Communication management in industrial clusters: an attempt to capture its contribution to the cluster's success*

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Abstract

This study discusses internal communication within industrial clusters. The basic research question is whether there is a correspondence between the success of a cluster and the communication practices of its management. Our aim was to explore these practices both between the management organization of a cluster and the clustered firms and also among the cluster members themselves.

After a thorough literature review of cluster communication, qualitative approach was applied using case studies and 28 interviews in three distinctive clusters in Southwest Hungary. Two of the three clusters consider themselves successful, whilst one cluster sees itself less effective. In the two successful ones, cluster managements are able to manage communication effectively and ensure that communication supports their goals and the implementation of their strategies. In these cases, communication management organization planned and established all dimensions of the communication consciously: channels, content, frequency, way and style of communication, all of which have an impact on trust. The research is linked to corporate communication theories, social identity theory, psychology and management. The paper fills a gap in the research of internal cluster communication. The findings also have useful implications regarding the practice of cluster management and communication.

1. Introduction

Industrial clusters are recently highlighted structures for developing productivity, innovation, and for enhancement of competitiveness, i.e., for developing the performance of regional and national economies.

Since Michael Porter's 'The Competitive Advantage of Nations' was published in 1990 (Porter 1990), several academics and policy makers turned their atten-

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tion to the topic of industrial and business clusters. Since the beginning the main questions have been how clusters impact regional and rural development in general (Rosenfield 1997; Porter 2000; Sonobe/Otsuka 2006; Zhang 2012), and how they can be used in poverty alleviation (UNIDO (2004; Fowler/Kleit 2014; Oyeyinka 2017). Shortly after the early publications, more and more researchers focused on certain highly developed (Brown 2010; Li/Webster 2019) and less developed regions in the world, such as underdeveloped regions of Africa, India, China (McCormick 1998; Nsimbi 2008; Das/Das 2011) and also on Central and East Europe (Isbasoiu 2007; Vlasceanu, 2014; Rodinowa 2018). Others got into specific themes such as clusters or network organizations and knowledge/information sharing (Basant 2002; Bathelt 2002; Lin/Hu 2017; Lis et al. 2020), or clusters and their sustainability (Montana/Nenide 2008; Yang/ Cerneviciute 2017; Derlukiewicz et al. 2020). In spite of the great attention relatively little research was done on the internal communication of industrial clusters, although clusters are based on networks, and the primary necessity of networks is communication among their members.

After 30 years of research and practical experience, industrial clusters are still a popular topic from both academic and managerial points of view (Donahue et al. 2018, European Panorama 2019; Saadatyar 2020; Lis et al. 2020).

The recognition of how little scientific literature is available on internal cluster-communication raised the question for us, researchers of (communication) management, how communication management is applied in industrial clusters currently. The literature review presented in section 2 showed that there was a research gap regarding the correlation of cluster management and cluster communication. We placed our empirical approach in the theoretical framework as shown below, and we aimed to contribute to this special field. Our main questions were the following: *Do the channels, toolboxes, content, frequency, intensity and style of communication among members within a cluster, and between clustered firms and cluster management have an impact on the experience of the success of a cluster? How do the organization, the operation of the internal communication, and its management influence the success of a cluster?*

In our field research we focused on clusters in South-West Hungary, as that region belongs to the ones where emerging SMEs, higher education, research institutions and the regional industrial chamber are highly interested in collaboration, and still there are unexploited opportunities.

The key concepts that shaped the framework of our study were cluster, cluster management, corporate communication, internal corporate communication management and success, and are defined as follows.

2. Key concepts and literature review

Concepts of cluster, cluster management, corporate communication, internal communication management and success

The most widely accepted definition of clusters is based on Porter's idea that a *cluster* is a geographically concentrated group of companies and institutions cooperating in a special field. Clusters include specialized suppliers, background service providers, companies in related industries, and linked institutions such as universities, governmental organizations, trade agencies, professional organizations and associations, that are connected to each other in one field through their similarities and comparative characteristics (Porter 1998). Clusters provide synergy in order to increase the productivity of companies, which can compete nationally and globally (Krugman 1991; Januska 2011; Jarjabka 2015; Porter 2016).

According to Rongzh and Bei (2010:89) "Practical experience has shown that the agglomeration and successful rate of the entrepreneurial activity in the industrial clusters was much higher than non-industrial clusters, (…) the industrial cluster promotes the entrepreneurial activities functioning as the incubator of the entrepreneurs and enterprises." In spite of several possible links and relations between industrial and non-industrial clusters we are focusing on the industrial clusters in the following.

Cluster management plays a decisive role in clusters: "Cluster management can be defined as the organization and coordination of the activities of a cluster in accordance with certain strategy, in order to achieve clearly defined objectives. (…) It implies mediating and facilitating the relationships of multiple cluster members. Each of the cluster members has their own agenda, and a key challenge for cluster managers is to make sure those agendas are united into common objectives and collective actions, that conflicting interests are resolved, and the relevant organizations see enough added value from their participation in cluster activities." (Schretlen et al. 2011:3).

The operation of cluster management includes, among many other specific functions, facilitating internal and external communication (Dobronyi et al. 2011). The coordination of communication on multiple levels plays a vital role as the internal architecture of cluster organizations is based on naturally established and constructive interaction and collaboration between cluster members (Rosenfeld 1996; Keresnyei 2015).

The term *corporate communication* has many interpretations in scholarly literature (among others: Jackson 1987; Shelby 1993; Goodman 1994; van Riel 1995, Forman/Argenti 2005). In this study, we use the one offered by Van Riel (1995): "Corporate Communication is an instrument of management by means of which all consciously used forms of internal and external communication are

harmonized as effectively and efficiently as possible." (Van Riel 1995:26). It is regarded as a management function that offers a framework for the effective coordination of all internal and external communication (Cornelissen 2008).

