Coordinating Inter-organizational Learning Throughout Alliance Evolution

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Abstract Based on three case studies we investigate the issue of inter-organizational learning coordination throughout the evolution of the strategic alliance. We imply that alliances should be designed to learn, and alliance partners' choices about mechanisms of coordination should be made depending on the stage of alliance evolution. We operationalize alliance evolution through two dimensions:—alliance age and alliance maturity. Alliance age is simply the time from birth of the alliance; alliance maturity is the degree of past involvement and experience of the two alliance partners. The study suggests that alliance age is positively associated with the application of formal mechanisms of coordination, while alliance maturity is positively associated with the application of informal mechanisms of coordination. Application of both formal and informal mechanisms of coordination is important for learning and knowledge transfer in strategic alliances; thus, their importance is moderated by alliance maturity. Alliance maturity, unlike alliance age, can decrease. Our results contribute to the knowledge on strategic alliance dynamics, and to the organizational design theory.

Keywords Alliance evolution • Alliance maturity • Coordination mechanisms • Interorganizational learning

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1 Introduction

Organizational learning and transfer of knowledge are among the main reasons why companies enter strategic alliances (Inkpen and Ramaswamy 2006; Child 2001; Lyles 2001). As structured systems of established relationships, alliances develop gradually over time. Learning as an inter-organizational process between allies depends on time as well: time is essential for bringing people together, for developing mutual trust, shared cultural values, and joint ideas. However, the interplay between these two evolutionary processes, learning and aging, is not extensively researched. Existing literature recognizes that alliances are a fertile ground for organizational learning and knowledge transfer, and several explanations of the relationship between alliance evolution and learning have been offered. One stream of the research says that organizational learning in strategic alliances will come as a result of alliance evolution, and partners that work together will eventually come to new knowledge and learn from each other, even in cases when alliances are not created with learning intentions (Muthusamy and White 2005; Grant and Baden-Fuller 2004; Inkpen 1998a, b; Mowery et al. 1996). The underlying logic is that the relationship between knowledge and age is positively related; the older a partnership is, the more knowledge will be transferred between the alliance partners, the more a firm will know, and more it will be able to learn (Faulkner 1995). Others state that a direct connection between learning and a life cycle of a partnership can be studied only in those partnerships in which there is a genuine devotion of both partners to mutual learning and cooperation. If a partnership is seen as a short-term opportunity, the possibilities of such a result are quite limited (Child 2001; Khanna et al. 1994). Researchers have tried to explain various aspects of learning and knowledge transfer in strategic alliances [see Meier (2011) for the review of empirical studies]; yet few have discussed it in the context of organizational design properties and associated concepts. Existing research does not reveal if organizational design properties contribute to organizational and inter-organizational learning in strategic alliances.

In this paper we explain further the connection between the evolutionary processes in alliances, operationalized through two dimensions: age (longevity) and maturity, and the importance of active management of knowledge and learning through the application of adequate mechanisms of coordination. Alliance age is simply the time from birth of the alliance; alliance maturity is the degree of past involvement and experience of the two alliance partners. Our beginning assumption is that learning processes and knowledge transfer occur all the time through alliance evolution; it is an emergent organizational process. Learning and knowledge transfer may be intended, but they exist even when not intended. However, inter-organizational learning and knowledge transfer of that kind are difficult to identify and control: we do not know when they happen, how they happen, who is involved, and what the effects are, so it actually represents a passive approach to management of organizational learning and knowledge in alliance settings. Active approach to

management of knowledge and organizational learning in alliances suggests that they should be designed in a way to transfer knowledge and learn.

The contribution is to explain that differences in knowledge stocks and learning flows between alliance partners can arise as a result of the application of coordination mechanisms, depending on the stage of alliance age and maturity.

The paper is organized as follows. Firstly, we explain the conceptual framework for the paper and the case study method we apply. Second, we focus on the evaluation of important organizational properties with respect to their changes as organizations entered partnerships and analyze learning and knowledge outcomes of the partnerships. Finally, we discuss major finding and give implications for both theory and practice.

2 Research Design

2.1 Conceptual Framework

We investigate the influence of organizational design in the context of organizational and alliance ability to receive and accept knowledge, as well as to promote learning process, which is known as "absorptive capacity" (AC). The concept of absorptive capacity was recognized by Kedia and Bhagat (1988) in their explanation on cultural constraints on technology transfer across nations, but established and further developed by Cohen and Levinthal (1990). They define absorptive capacity as "a firm's general ability to value, assimilate, and commercialize new, external knowledge."

Throughout the 1990s the cognition about the influence of organizational characteristics on organizational ability to give and receive knowledge evolved further. Hamel (1991, p. 87) recognizes the importance of organizational ability to receive knowledge by defining receptivity as a determinant of learning. In his work, receptivity is a function of skills and absorptiveness of receptors and exposure of position and parallelism in facilities, while asymmetry in receptivity pre-ordains asymmetric learning. Szulanski (1996) notes that knowledge transfer is less difficult if a recipient is prepared to receive that knowledge. Lane and Lubatkin (1998) point to the importance of understanding absorptive capacity as relative phenomenon, and affirm the term "relative absorptive capacity." They relate the idea of absorptive capacity to receptivity and investigate how absorptive capacity of a firm depends on the relevance of the student firm's basic knowledge to the teacher's firm knowledge base, similarities in organizational structures of teaching and learning firms, and similarity of the student and teacher firms' compensation practices.

