned before, have a positive effect on these relations, since they promote face-to-face communication, refer to a common language and culture, trustful relations, and short cognitive distance. That is why it is believed that the cluster intensifies the industrial innovation capacity and competitiveness.

Surprisingly, after running their European country-based examination, Malmberg and Power (2005) found that intense collaboration between similar and related firms in a localized cluster does not enhance knowledge creation significantly. Most of the companies tend to have their main partners somewhere outside these agglomerations. However, in some cases strong local activity is responsible for a significant amount of the knowledge creation, but they are not strongly defined by the notion of a region. Furthermore, when it comes to informal knowledge exchange between professionals and specialists, and local labor market mobility, the spatial localization seems to play a key role. Coming from that, Malmberg and Power conclude that the local clusters promote informal social interactions, and specialized and skilled work hand.

With a study on Vienna's software sector Tripl, Tödling and Lengauer (2009) found that spillovers and informal networks are significant contributors at all special levels, and combined with research-and-development partnerships, they build a strong local knowledge creation system. Moreover, they prove that the more radical an innovation is, the richer the palette of knowledge sources is and the more complicated the information transfer mechanisms become. In order to conceptualize their findings, they propose an alternative typology by differentiating market relations, spillovers, formal networks, and informal networks. The authors believe that the findings of this case study might be highly applicable to the rose oil industry in Bulgaria.

In her more recent work, Tripl, together with Grillitsch (2014), further elaborate how innovative firms combine knowledge using companies from the Austrian automotive industry. They compare relevant concepts such as regional innovation systems, knowledge approach and local buzz and global pipelines. However, the interesting finding is that knowledge is sourced from different partners on different spatial scales and acquired through different relevant channels. They show evidence that the automotive industry mainly gathers knowledge from customers combined with a variety of other sources in Europe, or global levels, in addition to the regional one. In that sense, they conclude that organizations usually integrate spillovers with other channels to acquire the relevant data they need.

In conclusion, the author finds the notion of knowledge sourcing to be applicable for the findings of this thesis, since he is interested in to what extend do the links within the cluster foster the development of the rose oil industry. This theoretical concept is further used in the analysis of the empirical results.

## **4 Empirical work**

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*This section of the academic work aims to summarize and conceptualize the empirical gatherings and provide a brief description of the studied companies. Due to wishes of confidentiality, names and full transcription of the conversations are not provided (however, they are available on request). Nevertheless, this is not the case for BNAEOPC, since the association is core for the final analysis. This part will be structured as follows: (1) introduction of the actors who took part in the study; (2) presenting the results by conceptualizing and relating them to the previously established list of factors derived from cluster approaches; (3) pointing out factors which affect the development of the rose oil industry. Additionally, in order to avoid the omitting of valuable information, a subsection showing aspects, that were brought up during the interviews but not mentioned in the theoretical considerations, will be affixed.*

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## **4.1 Organizations**

### **4.1.1 Interview Partner 1 (Interviewee – CEO)**

The company's main business is production and trade of essential oils and natural aromatic products. Their distillation facilities and plantations are located in the heart of the Rose Valley – in Pavel Banya and Skobelevo. However, the administrative office is in Sofia. Their strategy is to meet the clients' demands by regular supplies of high quality products, based on century-old Bulgarian traditions and precise technological control. Their products include: rose oil, lavender oil, clary sage oil, zdravetz oil and milfoil oil, where the rose represents eighty percent of the final value creation. The company was founded by three graduates from the University of National and World Economy in Sofia, Bulgaria, in 1995. Currently, the company holds 26-50 employees (HelloTrade, 2016).

### **4.1.2 Interview Partner 2 (Interviewee – Administrative Manager)**

Interview Partner 2 is part of the French organization Robertet Group. The business model of Robertet Group consists of three pillars: natural raw materials, perfume composition and food flavorings. The organization is known to be a world leader in natural ingredients, with rich expertise, gained from the years of experience and drive towards innovation (Robertet Group, 2016). In 2013, the organization acquired a rose oil production facility in the Rose Valley (Kazanlak, Bulgaria). Its purpose is solely negotiation with local rose farmers and supply of complete production to France. Robertet Group fully subsidizes Interview Partner 2's activities and it is its only customer.

### **4.1.3 Interview Partner 3 (Interviewee – Owner and CEO)**

Founded in 2010, this organization is a relatively young company. It is located in the Rose Valley, near Kazanlak (Bulgaria). Its main business activities are production of rose oil, and health and beauty care products with rose and lavender. Despite its short existence, the company achieved remarkable results independently and it is exponentially investing in new lands, distillery technologies and facilities. Core for the business is the customer satisfaction through loyalty and qualitative production. The main competitive advantages of this small enterprise are the geographical location its rose and lavender plantations, the pure mountain water, the modern technology and the closed cycle of production.

### **4.1.4 Bulgarian National Association Essential oils, Perfumery and Cosmetics – BNAEOPC (Interviewee – Executive Director)**

BNAEOPC is a voluntary non-profit organization which aims to protect and represent the interests of its members and the industry as a whole. Founded in 1999, this is the only official representative of companies in the essential oil and related sectors. Apart essential oils, perfumery, cosmetics and aromatherapy, the association involves firms related to the manufacturing and supplying of equipment linked to the aforementioned industry. Institutes, universities and laboratories are also part of the association.

BNAEOPC's strategic aims also include keeping its members informed about changing requirements of the Bulgarian and the European Union legislations, training experts in the branch, active working with the local government and the public administration, and improving the cooperation between the actors and the official authorities. Moreover, the organization helps

with the promotion of the Bulgarian essential oils and cosmetic products, and supports its members with information for their innovation and reorganization processes (BNAEOPC, 2016). The association links all its members and serves as a communication center between them and the related institutions. Nevertheless, in order for the organization to work properly, equal access for every party and transparency are needed, thus it does not enter into close relations with neither side.

