



THE SURVIVAL OF INTERORGANIZATIONAL NETWORKS: A PROPOSAL BASED ON RESOURCE DEPENDENCE THEORY

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ABSTRACT

Purpose: The purpose of this paper is to depict a theoretical proposal for analyzing the influence of three facets of an organization's dependence on the survival of interorganizational networks: on the environment, on the other members and on the network.

Originality/gap/relevance/implications: This paper assists business leaders in showing the dependence tensions of enterprises on the market and networks. The understanding of relational changes and benefits provided by the network during its evolution also has an impact on enterprises' dependency. This paper is therefore original as it makes the contribution essential to a nascent stream of research.

Key methodological aspects: The conceptualization of this study is based on the Resource Dependence Theory to direct network survival. The methodology of the paper is based on a theoretical essay for the formation of an analytical background of the subject. It presents an insight in a manner that sheds light on the subject and sets the stage for future research.

Summary of key results: Does not apply. In this article, we did not make an empirical investigation.

Key considerations/conclusions: The conceptualization of this study has been based solely on the Resource Dependency Theory to direct network survival. Furthermore, additional research is needed to empirically validate the framework.

KEYWORDS

Network survival. Organization dependence. Network evolution. Resource Dependence Theory. Competitiveness.

1 INTRODUCTION

Interorganizational relationships exist in a variety of forms, such as alliances, joint ventures, supply agreements, licensing, cobranding, franchising, networks, associations and consortia. Interorganizational networks, the focus of this article, can generally be defined as a cooperative arrangement composed by a group of members with common goals, usually related, and with an unlimited period of existence. To Wincent, Thorgren and Anokhin (2014), they are formed at a specific point in time to perform specific activities and have clear boundaries to define organizations that are recognized as members of the network.

Organizations' need to collaborate with other organizations in interorganizational relations is due to the fact they do not possess all of the resources required to perform their activities and therefore they depend on exchange relations to achieve their goals. Schiele, Ellis, Eßig, Henke and Kull (2015, p. 136) state that "firms who are lacking resources will have to obtain these resources by establishing relationships with others". This is a central proposition of the Resource Dependence Theory (RDT), which was built on the notion that organizations' survival depends on their ability to acquire critical resources from the external environment (Pfeffer & Salancik, 1978). Therefore, organizations will try to restructure their dependencies using a variety of tactics to reduce uncertainty in the flow of resources, such as entering into collaborative relationships.

Inherent to the RDT and interorganizational cooperation, we find the concept of dependence, which has received considerable attention by scholars in this area, both in pioneering studies (Jacobs, 1974; Pfeffer & Nowak, 1976; Provan, Beyer, & Kruytbosch, 1980; Provan & Skinner, 1989) and recently (Casciaro & Piskorski, 2005; Gulati & Sytch, 2007; Xia, 2011; Lefroy & Tsarenko, 2013; Xia & Li, 2013). The dependence can be understood as the extent to which one part needs another in relation to a given resource. This relationship also expresses the measure of power of one over another. Emerson (1962) explains that the dependence of an actor A in relation to an actor B provides the basis for the power of B over A because B is in control or has influence on the goods and services that A wants.

However, this leaves aside questions of how the different facets of interdependence may have an impact on the total value created in the relationship and affect the performance of exchange partners. Furthermore, the RDT has frequently been used to study and help organizations reduce uncertainty and dependence on external influences (Hillman, Withers, & Collins, 2009) with the purpose of managing their environments (Davis & Cobb, 2010). The RDT

has therefore been a good theoretical approach to explaining the formation of inter-relationships, but few studies have sought to explain the survival of these relationships. In other words, RDT scholars have focused on the formation of relationships and not on their survival. Thus, this study is motivated to examine how the resource dependence perspective may also consistently explain network survival. Therefore, the guiding question of this article concerns how different facets of organizational dependence influence the survival of interorganizational networks.

With this paper, we aim to depict a theoretical proposal to analyze how three facets of an organization's dependence influence the survival of interorganizational networks. These three facets are:

- Organization dependence on the environment;
- Organization dependence on the other members (mutual dependency); and
- Organization dependence on the network (asymmetric dependence between the network and member organizations).

We use RDT as a theoretical basis in this article and extend it to analyze not only the formation of interorganizational relationships, but also their survival. The theoretical proposal elaborated in this article uses organizational networks as an analytical base, but some insights derived from this type of relation can be extended to other types of interorganizational relationships. This article is a theoretical essay for the formation of an analytical background of a subject that has received little attention thus far.