Subsequent work through 2000s increased knowledge in the anteceding role of organizational characteristics for learning and knowledge transfer. Child (2001, p. 659) states that companies must have "the experience or capacity to acquire and

absorb knowledge available from the alliance partner." Lyles (2001, p. 681) draws on the importance of ability to absorb knowledge by defining organizational learning as "embedded know-how resulting from absorptive capacity, receptivity of the firm to new knowledge, and the firm's ability to develop knowledge utilization skills." Jansen et al. (2005) argue that there is a lack of research regarding organizational antecedents of absorptive capacity. Units need to develop "combinative capabilities" (Kogut and Zander 1992) that enable them to synthesize and apply current and newly acquired external knowledge. Jansen et al. (2005) focus on the explication of: (1) coordination capabilities that enhance knowledge exchange across disciplinary and hierarchical boundaries, (2) system capabilities that program behaviors in advance of their execution and provide a memory for handling routine situations (formalization, routinization), and (3) socialization capabilities contribute to common codes of communication and dominant values (connectedness and socialization tactics). Inkpen and Ramaswamy (2006) have discussed the importance of strategic fit and organizational fit in the context of strategic alliances. Previously, Lorange and Roos (1991) recognized the importance of mutual adjustment of partnering organizations in the strategic and organizational sense by identifying three fundamental reasons why strategic alliances are so difficult to manage: according to them, (1) shared decision making, (2) separate corporate cultures, and (3) different (conflicting) strategic interests are the main reasons for difficulties in managing strategic alliances. Volberda et al. (2010) gave thorough analysis of the concept of absorptive capacity, concluding that research on absorptive capacity should examine the relationship between intra-organizational and inter-organizational antecedents (p. 947). They systematize intra-organizational antecedents of absorptive capacity as organizational form, incentive structure, informal networks and internal communication, and inter-organizational configuration as knowledge creation and sharing, alliance management system, dyad and network knowledge management, and transfer and relatedness of organizations. Lewin et al. (2011) made a significant contribution toward explicit operationalization of the absorptive capacity construct, proposing a routine-based model of absorptive capacity. They suggest decomposition of the AC construct into its internal and external components and identify underlying metaroutines.

Though results of these studies give us grounds for thinking about how learning should be coordinated in alliances, they do not reflect to the dynamic nature of this type of inter-organizational linking.

In this paper we explain further the connection between evolutionary processes in alliances and the importance of active management of knowledge and learning through the application of adequate mechanisms of coordination.[1] We argue that

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[1] From the beginning of 2000s management literature turns its focus from knowledge transfer to knowledge management. Understood as a conscious coordination and monitoring of knowledge processes (Inkpen 2000), knowledge management becomes an organization design issue to improve the efficiency and effectiveness of an organization and its people by sharing knowledge and information (Burton and Obel 2004, p. 10). Coordination is one of the most important organizational design properties (Burton et al. 2011).

designing alliances to learn is a complex managerial job which should be guided by the identification of stocks and flows involved in the process of knowledge transfer and interorganizational learning between alliance partners. This whole process is influenced by the phase in alliance evolution. This general goal can be further explained through the research questions: (1) is there interdependence between alliance evolution, coordination of knowledge transfer and learning processes happening between alliance partners, and the learning outcomes the alliance achieves? and (2) should management approaches toward learning and knowledge be different depending on the differences in alliance age vs. alliance maturity?

In their perspective paper on absorptive capacity, Volberda et al. (2010, p. 937) note that most empirical studies apply unidimensional operationalization of absorptive capacity, and fail to recognize "internal mechanisms that can influence firm's level of AC...." We propose a bidirectional approach to interorganizational learning and knowledge transfer and explain the intra- and inter-organizational antecedent of organizational absorptive capacity and their influence on organizational ability to receive and give knowledge and to learn. We consider the interplay between knowledge, as a stock category, and learning, as a flow category. We define knowledge as "information that corresponds to a particular context" (Burton et al. 2011), and learning as "a capacity of organization to gain insight from its own experience, the experience of others, and to modify the way it functions according to such insight, which leads to the development of knowledge base" (Shaw and Perkins 1991; Shrivastava 1981).

We use the term "coordination" to explain active learning management practices and active knowledge management, which need to be carried out as to enable knowledge transfer and learning processes in alliances. We differentiate between formal (institutional) and informal (behavioral) mechanisms of coordination (Fig. 1). Formal coordination includes the way decisions are made and the way they are shared in an alliance, and formalization of relationships between alliance partners. Informal coordination is based on the use of mechanisms of organizational culture and trust.

Alliances are dynamic systems that evolve gradually over time. Alliance dynamics is recognized as an important aspect of various processes happening in alliances (Khanna et al. 1994; Ring and Van de Ven 1994; Faulkner 1995; Doz 1996; Ariño and de la Torre 1998; Iyer 2002; Child 2001). We define alliance evolution as an independent variable, operationalized through the two variables—longevity (age), which is a managerial uncontrollable variable, and maturity, which is a managerial controllable variable.

Alliances of the same age can differ in the level of their maturity. Alliance maturity depends on the pre-existing experience in working together (Aleksić Mirić 2011). Child (2001, p. 669) discussed the importance of previous experience for organizational learning in strategic alliances. He argued that two aspects of experience facilitate learning in alliances: experience in working in alliance context and experience of having collaborated with the same partner. Both of these previous experiences are important and relevant for building organizational capacities to teach and learn. In addition to the two experiences recognized by Child, we add one
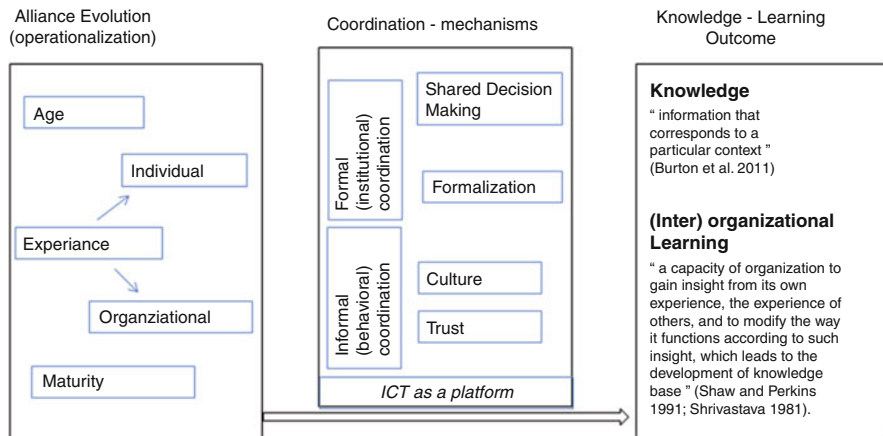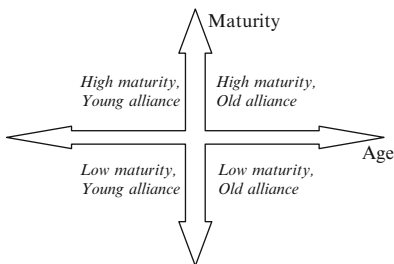
Fig. 1 The model. Source: authors

