

The Dynamics of Cooperation: Proposal of a Small-Firms Networks Life Cycle Model

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Abstract

The dynamic of interorganizational networks (IONs) is not yet extensively studied in the organizational theory and limited contributions have been made to practical management. This study aims to review the theory surrounding IONs life cycle and propose a model adapted to small-firms networks (SFNs) features. A preliminary model was developed and seven dimensions for analysis were identified from a theoretical review and expert's interviews. The experts were called in at a second round to make a description of each dimension's characteristics throughout the stages of a life cycle. As a result, this article presents a SFNs life cycle model composed of six stages and respective descriptions: Conception, Birth & Formalization, Development, Consolidation & Maturity, Decline and Dissolution. The presence of Restructuring periods is pointed out as necessary for the networks to remain attractive along time or reverse a tendency to decline. The proposed model can be used to empirically analyze SFNs and develop strategies which allow its evolution along the life cycle.

Introduction

Interorganizational relations of varied formats have been widely applied by enterprises in the business market, aiming to strengthen competitiveness, access into new markets, scale advantages, legitimacy and innovation development (Human and Provan, 1997). As a result, the centralization of the individual firm in the organizational studies has been questioned and the interorganizational relations have been treated with increasing interest (Hakansson *et al.*, 2009). Despite all efforts to understand the nature of interorganizational relations only few studies have been conducted to show the dynamics and the transitional stages that highlight such relations (Jap e Anderson, 2007). If the concept of life cycle is well developed and widely researched in the study of individual firms (Greiner, 1972; Kimberly and Miles, 1980; Child and Kieser, 1981; Quinn and Cameron, 1983; Miller and Friesen, 1984; Adizes, 1999), the same cannot be said in regards to interorganizational relations. Its dynamics remain poorly

studied and, if so, the research focus on a variety of collaborative models (Doz, 1996; Oelsnitz and Tiberius, 2007; Tiberius, 2008).

One of the reasons for a limited number of studies is the many IONs models; which demand the understanding of each formation characteristics (Jap and Anderson, 2007). Interorganizational relations may involve a vast set of configurations comprising strategic alliances, joint ventures, partnerships, business clusters, supply chains and business networks. This study focus on a model known as small-firms networks (Perrow, 1992; Human and Provan, 1997), where firms from the same business sector cooperate to reach common goals, with power symmetry and without a leading organization that coordinates the activities. In the specific case of SFNs it is relevant to identify the life cycle stages that distinguish one from another to allow for a better understanding of its development dynamics and to elaborate strategies for consolidation.

Data collected from a number of countries points out the relevance of SFNs to increase competitiveness of small and medium sized enterprises (SMEs) and protect them from large scale competitors. In Germany, for instance, there are around 200.000 businesses allied in over 320 business networks, representing an annual turnover of 350 billion Euros (Veltmann, 2009). In Spain there are 350 business networks which put together 46.000 small and medium sized businesses and represent 7% of the country's GDP (Anceco, 2012). In developing countries, such as Brazil, data points to a formation of around 800 business networks over the last decade (SEBRAE, 2008; SEDAI, 2010); but more updated studies reveal that many networks go inactive or even close down activities after just a few years in market (Toigo and Alba, 2010; SEBRAE, 2012), suggesting that it is easier to start them up than take them to consolidation. Therefore, this study aims to propose a life cycle model adjusted to the small-firms networks' (SFNs) features and contribute to their consolidation.

IONs life cycle models

Most of the studies that analyzed or proposed life cycle models for IONs based their findings on strategic alliances or partnerships with significant structuring and management differences in relation to small-firm networks. Yet, such theoretical models made possible to identify elements and make contributions to the business networks in case.

Dwyer, Schurr and Oh (1987) highlight that most of the studies analyze IONs as discreet events and not as long lasting relationships that get developed. To fulfill this gap the authors propose a model with five stages. The **awareness** stage refers to the recognition that one firm may have to face another firm as a potential partner. However, it is necessary that some type of effective bilateral interaction may be carried out to make the next stage possible. In the **exploration** stage any potential partner take all duties under consideration, as well as the benefits, risks and exchange possibilities that such partnership may offer. The third stage called **expansion** is characterized by the increase of benefits obtained by the partners through the partnership and an increasing interdependency. In the **commitment** stage the partners have reached a high level of satisfaction and commitment of resources. Finally, the authors affirm that the possibility of **removal** or **dissolution** were implicit in all stages of the model. This process has great consequences when the partners reach the status of high interdependency at the final stages of the model.