There are three main reasons justifying why this paper is being written. First, the elements of the RDT explain and give substantial support to the formation of interorganizational relationships, but they do not explain their maintenance and survival (Xia, 2011; Lefroy & Tsarenko, 2013). Second, according to Xia (2011), few studies have investigated the effect of increasing dependence of a partner in the maintenance and survival of collaborative relationships. Thus, we intend to move forward in the discussion of this aspect. Third, resource dependence theorists have largely turned their studies toward environmental dependence (Pfeffer & Nowak, 1976; Pfeffer & Salancik, 1978) rather than to organizational dependence. Thus, this study relates the interaction between environmental dependence and dependence and/or interdependence of the member of the network, structuring a theoretical basis for understanding the survival of this type of interorganizational relationship.

2 DEPENDENCE ON ENVIRONMENTAL RESOURCES

One of the main issues addressed by the Resource Dependence Theory is why companies constitute or join interorganizational relationships. Two leading scholars of this theory claim that organizations are constrained and affected by their environment and that these organizations act to try to control their resource dependencies by creating different forms of interorganizational arrangements (Pfeffer & Salancik, 2003).

The central proposition of this theory is that an organization's survival depends on its ability to acquire critical resources from the external environment. Given their needs and dependencies, organizations are not limited to responding to these external constraints; rather, they perform a variety of strategies to somehow confront and change those situations (Pfeffer, 1992). Thus, another assumption of this theoretical perspective is that organizations try to actively relate themselves with the environment, manipulating it for their own benefit, and so, in this way, organizations act strategically to influence their business environments instead of assuming a passive role of environmental forces.

For Davis and Cobb (2010), enterprises' external dependencies in the contemporary business environment can result from factors such as increased market competition, limited credit supply, and shortages of raw materials and energy caused by geopolitical changes and demands of production. These factors have led organizations to seek measures that would help to restore and have some degree of control over their environments. As a result, the most common response to environmental dependence is the attempt by organizations to develop some form of relationship that will minimize the loss of their autonomy and ensure their survival.

According to Provan (1984), the development of organizational relationships is enabled by favorable relations with other organizations in their business environment. Galaskiewicz (1985) argues that environmental uncertainty may motivate organizations to develop interorganizational relationships both vertically and horizontally as a way of addressing this uncertainty. A substantial portion of research on interorganizational relationships has emphasized the role of environment dependence in the genesis and formation of relationships of cooperation between companies (Geisler, 1995).

Dependence on environmental resources can involve anything perceived as valuable for an organizational actor, such as information, materials, capital or access to markets. Specifically, dependence is a state in which an actor depends on the actions of other actors to achieve their particular results (Emerson, 1962;

Pfeffer, 1992). Here, we highlight that environment includes both members and networks that we discuss later; it is everything outside the organization. But, when we discuss dependence on members or networks, we refer specifically to the relation between the organization to other members or to the network.

In the case of interorganizational networks, these features can be understood as advantages and benefits provided by collaboration such as increasing the bargaining power of member organizations and targeting economies of scale (Balmann, Odening, Weikard, & Brandes, 1996; Das & Teng, 2000), splitting the costs of communication and marketing (Lamb, Hair, & McDaniel, 2008), sharing the risks of activities with other companies (Sadowski & Duysters, 2008), accessing reliable knowledge and information, providing new learning (Lee, Kim, & Kim, 2014; Chen, 2010), obtaining legitimacy (Pesämaa, 2007) and innovation (Westerlund & Rajala, 2010).

Furthermore, interorganizational relations can increase opportunities to develop new capabilities and launch new products without requiring investment in a complete resource base (Ahuja, 2000; Gulati, 1998). These are generally some shortcomings that many organizations have, especially small and medium-sized organizations. These advantages and benefits can also be provided by interorganizational networks. Access to resources provided by cooperative activity may facilitate achieving these advantages and benefits, thus satisfying the needs of these organizations. In general, organizations respond to resource dependencies by forming interorganizational arrangements, such as interorganizational networks (Drees & Heugens, 2013; Wicker, Vos, Scheerder, & Breuer, 2013).

Given these theoretical notes, the first argument exposed in this work concerns pioneering studies on RDT. The argument is that the establishment of relations between companies, such as interorganizational networks, is a response to their dependence on environmental resources. This argument serves to guide the first proposition of this study.