Fig. 2 Age-maturity relationship. Source: authors

more type of experience: pre-existing ties between employees. Organizations might have never cooperated before, but employees might have; they might have been colleagues or classmates, they might have cooperated on some other projects in other organizations. This kind of micro-level generated interorganizational ties can have strong influences on alliance evolution and performance.

We develop a two-dimensional model and four different kinds of age-maturity relationships: (1) young alliances with low maturity, (2) young alliances with high maturity, (3) old alliances with low maturity, and (4) old alliances with high maturity (Fig. 2).

2.2 Case Study Method

Empirical part of the research was carried out through multiple exploratory case study research and started in 2007. Multiple exploratory case studies are advised to

be used when one wants to examine the phenomena of interest in their real settings (Yin 1984). The purpose of the case study in this research is not only to describe the phenomena under research, but to explore and to explain them in a more detailed manner.

We built our arguments on case studies of three alliances created by three Serbian organizations with foreign partners from EU countries.[2] All partnerships are created in media (electronic and print) business. This allowed more precise control and clearly defined frames for generalization of conclusions (as suggested by Eisenhardt 1989, p. 537). Above all, it enabled control of factors that come from inter-industrial differences. The research applied the following techniques: interview, observation, analysis of historical data, and quantitative social network analysis. We applied these methods simultaneously in order to enable triangulation of the validity of our findings (Eisenhardt 1989). The interviews were conducted in semi-structuralized form.[3]

Alliances as a form of interfirm collaboration cover a wide range of interfirm linkings. In order to capture different forms of alliances, our three cases under investigation differ in ownership criteria, including 50–50 joint venture (Case 1), alliance with one partner's majority in ownership (Case 2), and non-ownership based partnership (Case 3). Argote and Miron-Spektor (2011) state "...because organizational learning occurs over time, studying organizational learning requires time series or longitudinal data." Now, in order to capture the influence of pre-existing experience on learning in alliances, we analyze cases with different longevity and different maturity.

The first partnership—Case 1—was created by the two renowned organizations, A_1 and B_1, both national leaders with respectable traditions in their businesses. However, during their long individual histories they had never cooperated before. At the time of the research, the partnership was almost 7 years old. Entering the Serbian market, B_1 created an alliance with a local publishing company, A_2 (Case 2). Like the partnership with A_1, the A_2 partnership with B_1 projected economic recovery and taking back seriously disturbed market positions. When this research was undertaken, the partnership was in its fourth year of existence. As in A_1's case, A_2 did not have any previous experience in cooperating with B_1, but its relative comparative advantage came from the fact that it had A_1's case to look upon to

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[2] Partnerships also in depth described in Aleksić Mirić (2011).

[3] Data collection included interviews with managers in key positions in both alliance partners, and the investigation of archival data. The first author conducted the interviews using a semi-structured format. In order to ensure validity of the content of the interview and to enable systematic data gathering during the interview procedure, we developed a questionnaire which in content met the research questions. All the interviews were conducted face-to-face. In total, 20 interviews were conducted. The interviews lasted from 45 to 210 min. Most of the interviews were conducted once, but in some cases it was necessary to go over the research questions once more. Archival data included various historical data about the companies that created the network—contracts, manuals, and bylaws, minutes from managerial meetings, press releases, and so forth. The method of observation was also applied where appropriate.

when deciding on whether to enter this venture or not. The Case 3 partnership was created by the two companies (A_3 and B_2) that did not match in ownership case (public–private partnerships) but did strategically recognize mutual interest in cooperation. At the time of the research, this partnership was the youngest—only one year old. Still, pre-existing experience in working together, driven both from individual and organizational levels, this partnership could be categorized as the one with highest maturity among the three investigated.

3 Alliance Evolution and the Learning Coordination: Experience from the Three Cases

We evaluated important organizational properties with respect to their changes as organizations entered partnerships. We analyzed the following properties: (1) formal (institutional) mechanisms of coordination: shared decision making and formalization, and (2) informal (behavioral) mechanisms of coordination: culture and trust. We also included the analysis of the role of information-communication systems, as they are platforms for both institutional and behavioral coordination. Then, as presented by the model (Figs. 1 and 2), we analyze learning and knowledge outcomes.

3.1 Coordination

Shared Decision Making: As cooperation between firms for the purpose of improving ability to achieve strategic goals (Child 2001), alliance creation brings challenges to the way in which decisions are made. Partners voluntarily agree to exchange, share, or co-develop products, technologies, or services (Inkpen and Ramaswamy 2006, p. 81; Inkpen and Tsang 2005, p. 148; Gulati 1998, p. 293) and to constantly contribute to the accomplishment of one or more strategic goals. One of the main characteristics of alliances is that partners share the benefits that come as a result of an alliance creation, as well as control over the responsibilities related to the functioning of an alliance. In order to achieve that, they need to balance centralization and decentralization of decision making. Shared decision making might be the most important characteristic of alliances and, at the same time, the most difficult task to realize.

