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The Role of Inter-Organizational Coopetition to Reach the Competitive Advantage

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Abstract

This study analyses how coopetitive relationships lead to the sharing of resources and knowledge impacting on the competitive advantage of SMEs. A case study was carried out with craft microbreweries operating in a regional cluster in Southern Brazil. The results showed that the brewing cluster is successful in the local scenario, since it followed the inter-organizational coopetition as a way to maximize the advantages of exchanging information, knowledge, and resources, increasing its bargaining power with suppliers, customers, and market. The organizational studies on coopetition must focus on understanding if sharing resources and knowledge in a cluster characterized by coopetition can generate competitive advantages to the firms involved. The inter-organizational relationships in the brewing cluster support the member in becoming more competitive for the confrontation with great players of the beer sector.

Keywords: Coopetition, Inter-organizational, Resources, Microbrewery, Competitive Advantage, SMEs.

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Introduction

"Unity is strength" is defined as a strategy that makes a difference for firms that face social, economic and cultural changes in their markets. Thus, small and medium enterprises (SMEs) may adapt to a competitive world that is evolving in terms of production, distribution, and supply, by using coopetition in clusters to enhance the competitiveness (Gast et al., 2017; Kossyva et al., 2014).

Such strategic changes lead firms to collaborate with their closest competitors for a greater competitive advantage (Brandenburger and Nalebuff, 1995). The firms constantly need positive results and performance, stimulating cooperation and competition to develop a win-win strategy, generating profits and outcomes through joint actions (Brandenburger and Nalebuff, 1995).

The large demand for premium products is transforming with fierce competition the current Brazilian microbrewery market (Stefenon, 2012). New small competitors change the setting of product supply and distribution in the domestic market, as they behave differently in cooperation and competition relationships when compared to consolidated players in the domestic market (Dias and Teles, 2019). They simultaneously compete and cooperate towards a shared goal of satisfying

consumers who look for particular product innovations (Bengtsson and Kock, 2014). The perspective of coopetition as a process involved competition and cooperation strategies between firms (Bengtsson and Kock, 2000). This process changes and delineates the balance and strength in cooperative and competitive interactions (Dahl, 2014) in separate continua (Padula and Dagnino, 2007).

Scholars focus on the intangible effects of coopetition on the performance, such as mutual benefits, trust, commitment, and resource compatibility (Morris et al., 2007; Perera et al., 2015). However, less attention has been paid to the economic impacts on firm's performance, as well as to the causes, the media, and the results of firms engaging in coopetition (Della Corte and Aria, 2016). Moreover, SMEs have received less attention (Kraus et al., 2018; Le Roy et al., 2017), when considered the relevance of resources sharing through the firm's position in the inter-organizational relationships (Sanou et al., 2016).

Thus, the following research question is defined to explore the inter-organizational coopetition: how does inter-organizational coopetition lead to resource and knowledge sharing impacting on the competitive advantage of SMEs? The focus is on the creation of competitive advantage through coopetitive inter-organizational relationships among the craft microbreweries in southern Brazil. The microbreweries were chosen because of their importance to the local economic and social development, in which the informal network of participants in the brewing pole in Southern Brazil represents 2% of the market. Moreover, this industry represents 1.6% of the Brazilian GDP, holding a prominent position in the beer industry of the country (Associação Brasileira da Indústria da Cerveja, 2018). It is a nationally-relevant cluster of SMEs with better returns and opportunities through inter-organizational relationships (Della Corte and Sciarelli, 2012).

Inter-organizational coopetition usually occurs in clusters or networks where the concentration of firms generates dynamic interactions of competition and cooperation, resulting in coopetition (Ceptureanu et al., 2018). Coopetition demands a different way of looking regarding the dynamic relationships between competition and cooperation (Miná and Dagnino, 2016). The literature offers only superficial views of the interplay between competition and cooperation, paying less attention to the intensity and balance of coopetition (Gnyawali and Charleton, 2018). Our study shows that the links among competitors can generate resources sharing and positively impact the competitive advantage of the involved firms. We describe how SMEs can reach competitive advantage through knowledge and resource sharing in coopetition settings.

Coopetitive Inter-organizational Relationships

Coopetition essentially balances cooperation and competition (Thomason et al., 2013). Coopetition is paradoxical. When applied simultaneously, cooperation and competition strategies can generate knowledge and learning to the firms thus contributing to competitive advantage (Raza-Ullah et al., 2014). For companies developed coopetitive behavior each other with others, they must search for balanced results for all parties involved (Bengtsson and Kock, 2014). In this study, coopetition is the simultaneous competition and cooperation between firms to create value (Gnyawali and Charleton, 2018).