- **Proposition 1:** The resource dependence of organizations is positively related to the formation of interorganizational collaborative relationships.

3 MUTUAL AND ASYMMETRIC DEPENDENCY

The constitution of interorganizational networks arises from the interest of organizations to achieve a cost-benefit ratio favorable to their permanence in the network. In this circumstance, “a network is able to maintain its structure and

remain an efficient mechanism for inter-firm transactions, while the economic benefits of the partners outweigh the potential costs of managing the alliance” (Park & Ungson, 2001, p. 47). However, for that to happen, the commitment of member organizations in the group’s activities is needed. Using this type of collaborative relationship to reduce the level of environmental restrictions (to reduce dependence on the environment), organizations must subsequently manage their dependence with other members and the network.

In the beginning of collaborative activities, the network generally lacks a formal system of governance and management, as in modes of governance “Lead Organization” and “Network Administrative Organization” (NAO) defined by Provan and Kenis (2008). The network is generally formed by a board of directors (consisting of a chairperson, vice chair, secretary, and treasurer), as well as fiscal and ethics boards that perform their activities and functions for free with the assistance and collaboration of all members. In this early stage of its formation, the network is maintained by social mechanisms, such as reciprocity, socialization, trust, commitment, and reputation of member companies (Jones, Hesterly, & Borgatti, 1997).

The maintenance and continuity of the network and the development of initial joint activities is then dependent on the effectiveness of these social mechanisms. As the number of member organizations is generally small, non-cooperation by one of them could harm mutual business and agreements. Thus, the group of partner companies is mutually dependent on each other to achieve the proposed objectives and scarce resources. The relationship between the companies at that moment is based on a partnership approach, in which a company depends on the other partner companies to stabilize the flow of existing resources and activities in the network (Gulati, 1998). As a result, members are assumed to easily share mutual expectations and set common goals for collaborative success and sustainable relationships (McNamara, Pazzaglia, & Sonpar, 2015).

In relationships of interdependency (mutual dependence), each part fears retaliation and knows that the others have a similar fear, and so the expectation is that each part becomes less likely to instigate conflict (Kumar, Scheer, & Steenkaap, 1995). In this initial relationship, in the same degree that each partner depends on each other to achieve the goals, each member has enough power to seriously harm another member, so apparently both will avoid unfavorable situations that may hinder cooperation. This is critical to the continuity of the network.

Mutual dependency between partners in early collaboration activities is also seen as a driver of trust, commitment reciprocity and mutual understanding between members, aspects that have been identified as key in the development of collaborative relationships between firms (Vestrum & Rasmussen, 2013; Villa-

nueva, Van de Ven, & Sapienza, 2012; Castro, Bulgacov, & Hoffmann, 2011; Andrésen, Lundberg, & Roxenhall, 2012). Considering these arguments, we elaborated the following proposition:

- **Proposition 2:** The mutual dependence between the network members is positively related to the organization of initial joint activities and the continuity of the network.

However, with the development of joint activities in the network gradually starting to become more effective, some changes can be perceived. The first results and economic benefits deriving from cooperation begin to arise, such as increased bargaining power with suppliers, achieving economies of scale, and sharing risks of joint activities (Balmann *et al.*, 1996; Pesämaa, 2007). The design of joint activities and provided gains generates interest from other companies in the industry that also gathers the network. With this increase in the number of members, network growth occurs.

The entry of new organizations into the network, increasing the number of participants and the pressure they apply to develop and improve activities, serves to increase the complexity of internal relations and their maintenance and, consequently, the management and governance of the cooperative arrangement. In addition, the structural and relational contingencies quoted by Provan and Kenis (2008) should be considered. These authors explain that these contingencies begin to exert strong influences on the organization of the network and the nature of tasks, especially the demand for skills at the network level. More specifically, to maintain activities and achieve planned objectives greater time, organization, coordination, and control are needed, increasing the level of managerial skills required. Facing this situation, networks tend to adopt more formal modes of governance, as Lead Organization or NAO (Provan & Kenis, 2008). Isett, Mergel, Leroux, Mischen and Rethemeyer (2011) reinforce Provan and Kenis' (2008) perspective, mentioning that networks begin with an informal common structure and tend to become more formal over time.