Our three cases differ in the handling of shared decision making. In Case 1, the awareness of how and where in a value-chain the profit is made in the newspaper-publishing industry determined the model of cooperation. Respecting the logic that the individual price of a newspaper in the time of declining circulations cannot provide a positive financial result, it becomes evident that, following the economic logic, revenue was to be searched for elsewhere. A_1 and B_1 divided responsibilities

and authority over decision making in a way that created two basically independent parts within alliance. The B_1 CEO remained formally the leading authority; he had two main associates—his deputy (B_1's representative), in charge of logistics, advertising, marketing and printing, and the editor in chief (A_1's representative), in charge of the editorials. The part of the alliance controlled by B_1 underwent radical changes. The advertising unit was centralized, the organization was transformed significantly, and the learning within this unit became very intensive. As the B_1 head of advertisements explained,

> . . . when deciding on how to organize Advertisement Sector we have been searching for the most suitable model. All of us who were involved in this struggled to realize what is good in our existing practices and should not be changed, and what is that we should change instantly. A number of consultation meetings were held with an aim to find out what we should implement from B_1.

The printing plant also transformed where necessary—in the supply department, which was centralized in order to enable more economical supply of materials.

In contrast, the part controlled by the A_1 remained unchanged. The operationalization of this strategic plan over the shared decision making as explained was much harder: everyday practice within the Case 1 shows that there is considerable overlapping between the economic and non-economic issues to be decided upon, as well as that the economic and editorial interest are difficult to separate one from the other, and that it was not easy to decide with certainty which domain specific decisions belonged to.

In its other Serbian partnership, Case 2, B_1 started the establishment of a new company with a proposal of a new organizational scheme. The initial proposal of the organizational scheme was set as an ideal pattern to be followed, while in reality the organizational scheme changed slightly. The reasons for the discrepancy between the real and the ideal organizational schemes were primarily technical and technological in nature. The part that radically changed was the advertising unit. Previously, in A_2, advertising was perceived as a non-core business, a unit of lower importance than the editorials. Nevertheless, after partnership formation, the A_2 advertising unit experienced tremendous changes.

Although B_1 held the majority in ownership, a part of the editorial office remained intact, just as in Case 1. Just like Case 1, the reasons for forming the Case 2 partnership were dominantly economic (financial) in nature. However, unlike Case 1, the Case 2 partnership possessed a certain level of stability regarding its management structure, so that the group that participated in the negotiations in the process of the foundation of the partnership was very similar in its structure to the managerial structure at the time of the research. The only difference is in the position of the CEO deputy, who was initially a B_1 representative. As time passed and the partnership started functioning regularly, this principle was abandoned; the position of the CEO deputy was abolished and substituted for a staff position of the CEO's associate, taken over by a foreign partner's representative. This way, the associate became the only direct B_1 representative but without managerial duties and responsibilities, which is obviously an unfavorable situation in comparison to that in Case 1.

The Case 3 partnership constantly balanced centralization and decentralization over the shared decision making. The fact that the product of cooperation was a radio show broadcasted live implied the need for decentralized, on-the-spot decision making. However, the partnership creation was followed by strict rulers, and though operated in Serbia, by legal standards was under the British law, which meant centralization over decisions on higher managerial levels.

Formalization: In terms of formalization we can draw a distinction between formalization of the relationship through the official agreement between the partners, and formalization of behavior. Strategic alliances can be classified according to whether they are formed on contract or ownership basis, with or without forming a new entity. Ariño and Reuer (2004) point to the importance of the criterion of ownership and the distinction between ownership-based and non-ownership based partnerships, relying on the fact that distinguishing between contract-based and ownership-based strategic alliances makes no real sense, because every partnership implies forming some kind of contract. All of the analyzed partnerships in our investigated cases have been announced as official through the contract, while the Case 1 and Case 2 partnerships are ownership-involved as well.

The Case 1 and 2 partnerships did not experience significant changes in the level of formalization compared to the pre-alliance stage. The bureaucratic nature of their organizations is revealed in the partnerships they created. The Case 3 partnership did include changes in the level of formalization, moving A_3 toward more formalized behavior. For instance, the way of reporting in B_2 was a novelty for the A_3 reporters because the duration of a particular story being analyzed is rather long for the standards of a radio show. Such duration of a report contributes to the analysis of a piece of news from different angles. For A_3, the cooperation with B_2 involved other sources of useful input in the very domains that represent B_2's main strengths: the code of behavior, standardization and formalization, unbiased advertising, and training on legal matters. For an example, the code of behavior is reflected through the rule that each sound-assistant should get the schedule of each broadcast in advance. Unbiased reporting is reflected through the rule that in each piece of news, all the sides involved in the topics and the issue must be heard. Consequently, no news which could be characterized as biased can be broadcasted. Finally, legal training involves all the situations in which the company can be sued.

Culture: Organizational culture represents shared beliefs among employees. Organizational culture is a very important factor of organizational learning and knowledge transfer in alliances. Child (2001, p. 669) argues that internal differentiation within and external differentiation between organizations introduces barriers to organizational learning within alliances, identifying social identities, typically represented by different organizational and national cultures.

Case 1 and Case 2 report similar pattern in behavior: Serbian partners were positive about the improvement they could get in finance and technology through the partnerships they created, but strong organizational cultures of A_1 and A_2, corporate pride, and the sense of strong professional standards did not create positive attitudes toward the potential to learn from partner B_1. How important it

was for the employees and the public that A_1 did not lose its "national identity," that it was not sold but ventured into an arrangement to bring betterment for all stakeholders, can be seen from the fact that A_1's leading daily newspapers published an interview with one of the sprouts of the founder and the first CEO of the Case 1 partnership, which was titled—"*The A_1 is not sold*, and further—*don't be concerned*."