Worth mentioning is also the fact that, in order to keep its credibility, the association itself is a member of numerous organizations: European Federation of Essential Oils (EFEO), True Friends of Natural and Organic Cosmetics (NATRUE), Cosmetics Europe – The Personal Care Association, Bulgarian Industrial Association (BIA), Bulgarian Chamber of Commerce and Industry (BCCI), Bulgarian Institute for Standardization (BIS), and Association "Made in Bulgaria". An intense contact with similar organizations in other countries is also maintained.

#### **4.1.5 Interview Partner 5 (Interviewee – Head Director)**

Founded in 1907 by the famous Bulgarian scientist Konstantin Malkov, the fifth interview partner is an institute located in Kazaluk, Bulgaria, which served the purpose of developing and supporting the rose production. Later on the experimental planting expanded to other cultures as well. The institute is a governmental organization and it is under the direct supervision of the Ministry of Agriculture and Supplement. This research facility is still considered as one of the main centers for applied services and subsidiary activities in the fields of Essential Medical plants in Bulgaria. Its fields of research are as follows: (1) introduction, selection and reproduction of medical plants and essential oils; (2) creation and support of gene funds; (3) technology development related to the medical plants and the essential oil; (4) raw material processing technology development; (5) creation of natural cosmetic products; and (6) licensed testing laboratory for analysis and certificate issuing.

The institute holds copyright for nineteen out of forty created essential and medical plants. Furthermore, it is the main Bulgarian producer of super qualitative sowing material of essential oil and medical plants, and the sole institute in the European Union which shows a specified interest in the Oil Bearing Rose.

#### **4.1.6 Interview Partner 6 (Interviewee – Production department)**

Interview Partner 6 is a cosmetic trading company, which has its headquarters in Sofia, Bulgaria. The main business activity of the organization is the production of professional equipment and materials. The company also has its own storehouse, showroom, teaching academy and distribution network throughout the whole country. However, its most admired business is the selective class professional cosmetics. The firm's main goal is to produce high class cosmetics, which aim at quality and fast effects.

The company's main customer base is the professional beauty salons in Bulgaria. It also exports Bulgarian production to China, Dubai, Finland, France, Spain, Austria and the United Kingdom.

#### **4.1.7 Interview Partner 7 (Interviewee – Owner and CEO)**

Interview Partner 7 is a producer of rose-oil based products for skin care and fragrance – perfumery and cosmetics. The company exists since 2007 and it invests heavily in producing luxury class products. Core for the owner's business idea is to create a product that can be used

proudly to represent Bulgaria. That is why she supplies solely from Bulgarian companies using Bulgarian roses. The organization's marketing is also heavily based on the quality of this flower.

## **4.2 Results**

### **4.2.1 Factors which define a cluster**

#### ***4.2.1.1 Geographical agglomeration***

After carrying out the interviews, the author is able to confirm that there is a high geographical concentration of rose oil production activity in the Rose Valley region. When looking at the data provided by BNAEOPC, one can easily notice that almost all rose oil producers are located in that region. The executive director notes that three fourths of the cosmetic companies and almost one hundred percent of the rose oil producers are located in the Rose Valley. One of the interview partners explains that phenomenon by saying that the rose extraction process requires flexibility, fast movement, and immediate distillation after the rose is gathered. Since the rose should be fresh when the oil is extracted, the gathering process should take place early in the morning (when the temperature is low). In that sense, this industry is extremely intense in the times of collection of the raw materials, thus the companies locate their distilleries and factories close to the source.

In other words, the process requires geographical proximity to the source. On top of that, the representative of the foreign company on the Bulgarian market explained that this factor was one of the main contributors to the decision on where should their distillery be located. The company's goal was to be as close as possible to the rose farmers, so they can maintain the quality of the rose extraction process.

This factor, of course, has triggered a certain level of agglomeration in the sense that supporting industries also co-located their facilities closer to the extraction process. The University of Food Technologies and the Agricultural University are both located in Plovdiv, which is the biggest city in the region of the Rose Valley. Both universities train workforce for the rose oil industry. The administrative office of BNAEOPC also can be found at the same location. One of the main research facilities (Interview Partner 5) is based in Kazanlak – a city placed in the North part of the Rose Valley. A large portion of the perfumery and cosmetic industries can also be found in the same region (see Appendix 1).

Although there is a noticeable geographical concentration of activity related to the rose oil in the Rose Valley, there are still exceptions. These exceptions are mainly customer companies or laboratories for examination of the extracted oils. Two of the interviewed companies are examples of such exceptions. Both organizations are direct consumers of rose oil. For both companies, the spatial distance between their business and the production of the rose oil does not seem to affect greatly their performance. Moreover, the national testing laboratory for essential oils is found in Sofia. It is important to mention that every essential oil producer is obliged to send a probe of his production before it can be legally exported. The interviewed rose oil producers explain this phenomenon by saying that after the oil is extracted and confined, it is easily transportable in great distances without affecting the costs too much. That is why related sectors and laboratories do not co-locate with the core industry.

#### ***4.2.1.2 Historical persistency of the agglomeration***

Interview Partner 1 provided a book from the first conference of the Bulgarian rose oil industry from 1906, in Plovdiv (Пловдивска Търговско-Индустриална Камара). In that work, a large amount of statistics and debates were mentioned. Interestingly, the book mentions twenty two districts (or 210 municipalities), in Bulgaria, that deal with the production of rose oil and rose blossom. A concentration of industrial activities in the region of the Rose Valley can be noted. Moreover, this report includes statistical data about the industry from the year of 1898. That would imply that the agglomeration has a historical persistency since at least 118 years.

#### ***4.2.1.3 The agglomeration consists of:***

In general the rose oil extraction process and the creation of raw materials are done in Bulgaria, and more precisely in the Rose Valley region, since the oleaginous rose is located there. These processes should be done in really short time, in specific environment and time of the day, in order to achieve high quality. However, before the final consumer can use the product in the form of perfumes and food flavors, the rose oil goes through a number of instances, such as laboratories for examination and fragrance producers. Finally, the raw product reaches perfumeries, where they mix the fragrances and sell them as the well-known brands. Interview Partner 1 also adds that there are even more stakeholders that should be considered, which makes the agglomeration composition highly complicated.