With a new network governance structure and the effectiveness of results from network activities, companies now have to manage their dependence, not of one another but with the network, which goes on to become an independent entity that is recognized as a new firm. Generally, the formation of a network is based on a relatively balanced situation of mutual dependence between members, which can be modified with the network's evolution. Over time, the initial equilibrium will shift to a situation of asymmetric dependence (Xia, 2011).

Thus, the interdependence between parties characterizes the formation of networks, but not necessary for their survival. Das and Teng (2002) explain that

if A depends on B, but B does not depend on A, then no relationship will be formed. However, this is not a necessary condition for the survival of the network. Empirical evidence shows that mutual dependence is a necessary condition for the formation of the cooperative condition, but the imbalance of power (or asymmetric dependence) that, on one hand, can be an obstacle to the formation of an interorganizational relationship, can become an existing situation of a relationship in other situations (Casciaro & Piskorski, 2005; Provan & Skinner, 1989). For Lewis and Lambert (1991) and Kumar *et al.* (1995), the perception of dependence is linked with certain attitudes from the focal organization (in this case, the network) that encourage cooperation by prospering an adequate relationship behavior and the feeling of relational satisfaction, which increase the likelihood of a positive relationship for both parties.

Furthermore, the dependence of organizations is related to new and specialized activities offered by the network (such as joint marketing actions, adding new products and/or services, etc.) that generate competitive advantages for member organizations. This dependence of a given member to a network can be viewed as a way for this member to meet its resource needs and achieve its goals (Frazier, 1983) and indirectly ends up serving as a driver for network survival.

Given this conception and theoretical approach, we argue that in the later stages of network evolution, in which they usually adopt more formal modes of governance, the dependence of a member directs the survival of the interorganizational network. With the development of the network, the standardization of results and benefits, and the improvement and specialization of joint activities carried out and provided by the network, most companies see the network as a vehicle to meet their resource needs and become dependent on the network. This is a factor that interferes with the survival of the network, thus:

- **Proposition 3:** The asymmetric dependence of a member organization on the network in a more formal model of governance is positively related to network survival.

4 ASPECTS INFLUENCING THE SURVIVAL OF NETWORKS

In this section, we explore drivers or mitigating elements of network survival taking into account the notions of increasing or decreasing dependency explored in the perspective of resource dependence. The “substitutability of the network”, the “dependence on key companies” and “additional activities provided by the network” are the factors discussed.

4.1 THE SUBSTITUTABILITY OF THE NETWORK

The dependence of organizations on the network in which they operate varies from one organization to another. Provan *et al.* (1980) argue that alternative resources, comparable to those that the network provides, are ways for a company to reduce its dependence. In other words, this means that if an organization has different ways to acquire the resources it needs, this organization will become less dependent on the other part in an interorganizational relationship. So what will indicate that variation and the degree to which an organization is dependent on the network is the number and availability of additional alternatives that companies have (e.g., relationships with other companies or insertion in another network). On the other hand, the network has the capacity to provide unique resources that other networks or relationships would not provide for this company (this factor will be discussed in section 4.3).

As market rules allow various exchange relationships, an organization can engage in multiple additional alliances to manage their environmental dependence; exchange partners (Broschak, 2004). Pfeffer and Salancik (1978), for example, have shown that organizations that tend to diversify more and have their activities less concentrated in only one group are less dependent on this single group. They concluded that “diversification is an explicit attempt to avoid control by others that control the exchange of critical resources” (Pfeffer & Salancik, 1978, p. 131), in other words, the dependence.

Given this diversification, network survival can be shaken by the alternatives that the member organizations have in achieving equal or better resources than those provided by the network in which they operate. The decision of an organization to stay in a business cooperative arrangement depends not only on its individual alliance with a given network, but also on its portfolio of alternative relationships with other organizations and networks. Many organizations tend to hold portfolios in alliance with multiple exchange partners to reduce their dependence on an individual one (Broschak, 2004; Hoffmann, 2007). Consequently, a dominant organization B (in this article, a network) is substitutable for a partner A if this partner engages in interorganizational relationships with a third party C that provides resources comparable to or better than B. The existence of C mitigates the dependence that A has with respect to B.

As a result of these alternatives that an organization creates for itself, we can note not only the reduction of its dependence on a focal network, but also the threatened survival probability of that network. The existing thinking is that if a company does not like the relationship with a particular group (network), it can change its relations in line with the other options it has. Xia (2011) address-

ses this subject by studying collaborative relationships between companies from different countries, proposing that the number of alternative relationships that a company has reduces its dependence on a single focal company, and in turn, reduces the chance of survival of this focal collaborative relationship.