Internal corporate communication as a term is used in our paper as it is defined by Frank and Brownell: "the transactions between individuals and/or groups at various levels and in different areas of specialization that are intended to design and redesign organizations, to implement designs, and to co-ordinate day-to-day activities" (Frank/Brownell 1989:5–6). The four-dimensional model presented by Welch and Jackson (2007) also turned out to be very useful to describe the internal corporate communication in our study as "communication between an organization's strategic managers and its internal stakeholders, designed to promote commitment to the organization, a sense of belonging to it, awareness of its changing environment and understanding of its evolving aims" Welch and Jackson (2007:185–186). Many scholars, among others Frank and Brownell (1989), Grunig et al. (1992) argue that (proper) internal communication improves the performance of enterprises.

Corporate communication management can be defined as a management activity, as the strategic management of all communication actions that contribute to the achievement of the planned goals of the company. As a management function it embraces planning, organizing, coordinating, and controlling of all communication actions of an organization (Van Riel/Fombrun 2007; Borgulya 2010). It aims to organize the communication activities into "one coherent entity" (Christiensen et al. 2008:3). Many studies by German researchers showed that professional communication management supports the objectives of a corporation, influencing its strategy and its efficiency positively (Pfannenberg 2005; Pfannenberg/Zerfass 2005; Röhrig 2005; Zerfaß/Pfannenberg 2005; Pfeffernkorn 2009).

Companies and institutions of various types are not equivalent to industrial clusters, but they do have several common features, such as having goals, management philosophies, strategies and values, planning future action, satisfying clients and the need to communicate etc. *Corporate communication of companies and communication of (industrial) clusters cannot be regarded as exactly the same processes, but, on the basis of the common features, we can assume that communication management in both types of organization has similar goals, core functions and elements.*

Success is a multi-faceted notion. There are many definitions of 'success' in relation to clusters (Padmore/Gibson 1998; Barkley/Henry 1997; Asheim et al. 2006; Kamath et al 2012). Although these contain objective indicators (e.g. turnover, income, costs, number of customers) and subjective factors (lobbying power, negotiation power, bargaining position, etc.) in this paper we focus on the *sense* of success, so in this respect it is a crucial and common feature that

'success' in cluster communication is individually perceived and needs a psychological explanation. The meaning of 'success' and 'being successful' in psychological terms is "an experience,... (it is) the positive result of efforts to reach an effect, an objective set consciously." (Wirtz 2018). In respect of clusters, we were not seeking to detect business success proved by efficiency indicators, but to detect the existence of, or a lack of positive emotional experience of cluster members in connection with their clusters. Mohr and Spekman (1994), when analyzing partnership success, also use an 'affective measure', claiming "The affective indicator (satisfaction) is based on the notion that success is determined in part, by how well expectations set by the partners. A partnership which generates satisfaction exists when performance expectations have been achieved." (More/Spekman 1994:136).

In our case the affective indicator was considered especially significant, since in some cases, e.g. in artistic activities (in our case in the cultural creative cluster) positive emotional experiences may be more important than the business success. We defined a cluster as successful if more than 50 % of the respondents considered the activities of their cluster successful i.e. they were satisfied with their membership in the cluster (majority vote, as it is used in the model of FPTP systems). However, our results are not sensitive to the choice of the threshold of 50 % as high proportions of respondents gave consistent answers.

Literature review of cluster communication

Mohr's and Spekman's study on business partner organizations (Mohr/Spekman 1994) can be identified as a forerunner in cluster communication research. Having analyzed the partnership between manufacturers and sales partners the authors highlight the importance of communication in successful collaborations. They claim that communication quality, information sharing, and further participation in planning and goal setting are essential to achieve the benefits of the collaboration. Their indications were not echoed recently, and the role of internal communication within clusters, i.e. communication among clustered firms, and also between cluster members and the cluster management organization, just as the complexity of their management was not targeted. Cluster management manuals seemingly regarded communication as a marginal factor in cluster development and management (Rosenfeld 2002; Blassini et al. 2013; Hartmann 2016).

We classified the scientific articles that have been identified according to diverse topics of cluster communication (only a few were specific to communication management) into the following research topics:

- general questions of cluster communication, such as function of communication (Blassini et al. 2013),
- importance of communication management (Zerfass 2005),

- state of and specific challenges in communication management (Hartmann 2016),
- technical aspects, such as the means of communication in clusters (Carbonara 2005; Negruşa et al. 2014),
- some external features of communication of clusters (Hartman 2016).

The marketing communication of clusters seems to be the most frequently represented topic (among many others: Huttenloher 2006; Kaminski 2009; Felzensztein/Gimmon 2009; Brown et al. 2010; Felzensztein/Deans 2013).

A more comprehensive overview is provided by Bernd Hartmann (2016). Based on empirical research, his conclusions included that the number of co-workers in clusters specialized in communication is especially low. This fact reflects clearly that cluster leaders undervalue the importance of communication management. Having focused his research on Europe, he also states that the strategic influence of communication management is more important in Western and Northern European clusters than in the Southern and Eastern European ones. His third important statement is that the factors affecting communication management include the way of financing, the number of cluster members, the age of the cluster, the coverage of area by the cluster, and the type of the industry (Hartmann 2016). Although Hartmann's research is a valuable contribution to cluster communication management there is still a blind spot in the systematic and complex exploring of internal communication management of clusters. We could identify several research topics uncovered, among others

- foundation and integration of internal communication,
- communication and building trust and credibility,
- cluster culture and cluster communication,
- value creation through communication,
- definition of goals and planning, coordinating and controlling communication,
- technologies, tools and efficacy of internal communication,
- communication competence of cluster management,
- costs of communication,
- special situations in clusters: crisis, changes, etc.

Revealing the blind spot and the outstanding role of proper corporate communication in performance of organizations motivated the authors to contribute to filling this gap with some implications gained through structured and focused analysis (George/Bennett 2004) in this field.

We developed the three-component framework comprising success, goal and strategy of a cluster and communication management to demonstrate the examined connections (see Figure 1).