In order to follow the geographical disposition of the industry and the related industries, the author divided the stakeholders into six subcategories:

##### ***4.2.1.3.1 Core industry***

The empirical evidence categorically supports the general hypothesis that there is a concentration of rose oil producers in the Rose Valley region. The rose oil producers are bound to have their distilleries close to the rose plantations since the distillation process requires it. The three interviewed rose oil producers have their production facilities in the specified region. Interview Partner 3 claims that the Rose Valley is the only place that provides the right environment (temperature, land, humidity, access to sunlight and clean air) for culturing *Rosa Damascena* (the oleaginous Bulgarian rose). This opinion is shared by all interviewees. Attempts were made to grow this sort in other parts of Bulgaria and other countries. However, these experiments were unsuccessful. It should be mentioned, nevertheless, that some of the registered rose oil producers have their headquarters in Sofia and other big cities, outside the region, for institutional and administrative reasons.

##### ***4.2.1.3.2 Related and Supporting industries***

Indeed, supporting industries exist in the agglomeration. Since not all rose oil producers have their own rose plantations, or they are not enough to satisfy the full demand, they turn to farmers who grow roses and sell the raw material. Interview Partner 2's business model is actually entirely dependent on this supporting sector since they do not have their own plantations. In order to meet demand, Interview partner 1 also sporadically relies on the farmer's services. It also happens that the company buys rose oil from suppliers outside the borders of Bulgaria (mainly Turkish).

##### ***4.2.1.3.3 Research facilities***

One of the main and oldest research facilities related to scientific studies of essential oil cultures is Interview Partner 5. The institute is indeed located in the region of the Rose Valley. The main

factors which affected the choice of location were the soil and climatic conditions. It is entirely subsidized by the government and individual donations. The creation of the institute is triggered by the need of the Bulgarian and world agriculture. All producers of essential oils (including rose oil producers) in Bulgaria use their consulting services. In other words, the demand for their services is as high as the essential oil production in the country. This is due to the fact that this is the only research facility in Europe that is highly concentrated on essential oils and medical products.

However, it should be noted that active research facilities can be found in the region of Gabrovo, Sofia, Shumen and Plovdiv, which does not support the cluster concept. The interviewed rose oil producer mentioned that this is not a problem, however, since the ready production is easily transportable.

#### 4.2.1.3.4 Educational entities

The empirical study shows that, indeed, there are educational entities in the specified region. The University of Food Technologies and the Agricultural University represent two of the few teaching facilities that educate cadres for the related industry. Two of the interviewed rose oil producers use the services of employees who are their graduates.

#### 4.2.1.3.5 Related institution

The NGO BNAEOPC serves as a communication body between the related institutions and the cosmetics and essential oil industries. Its location is in Plovdiv, which is within the borders of the Rose Valley. A large portion of the Bulgarian rose oil producers and cosmetic companies are members and are quite satisfied with their services (such as five of the participants in the empirical research). However, there are actors of the industry that are not related to the association and do not want to be a part of it. These are mainly small companies and Interview Partner 3 is a perfect example of such organization. These facts draw a quite interesting knowledge exchange map which will be further elaborated on in the analysis section.

#### 4.2.1.3.6 Customers

The local demand is not so well represented, claim the interviewed rose oil producers. Interview Partners 1 and 2 have relatively small sales locally. However, an increase of the demand from the Bulgarian market has been noticed. This is due to the fact that new fragrance companies and perfumeries are founded and that old organizations expand their product lines with options containing rose oil. Perfect examples of that trend are Interview Partner 7 (which bases its marketing and most of their products on the aforementioned material) and Interview Partner 6 (which initiated a product line with heavy participation of rose oil and rose blossom). Interview Partner 2, on the other hand, has no sales on the Bulgarian market, since do not have trading activities and their full production is dedicated to the head company in France.

#### **4.2.1.4 A distinguishable infrastructure**

There is, indeed, a road web that allows easy access to the crops and the distilleries in the Rose Valley. This network is also connected with the other parts of Bulgaria. In addition, a distinguishable communicational structure (discussed in the analysis section) can be noted for the industry (especially for the members of BNAEOPC). One of the interviewees also refers to a technological infrastructure which existed in the region. This was one of the factors which triggered him to the region. Furthermore, the empirical study shows that there are active

educational entities which contribute to the overall infrastructural frame. Nevertheless, Interview Partners 1, 3 and 4 claim that more initiative should be taken by the government in order to create a favorable environment for the development of the industry.

## **4.2.2 Factors which affect the development of a cluster**

### ***4.2.2.1 Competition between key players***

In the association, BNAEOPC, are registered twenty-five companies which produce and/or trade essential oils in Bulgaria. From these firms, approximately ten are considered to be direct competitors of Interview Partner 1, since they have bigger market shares. The CEO remarks, however, that the competition is related to the quantity produced, rather than claiming market shares.

Nevertheless, this competition is considered to be advantageous for the overall and individual development. The efforts put towards outrunning the “rival” companies provide incentives for overtaking new technological horizons. This competition leads to cost and organization optimizations, and paying attention to niceties.

Occasionally, this healthy competition evolves into more militant one, since the whole year in that branch is decided in twenty days (the time that the rose blooms and can be collected). Interview Partner 1 describes the situation in the following way:

*“... the season starts, we close our eyes, run blindly towards our goal, and after we cross the finishing line, we open them again to see what is happening around us...”*

As mentioned before, the competition is quantity bound, meaning that fields availability and the weather conditions play a key role. This might give negative effects on the friendly relations between the actors. The sour experience of one of the interviewees, with unfair competition, significantly delayed her development plans and made her more protective of her interests.

### ***4.2.2.2 The growth of the subsidiary industries supplying the core industry affects the overall development***

Undeniably, the big rose oil producers are depended on the performance of their suppliers. The growth of the farmers’ production results in expanding production for the rose-oil producers and consequently more satisfied clients. However, a difference between the actors is noticeable in the level of dependence. Interview Partner 2 relies fully on the work of its suppliers, whereas Interview Partner 1 is partly dependent on them, since they have their own rose plantations.