> We did not sell the A_1. We basically invested our editorials, our good-will and our offset printing-office in into joint venture with German media giant. In return, our partner invests financial resources and logistics. All the issues, and all the employees will be moved into the new company, which preserved the name – the A_1 (…) the X A_1 will not change editorial policy.

In the interview given by the German representative, he stated:

> With the German partner entering (into the Serbian market, AAM) the existing standards in media are going to change. In addition to new business philosophy, the German partner brings into the A_1 rich experience in the field of publishing, design and marketing.

Driven from the contract-based delegation of authorities and decision making, we can clearly see that cooperation is restricted to operative publishing, design of the products, and marketing, while other parts of organization are not included. This strategic management orientation was recognized by the employees as well. One of the employees said:

> …Germans do know it very well that the market is a source of survival. So why is that we apprehend potential threat to the Company's basic values – they do know which market our products are bound for…

These statements can also help us understand internal system of beliefs and values of the companies entering partnership. The Serbian partner perceived itself, and was perceived in public, as a media house which established professional standards. This considerably changed during 1990s, so the creation of this partnership was seen as a way to take back lost market positions. One of the employees (from the Serbian side) explains this as following:

> … somehow I do believe that we will succeed to implant the seed that we have been carefully growing for more than one century into our partner, who comes with new ideas and financial resources. And somehow I believe that they will nurture this seed successfully…

In Case 1 partners report similar cultural values—strong respect of own history and emphasized corporate pride. Both partners are characterized with strong culture. Thus, as operationalized, there were no true initiatives for building joint, shared culture. Actually, both partners demonstrated intention toward cultural dominance over the other. The Case 2 partnership is characterized with a weaker position of a Serbian partner and the dominance of the "German-teacher" (Table 1).

The Case 3 partnership was operationalized by people who used to be co-workers at some point in the past, who shared the same "rebellion spirit of the 1990s in Serbia" and who were positive toward experiments they jointly created. The fact of cooperation was seen as a "value-added" element of both cultures.

Table 1 The use of mechanisms of coordination and knowledge transfer

	Case 1	Case 2	Case 3
Type of the relationship	Teacher–learner	Teacher–learner	Learner–learner
The use of knowledge transfer mechanisms lower in information richness (as intranet, chat, fax, emails, newsgroups...)	Moderate, strictly centralized	Very low, strictly centralized	Moderate to high, decentralized
The use of knowledge transfer mechanisms higher in information richness (as seminars, workshops, meetings, media conferences)	Low	Very low	Moderate to high
Trust	Weak	Weak	Strong
Culture	Similar cultural values; strong culture within both partners	Dominance of a "teacher"; weak culture within "learner" partner	Similar cultural values; strong culture within both partners
Ties between the partners	Weak	Weak	Strong

Furthermore, partnerships report similarity in cultural values: strong respect of own history and emphasized corporate pride. Strong culture within both partners was not, however, an obstacle for the initiatives for building joint, shared culture, which was further supported with no intention toward cultural dominance (Table 1).

Trust: Extensive research has been carried out about the influence that trust can have on strategic alliances (Ariño and de la Torre 1998; Child and Faulkner 1998; Inkpen and Currall 1998; Inkpen and Ramaswamy 2006). Lorange and Roos (1991) recognize the importance of good climate (which trust can be considered a part of) within organizations toward strategic alliance as one of the things that might significantly influence the success of partnership. They say that "...during the more intense formation phases [management should ensure] that a broad range of people within the organization is committed to and enthusiastic about the venture." Some of the findings on the influence that trust has on organizational learning in an alliance context are quite contradictory. In their research on trust and organizational learning in inter-organizational joint ventures in Hungary, Lane and associates (2001) did not report statistically relevant dependence between trust and learning, but they did report statistically relevant dependence between trust and performance. Contrarily, Muthusamy and White (2005) reported that trust between partners has strong influence on the process of learning between the partners. The mutual devotion depends on the moral responsibility of the partner, and heavily reflects learning in strategic alliances.

The role of trust in managing Case 1 and Case 2 partnerships is low. There was no previous experience in business involving these two partners based on which trust could be built. The group that brought the contract was not the group that worked on its implementation. In contrast, the role of trust in managing the Case 3

partnership is extensive and essential. Mutual trust is a result of the previous cooperation and social network that exists among employees working in these two organizations (Table 1).

Information and Communication Systems: Information and communication systems represent a platform for coordination of joint activities between alliance partners. Information technology was not extensively used to support partnership implementation, so the role of IT as a mechanism of coordination and active knowledge management and learning was not significant. Partnerships mostly relied on the use of top-management meetings and exchange of official documents. Meetings between representatives of both partners are exclusively held on the top-management level, while visits of one partner's representatives to the locations of other partner, joint training sessions, employees' rotations, mixed teams, and coordination mechanisms are not used.

Communication technology (via telephone) played an important role in the Case 3 partnership. Although it would be expected that partners would rely more extensively on contemporary communication software based on the Internet, they did not; rather, they basically used telephone communication. This channel enabled virtual meetings before, during, and after the radio show they produced (Table 1).