There are two types of inter-organizational coopetition: the first corresponds to the behaviour of rivals that restrict their cooperation to a common activity focusing on the single result. The second type presents a broader logic, including co-competition actions, where the parties evolve their collaborations based on the best understanding of the benefits of one firm versus those that are common to the entire inter-organizational relationship, providing financial, learning and enhancement improvements (Wilhelm, 2011).

Three mechanisms can assist the formulation of common objectives and interests in inter-organizational relationships (Pallotti et al., 2015): i) the strength of the existing links in the relationships of firms and individuals, ii) the social proximity presenting the relationships and the knowledge and resource exchange; and iii) a mechanism of interaction or position in an inter-organizational relationship that determines the participations occur and how the firms cooperate and compete (Pallotti et al., 2015).

Firms adhere to cooptation in inter-organizational relationships to be more exposed to learning opportunities from knowledge sharing and to access relevant resources for their business strategy. Pallotti et al. (2015) claim that there may be a performance overflow highly differentiated for each type of firm or cluster. Overflow effects can vary among the actors within the cluster, and joint participation can generate competitive advantages. SMEs engage in cooptation to deal with liabilities as limited access to financial, human or technological resources (Sirmon and Hitt, 2003), lack the ability, and resources to exploit existing knowledge and opportunities (Levy et al., 2001) or because the SMEs search for cooptation to gain positioning in international markets (Festa et al., 2017) or improving their market share or financial performance (Levy et al., 2001). Cooptation gives firms access new resources and capabilities while and increases firms' competitiveness (Monticelli et al., 2017).

From the perspective of inter-organizational cooptation, centrality, structural autonomy, and resource asymmetries of a firm in a cluster will affect the competitive behaviour of firms. Highly central and structurally autonomous firms tend to be more competitive due to their activity and versatility (Gnyawali et al., 2006). The more similar the participation of one or more firms is within the cluster, the smaller the difference between them in the competition is, generating greater cooperation that may result in a more balanced competition. Nonetheless, firms with core positions within a cluster with numerous connections, as well as unequal links, can benefit cooperatively and competitively, as they have differentiated access to resources, knowledge, and information within the cluster (Pallotti et al., 2015).

However, not all perspectives are positive. Bengtsson and Kock (2014) and Tidström and Rajala (2016) argue that the interactions in many industries are complex and dynamic, where a partner in one activity may become a competitor in another. When cooperation is low and competition is high, cooptation risks opportunism. Conflicts may arise and cause an unstable relationship with limited benefits (Resende et al., 2018) when the knowledge resulting from cooperation and the knowledge resulting from competition are unequal, leading to a leakage that may be significant depending on the capacity of the competing firm to benefit from it (Ritala and Hurmelinna-Laukkanen, 2009).

Resource and Knowledge Sharing for Competitive Advantage

In cooptation strategies, the sharing of information, knowledge, and resources is a basic premise for the achievement of common objectives, which can generate opportunities and reduce threats and risks to a firm or inter-organizational cooptation (Bengtsson and Kock, 2014). In this study, resources are all capacities, organizational processes, assets, competencies, information, and knowledge controlled by a firm to develop and implement strategies to improve its efficiency and effectiveness (Barney, 1991). Another interesting path is related to a dynamic context between firms, stakeholders, resources, and knowledge that provide differences and gains for the participants of this competition (Jones et al., 2018). The combination of this behaviour was developed in different levels: inter-organizationally and intra-organizationally while building a situation of cooperation and competition between the resources and knowledge produced and available (Chiambaretto et al., 2019). The perspective of resource and knowledge sharing between competing firms, suppliers, partners, and customers can become an important strategic option in a mutant and unstable business arena (Chiambaretto et al., 2019).

Cooptation is strengthened by the balance between shared market interests (which contribute more to competition) and asymmetric resources (which foster cooperation) (Hamel et al., 1989). Similarly, firms with a strong market position tend to adopt a competitive strategy, but the need for external resources requires a cooperative behaviour (Bengtsson and Kock, 2000). The interactions affect the performance of products, services, customer relationships, productivity, efficiency, and quality, in order to develop and improve this association to avoid redundancies and generate economies of scale (Gao and Bernard, 2018; Chiambaretto et al., 2019). This would not be achieved if it were developed separately (Ganguli, 2007). Moreover, cooptation may produce entry barriers against competitors not included in the cooptation (Ritala and Hurmelinna-Laukkanen,

2009). Shared culture, vision, process, systems, knowledge, and resources to promote cooperation and in second-level competition (Jones et al., 2018; Chiambaretto et al., 2019).