### ***4.2.2.3 Local labor market for specialized skills***

All interviewed rose oil producers and the association claim that there is an existing and active local labor market for gatherers and technological specialists in the field. Those who want to work with essential oils related jobs move to the Rose Valley. The region has old traditions in that field so the local producers search for local specialists. Even the gatherers are employed from there, since they have experience and know how to properly pick the rose blossom. Interview Partner 2 adds that whenever they have technical issues, they turn to specialists and professionals from abovementioned region. However, when it comes to administrative or legislative issues, the company searches for help in Sofia. Interview Partner 3 also uses the services of the local labor market claiming that she wants to find the best for the job.

Furthermore, one of the main factors that contribute to the localization of the rose fields and the distilleries is the existing prepared workforce. That would imply that the region historically maintains a reputation of maintaining well educated personnel for the industry. The University of Food Technologies and the Agricultural University highly contribute to that factor.

Nevertheless, a major result from the interviews shows that the labor market is actually the weak point of the industry. All interviewed rose oil producers, the association and one of the cosmetic companies share the opinion that the highly educated workforce leaves the region and the country in pursuit of better living standards. Thus, the companies struggle to find gatherers and are forced to rely on workers which are less reliable. This, in addition to administrative and legislative issues related to the labor market (discussed further on in “factors that affect the development of the industry”), adds to a great obstacle for the development of the industry.

#### ***4.2.2.4 Demand conditions***

A common trend between all the rose oil producers was noted regarding demand conditions – mostly, if not entirely, the companies are able to find customers for their products outside the borders of Bulgaria. This is a general trend for the whole industry, since the main customers are the ten largest aromatic composition (fragrances and food flavors) producers - International Flavors & Fragrances (United States of America), Firmenich (Switzerland), Givaudan (Switzerland), Takasago International Corporation (Japan), Symrise (Germany), Mane (France), Frutarom (Israel), Sensient Technologies (United States of America), Robertet (France) and Huabao Group (China). Since these are international companies, the orders for the products are not concentrated to few locations, but are rather dynamic. Hence, the demand is highly dependent on where do the companies have their production in the current moment. However, there is a trend – the production goes mainly to countries with traditions in aroma compositions, such as France, Switzerland and Germany.

Likewise, this demand trend is also visible from the interviews with the foreign and the small rose oil producers. Interview Partner 2 is a French company in the Bulgarian market and all of its production is “sold” to the headquarters in France. As it comes to the small rose oil producer, the company finds its clients mainly by participating on international exhibitions. These customers are mainly from China, France, Germany and Russia.

All interviewees finally came to the conclusion that this is a highly export oriented industry. The local demand for this raw material is significantly low, even though the world demand is extremely high and the supply is not sufficient. This might be due to the fact that the rose oil is considered a comparably expensive raw material, and the local customers do not have the purchasing power to afford it.

#### ***4.2.2.5 Mutual growth and survival efforts***

The rose oil producers in Bulgaria cannot be entirely competitors, since the product is one and the production is limited for everybody. The demand side holds considerably stable and large size, which also serves as an incentive for mutual efforts for survival. More precisely, the competitors in this agglomeration are dependent on each other, since the demand for rose oil is great and usually the world market supply is not enough. In that sense, the companies help each other by selling production, sharing equipment and information. An example with the start of the Turkish rose oil production was given, which resulted from filling this supply gap. There are

evidences for mutual growth and survival efforts, since the companies on the Bulgarian market complement each other in order to cover that demand.

However, the empirical evidences alarm about an opposing factor which is the disloyal competition. Usually, in the gathering period, large companies pay higher price per kilo of rose blossom to the pickers in the fields. By using unregulated methods, these companies manage to attract workers from foreign fields to sell foreign production to those organizations. In that sense, small enterprises in that industry have lower survival chance since they cannot pay such high prices and the government does not intervene. Moreover, the communication between the small rose oil producers (outside BNAEOPC) does not exist, and such companies cannot benefit from common efforts for mutual growth.

#### ***4.2.2.6 Transfer of skills and inventions between competitors and generations***

The mutual work between the companies in the agglomeration is considered important. An example of circumstances in which technology and skills are exchanged within the agglomeration is the fact that technology breaks and fields do not grow successfully. In these times of need, the sector cooperates in order to carry out the year.

The transfer of skills and invention also happens on meeting organized by the BNAEOPC. Moreover, Interview Partner 3 also mentioned that five years since the beginning of her business, she was using the services of a competitor who rented her his distillery, so she can produce her rose oil and water.

#### ***4.2.2.7 Local knowledge spillovers***

Definitely, the empirical study shows signs of local knowledge spillovers in different forms. In order to be flexible and quickly responsive, when it comes to technical issues, friends are asked. Unofficial information leaks through customers and employees. Frequently, during the interviews with the rose oil producers, the phrase “I heard that...” was used which signifies about leakage of information through unregulated sources.

#### ***4.2.2.8 Advantages gained of shared use of specialized knowledge and machinery***

Interview Partner 1 states that in general the relations between his company and the other rose oil producers are kept quite friendly. It is not uncommon that one organization may offer technical equipment to another. Moreover, these friendly relations also make it possible for closer communication between the players in the industry. Some representatives of the companies occasionally meet and exchange knowledge specific to the industry and the market. This practice is viewed to be of great benefit for the overall development. An example for such communication is the initiatives against diseases that are spreading on the rose fields. There is a high risk related to a disease on a certain field for the whole industry since it can spread quickly. Thus it is in favor for every actor to find a solution together and help each other. Specialized knowledge is mostly found within the industry itself, especially if it is a local problem.

When there is an opportunity for collaborative work between the actors, without risks of certain side to get unfair advantage, the companies work together.

#### **4.2.2.9 Efforts to attract new companies to allocate**

There is no evidence of governmental initiatives that would lead to the allocation of related companies to the Rose Valley. Nevertheless, the interviewed rose oil producers were enthusiastic on sharing their knowledge. Interview Partner 2 claims that he would always support the initiative of farmers to locate in the region since there is high demand and the blossom will be sold. Moreover, the companies also welcome more competition by saying that it is a factor that triggers development in the industry. However, the competition should be fair.