Figure 1: The general framework and components of our empirical research and their correspondence

Success

Cluster goals and
cluster strategy

Communication
management
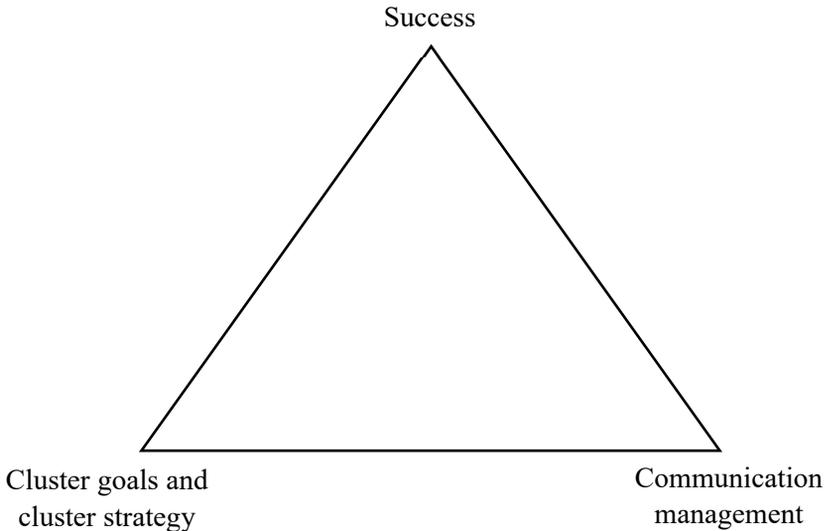
Source: The authors' construction

3. Cluster communication management in three industrial clusters: empirical research

Our basic research question was divided into three sub-questions:

RQ1: Why do or do not cluster members think of the operation of their cluster as successful and when do they or do not?

RQ2: What are the goals and the strategies of the cluster managements to make their cluster successful?

RQ3: How do the cluster management organizations use the tool of internal communication management to reach goals, implement strategies, and stimulate the sense of success of cluster members?

After having identified the most characteristic responses and the subjective explanations of decisions about successful or unsuccessful operations of the clusters gained in the field research we sought answer to RQ_1.

Aiming to answer RQ_2 we were searching for the special components of goals at various clusters: What do they want to achieve thanks to the cluster that they could not achieve without a cluster? What are the specific steps planned by

cluster managements to approach the long-term objectives? How are goals and strategies defined and understood by the interviewees?

RQ$_3$ focuses on patterns of communication management.

3.1. *Empirical research: methodology, sample, design, approach*

We undertook an exploratory qualitative research: We applied an interview-based multiple case study approach (Piekkari et al. 2009; Creswell 2013). This method allowed us

- to use inductive method (Eisenhardt 1989; Mayring 2008);
- to explore real-life phenomena (Patton/Appelbaum 2003; Creswell 2013);
- to study the complexity of a social phenomenon (Patton/Appelbaum 2003) such as organizational communication.

We could make a strategic selection of cases that are pertinent to the object of the study (Eisenhardt 1989; Patton/Appelbaum 2003), and could conduct the combination of cross-case comparison and within-case analysis, and use the methods of congruence testing and process-tracing (George/Bennett 2004) and get answers to our 'why' and 'how'– questions (Piekkari et al. 2009).

While applying the case study approach we used the 'five steps of the roadmap' by Patton /Appelbaum (2003:66–67). Structuring the interviews and identifying units and items to enable content analysis and cross-case comparison determined the data to collect. (Such items were 'success', 'goals of the cluster management', 'mission and philosophy of the cluster', 'channels of communication used within the cluster', 'tools of communication', 'frequency of communication', 'direction/way of communication', 'content of communication', 'quality of communication', 'style of communication', 'role of cluster management in communication' etc.). Then we broadened and enriched it with the new additions and aspects of the interviewees. We searched and filtered their frequent, repetitive and relevant thoughts and we integrated the manifestation and latent content into the default structure in order to standardize it in a uniform way. We identified the similarities and differences in the content of interviews from the three clusters to find the common features and specialties. We used a simple coding system in accordance with the items: the keywords were assigned codes, and we identified and structured the frequently mentioned expressions. Then we created the main categories for the terms of similar meanings. We classified the answers and analyzed the content as well to find the similarities and differences.

When analyzing the findings, we planned to undertake the research technique of the rule based qualitative content analysis (Kohlbacher 2006; Mayring 2008). Babbie (2011) suggests content analysis as well, emphasizing that 'Content analysis is particularly well suited to the study of communications.' (Babbie 2011:356). Instead of only counting the number of occurrences (Berelson 1952),

we tried to 'understand the meaning of the context' (Bryman 2004:542) as meaning emerges through interaction. This was possible using the exploratory qualitative oriented way of analysis, through qualitative-interpretative steps that brought the latent context to the surface as well. (For example the item 'positive statement about success given by the interviewee' was broken into subcategories 'explicit' and 'implicit' statements. Explicit: 'Yes, I think the cluster is very successful'. Implicit: 'You know we have many very positive things that we wouldn't have without cooperation within the cluster. For example we…')

3.2. Implementation

The research project was carried out between July and September of 2017 in South Transdanubia (Hungary). The survey was limited to the geographically closest region because of the lack of capacity to involve distant territories, and because of close cooperation between the University of Pécs and the Pécs-Baranya Chamber of Commerce and Industry (PBCCI). The selection of the samples was based on a strategic decision made by the authors with support of co-workers of the PBCCI. The chamber has up-to-date information about the performance of the clusters. The list of clusters delivered by PBCCI contained 14 items (names of clusters with performance from outstanding to poor) as most pertinent to the object of the study. Three clusters were chosen from the 9 good and 5 less active performing ones with simple random sampling method by the authors and that means the followings: To select the interviewees firstly we consulted with the cluster managers to filter out the inactive companies and then active members had been invited with simple random method. The number of the interviewees depended on the availability for the research and willingness to collaborate with the research group. All interviewees were Hungarian, and the language of the talks as well.

We conducted semi-structured interviews with the cluster manager or communication manager of the three clusters (4), and of the clustered organizations (24). Detailed notes were made of all the 28 interviews, each of which lasted approximately one hour. No audio recordings were made to build better reliance with speaking freely and avoid tension during the conversation. We took notes that had been sent in e-mail to the interviewees after the interviews to validate and correct them with further remarks. The meaningful sentences were written verbatim in our notes and were proofread by the interviewees for authenticity.

3.2.1. Case presentation No 1: South West Hungarian Engineering Cluster (SWHEC)

The SWHEC embodies the world of strict engineering industry norms. It was formed in 2011 and currently includes 29 member companies. In our survey 7 interviews were made, so the sampling ratio was 24 % of the total number.

