

## NETWORK AND KNOWLEDGE SYSTEMS IN INDUSTRIAL AND TOURISM CLUSTERS

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**Abstract:** *Clustering and its network system are considered as significant knowledge exchange environment for companies. When noticed that technology and knowledge exchange are improving day by day, knowledge is undoubtedly decisive for the companies trying to survive in the 21st century. For this reason, how network systems work within a cluster is literally vital as well as advantages of being in a cluster for a company.*

*The tourism sector, called also “smokeless industry”, has many distinctive characteristics compared to other industrial sectors. That’s why clustering in the tourism sector may be more effective if well managed. In order to create a tourism product with value-added features for the region of a cluster, several diversified companies are supposed to be in cooperation.*

*In this regard, the goal of the study is to analyze how knowledge is shared within the network of a tourism cluster and its ways (for instance, information technologies, management information system, intranet, extranet, electronic data interchange etc.) Having figured out that of an industrial one, it has been also aimed to reveal the differences of a tourism network from other industrial ones. It concludes from the paper that there are many formal and informal channels through which knowledge flows within the network system in a tourism cluster. It can be observable that the intensity of knowledge exchange among cluster actors is not at the same level: it depends on inputs and outputs of cluster companies.*

**Key words:** *network, cluster, tourism, knowledge, network system*

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### 1. INTRODUCTION

Clustering is defined by Porter (1998) as that geographical concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (for example universities, standards agencies and trade associations) that compete but also co-operate. In this regard, it plays a vital role in the survival of industrial firms in the conditions of the 21th century, which are getting more painful day by day owing to fierce competitiveness among today’s firms. In order to deal with this issue, firms can utilize know-how and take advantage of network system in clusters as a solution keys.

As technology improves, the way companies do business is also changing. This forces companies to keep up with the latest developments in the business world. When viewed from this aspect, it can be observed how advantageous is being in an industrial cluster and its network system.

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Like in most sectors, there are numerous benefits of network system in a tourism cluster. The most obvious difference of tourism cluster from other industrial cluster is its heterogeneity.

“Whereas customers cannot observe the actors within the most industrial clusters that are suppliers, sellers, agencies, logistic firms, etc., which is not the case in tourism clusters: customers (tourists) experience most actors until they consume tourism services and products.” (Guzel and Yalcinkaya, 2017) Within this heterogeneity, network systems assist tourism cluster companies to raise their competitiveness; therefore, network system plays more crucial role for tourism clusters compared to other industries.

Network systems are considered as one of the most important outputs for the company which is active in a tourism cluster. Having opportunity to collaborate with other members which can be other companies in the cluster, education centers or non-governmental organizations, the company is likely access to more tacit knowledge and know-how that improves its innovation and competitive capacity.

Companies are able to obtain more innovative outputs by collaborating in network systems of a tourism cluster compared to the ones trying to survive alone in the market. Reaching tacit knowledge and know-how in networks, cluster companies turn this situation into an advantage. This demonstrates the importance of network system in clusters for tourism companies.

The way how knowledge transfer is performed within networks of clusters should be well determined. Another crucial point is to ensure its sustainability for the sake of cluster companies. For these reasons, the goal of this study is to analyze the network systems in tourism clusters.

## **2. THE NETWORK SYSTEM IN AN INDUSTRIAL CLUSTER**

Cluster actors are composed of education centers, incubator centers, non-governmental associations as well as cluster companies. The relationship among these actors forms the network system of cluster. The relationship through the network is considered as a complex and interactive process; therefore, there are numerous communication ways for companies in industrial clusters. One of them is called local buzz based on face-to face meeting of cluster members in non-formal environment such as cafes or restaurants (Bathelt et al., 2004). They come together and exchange information. One of the other ones is employee mobility as Rosenkopf and Almedia (2003) mention about it in their study. Employees take information with them to their new business when they change their companies. These above-mentioned relationships can be observed in different form, whether by individual contacts, business meetings and gatherings (e.g. fairs) or by formal authorities (Ellis, 2000; Harris and Wheeler, 2005; Zhou et al., 2007). Or companies may utilize their current contacts as bridge in order to reach any new one. (Johanson and Mattsson, 1988). Dayasindhu (2002) also indicates that knowledge can be transferred by the formal training sessions, intranets, and knowledge repositories in networks and organizations.

