

Changing Resource Conditions of SME in Alliances: Influences Around Increasing Similarity

This study analyses changing resource endowment in terms of increasing similarity of resources between allying SME. Our study explores growing similarity, which influences competitiveness of SME, in terms of competencies, size, values and norms, market power, and reputation of SME by collaboration. Results indicate that age, duration of the collaboration, and the intensity of meetings positively determine growing similarity. Moreover, joint learning is found to mediate the relationship between joint meetings and increasing similarity.

Keywords

SME, Alliances, Heterogeneity

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Introduction

Scholars have emphasized the benefits of inter-firm collaboration on the competitive advantage of firms (Ring & Van de Ven, 1994; Arino & Torre, 1998; Kale, Dyer, & Singh, 2002), though only few studies (Hite & Hesterly, 2001) analyzed collaboration of small and medium sized enterprises (SME) in greater detail. Nevertheless from a resource-based view, collaboration that expands the access to resources not owned by the individual firm, is a vehicle to improve the competitive position of resource-constrained SME (Dyer & Singh, 1998; Baum, 2000; Cooper, 2001). Positive effects especially root on of complementary, largely heterogeneous resources combined by firms (Harrigan, 1985; Teece, 1986; Lorange & Roos, 1992; Hagedoorn, 1993). However, the complementary resources that initially motivated a choice of partners possibly change in a way that increases similarity. Thus, this study combines the resource-based view of the firm and an evolutionary perspective in order to understand processes and results of increasing similarity between SME in alliances.

Increasing similarity associated with changes of complementarities (for example competencies, reputation, and market power) can either improve or impair competitiveness of collaborating SME. Competitiveness improves if increased similarity allows for enhanced inter-firm co-operation und coordination of resources. Increasing similarity impedes competitiveness when processes of adaptation and similarity deteriorate specificity of partners' core-competencies and thus uniqueness. Furthermore, under the condition of cognitive lock-in effects found in cohesive groups high similarity reduces creativity and rationality of partnering SME and thus damages competitiveness (Janis, 1982). These advantages and drawbacks call for an analysis of

forms and antecedents of increasing similarity, which has been neglected so far although scholars constantly expand knowledge about alliances and collaborations. Notably, the research is most relevant to SME. First, SME employ a smaller portfolio of specialized resources than large firms. Therefore, even minor changes of resources have major implications on the competitive advantage of SME. Second, SME employing less rigid structures than larger firms, more likely develop increasing similarity.

This study aims at reducing the research gap. It investigates in different forms and factors of increasing similarity between collaborating SME from a combination of rbv and an evolutionary perspective. In firms, similarity is a multidimensional concept that includes hardly visible elements. To investigate such a concept, our study employs a mixed methodology on qualitative and quantitative data. Results are based on 94 interviews with managers and owners of SME on different facets of increasing similarity. The qualitative data was interpreted, categorized, and then transferred into quantitative data, which was analyzed by regression analyses.

This paper is organized as follows. It first develops theory on collaboration and increasing similarity that guides the formulation of hypotheses. The next paragraph explains the research method. Data and results will follow in the subsequent paragraph. The last part discusses on implications and provides suggestions for further studies.

Theory

Understanding of Collaboration

In collaborations, firms form a voluntary agreement, which uses neither pure market nor hierarchical mechanisms of control is negotiated in a continuing process (Lawrence, Phillips, &

Hardy, 1999; Lawrence, 2002). From a resource-based view (rbv) of the firm, alliances offer additional tangible resources (Harrigan, 1988; Nohria & Garcia-Pont, 1991) and intangible resources (Powell, 1990; Khanna, Gulati, & Nohria, 1998; Lane & Lubatkin, 1998). In alliances, firms especially benefit from the transfer of resources that create value, are not available to purchase in factor markets, and require time to build up (Ahuja, 2000). Even a SME deficient on competitive resources, can improve competitiveness through pooling of resources. But for achieving value, scholars have stressed resource complementarities (Harrigan, 1985; Teece, 1986; Lorange et al., 1992; Hagedoorn, 1993; Shan, Walker, & Kogut, 1994; Gulati, 1995b; Lorenzoni & Lipparini, 1999). From a rbv perspective, complementary resources are those that combine effectively with existent resources; differently supplementary resources serve same functions that the firm already has (Wernerfelt, 1984). Therefore, companies search for new partners or select previous partners that are attractive in resource endowment that can also be intangible resources such as status.