The cluster employs 4–5000 people. The organization was formed especially for achieving business goals and – with the help of the PBCCI – the mix of participating companies being deliberately chosen. Cooperation among cluster members, however, had a longer history. Based on the good business relationships the complementarily cooperating machine industry companies in South Transdanubia were organized into a cluster by the Chamber.

The composition of the members is truly heterogeneous, and member companies vary in terms of both size and activity. The representatives of companies regard their cluster not only as a form of cooperation, but also as a group of friends, and so human relationships play an important role in the operation of this cluster. There are many relationships in terms of suppliers and customers and there might be also some competition in resources (mainly in human resources).

3.2.2. Case presentation No 2: Cultural Creative Industry Cluster (CCIC)

CCIC was established in 2007. The cluster's foundation was based on friendship and professional cooperation. The initiator, the head of the cluster and of the cluster management organization, is a charismatic, creative and experienced media professional.

The cluster today covers four main areas of activities: applied arts, event management, PR and communication, and business support activities. It consists of 38 members involving almost 600 people in its activities. In our survey 18 interviews were made within this cluster. Member companies, institutions and organizations are heterogeneous to a high degree. Diversity manifests itself in the number of employees, areas of activity, forms of organization, whether for-profit or non-profit. The variety is great, from partly or entirely state-funded institutions, to SMEs and self-employed members. The activity-range ranges from a Philharmonic Orchestra, to educational activities, designers, consultants, and agents, to individual and serial manufacturing, to service industry companies. Members' activities are rather more complementary than competing. The cluster includes business support services providers too (e.g. consultants, innovation specialists), who have an important role in the fulfilment of goals in the cluster regarding professional further education. Diversity is the most visible feature of the clustered organizations. The common characteristics of our interview partners were their versatility, colorful and dynamic personality, open-mindedness and their connection to the arts. All these influence the infrastructure, culture and quality of the cluster's internal communication to a great extent.

3.2.3. Case presentation No 3: Pécs Glove Cluster (PGC)

Glove manufacture has a remarkable history in the region with 29 companies operating in the 1990s, but only 6 remain today. In our survey 3 interviews from

3 companies were made, so the portion of the sample means 50 % of the total number. The number of employees in the industry has decreased from 5000 to 500. There is no membership fee in the cluster, but, despite the low membership, the relationship between companies is not one of cooperation but rather of competition. The cluster has a homogenous composition, the activity of the members being very similar — and they have the same group of suppliers and customers. They are competitors, and their relationships are also burdened by distrust. The special situation of the cluster is well represented by the following quotes of interviews: *"We hold each other's throats, but with gloved hands." "The communication is surrounded by suspicion." "Being in a cluster does not mean that the members are friends, it is a competition." "The SWHEC cluster does not need to convince the firms to be a member, but we need to do so."*

4. Results

Being successful was interpreted in the three clusters as it is described in section 2. We were informed about cluster objectives and strategies by the interviewees by studying printed and electronic information about the clusters. Cluster managements' and members' reports and evaluations in the interviews provided information about how managements communicated them in the clusters.

The findings of the interviews are presented in tables while the analysis and comparison of the data follow in section 5.

4.1. Success

There were three questions asked in connection with success: a.) whether the heads of cluster member organizations regard their cluster as successful. b.) why they consider their cluster to be successful or a failure? How can the success be measured? c.) What they consider as advantages of the cluster memberships?

Table 1: Success

Cluster	Successful	Needs some improvement	Not successful	Total
SWHEC	7	-	-	7
CCIC	14	4	-	18
PGC	-	-	3	3

Source: The authors' construction

In two of the three clusters the majority of the respondents considered their own clusters as being 'successful' or 'totally successful' (21 of 25), and only a few (4) added comments on how things might be improved ('successful, but...'). However, the interviewees representing the third cluster did not consider their own cluster successful (3 of 3) (see Table 1).

It was significant to know what those interviewed thought to be the measure of success in the operation of their cluster (see Table 2). (It helped us to understand how they interpret for themselves the sense of success.) It was a criterion of success for each cluster that *cluster members could solve their common problems in a cooperative way more effectively than separately* (sharing information, ideas and experience, giving help and inspiration). However, the three clusters defined the measure of success in different ways: SWHEC expected *specific business results* from operating the cluster (utilizing the capacities of suppliers and resources etc.), whilst, in CCIC, *solving problems cooperatively* and *increasing the level of public awareness* were the main focus. In respect of the glove-manufacturing cluster, cooperation meant finding *common goals in marketing*.

Table 2: What are the evident symptoms of success? (the success symptoms at the firm)

SWHEC	CCIC	PGC
Results achieved, achieving goals, e.g. cooperation in training, joint fuel procurement, lobbying power, etc.	High speed of solving common problems	Number of marketing and media appearances (advertising and publicity focus)
Accreditation + goodwill (awards, positive image, pride)	Problem-solutions found by cluster membership	Operation of a brand store
Frequency and efficiency of communication	Number of joint public events	
Satisfaction surveys	Level of reputation derived from joint appearances	

Source: The authors' construction

SWHEC members saw more advantages in the joint realization of business goals (financial, market, labor force capacity, joint training benefits), whilst CCIC members had more human orientations (social capital, human-professional community, generating ideas, mutual help). PGC members saw a narrower path of specific business solutions as opportunities.

4.2. Cluster goals and strategies

The members of an organization perceive the achievements of their organization as a success if they feel the organizational objectives as being their own. Subordinates are motivated to make efforts if they understand and accept the strategic steps of reaching the objective initiated by the management (More/Spekman 1994). We argue that these statements cover the clusters too. Nevertheless it is important to state that the respondents in the three clusters did not use uniform terms: goals and strategies had sometimes overlapping meanings. Not even the

written documents used the terms consistently. We were faced with especial difficulties in the case of PGC, where goals, strategy and market actions were mixed. During the analysis we relied both on quotes from our interviews and the written documents.

Cluster goals and strategies are presented in Table 3.