This view of substitutability network has important implications for network survival because existing competitive alternatives for a partner organization can increase its power by reducing its dependence on the particular network. Based on these theoretical arguments, we elaborate the following research proposition:

- **Proposition 4:** Additional collaborative relationship alternatives of a network member (i.e., the substitutability of the network) are negatively related to network survival.

4.2 DEPENDENCE ON KEY COMPANIES

A major partner generally has greater bargaining power in interorganizational relationships (Oliver, 1990), and this advantage makes it the director of measures and actions to be taken by the network. To Gardet and Mothe (2012), in a network that includes both small and large organizations, small organizations will often be in a greater position of dependence because they need additional resources provided by the major partners; this situation creates an imbalance of power that is unfavorable to network management.

Many networks are dependent on the resources and social mechanisms provided by some key organizations, which makes them more vulnerable. Blau (1964) explains that the types and amount of resources provided by an organization in a given network determines the level of dependence of that partner, as well as its power. In addition, large organizations, which employ more people than small companies and have greater competitive strength in sales or market share, are likely to be more powerful than small organizations (Aldrich, 1976). Guo and Acar (2005) argue that larger organizations with sufficient resources, as indicated by their larger size and annual budget, are less inclined to cooperate.

Skinner, Donnelly and Ivancevich (1987) argue that in networks of manufacturers and dealers, the manufacturers are more dependent on dealers to distribute their products when they are larger resellers. For them, this influence is quite obvious because the dealers with large customer bases exert more power in their relations with a manufacturer than dealers with small customer bases. In this article, the same relationship characterizes interorganizational networks. The focal network is more dependent on large organizations because they have higher purchasing power and resource bases than small organizations and are thus more influential in the relationship with the network.

Thus, the size and resources provided by some key network members can influence the survival of the network because if these companies decide to leave the network, it may be very vulnerable. These key organizations, because of their structure and size, respond to most joint activities; thus, the continuity of the network is dependent on the permanence of these companies in the network. Thus:

- **Proposition 5:** The greater the dependence of the network on key member organizations, the more susceptible the network survival is.

4.3 ADDITIONAL ACTIVITIES PROVIDED BY THE NETWORK

Gulati (2007) defines organizational networks as a more modern and dynamic structural configuration, directing lasting agreements between two or more firms that involves exchange, sharing or co-development of new products, technologies, and services. Cooperation between organizations in networks allows them to undertake joint actions, facilitates the solution of common problems, and enables new opportunities that one organization would not be able to achieve alone, mainly by micro and small enterprises (Kapucu & Van Wart, 2006). A number of practices and actions are planned for allocating the existing resources, achieving joint goals, and attaining competitive advantages in an organizational network.

Considering the importance of marketing actions and outreach, Ngowi (2007) and Lamb *et al.* (2008) address the possibility of organizations in networks to expand and diversify their activities by introducing new products to the market and dividing marketing, trade, and communication expenses. These expenses can be distributed among the members by sharing the costs of these activities and thus achieving economic gains.

Additionally, Pesämaa (2007) mentions as benefits of operating in networks the development of legitimacy and an increase in the company's reputation. Pesämaa (2007) explains that the structure surrounding the company makes potential buyers feel secure and confident in carrying out exchanges with the company. For him, those agents interested in establishing relationships with a certain organization, in general, expect that the undertaking organization may prove to have political support, essential resources, and financial stability. This generates legitimacy to partner companies towards their stakeholders, such as clients, founders, and other organizations in the company's institutional environment (Provan & Lemaire, 2012; André, 2013).

Inherent to the cooperative activities in network, we also highlight the role of interorganizational learning. Zahra and George (2002) relate network learning

to absorption capacity, which is the ability to assimilate information and learn outside organizational boundaries. With this, it arises the possibility of acquiring, assimilating, transforming, and exploiting knowledge, as well as incorporating and applying it in practice (Schulz & Geithner, 2010). For Somfleth (2011), it is clear that the learning obtained between organizations is the only way to develop their businesses and become more competitive.

Finally, we must also emphasize the role of networks in adaptations and technological improvements made by partner companies. Hausman and Stock (2003) mention that as companies move toward cooperative relationships, they face increasing needs for coordination, especially with regard to the adoption of innovative technologies. Kogut (1988) recalls the issue of network members' access to or development of new technologies in networks that allows them to gain greater agility in business actions. By acting in networks, companies can achieve this breakthrough by implementing joint and interconnected systems that allow for better coordination and control of the activities performed.