Still, SME face a trade-off between resource needs, status gains and desire for autonomy as attractiveness of partners varies with the firms' stock of technical assets but also with competencies, reputation, size, and market position. However, resources and status of firms commute through collaboration. Evolutionary approaches assume that changes emerge step by step and can even occur unconscious through processes of adjustment and re-adjustment in alliances (Doz, 1996a; Doz & Hamel, 1998). As a danger to SME which require alliances for resource improvements, changes are even understood to count for the dissolution of collaborations and alliances (Seabright, Levinthal, & Michman, 1992). To maintain or improve resource-positions, SME need to understand changes in terms of increasing similarity.

Increasing Similarity in Collaboration

From an evolutionary perspective increasing inter-firm similarity emerges through processes of adoption among collaborators (Doz, 1996a; Doz et al., 1998). Burkhardt and Brass (1990) identified that adoption of new technologies proliferates in networks if individuals have similar patterns of interaction. Kogut (Kogut, 2000) found joint rules emerging through interaction in networks without authority relationships. Studies on the evolution of alliances also note that individuals improve understanding while producing joint norms, concepts, processes, and especially working routines as individuals and organizational structures of the involved firms are exposed to each other (Doz, 1996b; Khanna et al., 1998).

In collaboration, SME encounter similarity. First, less rigid structures facilitate change according to requirements of coordination with partners. Second, resource constraints of SME demand coordination and thus adaptations on collaborators. In particular young SME will experience increasing similarity during the collaborative process as entrepreneurial SME stepwise develop and manifest their organizational structures and networks (Hite et al., 2001). Thus, structures and processes, in transition, more easily change through external and collaborative influences (Söderling, 2001). Also, structures of firms become more resistant against change when maturing (Eisenhardt & Schoonhoven, 1990). We hypothesize age also to dampen processes of adaptation according to alliances partners.

H1: The older a SME, the lesser it experiences increasing similarity within its alliances.

The resource constrained SME (Keats & Bracker, 1988), benefit from inter-firm collaboration through the combination of competencies, technologies, reputation, and experts. Gains of co-specialization on competitive advantage drive forth intended and unintended

adjustments of existent competencies and structures. SME regarded to have less rigid structures than large, established firms (Jones, 1982; Sandberg & Hofer, 1987; Ensley, Pearson, & Amason, 2001) can implement change more rapidly (Jones, 1982). In open and flexible structures of SME (Miller & Toulouse, 1986), employees, especially project leaders and functional management, will find it more effortless to adapt technologies and operations according to collaborators. Furthermore, the family effect that describes high identification between members in small groups (Gibb & Scott, 1985). This also explains adoption in collaboration among small firms through a development of joint values, norms, working styles, and competencies that will induce increasing similarity. Thus, attitudes, values, competencies, operations, and structures more easily change within SME collaboration although specialization is a driver of small firms' competitiveness.

H2: The smaller the allying SME the greater it experiences increasing of similarity within the alliance.

Processes of adaptation require longer periods even if firms are flexible. Still, in long term and revolving inter-firm collaboration close interaction occurs in which the social processes and technical processes increase adaptation and similarity.

H3: With growing long-term character of the alliance, the greater a SME experiences increasing similarity within the alliance.