Table 3: Cluster goals and strategies

	SWHEC	CCIC	PGC at time of start
Goals	Market cooperation	Connecting creative industries in the region, supporting their actors	Joint marketing presence
	Strengthening of the cluster's internal market, joint utilization of capacity	Enhancement of revenue generating ability of members	Joint market presence
Strategy	Creation and operation of a platform for experience and knowledge-sharing	Knowledge-sharing and development	The use of a common webpage and logo
	Energizing innovation, development of common products	Sharing the results of innovation achieved in the cultural, creative field	Safeguarding traditions, revealing cultural values
	Improving specialized training in the machine industry	Building of cluster relations abroad	Common publication (book)
	Establishing professional relations with other industries and clusters	Organizing professional trainings, special courses and forums within the cluster	Joint procurement
	Partnership in the procurement of material, energy and services	Supporting applications	
	Joint domestic and international appearance and representation	Participation in experience sharing programs abroad	
	Forming a strong joint lobbying power		

Source: The authors' construction based on the homepage of DDGK http://www.ddgk.hu/ (2018.04.06.), Leaflet of CCIC (y.n.) and words of the interviews

Goals and strategy of SWHEC

The mission of the cluster is: cooperation on the market, the strengthening of the cluster's internal market, joint utilization of capacity, creation and operation of a platform for experience and knowledge-sharing, energize innovation, development of common products, improving specialized training in the machine industry, partnership in the procurement of material, energy and services, joint

national and international appearance and representation, vigorous joint lobbying (see Table 3).

SWHEC's goals are not ideal or theoretical. None of the companies would be strong enough to have a lobbying power alone, and so they have to join forces. The founders and current members aim to retain the cluster as an 'elite club' (there are strict criteria to join in order to filter out unsuitable members). The goal is to safeguard the cluster's standards and prestige by combining their advantages. As SWHEC respondents declared: "The reason of the existence of the cluster is that the economic power of every member company would be zero without the cluster and the information among members would be fragmented." "The SWHEC is not only a cluster but also a group of friends; it works well." "There is an agreement between the members not to recruit from each other's employees." "There is no competition, the cooperation is surprisingly positive." "No company can be said to be dominant." "The city of Pécs has a lack of economic strengths. In the cluster at least there is a regional cooperation."

Goals and strategy of the CCIC

The main goal is "to provide for the prerequisites of successful operations in a competitive market, to promote the cultural innovation network and the coordinated cooperation of actors in the innovation industry" (KIK 2018: no page number). The objectives also include "the organization of professional continuing education, the communication of achievements in the field of the culture industry, and building international relations". (see Table 3).

Members expected mutual help in solving problems, social capital, knowledge-sharing and collaboration in resource sourcing – that is, they looked for help from their professional community. As they formulated: "If I have a problem, I can ask my partners when we meet in KO-HO for our cluster breakfast. Sure as eggs is eggs that some of the guys have good solutions or know whom to turn to." "To know that you will not be let down. You can rely on others. A call is enough. That is what our cluster means for me. Our goal is to help each other." "When I joined the cluster I had no idea about writing applications, and here I got support." The goals, and the strategic steps, included the organization of knowledge-sharing (special courses for cluster members, forums, international exchange of experience) were in harmony with each other. The cluster-goals and wishes of individuals have overlapped and so achieving the cluster's goals made members feel successful.

Goals and strategy of the PGC

When the cluster was established, there were common joint representations towards customers (logo, marketing, advertising materials, trade fairs, sales, etc.),

with which they wished to strengthen the brand of 'Pécs Glove'. At the time of the start of the cluster cooperation, joint projects, procurement and labour market cooperation were in full swing. By today, however, with the narrowing of the market, generational problems and changes of attitude in collaboration, members have increasingly become rivals and do not concern themselves with their common goals, rather trying to squeeze each other out from the small markets which they have. It is not in their interest to cooperate. And there is no longer any common goal which would aim to maintain the cluster's efficient operation (see Table 3).

4.3. Communication management: direction, channels, contents, objectives, special features of communication

The characteristics of the communication of the three clusters are summarized in Tables 4, 5 and 6 below.

SWHEC

Table 4: Communication management of the SWHEC

SWHEC	
Direction	Centrifugal: from cluster management organization to all cluster members; Diagonal: Representatives of cluster member firms to other cluster members, involving only a few of them
Channels, content, objectives	*Electronic channel*: mostly used (especially by younger managers). ■ *Cluster management organization to cluster members* – Group e-mails Topic: information about common affairs, about trade fairs, economic news, changes in the law, new regulations, benchmarking meetings, capacity, material and workforce surplus and shortage; calls for help or cooperation, reporting complaints or requests received from cluster members ■ *Cluster members to cluster members*: Topic: offering help, participation in cooperation, in solving tasks – *Phone calls* Topic: discussion of details of cooperation, used in initiating and operating work – *Face-to-face communication*: considered to be most effective, but time consuming. – *Personal meetings* Content: problem solving – *Benchmark meetings* Topic: common affairs of the cluster are discussed, new connections are made and old ones strengthened. Objective: to get to know each other's companies, and other clusters (for example, meeting an engineering cluster in Linz (Austria)
Frequency	Once or twice per week (Newsletter from the cluster management, exchanging e-mails between cluster members)

Source: The authors' construction

Cluster-specific features and cluster members' opinions of internal communication of SWHEC:

Communication is open-minded and democratic; they share any information. The relationship of members is complementary, friendly; there is no hierarchy and they trust each other. The communication is indirect, all members (small and large companies) are equals. The intensity of activity (which firm is dominant) depends on the task, and is optimal. The strength of cluster management's communication is that, if cooperation is deadlocked, it can recommend solutions. The focus of communication is on the common interest to do business better, and so the cooperation is less ideological.

