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DESIGNINIG COLLABORATIVE PROCESSES AMONG SMES. AN OVERVIEW OF INHIBITING AND MOTIVATIONAL FACTORS

Abstract:

This paper scrutinizes the ground rules for designing collaborative processes by focusing on inter-organizational collaboration and considering collaboration as a process for improving the competitiveness of small and medium sized firms (SMEs). In a need to be more competitive and facing an ever more knowledge-based environment, SMEs must collaborate in order to stay competitive and easily adjust to new situations. Collaboration in itself is perceived as a dynamic process taking place among various actors who come together to jointly achieve a beneficial outcome. This paper provides an overview of the evidence on common motives and inhibiting factors for collaboration among SMEs based on a review of the evidence.

Keywords:

Small and Medium Enterprises (SME), inter-organizational collaboration, collaborative processes, cooperation

JEL Classification: A10, L21, L29

1 Introduction

Small and Medium-sized Enterprises (SMEs) play a central role in the European economy, representing 99% of non-financial businesses and being responsible for two-thirds of total employment in the private sector. However, compared to large enterprises, SMEs show lower profitability, lower employee compensation and lower labor productivity (Audretsch et. al., 2009). The European Commission defines a SME as a private company with less than 250 employees, annual turnover inferior to €50 million and less than €43 million in annual balance sheet total. However, the definition may vary across different countries and change over time (EU, 2009). Being aware of the contribution of SMEs to the whole economy and as an important source of job creation and employment, it becomes imperative to improve their performance and competitiveness. SMEs have traditionally faced challenges related to resource restrictions and weak government support. When compared to large enterprises, they are relatively weak at various levels (i.e. organizational, managerial, technological, individual and environmental). Large enterprises have more resources and achieve greater economies of scale (Thong, 1999), (Kuan and Chau, 2001), (Zhu et. al., 2003). To overcome these difficulties SMEs have found flexible and innovative ways to survive by entering a number of collaborative approaches such as networking, alliances, cooperation's and other forms of collaboration. (Casals 2011, p.118).

Except some few studies indicating the will of SMEs to collaborate among themselves, most of the research focuses on large-enterprise & SME interactions, leaving the field SME to SME collaboration without a clear consensus and evidence (Varamaki, 1996), (Lorenzoni and Lipparini,1999). This study will contribute to the body of literature which tries to close the gap.

2 What is collaboration?

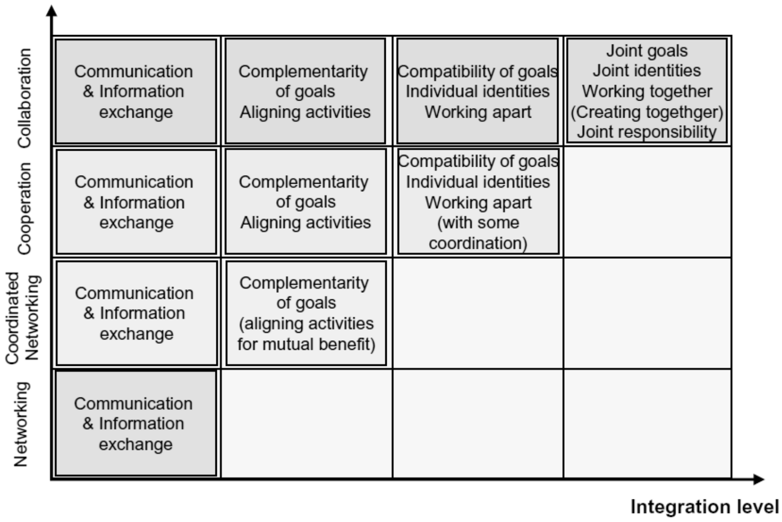
In the knowledge economy the focus has shifted from entirely owned value chains (encompassing product development, operations, logistics and delivery), towards knowledge and relationships. Therefore, network building has been recognized from various authors as a major source of competitive advantage and an essential regional, as well as a global management requirement. Collaboration implies a very positive form of working in association with organizations that retain autonomy, integrity and distinct identity, thus the potential to withdraw from the relationship (Huxham, 1996), (Thomson and Perry, 2006).