#### **4.2.3 Cluster effects – the agglomeration leads to entrepreneurial activity and fosters innovation**

Since it is a traditional industry, there is a low level of entrepreneurial activity. The interviews show that mainly small companies are trying to enter the market; however, the indiscriminate competition and the governmental neglecting towards the industry create a majeure obstacle. Nevertheless, the agglomeration attracts farmers who would like to grow roses and other oil-bearing plants, which expands the supplying industry.

Furthermore, signs of fostering innovation in the agglomeration are not found for the same reason. The industry professionals trust the already well-established methods for work and hardly accept new ideas.

### **4.3 Other factors that affect the development of the rose oil industry**

The interviewees were asked to identify factors that affect the development of the rose oil industry. These include both contributing and dissuasive factors. The **labor market** was identified as a core factor that defines the development of the industry. Due to demographic issues of depopulation in the region of the Rose Valley, the workforce becomes a great problem. After Bulgaria joined the European Union in 2007, as a result by the free mobility provided by the union, a large portion of the talented population left the country in pursuit of better paid jobs. The rose oil industry is heavily manual labor dependent since there is no machine to do the job of delicate gathering of the rose blossom. Producers are forced to employ workers with Roma origin, although the interviewees define them as highly unreliable and inconsistent. The interviewees claim that the government does not try to integrate them, which leads to further deepening of the issue. The empirical evidence points to more legislative problems with a recently introduced law about one-day contracts with the gathers. This law was brought in in order to create a motivation for people to take these jobs; however it does more harm than good, since it slows down the process drastically. Moreover, Interview Partner 1 adds that it is natural that people do mistakes, however this represents a loss of valuable production and time.

The second factor for development of the industry was identified by the interviewees was professional and **fair competition**. They believe that this pillar would further improve communication within the industry and greatly affect the further advancement of the sector. The loyal competition has a positive effect on the overall development and encourages such.

Interview Partner 4 elaborated on the competition factor and expanded the notion to market situation in the sense of **supply, demand and evolution of the legislation** (which reflects the development of science). She gave for example the active ingredient paraben which was heavily used in the preservation of essential oils and cosmetics. The Commission for Consumer

Protection in Sofia shared a not scientifically supported opinion that this ingredient might not be safe to use, which triggered a marketing boom and counter-scientific action against it. Finally, the paraben was found to be harmless, however it is not used anymore. Thus, the industry is described as highly dynamic and dependent on the market situation.

The final identified factor was the favorable environment for **scientific work and innovations**. The interviewees believe that the industry has room for improvement in all the considered aspects of innovation – technologically, process, organizational and marketing. An example would be the creation of a machine that is able to collect the rose blossom without damaging it. That would solve the problem with the manual labor. Interview Partner 3, on the other hand, said that she is constantly experimenting with the process of growing the flower. Up until now, she managed to increase the duration of the blooming of her roses from approximately twenty days to thirty-forty.

The geographical proximity was identified as a contributing factor. However, it has a positive effect on the industry only because of the availability of the resource and because the technological process requires close localization of the business. Furthermore, there is no cultural factor that affects the proximity between the companies in the region and the communication between them is not influenced by it. Nevertheless, the head director of the interviewed institute defends the geographical proximity hypothesis by saying that “*weak economies*” such as the Bulgarian one greatly benefit from that factor.

#### **4.4 Additional information**

Even though the theoretical framework covers a large portion of the cluster identifications and overlaps with the empirical findings, there is still information that is relevant but did not manage to fit. In that subsection, the reader can find empirical facts that did not fit the premade theoretical framework but are still relevant to the cluster concept.

Firstly, mentioned by the general part of the interviewees was the lack of governmental support. First and foremost, the rose oil producers do not have their own separate industrial branch. The sectoral link between them and the cosmetic industry is not beneficial for the further economic development of the sector for legislative and organizational reasons. Although the rose oil is the representative symbol of Bulgaria, the government does not provide any protection. Interview Partner 1 claims that the only time of the year that the government remembers about the industry is a month around the Rose Festival (5<sup>th</sup> of June). He mentions issues such as rose crop being stolen and no institutional interest in that problem. Together with colleagues of his, he made a rough calculation that not more than one to two million Euros of governmental investments are needed in order to greatly improve the industrial environment in the Rose Valley. The interviewees have no impressions that governmental support is provided or planned. In general, the interviewees view the governmental institution as an obstacle instead of supporting body.

Secondly, Interview Partner 4 emphasizes that the transition from planned economy to free economy in Bulgaria happened extremely slow, painful and it is still not completely finished. The science sector suffered the most, which of course, reflects on the essential oil industry. The problem deepens since the individual companies do not have money to invest in private laboratories which limits the research activity in the field.

In relation to the scientific issue, the empirical work points to cases where the knowledge exchange between core players of the industry and research facilities is not as strong as they want it to be. This might be due to the fact of disinclination for communication or difference in the organizational values.

Furthermore, Interview Partner 3 denounces a major slowdown in the innovation rates. She explains the innovation blockage by saying that the rose oil production is a traditional industry and the agronomists are not open to novelties. She thinks that this situation should be changed and a lot more could be improved.

Thirdly, when asked about their knowledge sourcing, the companies identified both local and global sources. The most frequent answer was “*publically available information on Internet*”. Other global sources such as intelligence from international associations (i.e. the International Federation of Essential Oils and Aroma Trades) and capital markets were also mentioned. On the other hand, local sources were rumors, local agriculture professionals and meetings organized by the BNAEOPC.

The interviewees concluded by saying that if the communication within the sector gets better, the industry has a bright future. It is believed that the industry will save its current selling volumes compared to other essential oils. However, an exponential growth for the sector is not seen in the near future.