The life cycle model from D'Aunno and Zuckerman (1987) was created focusing on federations, which "consist of groups of three or more organizations that pool resources to achieve stated objectives. A distinct feature of federations is that their activities are coordinated and, to some extent, directed by a management group or organization" (p. 534). The model composed of four stages is based on the idea that turning over from one stage to the next is influenced by key factors. The first stage is characterized by the **emergency of**

coalition where the organizations identify goals and agree upon a set of purposes. The **transition to a federation** occurs in the second stage when a management group takes place coordinating and directing efforts. The coalition members get motivated to follow a management group when they realize they do not have the necessary time to manage the network activities. For the federation to reach **maturity** it is paramount for members to receive benefits. Once maturity has been reached some **critical crossroads** can occur as members start to have a higher dependency towards the federation to obtain relevant resources.

Ring and Van de Ven's (1994) see the development and evolution of an ION as a repetitive sequence of negotiation, commitment and execution stages where each one is evaluated in terms of efficiency and equity. At the **negotiation** stage all sides involved develop expectations in relation to their motivations and possible investments. The focus is the bargaining process within partners, as they seek to persuade and argue over possible terms and procedures involved. In the **commitment** stage all sides must reach an agreement on the rules and obligations surrounding any future joint venture. A series of interactions may be necessary for the parts to reach a common ground. Finally, at the **execution** stage commitments and rules are put into action. It is important to point out that throughout all stages described by Ring and Van de Ven (1994) **assessments** are carried out by the involved parts. If the commitments are performed in an effective and fair manner the participants tend to continue with their commitments and even expand them.

Spekman *et al.* (1998) argue that little emphasis is given to the management of alliances and, as a matter of fact, there is little knowledge about the managing requirements at the varied stages of a life cycle that alliances and IONs go through. Their model comprises seven stages. The first one is called **Anticipation**: it is the preliminary stage where an organization foresees possibilities, ideas and wishes for a strategic alliance. **Engagement** is the definition of mutual expectations amongst partners in relation to the alliance. It's the beginning of converging expectations into practical actions. **Valuation** is the period where the alliance terms are negotiated and established. The partners bring in competences and resources to the alliance and compare the respective relevance of such assets. **Coordination** describes the stage where the alliance formally starts to operate and management structures emerge. The **investment** stage refers to the needs of partners to invest in the commitment of assets and resources towards actions in the alliance. **Stabilization** indicates the stage where the alliance is a viable entity in operation. The results are compared with objective measures, financial goals and operational parameters. The last stage of the life cycle is **Decision**, in which the alliance course of action is defined by reevaluating the results previously achieved.

As for the life cycle developed by Zineldin (2002) an analogy of a personal relationship is carried out and it is characterized as a dynamic process that demands action, interaction, trust, adjustment and commitment. The first stage is denominated **Discovery**, when organizations identify needs and predispositions to get into an interorganizational relation. If this process is satisfactory then the relation goes to the **Development** stage. Here, the member's interaction is crucial as the foundation and main rules for the relation are established. The aim is to organize the relationship and confirm what mutual benefits may be reached. When the interorganizational relation reaches the **Commitment** stage there is already a great possibility that the members are so involved to a point they feel encouraged to continue investing in the relation. In the **Loyalty** stage an ION is marked by the partner's commitment, flexibility, adjustment and a great competence to aggregate value.

Another model is the one designed by Ahlström-Söderling (2003) which describes the activities of SFNs in Sweden. His model is based on the theory of the ecological system development and is composed of three stages: formative, normative and integrative. In the **Formative** stage the system emerges from the union of complementary elements establishing links. To form a strategic network there is the need of one or more investors to come up with

ideas to create new business opportunities based on cooperation. In the **Normative** stage the system seeks elements that offer support and improvement in the parameters established in the previous stage. There may be a rise of small hierarchies within the networks to increase business efficiency. Lastly, in the **Integrative** stage the system and its environment are mutually dependent and need to cooperate to reach better performances.