The term 'collaboration' is often mixed up with 'cooperation' and may mean different things to different people. According to Winer and Ray (1994) both concepts are connected, however the intensity in relationship building and performing of joint work differs between the two. In cooperation, groups of actors may come together in informal and short-term relations that exist without any clear defined structure, mission, or planning effort. Cooperating partner organizations only share information about the subject at hand, by retaining authority and keeping resources separate to minimize risk. Instead by collaborating, separate organizations participate into a new structure with full commitment to a common mission. In such a case relationships are more durable and pervasive, requiring well-defined communication channels and comprehensive planning. In a collaboration risk is much higher, since each partner contributes with its reputation, jointly pools resources and share results and rewards (Winer and Ray, 1994). Cooperative phases are very suitable for the work-sharing processing tasks while collaborative phases are essential when it comes to reassemble the developed partial solutions into an overall solution.

A collaborative-oriented enterprise is looking everywhere for ways to contact its stakeholders so that it can obtain information that is relevant for its competitiveness and responsiveness. Relevant stakeholders are employees, customers, suppliers and partners, investors, and last but not least the competitors. It becomes necessary to formulate a strategy towards collaboration that manifests itself in a collaboration culture and a technical collaboration infrastructure. The collaborative enterprise is characterized by the insight that cooperation, interaction and communication between all stakeholders of the enterprise will be one of the most important and profitable competitive factors of the future. Such an approach requires maintaining a collaborative openness even towards competitors. This may first seem absurd and self-contradictory from the perspective of a classically oriented management, however by collaborating and being opened towards its competitors an organization can gain access to information and experiences that would otherwise never be available. Depending on circumstances - changes in the competitive relationship could take place and other opportunities may be discovered that lead towards win-win situations for collaborating enterprises. Not recognizing these opportunities would lead to rigid competitive relationships. Collaboration could therefore be described as a process of sharing information, resources and responsibilities among entities for joint planning, implementation and evaluation of a program of activities to achieve a common goal. The term is derived from the Latin word “collaborare” that means “to work together” and can be seen as a process of enhancing the capabilities of a group of entities, through a process of shared creation. It does imply risk-sharing, responsibilities, resources and rewards and, it may offer to the outside observer the image of a joint identity. Collaboration implies for participants being mutually engaged in solving problems together, a process that requires mutual trust, effort, and dedication. This takes time and makes the individual contributions in the value creation process much more difficult to determine. An example of a collaboration could be a team of experts jointly developing a new product in concurrent engineering. In this case even though some coordination is needed, the joint creation facet of collaboration involves seeking divergent insights and spontaneity, and does not follow simply a structured harmony (Camarinha-Matos and Afsarmanesh, 2006).

To this point, a distinction should be made with the term “coordination”, which means organizing the activities of two or more groups so that they work together efficiently and know what the others are doing (…). If you do something in coordination with someone else, you both organize your activities so that you work together efficiently...” (Sinclair et al. 1995, P. 362).

Figure 1: Interaction maturity levels



Source: Interaction maturity levels based on (Camarinha-Matos & Afsarmanesh, 2008).

3 Collaboration readiness in SMEs

Because actors are autonomous and the participation is voluntary, implementing collaboration is a complex undertaking (Huxham, 1996). Traditional ways of coordination such as hierarchies, standardization, and routines are less feasible across units than within units. Furthermore, communication among partners is based increasingly on interdependent relationships than on contractual agreements (Huxham and Vangen, 2005), thus the potential to withdraw from the relationship may be particularly high if collaborating partners are unable to achieve short-term success as a result of collaborative inertia (Huxham, 1996), (Thomson and Perry, 2006).