CCIC

Table 5: Communication management of the CCIC

CCIC	
	CCIC
Direction	Centrifugal: from cluster management organization to all cluster members. Most intense. 40–60 messages annually.
	Centripetal: from cluster members to the cluster management organization. 20 – 30 message annually.
	Diagonal: representatives of cluster member firms to other cluster members, involving not all of them.
Channels, objectives, content	*Electronic channel* Most frequently used in business connections. There is a cluster e-mail network. No social media, internal communication platforms, intranet, chatting are used.
	■ *Cluster management organization to cluster members* Group e-mails Content: distribution of information about events (invitations to programs, tenders, calls for proposals), reports about the cluster events (newsletters), mediation in solving members' problems, in offers, collecting data for reports.
	■ *Cluster members to cluster management organization:* Data for reports, reporting problems, invitations to members' programs. Initiation of communication with the management three or five times p.a. per cluster on average)
	■ *Cluster members to cluster members*: Content: offering help, participation in cooperation, in solving tasks
	– *Phone calls* Content: discussion of details of running cooperation *Face-to-face communication* Considered to be most effective channel, significant in creating internal cohesion but time-consuming.
	– *Personal meetings:* great activity in CCIC. Several forms are in use. See detailed below: Cluster-specific of communication

CCIC	
Networks	Networks both in e-mails and by phone are rare. One cluster member is in connection with about four or five other members on average. Management centered communication dominates the connections.
Frequency, stability	Imbalanced in time. Joint events, new projects trigger intensive communication. The stability of communication is weak.
Distribution of connections	Uneven. Some cluster members are in connection with many members in their own cluster, others with few. There are nodes in the network. Not the most efficient cluster members represent communication nodes within the cluster.

Source: The authors' construction

Cluster-specific features and cluster members' opinions of internal communication of CCIC:

Regular special events of communication

The headquarters of cluster management is the Co-Working House (CO-HO), the venue of cluster members' regular meetings; it is an office, meeting room, venue for training and community space. CO-HO is a means of cohesion, the home of the cluster. Personal meetings are the glue of the cluster. There are:

Once-a-month cluster breakfasts are the most efficient informal meetings. Professional topics emerged spontaneously are discussed in the framework of a simple and informal breakfast. Its advantages are getting new, reliable information; team building, joint problem solving and brainstorming.

Picnics, 'rapid dates' and *mutual visits to cluster-firms*: grill parties on the greens besides KO-HO also mean a type of glue for the cluster. 'Speed dating' helps new members to introduce themselves to old members in an attempt to find connection points. Mutual visits to firms mean keeping contact and benchmarking also. In this way cluster members learn of the details of one another's activities.

Trainings according to the internal demands of cluster members, focusing on business knowledge.

Joint public events, joint projects (such as DesignPécs) organized annually or *joint exhibitions* of cluster members are means of increasing the public awareness of the cluster in the town, and so they are important sources of feeling success.

Special aptitudes

Expertise and activity of the management organization: The three members of the management organization are young, experts in their field, highly active in applying for funding, and with a strong commitment to the cluster, striving for integration.

The Chairman of the cluster: He has expertise in public and media communi-
cation with many years of experience. His personality is regarded within all
cluster-firms as the source of

success. Described as 'sparkling', who never runs out of ideas. He is a dynamic
and active, charismatic key personality, with a strong ability to motivate. He
displays positive and lateral thinking. He is devoted to cluster management, to
the community-uniting strength of the cluster. He communicates well. He has
extensive social capital, and thinks with an international perspective.

The internal communication of their cluster is characterized by members as
follows: initiative type communication, incentive, innovative, open, regular,
frequent, "smart" "enough" (as much as needed), organized professionally.

PGC

Table 6: Communication management of the PGC

PGC	
Direction	Centrifugal: The role of cluster management in communication is not clear-cut.
	Centripetal: rare and optional,
	Diagonal: rare and optional,
Channels, content, Objectives	Common web page.
	The most preferred channels are telephone and face-to-face communication
	Younger persons prefer electronic connections.
	Content: common affairs, marketing exhibitions and opportunities.
Frequency	Communication is of low intensity and optional, is conducted weekly or monthly.

Source: The authors' construction

Cluster-specific features and cluster members' opinions of internal communication of PGC

The mission of the cluster is to build a brand. At the outset the objective of
the cluster was to cooperate in broad fields of business (advertising, marketing,
joint representation, joint points of sale, festivals and trade fairs, purchasing of
materials, solving the problem of lack or surplus of human resources). The func-
tion of communication was to facilitate the cooperation, but a lack of concern,
conflict of interest and negative attitudes meant that communication was limited.
There are no longer any common fields for cooperation.

Currently internal communication is under-motivated and suffers from mutual suspicion. The impressive results they obtained during the few years of operating the cluster (common web page, logo and brand advertisement, organizing common festivals, a common brand shop and publications, their role in preserving cultural heritage, and acquiring "Hungarian brand" qualification) cannot now help to solve the severe problems.

As one of the managing directors explained: "The communication is surrounded by suspicion. Even if we are in the same cluster, there is devastating competition among the members." "Companies in SWHEC cluster does not need to be persuaded to join in membership, here they should."

Effective communication is hampered by conflicts of interest and a lack of confidence.

5. Findings and evaluation

As we showed above the three clusters were established under diverse conditions, have differing sizes, they are acting in distinct industrial branches, and their market positions are different. This raises the question whether it makes sense to analyze and compare their communication management based on common criteria. As the indicators used are independent of the mentioned differences we think that a comparison is useful. The most important characteristics of the comparison are described in the table below (see Table 7):

Table 7:   A comparison of the three clusters (descriptive characteristics)

	SWHEC	CCIC	PGC
Number of members	29	38	6
Goals	Cooperation (suppliers, procurement, resources, sales), knowledge-sharing	Enhancement of revenue generating ability, connecting creative industries	Joint brand building and procurement
Foundation	Coordinated from above (chamber of commerce) + already existing business relations between companies	Initiated by key persons, based on friendships and professional relations	Initiated by future members, based on existing business relations
Focus	Business	Not business	Business
Relations among member organizations	Cooperative, complementary	Cooperative, complementary, slightly competitive, synergy orientation	Competitive
Members (size, age, activity)	Heterogeneous	Heterogeneous	Homogeneous

	SWHEC	CCIC	PGC
Operation	Successful	Successful	Not operating
Focus areas	Training, procurement, capacity and resource sharing	Idea generation, inspiration, network of friendly relations	Marketing
Cohesion in clusters	Formal system and management	Cluster president's personality	None, due to distrust, lack of common goals and will

Source: The authors' construction

The three clusters have several communication-bounded similarities in their *missions*: knowledge-sharing, forming of cooperation, strengthening their national and international presence, facilitating innovation (the latter is not among the goals of PGC) (see Table 8).