The model of Jiang, Li and Gao (2008) stresses that in the center of the academic gap surrounding IONs dynamics and transience there may be a lack of a rigorous evaluation around the alliance stability. The authors propose a sequence of stages in which the alliance reaches relative stability. **Partner Selection** is the first critical step. The selection primes on the experience of a combination between the profile of partners' resources, expected results, incentives and strategies. The potential partner's reputation, experience, reliability, competences and contributions can also be taken into consideration. In the **structuring** and **negotiation** stages business partners must decide over adequate leadership forms and the scope of collaborative activities. After the negotiation of collaborative agreements business partners will then put them into operation in the **implementation** stage. Finally, the fourth stage consists of **performance evaluation** of the alliance.

A common view of the models

The seven theoretical models reviewed present different perspectives for the analysis of the IONs life cycle. There is no consensus amongst the authors over the development stages, which may vary according to the type of interorganizational relation. Some authors follow the logic of the products life cycle model, with beginning, development and decline stages (Dwyer, Schurr and Oh, 1987; D'Aunno and Zuckerman, 1987). Other studies find analogies with interpersonal relationships, comparing the stages of an IONs life cycle to the evolution of a relationship (Ahlström-Söderling, 2003; Zineldin, 2002). Besides, each author adds other stages or uses different terms in their models. Ring and Van de Ven (1994) model stands out by presenting a proposal that takes into consideration the cyclic character of evolution and development of IONs. The authors are not concerned about presenting stages but yet describing the process of negotiation, commitment, execution and evaluation that needs to be carried out throughout many stages for the relation to reach better results. There is also controversy between models when it comes to the elements for analysis to check the development stage of an ION. The importance of interpersonal relationships and the partner's motivation are cited as relevant factors to provide cooperation (Spekman *et al.*, 1998; Ring and Van de Ven, 1994; Zineldin, 2002). The elaboration of rules and norms for cooperation (Dwyer, Schurr and Oh, 1987) and the existence of collective interests above individual ones (D'Aunno and Zuckerman, 1987) are also mentioned. Another element pointed out refers to the need of strategic and cultural adjustments amongst partners, as a requirement for the development of cooperation (D'Aunno e Zuckerman, 1987; Zineldin, 2002).

It was also observed that even though many studies with theoretical proposals have been identified, there is a scarcity of empiric studies or such ones that exemplify how the model is applied to existing IONs. Amongst the presented studies only the one from Ahlström-Söderling (2003) empirically analyzed a business network. This was also the only study in which the focus of analysis was SFNs. The following section analyses the methodological procedures carried out to elaborate the life cycle model.

Method

The study was carried out with a qualitative approach in three stages. A bibliographic review was realized initially over the existing literature on the issue in question, identifying seven proposals of IONs life cycles (section 1). Thorough interviews with seven experts

were carried out in the second stage over the SFNs issue; being three of them academics (A1, A2 and A3), two network managers (NM1, NM2) and two business consultants (BC1, BC2); all selected by convenience due to their knowhow and experience. A semi structured research protocol was followed with an initial question over the interviewee's experience in the matter; followed by questions regarding the expert's opinion about the stages that characterize the SFNs life cycle, thus elements considered relevant to identify the development stage of the networks. The interviews were carried out in the first semester of 2012, recorded and transcribed for further systematization and comparisons.

Based upon the theoretical review and the information collected in the interviews, a preliminary life cycle model was elaborated in the third stage, which consists of six phases that characterize the stages each SFNs may go through along its existence. In this stage, some dimensions were also selected that, in the opinion of experts permit to analyze the IONs and identify their stages of development. Out of all dimensions pointed by the experts, the ones selected were cited in four interviews, at least. In the fourth stage of the study the model elaborated was once again submitted to seven experts (academics, network managers and consultants) selected by convenience. It was up to them to evaluate the model and describe the features of a small-firm network in each life cycle stage, using as reference the dimensions identified. This sequence of stages, based on theory and expert's assessments in two distinct moments had the aim to boost the adherence of the proposed model to the SFNs reality. The next sections describe the cited stages and present the life cycle model proposed in this study.