When embarking in a collaborative network, SME managers should consider that effective collaboration involves the readiness to lose some control and implies considerable preparation costs and time. In addition to the operational overheads and risks, which represent barriers to the rapid formation of dynamic coalitions in response to business opportunities, it is also necessary that potential partners are ready in advance and prepared to participate in such collaboration. This readiness includes among others, compliance with common operating rules, a common interoperable infrastructure, common collaboration agreement, common operating principles, and cooperation agreements. Migrating towards a collaborative environment, requires a new infrastructure and orientation based-on a collaborative culture which emphasizes openness, knowledge sharing and innovation, self-learning, commitment, continuous training, leadership, trust-building, long-term & global vision as well as effective communication (Romero et al, 2007), (Camarinha-Matos and Afsarmanesh, 2006). In this context, collaboration readiness can be defined as a state or quality of being ready by grasping: preparedness, promptness, aptitude and willingness, reflected in the provision of staff, budget, technology, training and other resources to support collaboration, based-on the effectiveness and quality of past and current collaborative activities (Romero et al, 2007).

4 The process view of collaboration

Thomson (2001) systematically reviewed and analyzed earlier multidisciplinary research on the variety of definitions of collaboration, distilling the essence of collaboration into five key dimensions. Two of which are structural dimensions: such as governing and administering, two are social capital dimensions like mutuality and norms and there is also an agency dimension like organizational autonomy. These dimensions are interdependent and the movement from one dimension towards another does not necessarily occur sequentially, but is rather influenced by variation in the other dimensions. Moving along these five dimensions depends on a wide variety of factors, including internal relationships and external factors such as: antecedent conditions, uncertainty, ambiguity, shifting membership, and multiple accountabilities. Reaching the higher level in each dimension proves to be difficult and should be viewed as a trade-off process of mutual accommodations.

Ring and Van de Ven (1994) provided a framework for thinking of the collaboration as a process that occurs over time as organizations interact formally and informally, including repetitive sequences of negotiation, development of commitments, and execution of those commitments. They view collaboration as a cyclical process of renegotiation where actors engaged in collaboration negotiate expectations according to their inputs in the collaboration, and after that commit to an initial course of action. Actors will expand their mutual commitments when the input in the collaboration is reciprocal, otherwise they will reduce their commitments and renegotiate the terms of collaboration. Informal understandings and commitments need to be manifested in formal organizational roles and legal contracts. Formal contracts are seen as the main device for an actor to manage and control his engagement in collaboration with other actors, since it constitutes the basis for the collaboration and clarifies partner obligations (Ring and Van de Ven, 1994).

A process-oriented definition of collaboration should therefore consider the nonlinear and emergent nature of collaboration, suggesting that collaboration evolves over time as parties interact. The process-oriented perspective of collaboration is also supported by findings from game theory (Axelrod 1997; Ostrom 1998), (Thomson and Perry, 2006). Designing successful collaborative business processes (CBP) requires the partners to link their existing internal processes and resources to achieve the cross-organizational business process agreed upon. The management of collaborative business processes requires deploying and enacting sophisticated information systems that link the internal private processes of different organizations to create long running end-to-end processes. Companies have to be able to operate in cross-organizational business processes by at the same time selectively exposing or hiding information about their internal processes.

However, with the developing business relationship and trust building, the level of exposure varies and so do contracts with partners. Interoperable enterprises base their collaboration on well documented public CBPs which are, practical and reflect industry standards. A CBP covers all the activities involved in performing collaborative work or set of related work efforts, such as delivering a service, preparing a product, or performing a support function. Collaborative business processes cover therefore work processes, management processes and support processes (Esi, 2010).