## **5 Analysis**

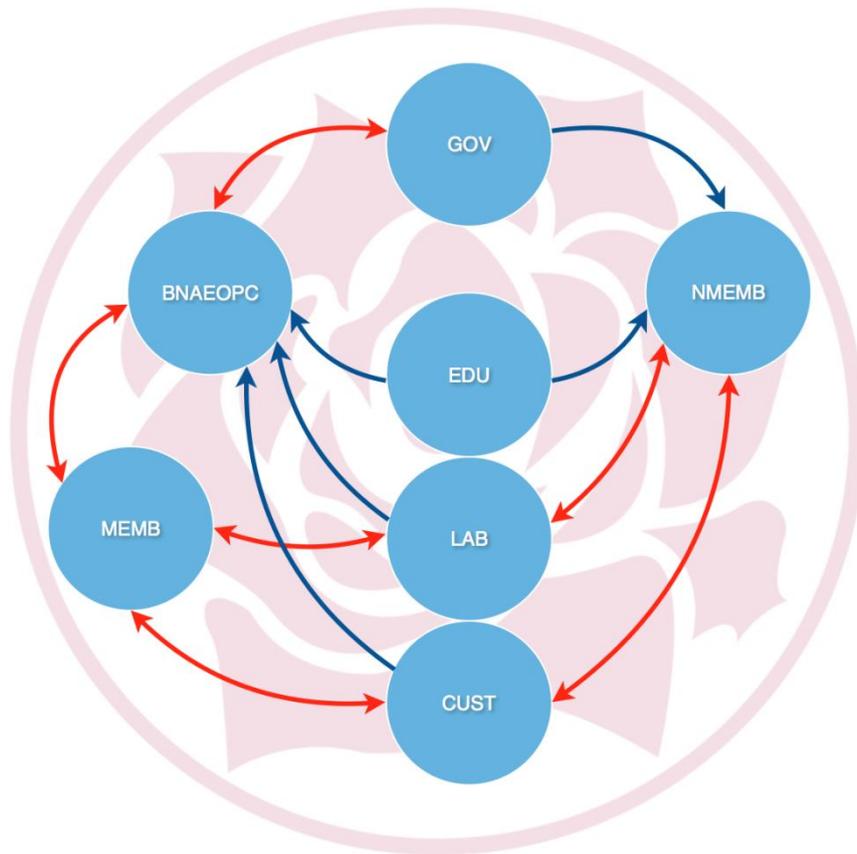
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*Employing the information extracted by the empirical work, the following section will discuss the overall cluster concept in relation to the theoretical framework, and will give light to the factors which affect the development of the rose oil industry. The analysis will be initiated with an illustration of the knowledge exchange between the key actors and will move on to further elaboration on to what extend the theoretically driven factors affect the development of the aforementioned economic sector in Bulgaria.*

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### **5.1 Unique knowledge exchange model**

The carried out interviews point out to a rather particular type of relations between the core and related industries, the governmental institutions, the educational bodies, BNAEOPC and the laboratories and institutes. These linkages are illustrated on *Figure1* and explained further below.



**Figure 1 - Diamond knowledge transfer model for the rose oil industry in Bulgaria**

The diamond knowledge transfer model for the rose oil industry in Bulgaria consists of seven core pillars:

- GOV – Governmental institutions;
- BNAEOPC - Bulgarian National Association Essential Oils, Perfumery and Cosmetics;
- MEMB – Rose oil producers who are members of the Bulgarian National Association Essential Oils, Perfumery and Cosmetics;
- NMEMB – Rose oil producers who are NOT members of the Bulgarian National Association Essential Oils, Perfumery and Cosmetics;
- LAB – Laboratories and institutes for testing rose oil probes and experimenting with the oleaginous plant;
- EDU – Educational entities which produces workforce for the rose oil industry;
- CUST – National and international customers of rose oil and rose water.

The first part that makes impression is that there is a difference in the information flow for rose oil producers who are members of BNAEOPC, and those who are not. BNAEOPC works as a communication mediator who deal with the information provided by the government in the form of laws and restrictions, and provides decoded and clear knowledge to the companies that are part of the association. The association then collects information from the industry and brings up relevant issues to the related governmental entities. It also provides information on laboratories, institutes, educational entities, and customers (exhibition offers and registered members). Their members claim to be satisfied from their services and trust them fully.

On the other hand, the companies who are not part of BNAEOPC should manage these information flows on their own. This task might be particularly difficult, especially when it comes to understanding new laws and realizing which legislations affect this specific business. Moreover, it requires more effort from their side to bring up important issues to the governmental representatives, since they do not have the power of majority. Interview Partner 3 (who is not part of the association) should search for information and deal with administrative issues on her own.

But what is the information shared between these partners and what do the arrows show? The arrows on *Figure 1* show in which direction the knowledge transfer goes. Furthermore, their color indicates the intensity of the information exchange between the pillars: red indicates high intensity, whereas blue – low. The colors are decided based on the empirical findings. In that sense, the government drops information for the industry in the form of new laws and restrictions. BNAEOPC and the rose oil producers who are not members of the association receive that information. However, BNAEOPC elaborates on it and presents it in an understandable way to its members, and further on puts high efforts to establish a connection in the opposite way, whereas the other companies should manage that legislation issue on their own. Moreover, BNAEOPC receives information from institutes, laboratories and educational bodies, by them being a member of the association. BNAEOPC also receives information from customers about exhibitions. The collection of this intelligence is then presented to its members. Nevertheless, the rose oil producers who are part of the association also look for their own customers and receive information back in the form of feedback.

Sadly, it should be noted that the knowledge exchange with the educational bodies mainly runs one way, in the form of universities supplying the rose oil producers with well trained workforce. The interviewees showed interest in changing that, by saying that they would always welcome students for an internship and show them the practice, and in that sense share industrial knowledge back to the education entities. Nevertheless, this connection is still not well developed and the study believes that it should be governmentally supported. The empirical work also indicates the importance of sharing the knowledge with the younger generations.

Furthermore, the link between the research facilities and the rose oil producers is straight forward. On one hand, the core industry sends probes for chemical tests mainly for two reasons: (1) check and verify the quality of the production; and (2) to do research on the crops and find solutions to problems. The laboratories and the institutes, on the other hand, send back reports and certifications on the quality and provide solutions for the aforementioned issues.

Finally, it should be noted that a general trend is being recognized from this model. The knowledge exchange intensity is notably higher where the communication runs both ways. This might seem obvious; however, it might indicate hypothetical positive effects on the overall industry development.