The possibility of companies succeeding differentially by joint activities and innovations offered by networks is intrinsically linked to a greater dependence of these companies on the network. As Pfeffer and Salancik (1978) argue, the higher the proportion of business and activities performed by the network, the greater the dependence of the members and weaker their power. The development of extra and differentiated activities that provide competitive advantages for network members allows the network extend its power over member organizations, reduce its vulnerability, and become stronger in the market. Thus,

- **Proposition 6:** The more additional activities are provided to member organizations by the network, the greater the probability of network survival.

5 DISCUSSION

Previous theoretical approaches of management of environmental resource dependence and the management of dependency between two parts of a collaborative relationship have evolved almost completely independent of one another (Xia, 2011). Thus, a contribution of this study is to provide a systematic approach to how the dependence of organizations is determined by the duality between the dependencies of the environment and between the parties in a collaborative relationship (in this case, companies and network).

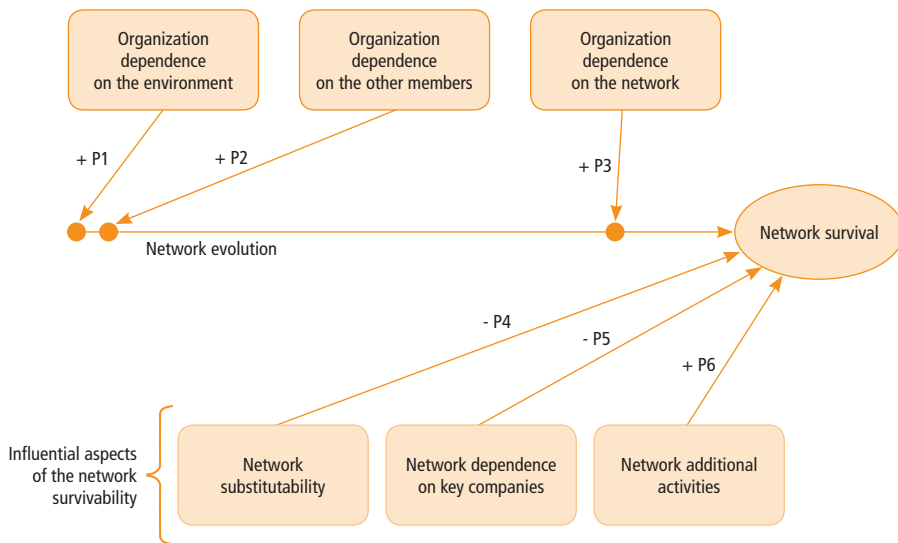
We attempted to show two situations in this article. First, "if firms generate all the resources they need to survive, there would be no need to forge "relations"

with the external environment and, therefore, other organizations” (Rossignoli & Ricciardi, 2015, p. 29). These organizations are going to interact individually with other organizations to procure their necessary flow of resources to satisfy stakeholders. This dependence on the environment is resolved by the organization itself. Second, an organization, on the other hand, will need to cooperate in networks because it does not have all of the necessary resources to perform its core activities. However, by integrating into a network to acquire the needed resources, an organization will have to manage its dependence with the other members and the network. This is what we call dependence between the two parts of a collaborative relationship.

Thus, a network member organization needs to balance and evaluate its dependence, not only on the environment but also on its network relationship. In turn, the network’s survival is the result of this situation, being mediated by facilitators or mitigating aspects, as explained in the previous sub-topics. We depict our theoretical proposal in Figure 1.

FIGURE 1

REPRESENTATION OF THE PROPOSAL



Source: Elaborated by the authors.

This paper’s theoretical proposal extends and explores four main points. First, we seek to corroborate an assumption of RDT that firms depend on the

environment for the exercise of their activities, and given this fact, organizations develop some form of connection that will minimize their dependence. For Provan (1984), one of the most common responses in environmental dependence situations is collaboration with other companies in different types of interorganizational relationships.

The second issue explored in this article is the notion of interdependence between the member organizations in the formation phase of the network. The characteristics and behavior of each organization directs the possibility of achieving the objectives and resources needed by these same organizations. This interdependence becomes critical while the behaviors of the partner organizations to negotiate their dependencies are not fully known. Thus, the effectiveness of social mechanisms explained earlier is critical to the continuity of the network. However, attitudes and behaviors not ideal in this initial phase of the network, such as opportunism, can deteriorate the relationship and take it to bankruptcy.