Despite the effects of flexibility, increasing similarity is increased by interaction and knowledge transfer between individuals and firms. Interaction between individuals, according to

Weick, 1977, 1979), produces ongoing direct, personal feed-back, referring, and adjustments. With respect to alliances, Doz, 1996a) assumes interaction to enable constant adjustments and re-adjustments. Furthermore, the chance of inter-firm learning is high in direct communication (Brown & Duguid, 1991; Nelson, 1991; Weick & Roberts, 1993; Inpken, 1996). The framework on knowledge transfer by Nonaka (Nonaka, 1991; Nonaka, Byosiere, Borucki, & Konno, 1994) in particular regarding to their idea of socialization, assumes an exchange of tacit knowledge in direct personal interaction. Thus, we assume a growing intensity of direct, personal communication that occurs in meetings in which more explicit and tacit knowledge is shared and discussed promotes adaptations; similarities emerge.

H4: An enlarged use of personal meetings will increase a SME's experience of increasing.

Even though the implementation of meetings effects similarity, its influence origins on learning procedures. The personal interaction in meetings increases the likelihood of learning procedures among partners. In addition to direct influences an interaction effect can exist since learning as a mediator stands in-between the relation of meetings and increasing similarity.

H5: Learning procedures will mediate the relationship between meetings and increasing similarity.

Methodology

This study collected primary data because SME have minor obligations to announce data of their financial performance. In addition to the lack of archival data, the complex and largely hidden character of increasing similarity between collaborating required in-depths analyses of SME. To achieve reliable results and cross-case validity, this study applied a mixed methodology

of qualitative and quantitative analyses in different steps. Initially, we selected 341 owner-run SME operating in different industries from internet recherche. Then, a letter to firms informed about our research and inquired personal interviews concerning inter-firm collaboration with the top-executives. All firms were called up within the following week. As a result we achieved 94 interviews, which lasted between 45 to 100 minutes. The analysis and quantification of the interviews consisted of six stages: first, interpretation of the interviews based on written transcripts and developing summaries for the characteristics and effects of the collaboration; second, developing summaries and categories for the different forms of increasing similarity; third, coding the summaries and categories; fourth, analyzing the pattern of relationships and categories of similarity; fifth, transforming the coded data into quantitative data; sixth, carrying out multivariate analyzes.

In the first step we developed images of each collaboration (Eisenhardt, 1989), describing how the collaboration was established, its duration, motives are followed, who is in charge of the collaboration, what functions and resources are involved, how the process can be characterized, what kind of similarities had existed in the beginning, and how similarities increased through the collaboration. In the second and third step we coded each summary in an iterative procedure that included moving from summaries, existent theory, and data (Glaser & Strauss, 1967). The fourth step directed at tracing patterns and consistencies (Strauss & Corbin, 1998) that required to develop, revise, and elaborate the initial categories and patterns, until the pattern emerged into adequate conceptual categories (Eisenhardt, 1989). In the fifth step we built scales of the categories, which were transformed into quantitative data. The scale ranged from 5 (very highly important) to 1 (not important at all). To achieve cross-case comparative analyses and relationships between items, we applied regression and mediator analyses in the sixth step.

Data and Results

According to the hypotheses this study investigated in different main effects (age, size, duration of the collaboration, meetings, and learning) on increasing similarity. Also two control effects were estimated: 1. Importance of innovation; 2. Prior experiences with collaboration of firms. We controlled for innovation because SME lack resources for innovation and thus pursue collaboration for innovation (Bommer & Jalajas, 2002). Moreover, innovation requires external sources to gain ideas, insights, expertise, and competencies (Brockhoff, Gupta, & Rotering, 1991; Sakakibara, 1997; Rosenkopf & Almeida, 2003). Furthermore, opportunities for innovation originate in firms and additionally in collaborations, which benefit from knowledge absorption or joint learning among firms. At last, innovations are especially promoted by complementary resources (Teece, 1984). Experience of collaboration was controlled because it shapes an influential factor on the management of inter-firm arrangements according to theories of social capital and relational capital that can be seen as an intangible resource (Bourdieu, 1986; Uzzi & Gillespie, 1999), network ties (Gulati, 1995a; Gulati & Higgings, 2003 ;Dyer et al., 1998). Firms that gain experiences with numerous partner firms in collaborations achieve weak ties, which deliver privileged access to information and to opportunities (Granovetter, 1973). The experience a firm accomplishes in inter-firm collaboration and the corresponding stock of knowledge gathered influences the choice of partners and the dedication of resources to the collaboration (Gulati, 1995b). In SME, the experiences accumulated by the top-executive respectively owner highly influence their decisions on the formation, partners, and structure of collaboration (Tyler & Steensma, 1998). Therefore, we here use prior experiences with alliances as a control variable for following regression analyses.