The *strategies* defined to achieve the mission differ.

■ Mainly due to industry specific factors: the engineering industry focuses on energy procurement, training, production-supplier network, capacity and resources. SWHEC members see more advantages in the joint realization of business goals (financial, market, labor force capacity, joint training benefits).

■ The CCIC puts more emphasis on self-directed training of members, internal and international relations and funding applications. Its members have more human orientations (social capital, human-professional community, generating ideas, mutual help).

■ Training and capacity utilization would be an important strategy for the PGC as well, but, due to conflicts of interest, rivalry and limited market size, these are unlikely to be introduced. PGC members see a narrower path of specific business solutions as opportunities.

Table 8: A comparison of the three clusters (results of analysis: benefits and communication)

	SWHEC	CCIC	PGC
Benefits of co-operation in the cluster	Many: A number of informal and formal synergies, financial results; joint procurement, professional experience sharing, trainings, information sharing, benchmark, resource sharing	Many: A number of creative ideas, innovations and valuable human relations; community thinking, flow of information, application opportunities, assistance, brand, finding new opportunities	Few: Some common marketing publications, a festival, brand promotion; "Hungarian Product" title, brand shop
Intensity of communication	Weekly	Weekly	Monthly or even more rarely
Communication channels and special means	E-mail, telephone, personal discussions, monthly meetings of cluster members (benchmark)	E-mail, telephone, personal discussions, cluster breakfasts, community programs, rapid date, benchmark, KOHO	E-mail, telephone, personal discussions
Characteristics of communication	Central distribution of information to everyone in e-mail, then those involved in a specific matter contact by phone or personally, Friendly and relaxed atmosphere, constructive style, Well organized pragmatic communication	Smart: intense communication if needed, no unnecessary communication, Friendly and relaxed atmosphere with synergic effects, Importance of social events driven by face-to-face communication	Does not aim at sharing information, Personal opposition, conflicts, Lack of trust in communication

Source: The authors' construction

The findings regarding *communication* revealed following:

▪ Especially two of the four goals of internal corporate communication elaborated by Welch and Jackson (2007:188) are in SWHEC and CCIC at a high level achieved: "contribute to internal relationships characterized by employee commitment" and "promoting a positive sense of belonging in employees". Commitment of the cluster members towards their clusters and belonging to a community of individuals were expressed in words such as "without the cluster membership we could not achieve our goal", "we got it because we are members in this cluster", "we are friends here". Engagement

of cluster members is enhanced by "clear, consistent and continuous communication" as emphasized by Welch and Jackson (2007:186).

■ Communications channels built and managed well (telephone, electronic forms and benchmark meetings) serve common affairs effectively, although managers are aware of time limits. Consequently, it is important that cluster communication must not consume too much time as cluster business inevitably means extra work even if providing synergic advantages. It is important that members were invited to the cluster consciously and that they do not compete in the same field, but have complementary operations as suppliers and buyers. It is important to emphasize that the term 'competition' in this context means especially destructive operation that can hinder the cooperation: the crowding out effect can cause a killer competition, where the companies act at the expense of each other aggressively and not constructively so we conclude that such type of competition destroys trust and cooperation in a cluster.

■ In SWHEC *the mission and strategy of the cluster is supported by the intensity, content and style of communication,* helped by the management's coordinating and supportive efforts.

■ In *CCIC the goals, the mission and strategy of the cluster, its communication management and the needs of the community feeling are mutually in a positive connection with one another*. The well managed building of their community contributed to the sense of being successful. It is well known that transparent communication (i.e. participation, accountability and substantial information) (Rawlins 2008), two-way, especially face-to-face communication are crucial to successful performance of organizations (Dozier et al. 1995, Mishra et al. 2014). The cluster management organization is aware of this fact, and organizes several forums of dialogs. Face-to-face communication and personal meetings are significant in creating internal cohesion. The "home" (CO-HO), the community space is a means of boosting togetherness. Personal meetings enriching knowledge and connections, generating ideas, supporting problem solving are the glue of the cluster. The sense of belonging in a professional group is in this cluster especially strong. An affective commitment, an emotional attachment to the cluster (in sense of Meyer and Allen (1997)), and the "we" feeling is unquestionable. If the president of the cluster has a charismatic personality, it is both a strength and a weakness of the organization. It makes it vulnerable, as changing this person leads to the basic transformation of the whole organization. Although face-to-face communication is a strong tie, it might be disadvantageous for members geographically far from the center of the cluster.

■ *Internal communication of the PGC* is not so well organized and not so intense as those of the other two clusters. Insufficient communication cannot support building trust. As Sparrow and Cooper (2003), De Ridder (2004)

argue, trust and communication are interrelated: 'quality communication creates trust' and 'trust creates quality communication' (Welch/Jackson 2007:190). Although all difficulties cannot be solved by means of communication, efficient communication might help to find common ground in a tight market.

Regarding success in the two clusters, in which the internal communication serves both cluster strategy and individual goals, both management and members feel that their cluster operates successfully. Where communication is poor the feeling of operating successfully is not present.

6. Discussion

Referring to our research questions we found that in two of three clusters members thought about the operation of their cluster as successful (RQ_1). They provided diverse explanations of their opinions but there is a common feature that many of their subjective expectancies (benefits) seemed to be fulfilled. In the third cluster only few benefits were mentioned, the desired higher performance results (joined brand building) were not achieved, therefore the satisfaction of the members was low.