Figure 2: Process examples of mechanisms for enhancing collaboration

Process examples of mechanisms for enhancing collaboration					
Dimension	Component	Short-term	Medium-term	Long-term	Assisting Means
Process	Main Processes & Supporting Processes	Model and Formalize Business Processes	Optimize and Automate Business Processes	Enable Web Services for Collaborative Business Processes	Business Process Modelling, Management and Execution

Source: Own adjustment based on Romero et. al., (2009)

5 Motivational and inhibiting factors in SME collaboration

Principal reasons for pursuing inter-organizational collaboration build up a long list of diverse motives that include: market seeking, acquiring means of distribution, gaining access to new technology, learning & internalization of tacit, collective and embedded skills, obtaining economies of scale and scope, achieving vertical integration, recreating and extending supply links, improving performance, cost sharing, pooling of resources, developing products, technologies, resources, risk reduction & diversification, developing technical standards, achieving competitive advantage, cooperation with potential rivals, complementarity of goods and services to markets, legitimation, bandwagon effect, following industry trends and overcoming legal and regulatory barriers (Todeva and Knok, 2005). Several authors argue that inter-organizational collaboration on a general level can enhance a firm’s strategic position on a competitive market when a firm gains access to other firms resources, by claiming that the most important resource that collaborating firms tap into is a partner’s knowledge and technology (Grant and Baden-Fuller, 2004). Motivations for entering collaborations might be asymmetrical, since one partner may enter collaboration with the goal to avoid investments, while the other partner may be driven by the ambition to learn new skills (Johansson, 2008).

Especially small to medium sized organizations (SMEs) are lauded to be more flexible and responsive compared to their larger counterparts, they also find it difficult to collaborate or network with partners, because the often lack the necessary skills and resources. Beside the positive aspects of entering inter-organizational collaborations, such an undertaking can also be risky and extremely complex and as such very likely to fail. Some studies report discouraging statistics of some collaborative endeavors, such as joint ventures and strategic alliances whose failure rate is often reported well in excess of 50 percent. According to Zineldin and Bredenlöw, (2003) the failure rate for strategic alliances can even reach close to 70 percent (Ring & Van de Ven, 1994), (Johansson, 2008). From a resource based perspective firms enter inter-organizational collaboration, because they may be dependent from a partner´s resources. In this case collaboration may be terminated after requiring the necessary resource. From a bargaining power perspective, if the bargaining power is not evenly distributed, it may lead the partner towards terminating the collaboration when their goals are fulfilled.

Yet, what accounts for the high failure rate of inter-organizational collaborations? The overwhelming majority of sociological and economic studies assert that the partner´s failure to cooperate leads to the ultimate demise of such ties, stemming from the misaligned incentives of self-interested agents. At best, conflicting interests can cause diminished commitment that gradually withers the relationship; at worst, it can lead to opportunism, or the pursuit of self-interest with no regard for unenforceable commitments or moral obligations. In collaborations it is very often likely that individual missions will outdo collaboration missions, unless the specific problem is sufficiently urgent to all partners (Thomson and Perry, 2006). Other barriers to collaboration may include the lack of common semantics/language and documentation standards among collaborating partners that hinders effective information sharing, missing motivation because of unclear formulation and statement of benefits and rewards for collaborating partners as well as lack of trust and common standards that enable information access and transfer among SMEs (Cormican, 2008).