For the dependent variables we used five categories of similarity that were gathered from the interviews: (1) core competencies, (2) firm size, (3) reputation, (4) market power as well as (5) values and norms. With respect to learning as independent variable in our study, interviewees stated three forms of learning: (1) unconscious learning, (2) learning from each other, and (3) joint-learning. In unconscious learning, partners do not perceive learning when it proceeds still afterwards realize increased knowledge and specifically improved collaboration processes and understanding. The underlying learning procedures remain hidden. Firms also mentioned learning from each other, when unintended or intended knowledge spill-over occurs, which can be traced back to specific competencies, resources, or individual contributions of partners. Joint learning defines the production of new and shared knowledge that emerges through processes of interaction where collaborators cannot detect contributions of competencies or individual of the firms.

To give a first impression of the data, table one states the variables, their abbreviations, means, and standard deviation. The age of firms is on averages about 16 years. The number of employees is 87. Additionally, the mean importance of innovations for the collaboration is between high and very high, which is consistent to previous studies indicating that SME contribute to innovations (Bommer et al., 2002; Pleitner, 1990; Hanna & Walsh, 2002). The firms on average had nearly thirteen previous or still operating collaborations. The importance of long-term relationships (more than four years in duration) is very small to small. This was somehow surprising given the high importance of innovation of collaboration while development of innovation is understood to require several month till years that also would call for long-term innovation collaborations.

Insert Table 1 about here

The data shows that meetings achieve a moderate to high importance. We further retrieve that the different facets of learning are unequal relevant for SME. SME evaluate important the learning from collaborators in the appearance of gathering critical technical knowledge, routines, or norms and values. Learning from partners is nearly as important as joint learning. Joint learning covers the development of novel and shared knowledge by the partners through the act of collaboration. Thus, all participants of the collaboration benefit from joint learning processes. Firms also state unconscious learning although it has lower importance compared to other forms of learning.

For later examination of mediators we require correlations, which are given in table two. We derive that most of the learning related variables are correlated, excluding joint learning and goal orientated learning. The variables of increasing similarity, too, reach higher correlation coefficients. Other values had none to low correlations. For subsequent regression analyses we are in need of separating those effects with high correlations to avoid the problems of multicollinearity.

Insert Table 2 about here

Table three reports four models (a-d) of regression analyses that contain control effects and main effects with regard to disperse forms of growing similarity. First of all, the model fit in all regressions is moderate to good. Within the control variables two significant effects can be found, both on the similarity of market power (see model d). The first control, importance of innovation, is highly and negatively related to increased similarity of market power. The second effect

estimated is experiences of collaborations, which is less significantly but positively relates to increasing similarity of market power.

Insert Table 3 about here

For the main effects we achieve four significant results on different classes of increasing similarity. The first main effect, age, is strongly and significantly negatively related to increasing similarity of market power (see model d). Thus, with growing age, collaborating firms tend to become less similar. Thereby H1 is supported although merely for similarity of market power. Consequently, mature firms do neither gain nor lose market power. Also, size in terms of the number of employees has a significant and positive effect on increasing similarity of market power (see model d). Thus, H2 is supported but only in terms of market power. With respect to hypothesis three we obtain that long-term collaboration corresponds to increasing similarity of core competencies (see model a). This result indicates only support for H3 in terms of core-competencies. Consequently, firms become more similar in their core-competencies, if the collaboration includes long term exchange of resources. Over longer periods firms transfer and adapt resources necessary for core-competencies that are of prime importance for the competitive advantage of firms.