There are many competitive advantages when SMEs get united to share knowledge and resources about a specific product, service, and business, generating a greater added value to the cluster (Dyer and Singh, 1998; Wegner et al., 2018). Especially for SMEs that may improve their position in the market using coopepetition, this relationship is strategic to develop and gain competitive advantage (Tomski, 2011). In SMEs, owners, and managers generally are the same person and are responsible for the strategies of the firm. In these cases, they have considerable influence and capacity to build the coopepetitive strategies of the firms (Granata et al., 2016).

Mathews and Patton (2016) researched 70 microbreweries in the American market and confirmed that the existing links could make them closer, create exchanges and even product names, logos and a neolocal culture aligned with the expectations of the close groups. However, for McGrath and O'Toole (2014), there are inhibitory factors in the development of inter-organizational relationships from the existing links when sharing and exchanges are not aligned with the internal perception factors of each organization. Moreover, Kraus et al. (2018) researched 18 SMEs in the craft beer industry from the United States. The main findings reveal mutual benefits, trust, and commitment as drivers to the coopepetition and innovation development, market reach, marketing, and firm growth the outcomes of coopepetition. Coopepetition based on sharing resources and internal and external knowledge of an organization or inter-organizational coopepetition aims to appropriate a greater balance and to deliver a more solid and differentiated added value for the market and industry (Della Corte and Aria, 2016). Coopepetition is the result of a common desire and actions for cooperation, aiming at greater competitiveness (Geraudel and Salvetat, 2014). Firms must share information and knowledge as cooperating firms, but trust each other as rival firms (Baumard, 2008).

Research Methodology

An explanatory case study was developed to explain the phenomena. The case study is an appropriate method for the type of investigation proposed: to understand whether and how a complex and little-explored phenomenon takes place (Yin, 2018). The research strategy and procedures chosen are qualitative and quantitative, using multiple methods and instruments in the analysis and interpretation of results (Flick, 2014).

The population of this research included the 36 microbreweries producing craft beers that participated in the project of the brewing cluster developed by a non-profit agency in Southern Brazil (Sebrae, 2016). Coopepetition is a common strategy in this industry (Kraus et al., 2018), mainly in Brazil where breweries and brands have expanded (Dias and Teles, 2019), resulting in a 30% market growth of almost between 2017 and 2018 (CervBrasil, 2018). Moreover, Brazil is the third global beer producer after China and the USA (Beer Marketing, 2018). The Brazilian microbreweries industry suits the objectives of this study because they exhibit coopepetitive strategies in a global representative market. The sample included seven firms and the manager of this project. They were chosen because of their know-how about the project and their participation in coopepetitive activities.

Data collection

Four research procedures were used to triangulate the data about the phenomenon. Data were first collected from secondary sources (websites of the firms, news from portals, and other recent articles about the same context). Second, an explanatory investigation was carried out through primary sources, and participant observation in the 3rd Management Seminar for Craft Microbreweries conducted on November 24, 2016, in Porto Alegre (Brazil).

Third, seven semi-structured interviews with the managers of the main microbreweries were conducted to understand the existing coopepetition relationships. Using a semi-structured interview aims to deeper understand the participants within an industry, along with the research question, and avoid losing information when the conversation moves too far away from the interview guide. Data were collected within the participants' social context, that is, the data is based on their own

interpretation of their experiences in their own words. However, the interview bias can occur when interviewers impose their interpretations on the participants.

The script for interviews was prepared as highlighted in Table 1.

Table 1. Categories and elements of the analysis

Categories	Guiding concepts	Theoretical background
Existing links	History, Time and Experience Exchanges, relevance of the firm in the business network and in the industry	Pallotti et al., 2015; Sanou et al., 2016
Social Proximity	Groups, Relationships, Sharing of resources and knowledge.	Hung and Chang, 2012; Padula and Dagnino, 2007; Pallotti et al., 2015
Participatory Relationships and Coopetitive Overflow	Communication, Interactions, Connections, Common Interests, Cooperation, Event, and Participatory Processes.	Bengtsson and Kock, 2014; Gnyawali et al., 2006; Pallotti et al., 2015

Table 2 presents the characteristics of the seven firms and the manager that were chosen and interviewed.