For instance, the SMEGonet, which was launched in 2011 to create a network for life science companies within the Cluj in Romania, has 29 active companies and research center in life science sector and its connection with local authorities was sustained through business meetings. As well as the system of a good-structured network, it is also critical for its members to keep up with the network and to have needed abilities for it. That is why the project owners of SMEGonet carried out also an online program called “Collaborative Innovation

Competences” for their members to gain necessary skills for network collaboration. (Negruşa, A. L., Rus, R. V., & Sofică, A, 2014)

Janasová, Bobáňová and Strelcová (2017) state in their study that medium and small enterprises of transport clusters and associations related to transport can utilize the possibility to register on several websites. They generally provide free storage and transport capacity with them as they can easily find numerous transporters, forwarders and customers all around the world to increase the frequency of their deliveries and have more effective inventory management. One of those is as follows: [www.trans.eu](http://www.trans.eu). (Janasová, Bobáňová and Strelcová, 2017)

Another advantage in being a member of a cluster network is to reach opportunity to utilize business partners’ resources (Johanson and Vahlne, 2009). Since you keep in contact with many different companies from the same value chain, it is likely for you to reach the necessary or innovative information when compared to a company trying to survive alone. In this point, a barrier can be shown up to obtain the information. Not too many company representatives would like to give their business knowledge, which is absolutely natural in business world. To overcome to the barrier, there should be an environment of trust among members of cluster network. This could be built in the cluster in progress of time.

Within the network system, companies which have had no international experiences so far can improve their capabilities to launch their export sales thanks to knowledge and experience of other members (Gadde and Håkansson, 2001). Furthermore, they can reach experimental know-how without experiencing trials (Zhou et al., 2007), which is crucial for companies in terms of economical dimension. They do not need to trial and risk their time and money for the information.

As technology improves, it is more vital for companies to keep up with it and social media has been utilized not only for getting social but also for commercial purposes. In this regard, its power for networks cannot be underestimated. There are different reasons why to use social media in business area. Since it has considerable influence on clients and market, it can be utilized to carry out the advertisement and distribution of commercial products. Negruşa, Rus and Sofica (2014) suggest that social media may contribute to the cluster’s development by helping gather more participants for events and find partners for co-operation. It also serves the purpose to promote the cluster and the network in an easy way. They also imply that social media is free of charge and does not bring a financial burden to companies. It is a practical way to keep up with what happens in their network and it helps shape the cluster’s image and a strong reputation in the market. In addition, it is an effortless form to reach remote potentials for their commercial products

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From the perspective of innovation, network systems are also advantageous for most of companies which are already in the network. When a company creates something innovative, that makes other companies imitate it in the process of time and then this triggers cooperative competition and regional development in the end (Alves, Marques, Saur, 2004).

Members belonging to network of an industrial cluster come together in business events or meetings and exchange knowledge and brainstorm about their cooperation. As well as by online through internet, tacit knowledge can be efficient by being transferred through face-to-face communication between individual and personal practice in industrial clusters as Liu (2013) implies in his study.

### 3. THE NETWORK SYSTEM IN A TOURISM CLUSTER

In tourism, the significance of networks and relationships between companies is vital so that they ensure their survival. (Hsu, Liu, & Huang, 2015). The network system becomes more important for tourism industry when taken the number (some 30-50 different) of entities, which a tourist contacts in a one-week stay (tour operator, insurance company, carrier, hotel, restaurant, tourism attraction, exchange office, taxi-driver, souvenir shop, local authorities etc.), into consideration as Kachniewska (2013) states in her study.

In the heterogeneity of the tourism sector, knowledge exchange process should be well managed since it can be essential for actors of tourism sectors in planning or organizing tourism activities.

As tourism is one of the most service industries and travel for pleasure and its products are sold in the sector, sector actors are supposed to reach necessary knowledge in time and utilize technology as required for their customers; hence, this makes knowledge more significant for the sector. Clusters and their network systems serve this purpose: to obtain the necessary knowledge and technology when needed.

Like other industry clusters, knowledge exchange and the way the network works in tourism clusters can occur in various ways. Sørensen (2007) implies in his study that this can vertically happen such as tour operators at tourism destinations and their distributors; or horizontally take place when complementary tourism companies exchange knowledge with each other in a destination.

Djankov and Hoekman (2000) suggest that labor mobility is one of the most significant ways for knowledge spillovers in industrial manufacturing. When it is assumed that tourism is more heterogeneous compared to other industrial sectors, it can be seen that one of the most common way in tourism clusters to exchange knowledge is through employees. This has been suggested by Shaw and Williams (2009) in this way that the particular nature of tourism markets gives labour mobility a potentially distinctive role in this sector. In tourism sector, several tourists travel to where there is another language spoken and other clusters which are unfamiliar to them (Williams, 2012) For this reason, there is a knowledge need about these cultures in tourism. Maybe this is the explanation why there are many more immigrant employees in tourism sector compared to other ones.