3.2 Learning and Knowledge Outcomes

The goal of forming the Case 1 partnership was primarily economic in its nature. In the process of partnership creation, both sides used their organizational knowledge as a strong instrument for negotiation in order to estimate the relative values of their individual investments into the partnership. Both A_1 and B_1 showed the value of their organizational knowledge they were to invest in the partnership by means of turning their non-material investments into material ones worth 24 million euros. With regard to the investment structure, both partners recognized organizational knowledge as the most valuable investment. However, the contract between the partners did not define precisely what that investment involved, nor was there an action plan to specify what exactly knowledge transfer covered. Furthermore, organizational learning through the new business venture was not explicitly recognized as an incentive for the partnership creation, at least not in this stage of its development. The organizational learning in the partnership was mainly characterized by the exploitative learning within one circle. When new products were created, the process of learning was exploitative in nature and resulted from taking over the existing practice and the ways of doing business in other organizations within B_1's system. Up to a certain extent, individual learning occurred; however, there were no mechanisms that would enable the integration within the organization as a whole, which would enable transfer of individual, group, and organizational learning and knowledge. Apart from the hardware and the SAP software investments financed by the B_1, there was no significant exchange of technology, and the attempts of joint learning of management and marketing

skills were very few. There was no attempt at creating more opportunities for the partners to try joint accomplishment of these tasks. We could also argue that what happened in this partnership is a kind of a precise transfer of B_1's explicit knowledge, or, to interpret it in Nonaka's (1994) terms, knowledge combination. Products that were very successful in other markets were taken over, and their life cycle was extended through the implementation on the new market. When saying that precise knowledge transfer occurred we assume that authority, delegation, and strict division of responsibilities between the partners prevented free knowledge diffusion, which could have been good for explorative learning promotion.

The Case 2 analysis shows the following: both sides recognized organizational knowledge as an important element of investment when negotiating alliance creation; organizational learning and knowledge transfer were not explicitly recognized as the aims for forming the partnership; at the very beginning of the partnership, a new organizational scheme was established and connections between the partners defined; organizational learning in the partnership had characteristics of exploitative, single-loop learning. A low level of organizational adaptation to partnership settings was also followed by a relatively low level of learning, which showed the characteristics of exploitative, single-loop learning (Argyris and Schön 1985, 1996). Understandably, even such a limited form of learning was precious to the company, which was trying to regain its seriously shaken position in the market.

The Case 3 partnership was built on the need of both organizations to think of the new output that would bring improvement in market positions and listening rates to both of them. They created a show which represents a completely innovative product requiring a high level of explorative orientation and interaction between partners. The interactive concept of the show and the intensive contacts during its realization determined to a large extent the interaction between individual and organizational learning. This case also illustrates two ways of enabling the spread of learning and knowledge within an organization. One of the employees reflected:

The execution of this show initiated changes in existing operating procedures, and caused introductions of some new standards in the radio shows of A_3, so now technicians ask for show-outline plan in other informative shows as well.

Everyday virtual contacts, telephone communication, and interactive adjustments of partners during the show enabled continuous exchange of implicit knowledge. Although this partnership was the youngest measured in terms of time, it was also the most mature.

Knowledge transfer was the focus of the Case 1 and Case 2 partnerships. The Serbian partners were interested in gaining new knowledge, which was new to them, but basically relied on the direct knowledge transfer from B_1's existing knowledge portfolio. This kind of direct knowledge transfer was a good solution for all the sides involved. The parties involved in the Case 1 and Case 2 partnerships did not evaluate learning as an important alliance goal. On the other hand, the explorative concept that joined B_2 and A_3 called for an experimental learning, and no knowledge transfer, as the repetition of the known patterns in behavior could jeopardize the idea. They searched for innovation, radically different output, and inspiration that could be packed in an hour-long radio show.

The Case 3 partnership (A_3 and B_2), for several important reasons, represents a case different from the two we analyzed earlier. First, the partners achieved a high level of strategic fit, on the basis of strategic complementarily between partners and recognition of the shared goals as important ones. The basic aim of partnership creation was exploration: how to create new product (new radio-show) which will enrich the program and increase listening rates. Convergence of strategic goals alike was additionally supported with pre-existing experience and strong friendship and collaborative ties among the employees, which was, as we see it, the secret formula for success of this partnership. Second, the partnership between the B_2 and A_3 is the youngest in origin and only one year old at the time of the research. Third, the project that initiated the cooperation between A_3 and B_2 represents an innovative solution which was to bridge the problem both organizations faced: the decrease in listening rates. On the scale of organizational learning, creating a completely new show (i.e., new product) represents a very high level of innovation. The program in Case 3 brought benefits to both sides; A_3 was definitely motivated by its basic principles: explorative orientation and innovative program. For A_3 this cooperation created an opportunity to learn from B_2, which is characteristic for the affirmation of analytical way of reporting and a higher level of the reporters' independence. Namely, B_2's priority is not to provide brief information but rather precise and complete information. This principle gains in importance with knowledge that legally the business of this partnership was to undergo the British legal system. Through the joint production with A_3, B_2 gained in speed and working dynamics, atypical for their standard working conditions, which could be labeled as slow and bureaucratic. The link to B_2's website was incorporated into A_3's website, and B_2 also got an opportunity to increase the listening rates of its program through the innovative approach toward a radio show. B_2's previous experience with non-standard programs had not been successful. Unexpectedly B_2 gained new idea about how to improve the listening rates in some other countries. The concept of the alliance with A_3, the dynamics, and the success of Case 3 initiated B_2 to rethink the ways of doing business with partners, and to try to transfer knowledge from Case 3 to their other alliances in Ukraine, Russia, and Turkey.