Table four displays results of hypothesis four and also reports mediators. In four different sets of models we estimated (a) only the main effect and then stepwise entered different mediators in (b), (c), and (d). The first row indicates that meetings are positively related to increasing similarity of values and norms. So, the study finds partial support for H4 in terms of values and norms. The other rows are required for an analysis of mediators. We explored different forms of learning. As previously mentioned, we checked if these variables relate

positively to predictor (meetings) and criterion (similarity of values and norms) by analysis of correlations (for correlations refer to table two). To avoid the problems of multi-collinearity, the study only applied one of the mediators in question per regression analyses, which indicate good fit. Although the learning related variables were highly correlated with each other, the analysis of mediators provides diverging results. Only one variable out of three learning variables is significant; joint learning mediates the relationship between meetings and similarity of values and norms.

Insert Table 4 about here

Row eight shows the positive and significant influence of joint learning. Simultaneously, a significant relationship between meetings and increasing values and norms diminishes, when a mediator (joint learning) is inserted. Thus, hypothesis five is confirmed. Moreover, the control variable, experience of collaboration, became significant at $p \leq 0,1$. This indicates an interaction effect.

Discussion

Potential effects on competitiveness through increasing similarity within SME collaboration motivated this study. To retrieve antecedents of similarity, we explored age, size of firms, long-term character, and meetings on different classes of increasing similarity. In sum, support is found on different effects on distinct classes of increasing similarity, which are MARKET POWER, CORE COMPETENCIES, and VALUES AND NORMS. Interestingly, most of the significant antecedents relate to increasing similarity of market power. The effects are now discussed in greater detail.

For MARKET POWER the data suggests different antecedents. The amount of prior experiences with collaborations and the number of employees, which is understood to indicate size of firms, positively influence increasing similarity of MARKET POWER. We assume that collaborating firms barely operate on exactly the same number of employees. However, we did not control for the relative size in bilateral collaboration. Our results, then, could have different explanations. Under the condition of, in terms of employees, unequal firms we have to distinguish three alternatives: a) only the smaller firm improves market power, b) both firms asymmetrically gain market power, and c) the larger firm declines in market power. Then, (b) indicates that in collaborations SME experience growth through their relationships. Further, we assume that increasing similarity of MARKET POWER indicates a change of **status** of firms. The concept of status is based upon the work of Weber (Weber, 1980), who appreciated status a position in social classes. Class differences can affect competitive organizational behavior and outcomes, different to traditional performance considerations (Washington & Zajac, 2005). For scenario (a) and in particular (b), increasing similarity of MARKET POWER could indicate a success measure of collaboration, too. Status of firms concerns disparity of social rank between two firms (Washington et al., 2005).

Furthermore with respect to the controls the importance of innovations is in negative relationship with increasing similarity of MARKET POWER. Three scenarios have to be considered again; increasing similarity of MARKET POWER can imply a growth of one or both partners and also a decline of one partner. If increasing similarity denotes an increase of MARKET POWER of the smaller firm, the reason for less importance of innovation bases upon a stronger focus on production and marketing of goods and services than on R&D and on the explorative side of innovation. Therefore, if SME pursue innovation it appears as exploitation strategy. Exploitative

innovation aims at less novel outcomes than an exploration strategy, which includes most likely long-term search for radical innovation (Rothaermel & Deeds, 2004). This finding is consistent with our finding regarding the character of short-term collaborations. The short term collaboration indicates that firms engage in exploitation, which requires incremental developments and adaptive technology instead of long-term search on radical novel technical solutions or technologies.

Further findings relate to MARKET POWER. As hypothesized, age is negatively related to increasing similarity of MARKET POWER. When maturing, SME tend to adapt less to the production and selling capability of their collaborators. Still, the contrasting effects on age and size (with respect to the number of employees) are interesting because common understanding assumes age and size of firms interrelated: Under the condition of growth, when maturing, firms increase the number of employees. By referring to our correlation analysis we cannot identify a significant relationship between age and the number of employees: firms in our data do not necessarily grow in terms of employees when maturing.