From an agency theory perspective, the managers are likely to pursuit their own interest rather than that of their firms. With regard to this fact, Geringer and Woodcock (1995) argue that managers are often motivated to integrate the alliance into the sphere of their own firm, so that they can control their own compensation or employment risk, thereby increasing the probability of premature alliance termination. Multiple perspectives, including transaction-cost economics, game theory, the social-structural perspective, and trust-based perspectives have been employed to explain when, why, and to what effect cooperation problems emerge in alliances (Ring & Van de Ven, 1994), (Johansson, 2008). Alternatively, SMEs may enter collaborations to achieve economies of scale, to gain access to the benefits of other firms' assets (such as production capacity, products, technology, market access, capital, or workforce), to reduce risk by sharing the necessary capital for new product development, to reach new markets and to enjoy first mover advantage (speed to market), achieve transformative synergies via process rationalization, achieve systems improvement and other learning benefits. Inter-organizational collaboration can be also used as a tool to against common rivals or reduce competition by binding competitors into an alliance. It is therefore clear that firms enter alliances to gain a better competitive position than their rivals, however unrealistic and goal disparities may often lead to alliance terminations. Inherent instability is often cited as a factor contributing to alliance failures, since alliances have the tendency to evolve into more stable organizational forms. Failure is also likely to occur when partners do not balance a system of multiple tensions such as competition versus collaboration, rigidity versus flexibility, and long term versus short term orientation (Das and Teng, 2000, p.83), (Johansson, 2008). An overview of common motives to collaborate and inhibiting factors deducted from previous relevant research, is provided as illustrated in Table 1.

Table 1: Literature review on motivational factors for SME collaboration

Motives to SME collaboration	Author
Gaining access to new technology	Bergquist, et.al, 1995; Grant and Baden-Fuller, 2004; Greenhalgh, 2001; Hagedoorn, 2002; Taylor, 2005.
Building knowledge, and learning	Greenhalgh, 2001; Nag, Corley and Gioia, 2007; Taylor, 2005. Romero and Molina, 2011.
Economies of scope	Bergquist, et al, 1995; Greenhalgh 2001; Håkansson and Sharma, 1996; Porter and Fuller, 1986.
Economies of scale	Best 2001; Greenhalgh, 2001; Porter and Fuller, 1986.
Cost savings	Håkansson and Snehota, 1995; Håkansson and Sharma, 1996; Taylor, 2005. Teirlinck and Spithoven, 2013; Silva et. al. 2014.
Achieve flexibility, efficiencies and rewards	Bergquist, et al, 1995; Greenhalgh, 2001; Campbell and Wilson, 1996; Hagedoorn, 2002; Romero and Molina, 2011; Silva et. al. 2014; Talebi, et. al., 2015.
Reducing risk by cooperation with potential rivals	Porter and Fuller, 1986.
Inventory savings	Best, 2001; Campbell and Wilson, 1996.
Quality improvement	Johansson, 2006; Romero and Molina, 2011.
Accessing core competence	Bergquist et al., 1995; Grant and Baden-Fuller, 2004; Håkansson and Sharma, 1996.
Reduce costs of transaction and (or) coordinating	Campbell and Wilson, 1996.

Risk reduction & diversification	Håkansson and Sharma, 1996; Porter and Fuller, 1986; Teirlinck and Spithoven, 2013; Talebi, et. al., 2015.
Share R&D costs and risk	Porter and Fuller, 1986; Romero and Molina, 2011.
Other factors: (1) Legitimation, bandwagon effect, following industry trends (2) Seeking new market/customers, (3) Accessing expertise, (4) Sharing and access to resources	(1) Burton-Jones, 1999; (2) Taylor, 2005; Romero and Molina, 2011; (3) Bergquist et al., 1995; Romero and Molina, 2011; (4) Chesbrough and Teece, 2002; Romero and Molina, 2011.
Barriers to SME collaboration	**Author**
External/Internal barriers to collaborate Partners search and selection; Scarcity of resources; No planning or strategy; Lack of skilled personnel; Investment required; Lack of mechanisms to evaluate the process; Huge competence of big corporations; Trust; Individual behaviour and fear.	Haagedorn and J.Schakenraad, 1994; Thomson, 2001; Hoffmann and Schlosser, 2001; Jung and Andrew, 2014. Narula, 2004; Teirlinck and Spithoven, 2013; Marti, 2009; Zeng et al., 2010; Narula, 2004; Mancinelli and Mazzanti, 2009; Aragon- Sanchez and Sánchez-Marín, 2005; Mancinelli and Mazzanti, 2009; Marti, 2009