## **5.2 The Rose Valley – a functional cluster of the rose oil industry in Bulgaria**

Elaborating further on Lindqvist's work (2009) on agglomerations and proximity effects, this academic work believes that the different theories concerning the cluster concept complement themselves instead of denying each other. For that reason, the author of this paper compiled a list

of theoretical considerations which collectively describe a functional cluster. Consequently, they turn into factors which affect the development of the industry.

The question, however, is to what extent the agglomeration of rose oil producers in the Rose Valley (Bulgaria) provides a favorable environment for the development of the industry? In the next paragraph, the theoretical framework will be compared with the empirical evidence and an answer, in the form of discussion, will be given.

Indeed, this thesis claims that there is a geographical agglomeration, as described by Alfred Marshall (1920). However, it elaborates on the concept and does not restrict it only to an administrative region but rather to the Valley of Roses in Bulgaria. The data provided by BNAEOPC shows that twelve out of twenty-five registered rose-oil producers are located in that region. Moreover, the interviews show that a large portion of the companies, registered outside the region, still have their distilleries there because of favorable climate and soil. An example is the case of Interview Partner 1, who has his headquarters in Sofia; however his production facilities are placed in the region (Pavel Banya and Skobelevo). The other interviewees support this view. Furthermore, the interviews point that there is a high concentration of suppliers and customers to the core industry in that region. Nevertheless, it should be mentioned that the rose oil companies are mainly export-oriented since the Bulgarian market cannot afford this expensive product. However, the agglomeration consists of: (1) core industry – the rose oil producers; (2) related and Supporting industries – farmers of rose crops; (3) research facilities – the Institute of Rose and Essential Oils Crops; (4) educational entities – The University of Food Technologies and the Agricultural University; (5) related institution – Bulgarian National Association Essential oils, Perfumery and cosmetics; (6) customers – cosmetic companies.

Since it is a cluster of a traditional industry, Lindqvist (2009) emphasizes that this agglomeration of companies should also have a historical persistency. The report from the first conference of the Bulgarian rose oil producers points to similar concentration trends from before one hundred years (Пловдивска Търговско-Индустриална Камара, 1906). That categorically confirms that hypothesis.

A distinguishable infrastructure for the industry has been found in that region. It consists of easy transportation access through web of roads, communication availabilities, technological and environmental predispositions, and educational bodies to fulfil the need of the labor market. Nevertheless, there is no separate industrial branch for the rose oil industry and efforts for creating one are not made.

However, when it comes to the proximity effects mentioned by Lindqvist (2009), the empirical evidence becomes inconsistent. Not all theoretical considerations by Marshall (1920) and Jacobs (1969) hold to the case of the Bulgarian rose oil producers.

Nevertheless, local competition between the local actors of the core industry exists. However, that competition is not for market shares but rather produced quantity. All interviewees believe that this type of rivalry is healthy for the development of the industry. Interview Partner 3 adds that this competition should be fair, in order for it to be beneficial.

Furthermore, the research found that a local labor market for specialized goods exists. The University of Food Technologies and the Agricultural University manage to supply the market with professionals. Moreover, the agglomeration further provides experience for the workers in the sphere of the essential oils. However, the interviewed rose oil producers denounce a big demographical and institutional problem with the labor market. Firstly, well educated people leave the country in search for better job opportunities, which leaves the industry with fewer professionals. Secondly, the organizations from that branch point out to a serious legislative issue with hiring blossom gatherers. The government introduced one-day contracts which, by the interviewees' words, do more harm than good.

Turning to the demand conditions, sadly the thesis categorically denies this hypothesis. Indeed, there are several local companies that buy rose oil, however in relative terms it is a very small amount. For example, Interview Partner 1 exports ninety-five percent of their production.

The mutual growth dependency between the core and subsidiary industry was also checked. Gladly, rose oil producers show high interest in their suppliers work and offer them help. Since the demand for oleaginous roses is comparably high, the development of one supplier might affect the whole industrial agglomeration.

The agglomeration was examined for transfer of skills and inventions between competitors and generations. The thesis concludes that such transfer exists. This especially holds true for the members of BNAEOPC. The interviewees claim that they have shared skills and new ways of working on occasions such as meetings organized by the association or exhibitions. Moreover, sharing skills and inventions is actually the main purpose of the examined institute.

The next proximity effect, or economic externality as Marshall (1920) calls it, is the advantage gained through shared usage of specialized knowledge and machinery. Rather than sharing technology in times of need, sadly, the companies did not mention about any particular advantage to be gained. However, it is in common interest for the rose oil producers to support each other in the sense of solving issues. Examples were given by the interviewees of collaborations concerning finding a way to fight a disease that spreads on the crops. Moreover, the laboratories for examination of the production are generally a shared investment in major cities, since the individual companies do not have the capital to utilize such facility.

On top of that, there is empirical evidence pointing to usage of local spillovers by the rose oil producers. This is especially visible when the companies are dealing with issues which require quick and flexible responses.

By adding Jacobs's (1969) view on the cluster concept, the research also touched upon attracting new businesses to the agglomeration, which lead to higher entrepreneurial rates. Although, the rose oil producers were supporters of the idea that new entrepreneurial companies should co-locate, there was no evidence of a system in place that attracts such. Moreover, since it is a traditional industry, innovation seems not to be fostered by the agglomeration of organizations in the Rose Valley. The results point to the need of more elaboration on that manner.

Finally, it should be noted that the empirical evidences point to several key factors that affect the development of the rose oil industry in Bulgaria, which were not mentioned in the theory. The

world **market conditions** (in terms of supply and demand) and the **evolution of the legislation** were identified as great influencers. The actors in the cluster should be well aware of these rapidly changing factors and to learn how to cope with them. Moreover, since the legislation is a representation of the scientific work in the field the **innovation rates** are also considered important. However, the interviews point to a certain innovation blockage. This might be due to the recent change from planned to free economy in the country, since it lowered the governmental interference and subsidy levels. Thus, the **lack of governmental** support was also identified as a key factor.