Table 2. Information about Microbreweries and Specialist

Firm/Brewery	Foundation	Position	Interview	Duration
ALPHA RS	1972	Manager/Specialist	Telephone	40 min
B	2013	Director/Co-owner	On-site	50 min
BR	2014	Director/Co-owner	Skype	48 min
ED	2011	Director/Owner	Telephone	45 min
HEL	2010	Director/Co-owner	Skype	50 min
PA	2012	Director/Commercial	On-site	55 min
SE	2010	Director/Owner	Telephone	40 min
ZA	2015	Director/Co-owner	WhatsApp	45 min

Finally, a quantitative procedure was carried out through social networks analysis (SNA). During each interview, the interviewees received a spreadsheet with the name of microbreweries and indicated with had or had not relationships for the exchange of resources (raw materials, distribution, and equipment), and knowledge (information, experiences and productive and market processes). The collection procedure was repeated in two separate questions sent to the interviewees as follows: Question 1: After identifying yourself, please indicate with which of these firms you share knowledge of production and market processes such as (Consumers, Products, Innovations, Supplier, and Competitors); Question 2: Indicate with which of the firms listed you make exchanges and share resources (Equipment, Raw Material, Supplies, Distribution). Use of SNA aimed to measure the relational features of the cluster, ignoring their structural features. To identify the relationships, exchanges, and interactions among the firms the SNA technique was used to check the strength and relevance of the relationships between the group studied with the software UCINET^a and NETDRAW^a.

Data Analysis

The content analysis technique was used to infer knowledge resulting from quantitative indicators (Bardin, 2011). The qualitative data were analysed following three steps: i) data reduction; ii) data presentation; iii) conclusions and checking. The first step was to choose, eliminate, and organize the data according to the research design and categories established. Therefore, the data were analysed after summaries of the interviews, printed and digital materials. In the following step, the representations generated enabled us to understand the analysis made, mainly using the softwares UCINET^a and NETDRAW^a. In the last step, the phenomena observed were explained, contrasting with propositions and hypotheses (Miles and Huberman, 1994) with data from participant observation, semi-structured interviews and social network analysis (SNA).

Network analysis address different fields as a group of actors and typically considers relationships as "on" or "off" rather than continuously shifting (Davis, 2016). We use softwares to illustrate and understand the network as a whole. The analysis of social networks aims to identify the relational structure in networks of different natures and purposes, such as networks of the automotive industry (Sacomano Neto et al., 2016), networks for emergency situations organized by the public sector (Kapucu and Garayev, 2013), for the performance of cluster innovation (Ting Helena Chiu, 2008), and to identify dynamics that occur when structuring new international ventures (Coviello, 2006). UCINET was used to identify how the relationships between microbreweries are structured. The directional approach was chosen to identify if there is a mutual sharing of resources and knowledge among the firms or if there is evidence of opportunistic behaviour by some microbrewery.

Three indicators were used to analyse the inter-organizational relationships: the degree, which was broken in indegree and outdegree for bi-directional analysis, the betweenness centrality, which refers to the role of intermediation, and eigenvector centrality. The degree refers to the direct relationships identified for each actor. We consider the indicator calculated on the number of relationships recognized by the actor (outdegree) and calculated on the number of relationships due to the recognition by other actors (indegree).

The betweenness centrality refers to the position of brokerage, in which the actor intermediates between two or more groups of actors while being the link between them (Balestrin et al., 2010). The high scores on betweenness centrality mean that the actor controls the short paths compared with other actors (Borgatti and Li, 2009). Eigenvector centrality, also known as Bonacich centrality, is the one of the best-known types of centrality and refers to how central the actor is within the network, with the indicator being calculated taking into account also the centrality of other actors with which that central actor relates (Borgatti and Li, 2009). As the network is directional, this indicator is calculated on the relationships recognized by the actor (out eigenvectors) and also calculated on the relationships due to the recognition by other actors (eigenvector).

Results and Analysis

To understand how the inter-organizational cooperation relationships, lead to resource and knowledge sharing that impact on creating competitive advantages, our analysis was based on the existing links, social proximity, and interactive participation. We choose these drivers because the inter-organizational cooperation says little about the range and the effects of the network in this relationship.