Developing the model: interviews with experts

A1 argues that the SFNs life cycle does not occur in a linear manner but yet, in a circular form, once the networks must constantly update. The first stage may be called **Dating**, when alignments and goal setting take place and partners evaluate future cooperation possibilities. In the **Introduction** stage the networks are already formed and the first joint actions start; while in the third stage (**Development**) the networks start to mature through negotiations and collective strategies. The fourth stage is **Maturing**: the initial goals have been achieved, the competences are in full operation and expansion may take place. With set targets it's time to start **Innovation**. At this point the line of development turns into a circle shape; partners must figure out ways to innovate and aggregate more services to the network. The stage that precedes the final one is called **Decline** and it means that important activities were left aside and not performed in one or more of the previous stages. Lastly, in the **Dissolution** stage the members end connections with the network and cease activities. For the analysis of these life cycle stages A1 narrows down some criteria, such as the level of participation and trust among partners. It is also common that a natural selection occurs, that means the exit of members that were not interested in cooperation or did not identify themselves to the collective activities and left the SFN.

A2 pointed four stages to the network life cycle. The first one can be named **Formation**, moment of member's prospects towards desired goals to be reached through cooperation. The second stage is named **Consolidation**, which consists of the elaboration of a network management structure, taking administrative activities into a professional level. The third stage is named as **Members Exit**, and it happens when members do not carry out advantageous activities in the network, consequently leading to the **Network Termination**. As a way to evaluate the life cycle stages proposed, A 2 suggests the level of formalization, the consolidation of a network brand and collective negotiation with suppliers and partners.

According to C1 the SFNs life cycle has five stages, the first one being **Group Formation**, that takes place when people need to get to know each other better and interpersonal trust must be established. The following stage is the **Development** where the

network legal implementations emerge. **Maturity** comes as the third stage, when all legal implementations have been set and concrete action start to be performed to achieve network goals. At this stage remain only the members who wish to strongly engage efforts to cooperate. The fourth stage is called **Growth**, where goals have been achieved and each one's responsibilities are charged. The fifth stage suggested by C1 is **Maintenance**, when the network already holds its own management structure and starts to be known as a large organization. However, if this stage cannot be secured another stage begins, known as **Decline**, where participation and commitment lessen. To determine which life cycle stage a SFN is inserted in, C1 suggests analysis criteria like the level of commitment and engagement in meetings; support towards collective activities and strategic planning.

The NM1 suggested the existence of four stages in the network life cycle. The **Initial** stage is characterized by the structuring and formation of a network. The second one is **Consolidation** when the network is aggregating more members and it has already established legal rules; plus holds at least one process of collective purchase, as this is one of the main goals for many networks. NM1 sees the network as **Consolidated** in the third stage. This refers to networks which realize that only negotiation and collective purchases are not enough, and find that it is possible to take other common actions. At the end, the **Post-Consolidated** networks are found, very well structured and organized with a professional management team. As criteria for analysis to determine life cycle stages NM1 mentions strategic planning, critical during the consolidation stage, as it determines the network continuity and all tasks and future goals to be developed. Well-structured services and the existence of a collective brand name characterize consolidated networks; while management professionalization characterizes post-consolidated networks.

The fifth interviewee (NM2) suggested a life cycle model of four stages. The first one can be called **Birth**, moment of network formation and invitation of firms to join the network. The second stage is **Grading**. Network manager 2 considers this stage the most important one, as he believes a network cannot grow or expand business without grading the business partners in relation to their goals and expectations. **Maturity**, the third stage of the cycle is set by networks that already hold a consolidated management structure and are ready to expand business. The **Decline** stage comes last and it can happen at any moment of a network life cycle even shortly after birth or grading stages. As criteria to evaluate and identify the life cycle of a network, NM2 cites firstly the management professionalization. The more professional the management, the more the network can progress in terms of development.