Source: Own adjustment

6 Collaborative processes for value co-creation through e-collaboration

Beyond the traditional ways of achieving cost, quality and response-time advantages, competing successfully in the future requires building new capabilities, such as creating value through experience together with customers instead of the traditional product-centric approach (Prahalad & Ramaswamy, 2004). In a rising experience economy value, innovation, commercialization of technologies, products and services will no longer be developed inside organizations, but through co-design and delivery of personalized product and services in a value co-creation process with business allies and customers

(Prahalad & Ramaswamy, 2000; 2003; 2004). Organizations are engaging in new highly collaborative and networked structures which combine the best skills or core competencies and resources of two or more organizations as well as customers knowledge of a product or a service in order to achieve competitive advantage and co-create compelling value proposition to meet consumer expectations. In this sense, Collaborative Networks (CN) and Customer Communities (CC) represent a promising paradigm for emphasizing core competencies, innovation and personalization. This allows the consumer to create unique configurations, products or services according to his/her preferences by co-creating value in a collaborative way (Romero & Molina, 2009). Collaborative Networked Organizations (CNOs) show a high potential as drivers of value co-creation, allowing organizations to access new knowledge, join complementary skills and capacities and share risk and resources. Encouraged by a worldwide increase in market dynamics, e-consumers that are growing in number, new information systems and incredible e-commerce opportunities, a wide-range of business co-creation strategies are emerging, such as context-aware, on-demand and user-centric strategies. Collaborative ICT-infrastructures support participation in experience-centric networks and enable value co-creation and interaction between customers, communities and networked organizations, by contributing this way to a shift of competition from products and services towards experiences (Romero & Molina, 2009). The trend of customer involvement will mature in the following years, changing the role of the customer from a pure consumer of products and services to a partner in the value creation process. In doing so, business processes and organizational structures will turn towards open and collaborative models, supported by e-Collaboration which will contribute to the improvement of the value co-creation process among SMEs. As already known, SMEs possess limited resources. This is perceived as a barrier to their competitiveness, but on the other hand they do also possess counter-balancing advantages. They are usually more entrepreneurial and willing to experiment with innovative business models and operations than do larger organizations with well-established hierarchies. Government intervention aiming at increasing the “e-readiness” of SMEs can help to improve national competitiveness in this crucial sector and also contribute positively to enable e-Collaboration.

E-Collaboration in itself is defined as partnerships or teams using ICT to achieve a common goal (Kock & D’Arcy, 2002). Despite the increased awareness of benefits from e-Collaboration, a high level of trust is required for it to be successful, since resistance to change is inevitable (Schuster, 2002). Developing trust in this context relies on the perceived interpersonal and technological interaction qualities and requires being satisfied with the collaboration process (Hol & Lawson, 2004). Kock and D’Arcy (2002) assert that there are six factors that make up e-Collaboration, which are: the collaborative task, the e-Collaboration technology (deployed infrastructure), the participants, the mental schemas of the participants: such as knowledge and experience, understanding of industry and skill sets, researchers in deploying the infrastructure, the physical environment such as the geographical location and at the end the social environment, which is the perception of trust among the participants.

Conclusions

SMEs aiming at achieving sustainable competitive advantage in a knowledge and an emerging experience economy will depend on their knowledge and networking capability, capacity to interact with consumer through “experience gateways”, speed, innovation and focus on core competencies of business allies in meeting consumer specific requirements. They should be able to tap into new markets by creating unique experiences through open collaborative and streamlined business processes that can be automated by means of e-collaboration.

This paper provided insights on why collaborative processes often fail and when do they succeed by determining barriers and motivational drivers in each case. However, it should be pointed out that there in not one obvious answer to why even successful collaborations are sometimes terminated. This could possibly be because the partners have already accomplished what they had set out to do. In such a case, termination should be understood as a sign of success rather than of failure. The literature review acknowledges collaboration as an iterative process rather than a linear one and which is recurrent and evolving over time as partners interact.

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