First, the way this group of firms has developed was observed and analysed. Links had as a starting point the foundation of the Craft Brewers Association of the state of Rio Grande do Sul (Acerva Gaúcha, 2016). Acerva started from a mailing list in 2004, later becoming Fellowship. It became an association of local agents in 2007 to disseminate the beer culture while researching and producing a handmade product. A second phase presents a dynamic evolution of this process and is linked to the existing social proximity that generated new synergies, and the creation of the Association of Microbreweries in 2012 (AGM, 2016) to integrate and develop the cooperation among the firms. The interviewees mention a third stage, which is related to the search for support in the actions of access to suppliers, innovations, cost reduction and market opportunities by microbreweries:

We started in 2013, worked very hard with the pubs and restaurants' associations. Based on the discussions with those entrepreneurs, we identified the growth of craft beer production, thus the management group of entrepreneurs of the brewing pole asked support for Alpha. We started a conversation with the pubs and restaurants (...) and in 2014 we proposed to create the brewing cluster of the Rio Grande do Sul State, and in 2015 the resources were approved when initially 36 firms participated.

From these interviews, we identified links that led to the search for actions, shares and cooperative participation, heading to a cooperative overflow, as defended by Pallotti et al. (2015). The links between the organizations can lead to a greater inter-organizational learning (Dahl, 2014) resulting from the organizations learning from their successes and failures and integrating their knowledge to enhance their competitive advantage in the market.

Some interviewees emphasized that social proximity was essential for their growth and represented an understanding of the market, including the customers and suppliers, within the project group, as it generated sharing of resources and knowledge that were important for the evolution of the cluster. The interviewee of the brewery PA mentioned that the proximity helped them to understand problems related to production, raw material, suppliers, taxation, delivery, etc. By sharing resources and processes (monthly meetings, as well as daily reports by WhatsApp, loan of raw materials, supplies, and equipment), they could win together because there are not many suppliers and firms in this market. For example, the brewery ED has launched a collaborative beer with the brewery IF, which is also part of the pole.

Social proximity can create support to understand how the mechanisms associated with interconnection work between the firms (Pallotti et al., 2015). The greater the degree of resources and knowledge overlap is in the cluster, the better the performances or joint advantages are. Moreover, the more similar the participation of one or more organizations is within the cluster, the smaller the difference between them in the competition is, generating greater co-operation that may result in a more balanced competition (Hung and Chang, 2012). For McGrath and O'Toole (2014), some entrepreneurial firms prefer weaker links with loose ties even when there is social proximity since these do not require a more formal commitment to major decisions, exchanges of experiences, resources or knowledge.

The data collected also presented the third mechanism proposed by Pallotti et al. (2015), as represented by the cooperative relationships. For Bengtsson and Kock (2014), these relationships take place whenever the organizations, based on cooperation, aim at aligning their common interests while focusing on creating lucrative benefits for the entire cluster and consequently for the organization. At this stage, the researched organizations have sought these benefits from their informal agreements.

A quantitative analysis was also carried out through social network analysis (SNA) to characterize the size and numbers of relationships, the directions of resources, knowledge exchanged and the betweenness centrality of each actor belonging to the network. The arrows represent the relationships among firms. Knowledge sharing is described in the network by the arrow directed to whom the brewery recognized as having this relationship. The graph is analysed from direct relationships, which are interpreted differently between firms. When analysed the network that includes the exchange of knowledge, there is an intense relationship between the participants, along with central and peripheral microbreweries. The graphical representation (Figure 1) illustrates the network of knowledge sharing between the microbreweries:

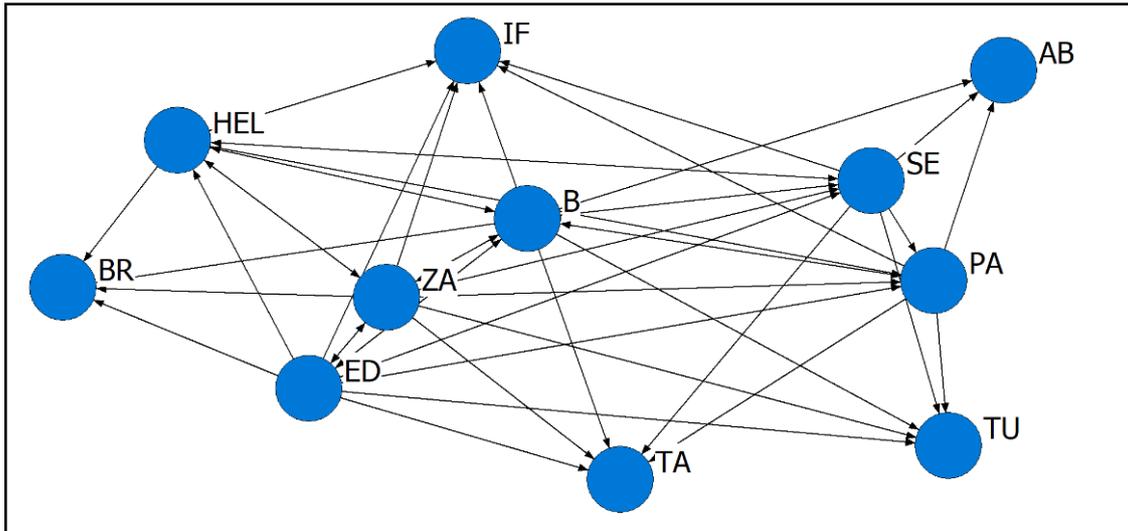


Figure 1. Social Network of microbreweries that share knowledge (NETDRAW^a software).

The indicators show that some firms in the network (B, ED, HEL, PA, SE, and ZA) recognize knowledge sharing more intensely compared to the other participants. This may indicate that their contribution to the network is greater than that of the other participants because the structural position and level of centrality are positively moderated by market diversity: resource asymmetries from the internal resources and capabilities of a firm (Gnyawali et al., 2006).

This inference derives from the difference between the indicators indegree and outdegree. Another inference from the analysis of indicators is that the microbreweries PA and SE are actors that intermediate the relationship between the others. They are crucial for the formation of this informal network of knowledge sharing. Moreover, due to the eigenvector centrality, BR and IF breweries appear as central actors in this network, as shown in Table 3.

Table 3. Indicators of the centrality of the actors in the knowledge-sharing network (UCINET Software).

Id	InDegree	OutDegree	Betweenness-Dir	InEigenvector	OutEigenvector
AB	2	0	0.0	0.59	0.00
B	5	8	1.7	1.38	0.46
BR	6	0	0.0	1.71	0.00
ED	3	9	0.5	0.86	0.46
IF	6	0	0.0	1.71	0.00
HEL	5	6	0.6	1.38	0.37
PA	5	8	3.1	1.38	0.30
SE	4	9	3.2	1.12	0.37
TU	4	0	0.0	1.06	0.00
TA	5	0	0.0	1.38	0.00
ZA	4	9	2.0	1.17	0.46

Figure 2 shows that the resource sharing network presents a scarce relationship among the participants, including firms that do not share resources with the others of this informal network. Central microbreweries are better illustrated. In turn, the structure of knowledge requires selection, organizational interaction (connection of resources and activities to reach shared goals), and strategic interaction (efforts to strategic directions through collaborative activities) (Padula and Dagnino, 2007).

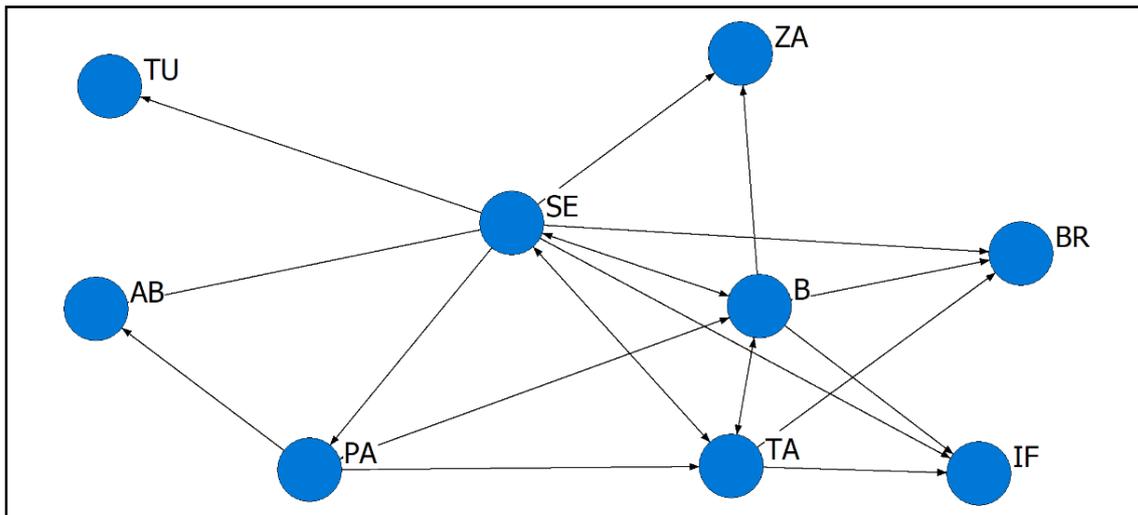


Figure 2. Social Network of microbreweries that share resources (NETDRAW^a Software)

The microbrewery SE stands out in Figure 2 and the analysis of the indicator degree. The microbrewery recognizes the resource sharing with eight other microbreweries, while this relationship is recognized by only two of those. This shows that the relationship may be overestimated by the brewery SE or that the sharing has a directed flow. This inference derives from the difference between the indicators indegree and outdegree. It is relevant to consider that the resources and power benefits of a central network position outweigh the risks and downsides of the centrality as vulnerability to rivals (Sanou et al., 2016).