3.3 Age, Maturity, and Alliance Evolution

In order to explain further the importance of alliance evolution through two parallel dimensions—longevity and maturity—we expand our research on the analysis of the application of mechanisms of coordination, as a way to enable active management of knowledge and learning. Comparative analysis is given in Fig. 3.
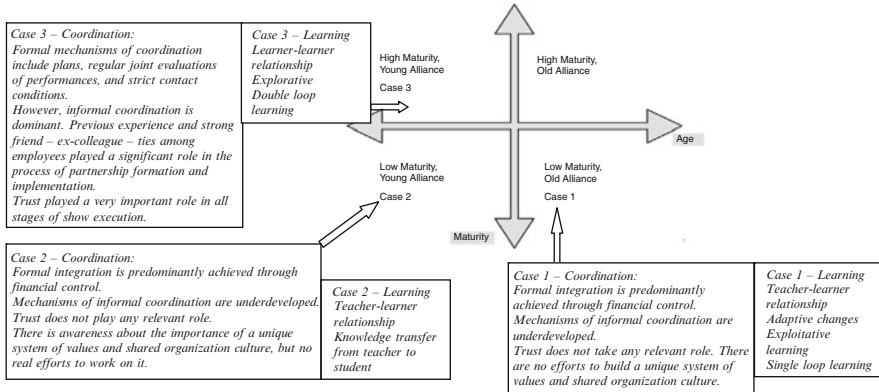
Fig. 3 Age-maturity-coordination: case studies' findings. Source: authors

4 Discussion and Implications

4.1 Discussion

Age–Knowledge–Learning: Age is positively connected to knowledge, but not necessarily to learning (Aleksić Mirić 2011). Older alliances are characterized with significant knowledge depositories, so older alliances are certainly richer in knowledge than younger ones. Organizational processes in older alliances support knowledge utilization and circles within the same knowledge framework, while explorative processes of knowledge generation are neglected and rejected by internal barriers (Child 2001), which are built in over the years.

Maturity – Knowledge – Learning: Maturity is positively connected to learning, but does not necessarily imply high knowledge stocks (Aleksić Mirić 2011). In young partnerships partners may not have enough knowledge about each other, and their knowledge bases are likely to be disconnected and separated, but what counts more in the context of inter-organizational maturity, as defined, is their commitment to acquire and use existing knowledge and to create new knowledge—that is, to learn. This learning might be less connected to time dimension per se, but rather to the dynamics of the development of social connections among individuals and groups, information channels, and shared experience.

Mature partnerships are characterized by a learner–learner relationship, while those low in maturity are characterized with teacher–learner relationship (as on Fig. 3).

- Teacher–learner relationships are followed by the use of "hard" (institutional, formal) methods of coordination intended to enable knowledge transfer from one partner to the other, and not suitable for inter-organizational learning purposes. This kind of relationship occurred in the two cases of ours: Case 1 and Case 2. Both cases report that formal integration is predominantly achieved

through financial control, while mechanisms of informal coordination are under-developed. Trust did not take any relevant role in functioning of the partnerships. There were practically no efforts to build a unique system of values and shared organizational culture.

- Learner–learner relationships are followed by the use of "soft" (behavioral, informal) methods of coordination, suitable for inter-organizational learning without being a barrier for direct knowledge transfer. On the contrary, soft methods of coordination enhance transfer of tacit knowledge. This kind of relationship occurred in our Case 3 partnership. Formal mechanisms of coordination included plans, regular joint evaluations of performances, and strict contact conditions. However, informal coordination was dominant. Previous experience and strong friend—ex-colleague—ties among employees played a significant role in the process of partnership formation and implementation. Trust played a very important role in all stages of show execution.

From the comparative analysis of the three cases we derive an explanation of how the alliance moves within the age-maturity space and how inter-organizational learning depends on the application of the mechanisms of coordination.

The path of organizational moving within the defined 2×2 space depends not only on the time passing per se, but on the application of the mechanisms of organizational integration and coordination. From the point of inter-organizational coordination, alliance age and alliance knowledge are static components of inter-organizational relationships, while alliance maturity and alliance learning are dynamic components.

|	
Finding 1: Age-Coordination	Alliance age is positively associated with the application of formal (institutional) mechanisms of coordination.
Finding 2: Maturity-Coordination	Alliance maturity is positively associated with the application of informal (behavioral) mechanisms of coordination.
Finding 3: Coordination-Learning	Application of both formal and informal mechanisms of coordination is important for learning and knowledge transfer in strategic alliances; thus, their importance is moderated by alliance maturity.
Finding 4: Maturity – Coordination-Learning	Alliance maturity, unlike alliance age, can decrease. Some alliances can start from the position of high maturity, but inadequate application of the mechanisms of coordination can negatively influence the alliance maturity, which will consequently decrease learning in alliance.
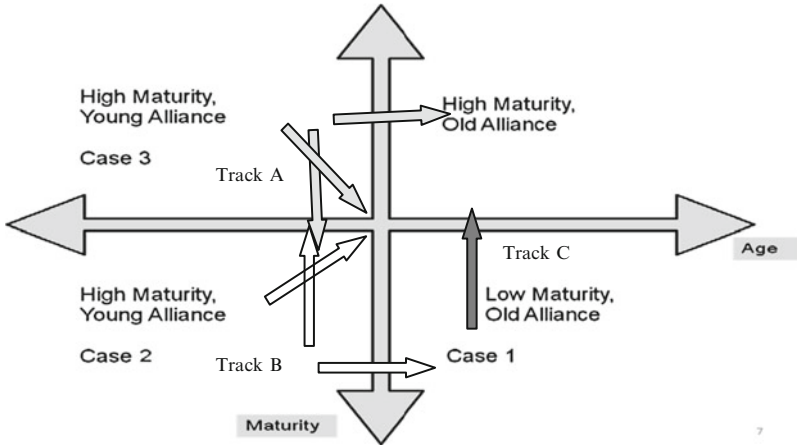
Fig. 4 Potential implications. Source: authors

4.2 Implications

Implications for Theory: Conceptualizing the difference between alliance longevity (age) and maturity, and the corresponding implications on the use of organizational design properties and the effects on interorganizational learning, contributes to the understanding of the dynamic nature of alliances and organizational and interorganizational processes related to it. We explain the connection between the evolutionary processes in alliances, and the importance of active management of knowledge and learning through the adequate approach to organizational and interorganizational design. With this framework we contribute both to the research in strategic alliances and to the theory of organizational design.