A3 cites the **Constitution** as the first stage of the life cycle, where cooperation takes shape and it is already possible to identify the key-members to conduct the process. It is during this stage that the ground objectives are selected to show entrepreneurs that is possible to cooperate to reach collective goals. Right after this, the **Initiation** stage takes place, which consists of carrying out practical activities such as network formalization and legal constitution. The next stage is the **Development**, seen as a longer stage that can be divided into **Basic Development** and **Advanced Development**. The first one relies on the understanding among members about the meaning of cooperation and management rules are established. In the Advanced Development phase joint actions are realized as such. At the **Consolidation** stage the network must decide to limit its activities to the only ones realized collectively, or to establish new goals and develop new services and by doing so, renewing the line of action. In the case a network does not renew itself it can be led to **Dissolution** and this stage becomes the last one of the life cycle.

The seventh expert (C2) pointed to four network life cycle stages. The **initial** stage focuses on meetings with businessmen and task share. When a group already considers the possibility of contracting a manager it means the network is initializing the **Development** stage. Following this stage **Maturing** occurs, stage in which the existence of

solutions for a network brand and negotiations is noticeable and the group starts to expand and attract new members. The fourth stage is **Consolidation**, moment when the network has already a structured management team and there is a high level of mutual commitment amongst members.

All experts were unanimous to say that the interorganizational relations have a beginning (design and creation) a middle (development and consolidation) and an end (decline and forth closure of cooperative relation) even though there might be some variations in relation to the terminologies and approaches suggested by each interviewee. The considerations from the experts accrete to theoretical models previously seen served as common ground to the elaboration of the life cycle model described through the next section.

Proposition and validation of a SFNs life cycle model

Based upon the theoretical models revised and the suggestions from the experts a SFNs life cycle model with six stages was proposed: Conception, Birth & Formalization, Development, Consolidation & Maturity, Decline and Dissolution. Apart from these six stages experts indicate that networks go through transformations during their life cycle as essential condition to avoid decline and dissolution. That means a network can only remain in the Consolidation stage when it promotes deliberate restructures in the activities to keep partners' interest towards cooperative activities. The peculiarities of each life cycle stage can be better comprehended by analyzing the set of seven parameters that characterize SFNs. These parameters were also pinpointed in the expert's interviews and they represent main elements of SFNs: network management, network governance, network processes definition and level of services offered by the network to participating firms, level of information exchange, trust and interpersonal relations.

After identifying the stages which would compose the life cycle model, as well as the analysis parameters, these were once again submitted to seven experts. It was requested from each expert to describe the analysis parameter in each life cycle stage, generating a matrix of information. From the set of answers a detailed description of the SFNs life cycle was elaborated and is presented next:

1st stage: Conception. Entrepreneurs meet to discuss cooperation possibilities. There is no formal management in place and the governance mechanisms are under construction. There is a high level of participation from entrepreneurs towards proposed activities due to the state of motivation in relation to the potentialities of collective work. However, some partners wait for real benefits before committing. There is little strategic information exchange; the focus is the exchange of information on operational aspects and explicit knowledge over the business sector. The level of interpersonal trust tends to be low as few people know each other. In many cases external agents hold a very important role in the SFN conception by inviting potential partners and organizing meetings.

2nd stage: Birth and Formalization. The SFN goes from being just a project to be formalized by the members who define a shareholdersboard and work teams. Partners realize the need for better regulation and formalization of activities. There is a governance structure in place but not fully implemented yet. The governance model chosen is shared governance, where the businessmen themselves are responsible for the activities. Partners who did not fit in with legal requirements or did not agree with the course taken by the SFN leave the group. The increase of interpersonal trust due to the formal mechanisms set and better mutual knowledge of the partners stimulates more exchange of information.

3rd stage: Development. The management structure and main processes have been defined and receive improvement in this stage. The governance structure changes once members realize the need to improve decision-making processes and cooperation rules. When the network offers services that generate benefits to members it seems to reduce the number

of partners who attend in person events. Partners realize that the network development relies on transparent interpersonal relations and there is a great opportunity to exchange information and experience that create strong interpersonal connections. During this stage the level of regulation also increases, especially if the number of partners grows. Regarding services, the network enlarges the scope and quality of services offered to the members.