Again, the microbrewery SE presents a high index of betweenness centrality, indicating its importance in the network of resource sharing. This finding is affected by the number of recognized relationships being key factors for the indicator, directly impacting its structural indicators in the network of microbreweries. Regarding the eigenvector centrality, the firms BR and IF are again identified in a prominent position (Table 4). This supports cooperation in which agents cooperate and compete to create value while sharing resources and knowledge (Monticelli et al., 2017).

Table 4. Indicators of the centrality of the actors in the resource-sharing network (UCINET Software).

Id	Indegree	OutDegree	Betweenness-Dir	InEigenvector	OutEigenvector
AB	2	0	0	0.59	0.00
B	3	6	4	0.98	0.56
BR	3	0	0	1.09	0.00
ED	0	0	0	0.00	0.00
IF	3	0	0	1.09	0.00
HEL	0	0	0	0.00	0.00
PA	2	3	0.5	0.70	0.40
SE	2	8	5,5	0.78	0.56
TU	1	0	0	0.31	0.00
TA	3	4	2	0.98	0.45
ZA	2	0	0	0.70	0.00

Figure 1 shows the relationships about the existing knowledge sharing within the network while depicting links between the firms ED, B, and SE with other actors. The risk of disruption of this network was also discussed in case one of these organizations leaves the brewing pole project,

considering their intermediation relationship regarding the others. The shared objectives prove to be more relevant than the individual profits maximized. Self-interests being overlapped and dependent on each other generates a strategic interdependence: the cooperative system of value creation (Padula and Dagnino, 2007).

Figure 2 shows the existing relationships regarding the share of resources generated in the network, emphasizing that social proximity is an important factor in the exchange of inputs, equipment, and distribution of products, mainly among the following firms: SE, B, and IF as they are the forerunners of the pole and the Craft Brewers Association in Porto Alegre and in the state of Rio Grande do Sul. Cooperation and collaboration arise from shared interests instead of maximizing individual gain, despite the potential unequal division of benefits between the parties (Padula and Dagnino, 2007).

A third step was taken to analyse the network of interactions between the microbreweries. In this specific case, there was an intense relationship between the network participants, as well as in the case of the analysis of the knowledge-sharing network. Figure 3 illustrates the network created from the interactions between the microbreweries.

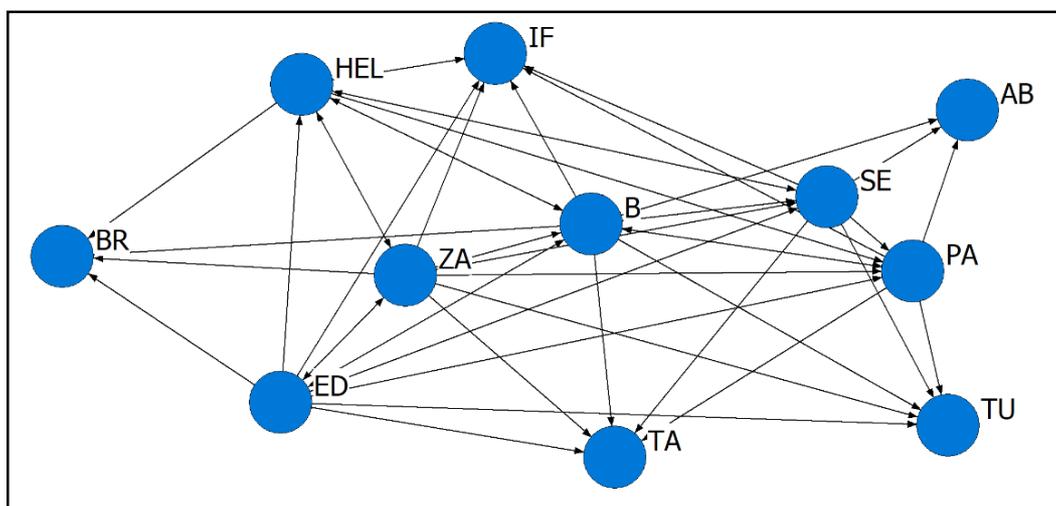


Figure 3. Social Network of microbreweries that share interactions (NETDRAW^a Software)

Microbrewery B stands out in this analysis following the indicator degree, as it recognizes an interaction that seems to be oversized, since the recognition is not reciprocal. Its score at indegree is 5, and its score at outdegree is 10. The same is true for the firm ED, which recognizes interaction with 9 participants, while only 2 of their peers recognize it.