## 6 Conclusion

The thesis concludes that there is an actual agglomeration of rose oil business activity in the region of the Rose Valley which positively affects the development of the industry. The proximity effects, however, are not that well represented.

*So which factors that affect the development of the rose oil industry in Bulgaria can be identified by applying the cluster concept, and in which way do they influence that process?* The empirical work indicates four core aspects that affect that economic sector. Firstly, as described by Marshall (1920), a localized labor market for specialized skills exists in the agglomeration. Indeed that was one of the main factors which the interviewees identified. All rose oil producers stand behind the statement that this aspect of the functional cluster needs more legislative elaboration.

Consequently, this assertion leads to the second factor which is the evolution of the law and the constantly changing supply and demand patterns. The empirical findings point to the need of a body, such as BNAEOPC, in order to elaborate on that information and presented in an easy-comprehensible way to the industry. Currently the factor governmental institution is viewed mainly as a liability to the rose oil industry development.

Third is the fair competition. The empirical findings agree with Porter's (2003) view that the economic cluster is competition-driven, as competition was identified as one of the main influencing factors. However, this competition should be fair. This appears not to be the case for the Bulgarian rose oil industry. The study concludes that governmental support is needed in that regard.

Finally, scientific work and innovation were linked to the development of the economic sector. However, since it is a traditional industry, the empirical results do not support Porter's (1990) statement that the cluster enhances innovation activity. On the contrary, the local agricultural specialists are not open to new ideas and prefer to stick to the old methods of growing the rose plants. This would mean that the factor - historical persistency of the cluster - affects negatively the innovation rates. Nevertheless, Interview Partner 3 pointed to cases in which she innovates – one of them being the prolonged blooming of the rose crops. The interviews indicate that this factor is core for the development of the industry and needed by the rose farmers and rose oil producers.

### 6.1 Limitations

The author of this master thesis certainly recognizes several limitations resulting from the chosen way of carrying out the research and the chosen topic. First and foremost, it should be

mentioned that any finding about the cluster concept are highly specific to the rose oil industry in Bulgaria. In that sense, the thesis cannot be conclusive on that manner. This limitation is also due to the fact that this is a qualitative study and there is no empirical work to prove statistical significance.

Moreover, due to time and resource constraints, and the in-depth research requirement from the topic, not all relevant organizations and institutions for the Bulgarian rose oil industry were examined. That, of course, might lead to a bias towards the interviewees' opinion.

Another methodological limitation that the author recognizes is the need of translation from Bulgarian to English. This fact might lead to mismatch between the information provided by the interviewees and the further analysis. However, this has been done of consideration towards convenience and gaining more relevant data.

Finally, the study is heavily dependent on the data provided by BNAEOPC. Thus, most of the interviewees were members of the association. It is possible, of course that the results are biased towards these organizations.

## **6.2 Further research**

The research contributes to the scholar world by suggesting key issues that might present an interest for further research. It has identified several factors, connected to the cluster concept, which heavily affect the development of the rose oil industry. A discussion on their positive and negative influence is also provided.

Hence, the author suggests undertaking a quantitative method for verifying an active economic cluster by employing the variables identified in this thesis. This would give a more generalized overview of industrial environment for the Bulgarian rose oil producers.

Furthermore, this case study might be used as a base for employing other theoretical concepts concerning geographically bound innovation initiatives, such as Regional Innovation Systems (Cooke, 2001; Asheim, Boschma and Cooke, 2011). Since the rose oil production is a traditional industry and problems with the identification of actual innovation has been noted in this thesis, further research on the topic might be highly beneficial for the development of the cluster concept. Moreover, a more institutional approach to the same topic would also benefit the theories about regional development in Bulgaria.

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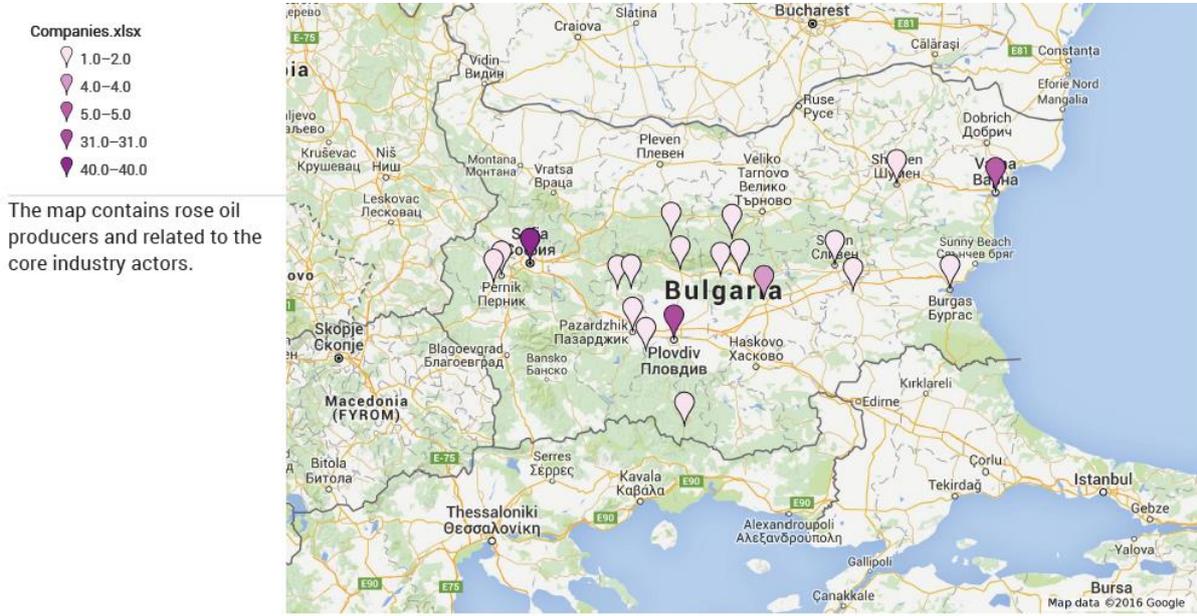
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# Appendix

## Appendix 1 – Rose oil producers and related actors



## Appendix 2 - Rose oil producers