4th stage: Consolidation and Maturity. The network takes its management to a professional level, hiring executives and a management staff, releasing the members from operational activities. The elected shareholders board holds the decisive process. This change is a critical factor for success as it means transferring power to a main coordination unit (headquarter) and to professionals who are not elected managers. The governance is taken over by a Network Administrative Organization (NAO). There is a need to create new governance mechanisms, such as control and evaluation procedures. An expansion of network services takes place and the SFN begins to operate as a business unit that offers almost every service and solution the member firms need. Consolidation is the highest level of development a SFN can achieve.

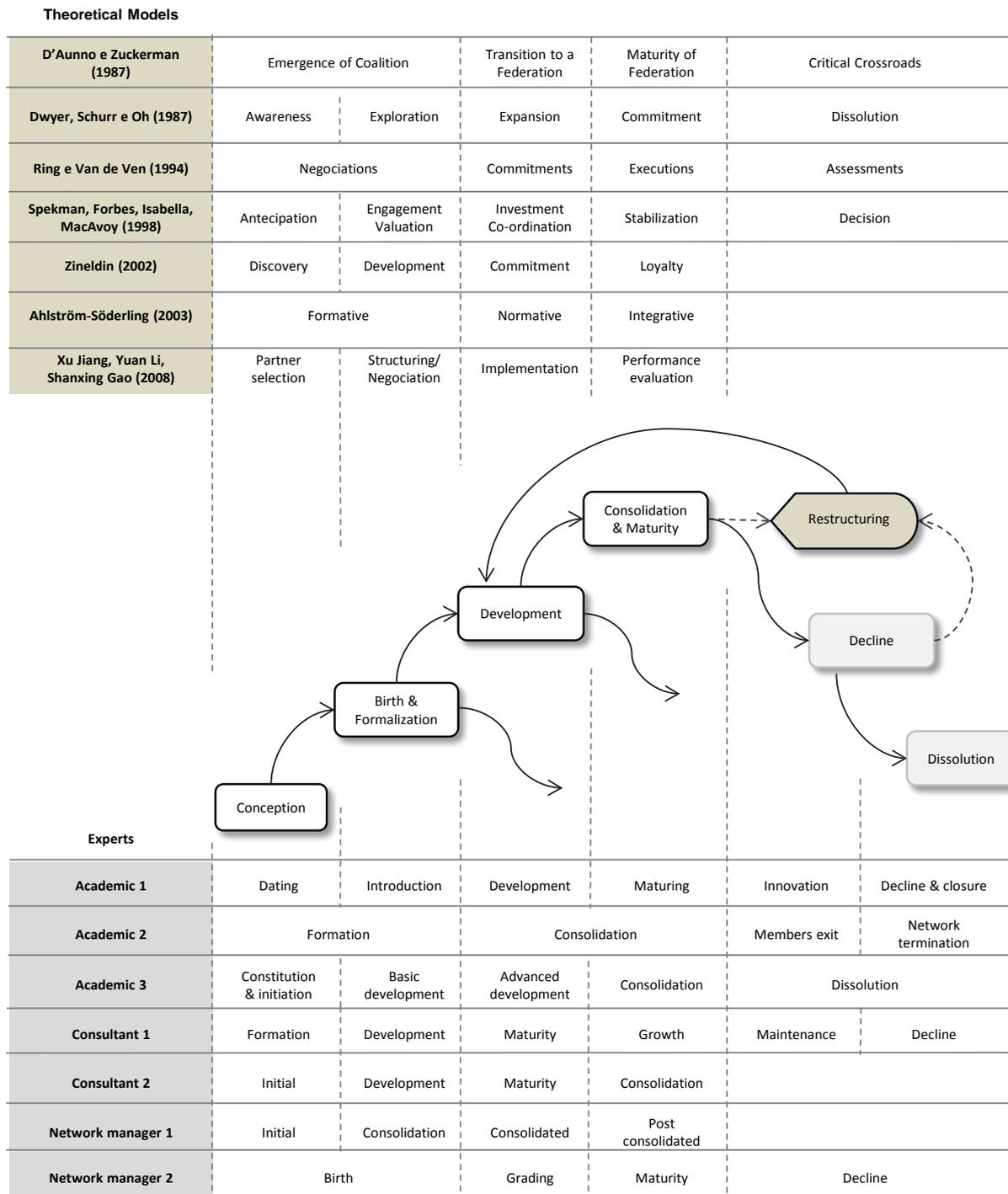
5th stage: Decline. Structures, processes and network routines have not been adjusted and improved yet, generating demotivation amongst partners. Side groups appear with self-interests that try to influence the management, causing internal competition for power and space in the network management. The network governance has not evolved to follow the development or got backtracked, with a concentration of power on a few network members. Most entrepreneurs prioritize sole action within their own business instead of collective goals and actions. The partners feel discouraged to exchange information. There is a rupture in trust amongst partners or in relation to the network management. Conflicts become regular amongst members or between subgroups within the network. Some members start to leave the network. It is only possible to reverse the network decline by a restructuration of strategies and structures.