In connection with RQ_2, we can state that the three cluster management organizations defined and elaborated different goals and strategies. Two of them (with manufacturing character) were strongly business oriented, one of them (connected to creativity and culture) had weaker business orientation and put stronger emphasis on relationship and synergy seeking. It is remarkable that, in the course of establishing the two successful clusters, former friendships and good business relations among the individuals played an important role. To become a member of the respective cluster (that is, of the impressive group), was a positive experience for them. Based on our observations, we believe that positive attitudes towards their own cluster foster the identification of members with the goals in their clusters. Since the members belong to groups they respect, being satisfied with the achievements and experiencing success, can be explained to a certain degree with the social identity theory of Tajfel (1974), that claims that individuals strive for a positive self-concept and are willing to identify with groups that contribute to a positive self-image. They are also willing to work towards cluster goals. This argumentation changes our expectation, that setting reasonable collective cluster-goals (both to the individuals and to the cluster as a whole), elaborating appropriate strategies that support fulfilling individuals' expectations, and promoting sense of community, sense of belonging to the group, are crucial for experiencing success by cluster members.

Regarding RQ_3, we found that internal communication management was essential to reach goals, implement strategy and stimulate a sense of success. All steps, (involving members in setting goals, in elaborating strategies, harmoniz-

ing individual and group interests, explaining the 'hows' and 'whys', giving feedbacks, etc.), require well-organized communication.

Due to diverse cluster-goals, all three cluster managements supported the cluster operations using different toolboxes of cluster communication. In SWHES we could identify pragmatic communication, in CCIC social events-driven face-to-face communications played a very important role, while in PGC lack of trust caused poor communication. In the first two clusters we observed well communicated priorities, friendly communication style and soft skills of members that enhanced their commitment to cluster goals, and led to experiencing success. We argue that setting goals and strategies to commit to, combined with high quality communication (motivation and feedback), trigger positive interference between success and results. If members believe in the success of the cluster, they are motivated to make efforts to prove it.

Similar to our observation, Locke and Latham (1990) also claim in their "high performance cycle" that is based on goal setting theory, expectance theory and social-cognitive theory, that "high performance results, given that there is: commitment to the goals, feedback, adequate ability, and low situational constraints", and in return "satisfaction … facilitates commitment to the organization and to its goals." are resulted (Locke/Latham 1990: 240).

We experienced that communication triggered setting common goals, elaborating effective strategies and reaching individual and cluster goals, thus experiencing success by the cluster members in the cases when the *communication management organization planned and established all dimensions* of the communication *consciously*. Outstanding dimensions proved to be *channels, content, frequency, way and style of communication*—all of them having impact on trust.

Regarding *channels,* effective management organized *multi-channel communication networks* that enabled all members to learn, discuss, and harmonize common interests before setting goals, and to react immediately in urgent cases. It ensured regular and informal *face-to-face meetings* (such as cluster breakfasts, visiting partner's plants) or joint trainings on the job, that brought the members closer to helping to learn the advantages, demands and problems of partners, and increasing trust. It was especially useful in common problem solving, and in clearing causes and effects. On the contrary, lack of face-to-face meeting increased mistrust and hostility.

Concerning *content of communication*, correct and reliable information sharing was the basis of building up *trust* in the cluster management, and trust in the partners as well. It increased the willingness to cooperate in all fields of clusters' activities.

Also the regularity and *optimal frequency* of communication turned out to be meaningful: "smart communication" meant "as often and as much as needed".

In the successful clusters the communication management organization gave rise to *positive way and style of communication*. The open minded, honest and friendly atmosphere triggered knowledge sharing, and also constructive criticism.

7. Conclusions

Our main research question was: *How do the internal communication channels, toolboxes, content, frequency, intensity, way and style, (among members within a cluster, and between clustered firms and cluster management), influence the success of a cluster?*

For this reason, we developed a framework of cluster-goal and strategy, communication management and success. We completed a qualitative investigation, using the method of interviews in three industrial clusters, and presented the findings in case studies.

Using congruence testing (George/Benette 2004), we stated that in two of three clusters the cluster management organization was aware of the principles of internal organizational communication and communication management:

- they set cluster goals that members can identify with both on cluster and individual levels,
- they harmonized communication goals and strategies with cluster goals and strategies,
- they built a proper infrastructure of communication,
- practiced "smart" and "transparent" communication,
- put emphasis on the communication quality: on accuracy, timeliness, adequacy and credibility, according to More and Spekman (1994),
- allowed regular two-way and face-to-face communication, which supports information sharing,
- thanks to regular dialogs they learned cluster members' preferences regarding goals, values and feelings about quality of communication,
- they were able to harmonize the goals of the clusters with the goals of cluster members' goals.

Cluster members of these two clusters regarded their clusters as successful or very successful independent of their outstanding or less outstanding business indicators. The third cluster expressed a negative opinion, where communication between management and cluster members, and among cluster members, turned out to be insufficient. As Mohr and Spekman claim "Communication problems are associated with lack of success…Without communication quality and participation [in planning and setting common goals], the success of the partnership is placed in doubt." (Mohr/Spekman 1994: 146). These statements were reinforced

by our findings as well, as the members of the third cluster didn't view their cluster as successful and felt rivalry and lack of trust.

This result underpins the positive relationship between professional internal communication management and success. Personality and communication skills of management in internal communication management also proved to be crucial.

Our framework of cluster goal and strategy, communication management and success, draws the attention to the correlation of these components. Our results may be useful to academics and practitioners as well, since this paper makes a practical contribution to internal communication research of clusters. It reflects on everyday practice of communication within clusters based on internal corporate communication theory (Van Riel 1995), and is supported by stakeholder theory in communication too (Welch/Jackson 2007). It highlights the relationship between cluster members and clusters management and between cluster member enterprises.

Cluster management organizations may find our contribution useful in establishing, evaluating or improving the internal communication management in their clusters. We hope to stimulate further investigations in the field of internal corporate communication management, to open up a range of issues for further considerations, and to broaden previous approaches.

The limitations of the research

In our research we used a framework narrowed down into three dimensions of perspectives from which communication management in clusters can be investigated. Only selected aspects of communication management were examined. E.g., the paper did not consider the external environment and its changes (market system, regulatory system, effects of political factors etc.). Data collection mirrors one given period of time, in that it does not focus on continuous changes. We did not record all the interviews (only made notes), which can be a limitation too. It also limited the scope of our research that we analyzed a small number of clusters. However, it is planned to extend the research to a larger sample in the future. Furthermore, as the analyzed three clusters operate in the southern part of Hungary, consequently the economic and social environment in the region also effects the performance results and success of clusters as perceived by cluster members.

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