Moving to the concept of similarity of CORE COMPETENCIES, we derive the duration of collaboration an antecedent on growing similarity. We conclude that through longevity of collaboration firms develop mutual trust. Mutual trust reduces the perceived danger of opportunism, in particular learning races, which are potentially associated with learning processes and co-adaptation of competencies and core-competencies between collaborating firms. Learning races have been amplified by the transaction cost economic orientated scholars in alliances research. Kale, Singh, & Perlmutter, 2000) stress a danger that a partner absorbs as much knowledge as possible and then leaves the alliance. Inter-firm collaboration that is sufficiently intensive and direct to achieve growing similarity enables learning respectively absorption of

critical resources by firms. Furthermore, ongoing adjustments and a strategic character of long-term collaborations promote unintended or intended changes of core-competencies.

Still, increasing similarity of CORE COMPETENCIES through increased homogeneity potentially develops threats in terms of cognitive lock-in effects, which decrease creativity of firms. Cognitive lock-in effects block the use of external information and uncommon ideas in homogenous teams or close working cohesive co-operating firms. Thus, partnering firms will strive to sustain dissimilarity, even with respect to values and norms that could improve the process of the collaboration in order to prevent lock-in effects.

Surprisingly, there was no effect between age and increasing similarity of CORE COMPETENCIES. We suggest mixed and contrary effects that compensate each other. On the one hand small SME will often only depend on a single core competence that they strive to sustain. So, SME tend to cutback increasing similarity in terms of CORE COMPETENCIES to prevent possible damages of the uniqueness of their core-competencies. On the other hand, firms benefit from improving combination of complementary (core)competencies in each firm if the specific bundle of competencies of the firms establishes a shared inter-firm core competency. However, the process of combining core competencies that always requires learning, might lead to adaptations of core competencies by partners. These learning cycles between partners most likely improve the coordination of single contributions to the collaboration. Thereby learning, acquainted with increasing similarity, expands value of the bundle of core-competencies, achieved by the collaboration. Furthermore, core-competencies of partners provide opportunities of learning that possibly improve other firms' competencies. Then, partners who employ learning processes achieve benefits. However, increasing similarity associated with asymmetric learning

offers drawbacks to at least one firm when experiencing deterioration of its advantages although other firms gain.

Moving a more activity based concept, MEETINGS is found having a significant and positive effect on increasing similarity in terms of values and norms. As such, in collaborations, MEETINGS determines a development of similarity of **resource** endowment. Additionally, data indicates that joint learning mediates the relationship between MEETINGS and increasing similarity of VALUES AND NORMS. Thus, we deduce that the generation of shared new values, which penetrates firms, is a necessary condition for achieving increasing similarity of VALUES AND NORMS through meetings.

Out of our results we assume two classes of change of similarity. First we find change of MARKET POWER that is more directly related to status. Second there is change of resource endowment that includes increasing similarity in terms of CORE COMPETENCIES and VALUES AND NORMS. The latter is influenced by longevity of the relationship and the use of meetings.

Surprisingly, we did not find increasing similarity with regard to technological assets or tangible resources. Within the resource-based view of strategy it is assumed that causal ambiguities, for example social complexity, reduces imitation and underlies sustained competitive advantage (Barney, 1991). On the opposite, less ambiguous resources, are more open to imitation (Reed & DeFillippi, 1990; Simonin, 1999; Wilcox King & Zeithaml, 2001). In analogy, firms might imitate technological assets or tangible resources easily. Thus, technological assets or tangible resource are strong drivers of increasing similarity in collaborations. However, our results do not support this. We conclude that complex knowledge behind technology and intellectual property rights will restrain through limited comprehension the development of increasing similarity.