Implications for Practice: We identify two potential starting points: (1) young alliances with low maturity—start-up alliances without previous individual or organizational experience between alliance partners, and (2) young alliances with high maturity—young alliances with previous individual or organizational experience between alliance partners.

Option 1 (Fig. 4—track A)—young alliances with low maturity—if learning is a goal, start-up alliances without previous individual or organizational experience between alliance partners are advised to work on building mechanisms of informal coordination in order to increase their maturity. Focusing on mechanisms of formal coordination will bureaucratize their immature alliance and build learning barriers.

Option 2 (Fig. 4—track B)—young alliances with high maturity—if learning is a goal, young alliances with previous individual or organizational experience between alliance partners must focus on institutionalization of informal practices and controlled formalization. This formalization should be oriented toward increasing knowledge base. Maturity gets positively connected to knowledge if partners succeed in nurturing explorative orientation together with incorporating

mechanisms of formal coordination that will enable stability, formalization, alliance longevity, and progress over the time.

Old alliances are in a different situation: (3) old alliances with low maturity are characterized with unused knowledge depositories (Fig. 4—track C). These stocks should be moved through the application of behavioral mechanisms of coordination, while existing mechanisms of formal coordination should be evaluated from the point of their contributions to the creation of new knowledge through learning. Finally, (4) old alliances with high maturity are in a potential winning position.

5 Conclusion

This research had three important goals to further build theoretical understandings of organizational learning and knowledge transfer in strategic alliances. Firstly, our goal was to explicitly express the role of organizational design in alliance knowledge management. Secondly, our intention was to capture dynamics of all the constructs under investigation: organizational design, learning, and knowledge transfer and alliances. As structured systems of established relationships, alliances develop gradually over time. Learning as an inter-organizational process between alliance partners depends on time as well: time is essential for bringing people together and developing mutual trust, shared cultural values, and joint ideas. However, the interplay between these two evolutionary processes happening in alliances, learning and aging, and the connected role of (inter-)organizational design, is not extensively researched. We explain the connection between the evolutionary processes in alliances, operationalized through the two dimensions: age (longevity) and maturity, and the importance of management of knowledge and learning through the adequate approach to (inter-) organizational design. Thirdly, it was our intention to contribute to organizational learning theory. We build upon the concept of absorptive capacity (Cohen and Levinthal 1990), which examines inter-organizational learning as a unidirectional issue—from the outside environment to inside the organization—and argue that learning, as a mutual or two-way phenomenon, in the context of dynamic nature of strategic alliances, yields more in-depth understanding.

From the aspect of management practice, this research intends to explain that designing alliances to learn is a complex managerial job which should be guided by the identification of stocks and flows involved in the process of knowledge transfer and interorganizational learning between alliance partners, and aligned with the stage in the achieved level of alliance development.

Based on three case studies we investigated the issue of inter-organizational learning coordination throughout the evolution of strategic alliance. Through alliance evolution, various learning processes and knowledge transfer happen. If they are not actively managed, they are uncontrolled, hard to identify and follow, while their effects are hard to predict and measure. Active knowledge management is an organization design issue to improve the efficiency and effectiveness of an

organization and its people by sharing knowledge and information (Burton and Obel 2004, p. 10). Particularly, we focused on one organizational design property, coordination, exploring its mediating effect on the relationship between alliance evolution (operationalized through the two dimensions: age and maturity), and the learning effects alliances achieve. Perceiving alliance age as an uncontrollable variable, and alliance maturity as a controllable variable, we show how managers can moderate maturity through the application of mechanisms of coordination, and consequently influence learning processes. We imply that alliances should be designed to learn, and the choices about mechanisms of coordination alliance partners apply should be made depending on the alliance's age and maturity. We develop a two-dimensional model and four different kinds of age-maturity relationships and propose that:

1. Alliance movements within the age-maturity space depend significantly on the application of the mechanisms of coordination.

    (a) Alliance age is positively associated with the application of formal (institutional) mechanisms of coordination, while alliance maturity is positively associated with the application of informal (behavioral) mechanisms of coordination.
    (b) Alliance maturity, contrary to the alliance age, can decrease. Some alliances can start from the position of high maturity, but inadequate application of the mechanisms of coordination can negatively influence alliance maturity, which will consequently decrease learning in alliance.

2. Inter-organizational learning that follows alliance moves within the age-maturity space depends significantly on the application of the mechanisms of coordination. Application of both formal and informal mechanisms of coordination is important for learning and knowledge transfer in strategic alliances, thus their importance is moderated by alliance maturity.

    (a) Young alliances with low maturity are advised to work on building mechanisms of informal coordination in order to increase their maturity. Focusing on mechanisms of formal coordination will bureaucratize their immature alliance and build learning barriers.
    (b) Young alliances with high maturity should focus on institutionalization of informal practices and controlled formalization. This formalization should be oriented toward increasing the knowledge base.
    (c) Old alliances with low maturity should focus on the activation of unused knowledge depositories through the application of behavioral mechanisms of coordination, while existing mechanisms of formal coordination should be evaluated from the point of their contributions to the creation of new knowledge through learning.
    (d) Old alliances with high maturity are in a potentially winning position in both learning and knowledge transfer terms. However, being an inherently unstable form of inter-organizational linking, a very small number of alliances will actually reach this position.

In this research we exclusively focused on the coordination as an organizational design property. Future research should expand our knowledge on the relationship between alliance age/maturity, organizational design, and inter-organizational learning through addressing organizational design properties other than coordination. Specification of formal and informal aspects of organizational configuration within this framework would further help us realize how to design alliances to learn through their life cycle (Aleksić Mirić and Burton 2012).

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