6th stage: Dissolution. Even though a shareholders board may still be in place it no longer manages the network. Governance rules are no longer followed. There is no more commitment from network members, and participation in the activities is almost null. Most members leave the network and only the ones strongly interested in cooperation remain. The network no longer holds legitimacy to demand remaining members to follow rules. It is hardly possible to reverse the network situation and it is likely the network will dissolve and formally finish the collective activities.

Restructuring, cited by many experts, is not a stage of the SFNs life cycle as such, but a necessary situation to ensure the network will remain along the time. According to the experts even consolidated networks need to pass on transformations to avoid the decline and dissolution stages. The justification for such is that business partners always expect a higher level of benefits out of the networks, even if performing independently they could not get the advantages provided by the collective strategies. By promoting changes the SFN may be able to return to the development stage in the life cycle, demanding extra effort to get back to the consolidation stage. In the maturity stage the internal environment seems to favor the promotion of strategic changes once a structured management, a high level of benefits, exchange of information, high interpersonal trust and a clear strategic direction is in place. However, to promote deeper transformations can be difficult when the network finds itself in the decline stage, as the internal environment is not favorable and it is more challenging to keep businessmen interested in cooperation. Some networks in the decline stage may promote modifications to put them back on the development track; however, such change requires a significant effort and a group of partners highly motivated and committed to the proposal.

Figure 1 shows the life cycle model, as well as the stages presented through the theoretical models reviewed in the article and the expert's suggestions.

Figure 1. Proposed life cycle model.



Conclusions

The idea for this article came from the realization that there is a gap in the studies of IONs: a lack of models which analyze SFNs life cycles; even though many authors have explored this issue in alliances (Jiang, Li and Gao, 2008; Murray and Mahon, 1993; Spekman *et al.*, 1998), partnerships (Dwyer, Schurr and Oh (1987) and client-supplier relations (Zineldin, 2002). Therefore, the present study aimed to review the theory over IONs life cycle and propose a model adapted to SFNs features. The goal was achieved through a

qualitative methodological approach that consisted of cross analyzing the theoretical referential over two rounds of consultations to experts in the matter, including academics, consultants, network managers and businessmen.

The theoretical contribution of the study relies on a proposition of a model which describes the life cycle of SFNs throughout six stages. Moreover, a period of restructuring was identified in the literature and pointed out by experts as indispensable to the network's survival. Each one of the life cycle stages was thoroughly described by experts based upon seven analysis parameters taken from the literature and the interviews. The model and the life cycle stages description are a milestone to the theory surrounding interorganizational networks and contribute to fulfill the theoretical gap pointed by Doz (1996), Oelsnitz and Tiberius (2007) and Tiberius (2008).

From a managerial point of view the study offers a model that permits an appraisal of the stage an interorganizational network finds itself in the life cycle. The model can be used by network managers, consultants, entrepreneurs and public policy's authorities in order to stimulate the consolidation of business networks. Saved the specifications of each network the presented model serves as base to define strategies that can lead to the network consolidation or avoid its dissolution and closure. This is a relevant contribution considering that studies such as the ones from Toigo and Alba (2010) identified a high rate of SFNs closure in Brazil, unable to reach consolidation.

Future studies should apply the proposed model through analyzes and classification of a set of SFNs in the suggested stages. Empirical studies are also important to confirm the existence of transformation and restructuring periods in SFNs, pointed by the experts.

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