The third point refers to the notion of dependency of the member organizations in relation to the network in a more advanced stage of its evolution where it usually adopts more formal governance structures. This argument refers to the fact that several member organizations are dependent on networks to remain in the market because of the joint activities and advantages provided by the network. In this situation, the member organization cannot simply decide to leave the collaborative relationship because if it does, it will not manage the environment dependence sufficiently given its lack of resources. Furthermore, based on the relational immersion concept, Gulatti (1998) argues that actors who were strongly connected to each other and have a high level of immersion in the relationship are prone to develop a common understanding of this behavior and about the utility and advantage of the relationship and to diffuse information about costs and benefits. Therefore, we argue that the survival of the network is related to a high degree of member organizations' dependence on the market (environment) in which they operate and their degree of immersion.

Fourth, we introduce influential aspects of interorganizational networks' survival. We explore the question of network substitutability that integrates emerging insights from current research on alliance portfolios (Hoffmann, 2007; Lavie, 2007) to capture changes in an organization's dependence on networks, as a result of an alternative alliance's activities of these organizations with other organizations or even other networks. What we aimed to show is that the availability of additional or substitutable alternatives to partner organizations outside the network has a negative impact on networks' survival probability because, while companies seek and acquire additional sources of available

resources outside of their relationship, an imbalance in the power of the network is generated, which may affect its survival in the long term. Here, the concept of “firm’s network competence” discussed by Ritter, Wilkinson and Johnston (2002, p. 119) gives us a good point to reflect. They argue that “the ability of a firm to develop and manage relations with key suppliers, customers and other organizations and to deal effectively with the interactions among these relations is a core competence of a firm” and has an impact on the firm’s competitive strength and performance. Therefore, the ability of a network member to find other options outside the network and maintain its autonomy may impact on survival of this given network.

Additionally, we discuss the power and the influence exerted by some key companies in the network. In a relationship between organizations, Narula (2004) mentions that small and medium enterprises, as well as large ones, have specific characteristics and often lack essential resources and capabilities. In an interorganizational network involving small and large organizations, the small ones generally will be in a position of dependence, which does not necessarily happen with the large ones. Large organizations are generally responsible for the largest volume and demand in joint activities undertaken by the network, such as the purchase of products from a particular supplier. Given this situation, if they do not participate in joint activities or give up cooperation and leave the network, the collaborative arrangement tends to be weakened, thus reducing the chances of network survival.

A third network survival element explored in this work is the performance of additional activities performed and provided by the network to the member organizations. Through collaboration networks, organizations seek to reduce uncertainty regarding their respective business environments by gaining control over resource flows. To Gardet and Mothe (2012), the dependence arises from the need of one organization to maintain a collaborative relationship to achieve its goals. Thus, from the time the network becomes effective in allowing for achievement of these organizational objectives and in providing a range of resources to reduce the uncertainty of the organization in relation to its environment, the network becomes an effective vehicle of competitiveness of its members and increases its likelihood of survival.

Lastly, RDT analyses in particular gave us a basis to analyze how resource dependence and the associated uncertainty give rise to power differentials and asymmetric dependence between two parties (Ebers & Semrau, 2015). Networks that provide the resources needed by their members provide support for this idea.

6 FINAL REMARKS

The relationships between organizations are one recognized mechanism for them to establish a greater degree of control over their environment (Pfeffer & Nowak, 1976, Pfeffer & Salancik, 1978). However, as Xia (2011) noted, scant attention to the post-formation dynamics of a collaborative arrangement between organizations using the perspective of RDT has been made given that scholars of this line have used primarily the assumptions of this theory to explain initial conditions in which collaborative relationships are formed. Therefore, this article is motivated by the need to fill this gap and seeks to extend the perspective of resource dependence to generate theoretical explanations referring survival of interorganizational networks.

Based on exchanges between two parties A and B of Emerson (1962), this theoretical essay focuses on changes in the relationship of dependence at different times of network evolution. It was argued initially that given the need for resources, organizations seek relationships with others to meet this need, and the interdependence between the member organizations would be crucial in the initial formation phase of the network and its continuity. Secondly, we explored the asymmetric dependence of member organizations on the network in which they are inserted in a more advanced stage of the network evolution (when it uses a more formal mode of governance).