When reflecting on the entire analyses, we have to admit that many hypotheses were only partially supported and on some categories of increasing similarity we even did not find any significant effects. In particular, effects neither occur on increasing similarity of reputation nor size. Nevertheless, growing similarity offers benefits. Benefits differ according to the resources that become more similar; growing similarity in terms of SIZE, MARKET POWER, and REPUTATION in the market is a by-product collaboration between a larger and a smaller firm that indicates good cooperation. Our results on increasing similarity are consistent with the finding of Lorange who identifies that compatibility assists partner firms collaborate more effectively (Lorange et al., 1992).

Still lingering is the question if growing similarity is beneficial even though firms experience increasing similarity. According to our results we have to differentiate between different forms of similarity. Obviously, firms do well when promoting similarity of market power that relates to growth in sales and status. Also, SME driving forth an emergence of joint values of norms developing through increasing similarity will achieve reduced cost of inter-firm coordination. Still, the benefit of increasing similarity related to core-competencies is not clear. Risks of cognitive lock-ins and opportunism (e.g. learning races) oppose improved fit of resources that can root on reduced dissimilarity.

Limitations and Further Research

As all studies, this work contains some restrictions. The first limitation is the neglect of measuring different types of resource heterogeneity in terms of technological aspects and patents. But within the interviews it became apparent that the chief executives had diverging understanding of resource heterogeneity and did not find themselves in the situation to state similarity and change of similarity in disaggregated technology categories. A more precise proxy of capability heterogeneity such as the sum of each SME's technological portfolio could be applied although this estimation faces difficulties for SME that do announce none to few data. Second, we are also aware of our cross-industry study that does not explain specific effects in single industries. Third, the influences explored in this study could be wrong antecedents of increasing similarity. A further limitation addresses the neglect of controlling the relative size of SME in bilateral collaboration. The final limitation refers to the use of cross-case analyses instead of a longitudinal study. Still, means in the exploratory analysis (Table 1) indicate that increasing similarity occurs though at a lower extent showing a difference between the perceived similarity and the change of similarity.

Our findings suggest several avenues for further research. The finding of diverse impacts of antecedents of increasing similarity could be validated through further longitudinal empirical test. Longitudinal studies could also explore the relationships between initial similarity and growing similarity. Further research might also employ more precise distinctions between different types of collaboration by counting factors such as the percentage of shared equity that might influence power between partners. Moreover, factors such as leadership style of SME and leadership style of individuals in charge of collaboration should be explored. At last, we suggest that further studies explore financial performance or gains of competitiveness through increasing similarity.

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Tables

Table 1
Variables and Descriptive Statistics (N=94)

Variables	Abbreviation	Mean	S. D.
1 Degree of importance of innovation	IMPINN	4.28	0.886
2 Degree of experiences with collaborations	EXPCO	12.80	9.870
3 Age of the SME	AGE	16.84	14.172
4 Number of employees	NEMP	86.51	127.505
5 Degree of long-term collaboration	LONCO	1.62	5.195
6 Degree of intensity of meetings	MEET	3.17	1.191
7 Degree of goal directed learning	GOLEA	2.78	1.250
8 Degree of unconscious learning	UCONLE	2.49	1.220
9 Degree of learning from partnering firms	LEAFRO	3.14	1.190
10 Degree of joint learning with partnering firms	JOLEA	2.99	1.240
11 Increasing similarity of core competencies	SIMCC	2.26	1.152
12 Increasing similarity of firm size	SIZE	1.31	0.755
13 Increasing similarity of reputation	SIMREP	2.65	1.118
14 Increasing similarity of values and norms	SIMVA	1.71	0.901
15 Increasing similarity of market power	SIMAR	2.02	1.097