Firm B stands out in the centrality indicator of intermediation (betweenness centrality) and is the main agent to create channels (because of the set of relations) that unite the microbreweries in this interaction network. Unlike the other analyses about the cluster of microbreweries, in the case of the interactions, using the eigenvector centrality, we identify scores distributed more equally; however, as in the other cases, the brewery IF stands out as having the highest score in this indicator. Cooperation implies sharing goals to induce agents to reduce risks, expand their options, and leverage their earnings (Velu, 2015). The indicators calculated for each actor is presented in Table 5.

Table 5. Indicators of the centrality of the actors in the interactions network (UCINET Software).

Id	InDegree	OutDegree	Betweenness-Dir	InEigenvector	OutEigenvector
AB	3	0	0.00	0.93	0.00
B	5	10	7.83	1.28	0.48
BR	4	0	0.00	1.01	0.00
ED	2	9	0.00	0.60	0.48
IF	6	0	0.00	1.61	0.00
HEL	4	6	0.33	1.01	0.38
PA	5	5	1.50	1.28	0.12
SE	4	8	1.50	1.01	0.38
TU	5	0	0.00	1.35	0.00
TA	5	0	0.00	1.35	0.00
ZA	4	9	1.83	1.01	0.48

The relationships and exchanges of knowledge, resources and network-related interactions of craft microbreweries from the brewing cluster in Southern Brazil do not fully explain the characteristics of these actions and operational activities in the cluster but assist in the understanding along with interviews with the leaders of the small organizations. Central and autonomous firms take greater competitiveness due to strategic flexibility, while firms with more diverse markets are more likely to benefit from its cooperative relationship (Gnyawali et al., 2006).

Network externalities increase the value creation potential when firms cooperate to share knowledge. However, not all industries will have positive results, especially those with less innovative potential (Ritala and Hurmelinna-Laukkanen, 2009). Therefore, there is evidence of free-riding behaviour and opportunistic risks of some participants, who may overestimate such cooperation to differentiate themselves conveniently to improve their competitive position in the market and the cluster studied.

Conclusions

This study aimed to understand how inter-organizational competition leads to resource and knowledge sharing that impact on the competitive advantage of SMEs. In these terms, social network analysis was applied to understand this inter-organization competition through three mechanisms: a) existing links; b) social proximity; and c) participatory relationships researched in this object of study.

Our study offers some insights. A major implication consists in showing that the links and the social proximity can generate sharings and impact on a competitive advantage over other competitors, even if they do not belong to a cluster. Network externalities in an industry can motivate competition (Bengtsson and Kock, 2000) as firms integrate for inter-firm collaborations. Interactions for exchange or participation can spill over opportunities for cooperation for all involved in a similar network. However, there is a need for adequate governance mechanisms to develop coordination with several degrees of formality and dynamic interplay between competition and cooperation, avoiding opportunistic behaviour.

In practical implications, our findings can help managers to understand how cooperative relationships may support their firms. The results show the greater involvement, development, and sharing of resources and, consequently, greater access to knowledge about production and consumer market by the organizations that are central to the network, such as the micro-breweries: IF, B, SE, PA, and HEL. These organizations promoted and disseminated the cooperative strategy with greater access and creation of solutions, learning, and collective resources. However, this strategy is also

dynamic due to the goals, roles, and market conditions continuously evolving (Hung and Chang, 2012).

In the interviews and social network analysis, the resources and knowledge sharing could generate competitive advantage and a differential for the organizations and the market. In the clusters, SMEs exchange resources and capabilities, mainly knowledge, aiming to reduce costs and uncertainty, accelerate the creation of knowledge, and increase performance (Kossyva et al., 2014).

The focus only on the Brazilian craft beer industry represents a limitation of this study, as well as leaving aside formal institutions and other institutional dimensions such as political and sociological ones. We suggest future research to analyse the evolution of cooptation in microbreweries in Southern Brazil, as they may follow the development of inter-organization relationships (Dahl, 2014).

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