#### **Tarık Yalçınkaya**

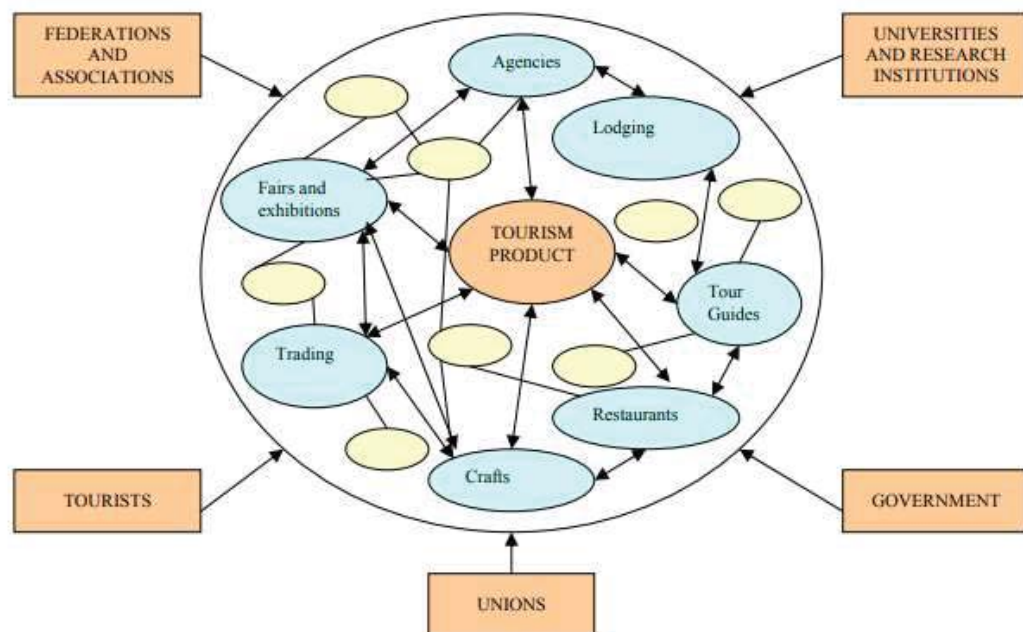
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As considered that tourism companies in a cluster are geographically close to each other, this can allow employees to change their work place in an easier way, which affects the knowledge distribution (Shaw and Williams 2009). This may consequently end up with economic losses or earnings; nevertheless, it can be regarded that this is mostly in favor of all companies in the cluster when taken the frequency of the employee mobility into consideration.

According to several studies, the network systems in industrial clusters are divided into two categories which are closed networks and diverse networks. Closed network is a network system in which main enterprises and their stakeholders exchange their strategical information with each other. On the other hand, diverse network is a network system in which all actor in a cluster limitlessly exchange information. Pereze and Beauchesne (2017) state in their study, in which they have analyzed 215 hospitality and tourism firms located in the World Heritage Cities of Spain, that both network systems are equally required for the success of a tourism cluster.

The below-mentioned table demonstrates that the actors of agglomerate are deeply relied on each other. If one of them perform badly, this affects other ones.



**Source:** Cunha, S. K. D., & Cunha, J. C. D. (2005). Tourism cluster competitiveness and sustainability: proposal for a systemic model to measure the impact of tourism on local development. *BAR-Brazilian Administration Review*, 2(2), 47-62.

## CONCLUSION

In the 21<sup>st</sup> century, technology is improving so fast that commercial organizations have difficulties to keep up with it. In this respect, knowledge has become substantially valuable for companies, which are in cooperation within clusters. Through networks of clusters, companies gain many advantages and reach necessary or innovative knowledge. The relationships and connections in networks are supposed to be well maintained in favor of companies. Flow of knowledge, inter-company relationships and the function of system should be kept alive and active within the network.



Considering the importance of network system in a cluster for an industrial company, this has great significance for tourism sector and tourism clusters. Since relationships and connections of a tourism cluster are expected to be more active and complicated, utilizing network and its advantages are unavoidable for tourism companies.

As mentioned in the study, there are many formal and informal channels through which knowledge flows within the network system in a tourism cluster. These are as follows: local buzz or training session, business meeting or online program within the network; however, one of the most common ways is through mobility of employees among the cluster companies. In this way, employees carry the knowledge informally from one tourism organization to other one. This forces companies to create something new and innovative in order to make the difference in the cluster; and then it enables actually the cluster to develop its regional competitiveness.

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