Table 2
Correlation Coefficients of Variables^a

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 IMPINN	1													
2 EXPCO	-.098	1												
3 AGE	-.066	.070	1											
4 NEMP	-.029	-.082	.102	1										
5 LONCO	-.056	.094	.079	.006	1									
6 MEET	.090	.033	.104	.007	.276*	1								
7 GOLEA	-.095	.132	.115	.304*	.017	.287*	1							
8 UCONLE	-.255	.129	.127	.104	.124	.298*	.090	1						
9 LEAFRO	-.111	.143	.077	.182	.024	.303*	.365**	.615**	1					
10 JOLEA	-.248	.245	.194	.235	.069	.193	.403**	.700**	.812**	1				
11 SIMCC	-.138	.056	.095	.185	.356**	.169	.321*	.366*	.149	.177	1			
12 SIZE	.038	-.092	.054	.170	.230	.229	.144	.133	.079	.130	.398**	1		
13 SIMREP	-.196	-.001	.077	.150	.022	.098	.346*	.101	.039	.116	.369**	.025	1	
14 SIMVA	-.061	.165	.092	-.004	.175	.350*	-.045	.296	.462**	.477**	.164	.340*	.048	1
15 SIMAR	-.249	-.072	-.072	.331*	-.049	.093	.127	.388*	.120	.131	.374**	.166	.462**	.243

^a correlation coefficient significant at: * $p \leq 0,05$; ** $p \leq 0,01$; *** $p \leq 0,005$

Table 3
Results of OLS Regression Analysis^a

	(a) SIMCC		(b) SIMSIZE		(c) SIMREP		(d) SIMMARK	
	Beta(B)	<i>t</i>	Beta(B)	<i>t</i>	Beta(B)	<i>t</i>	Beta(B)	<i>t</i>
(Constant)	(3.104)	2.442	(0.413)	.669	(4.419)	3.641	(4.395)	4.065
Control Effects								
IMPINN	-.163	-.882	.071	.389	-.257	-1.358	-.427*	-2.655
EXPCO	.109	.263	-.146	-.357	-.133	-.314	.708 ^t	1.974
Main Effects								
AGE	-.242	-.573	.238	.568	-.159	-.370	-.850*	-2.317
NEMP	.284	1.505	.303	1.617	.075	.387	.397*	2.421
LONCO	.419*	2.068	.181	.897	-.161	-.775	.095	-.539
MEET	-.105	-.531	.266	1.353	.026	.128	-.044	-.254
R²	.242		.218		.171		.400	
Adjust R²	.163		.030		-.028		.256	
F	1.094		1.162		.859		2.780	

^a coefficient significant at ^t $p \leq 0,1$; * $p \leq 0,05$; ** $p \leq 0,01$; *** $p \leq 0,005$

Table 4
Results of Analysis of Mediators with Regression Analysis^a

	(a) SIMVA		(b) SIMVA		(c) SIMVA		(d) SIMVA	
	Beta(B)	<i>t</i>	Beta(B)	<i>t</i>	Beta(B)	<i>t</i>	Beta(B)	<i>t</i>
(Constant)	(.519)	.524	(-.109)	-.095	(-.082)	-.077	(-.587)	-.574
Control Effects								
IMPINN	-.085	-.495	-.008	-.041	-.019	-.108	.077	.446
EXPCO	.780 ^t	2.024	.503	1.101	.623	1.576	.655 ^t	1.824
Main Effects								
AGE	-.387	-.984	-.096	-.199	-.307	-.785	-.389	-1.076
NEMP	.145	.829	.173	.927	.025	.132	-.087	-.474
LONCO	.076	.407	.085	.434	.085	.464	.066	.387
MEET	.423*	2.311	.388 ^t	1.954	.288	1.407	.266	1.488
Mediators								
UCONLEA	Not included		.202	.982			Not included	
LEAFRO	Not included		Not included		.287	1.373	Not included	
JOINLEA	Not included		Not included		Not included		.478*	2.512
R²	.350		.402		.400		.500	
Adjust R²	.188		.202		.217		.341	
F	2.158		2.015		2.187		3.142	

^acoefficient significant at ^t $p \leq 0,1$; * $p \leq 0,05$; ** $p \leq 0,01$; *** $p \leq 0,005$