We then extended the discussion introducing the influencing factors of network survival. The factors explored were the substitutability of the network, the dependence of the network to key organizations, and the additional activities provided by the network. By exploring these elements, we sought to provide an understanding of the dynamic relationship of parties (the network and member organizations), presenting stabilizing or destructive forces of these types of collaborative relationships and, consequently, the network survival. Thus, this study integrates the interactive effects between different facets and notions of dependence and enriches the perspective of resource dependence explanation for the survival of networks.

Given the theoretical construct developed in this work, we can consider that it is much more difficult to develop elements to ensure the survival of the networks that to form them. There are factors that need to be taken into consideration to the network survival as the substitutability of the network and the dependence of the network key companies. Furthermore, the additional activities provided by the network should be well organized so that they can, in fact, generate benefits and advantages to the members of the network. Otherwise, they will seek ways to access the resources they need outside the network. Generally, this article also provides an explanation to the fact that the networks failure rates are fairly large.

This work also raises important implications for managers and owners of companies inserted into networks. First, they must be able to identify the various types of resource needs of their organizations, and in relation to them, take actions to protect their business against unexpected changes in the business environment in which they live. Second, the explanation of possible dependence variations of organizations embedded in networks. Third, the asymmetric dependence may not necessarily be bad for their business because in this situation, each procedure assumes that the network is being efficient in generating resources needed by the member organizations.

One limitation of this proposal is that the conceptualization of this study has been based solely on the RDT to direct network survival. In view of other theories that might explain the object of analysis, it is likely that other factors can be identified in earlier studies which refer to the issue of this article. In addition, the proposal was basically built in two stages of the network: its formation, when it normally uses a shared mode of governance, and the stage at which the network begins to use a more formal mode of governance, usually with an NAO. The dynamic evolution of the network was not taken as the focus of analysis for explanation of network survival. Thus, another suggestion for future research is that works can address both of these points in more details. An empirical application of the proposal outlined in this article is also suggested.

A SOBREVIVÊNCIA DAS REDES INTERORGANIZACIONAIS: UMA ANÁLISE BASEADA NA TEORIA DA DEPENDÊNCIA DE RECURSOS

RESUMO

Objetivo: O objetivo deste artigo é descrever uma proposta teórica para analisar a influência de três facetas da dependência de organização sobre a sobrevivência das redes interorganizacionais: ambiente, outros membros e rede.

Originalidade/lacuna/relevância/implicações: O artigo pode apoiar empresários mostrando tensões da dependência das empresas no mercado e nas redes. O entendimento das mudanças relacionais e benefícios oferecidos pela rede durante a evolução da mesma também impacta sobre a dependência das empresas. Assim, este artigo é original, uma vez que torna a contribuição fundamental para um fluxo de início da pesquisa.

Principais aspectos metodológicos: A conceituação deste estudo é baseada na Teoria da Dependência de Recursos para direcionar a sobrevivência da rede. A meto-

dologia do artigo baseia-se num ensaio teórico para a formação de uma base analítica sobre o assunto. O artigo apresenta o discernimento de uma maneira que lança luz sobre o assunto e prepara o terreno para futuras pesquisas.

Síntese dos principais resultados: Não se aplicam. Neste artigo, nós não fizemos uma investigação empírica.

Principais considerações/conclusões: A conceituação deste estudo foi baseada unicamente na Teoria da Dependência de Recursos para dirigir a sobrevivência da rede. Além disso, pesquisas adicionais são necessárias para validar empiricamente o framework.

PALAVRAS-CHAVE

Sobrevivência da rede. Dependência da organização. Evolução da rede. Teoria da dependência de recursos. Competitividade.

LA SUPERVIVENCIA DE LAS REDES INTER-ORGANIZACIONALES: UN ANÁLISIS BASADO EN LA TEORÍA DE LA DEPENDENCIA DE RECURSOS

RESUMEN

Objetivo: El propósito de este trabajo es describir una propuesta teórica para el análisis de la influencia de tres facetas de la dependencia de la organización sobre la supervivencia de las redes interorganizacionales: el medio ambiente, los demás miembros y la red.

Originalidad/laguna/relevancia/implicaciones: El artículo puede apoyar al hombre de negocios al mostrar las tensiones de dependencia de las empresas en el mercado y las redes. La comprensión de los cambios relacionales y beneficios proporcionados por la red durante su evolución también repercute en la dependencia de las empresas. Por lo tanto, este trabajo es original una vez que se hace la contribución fundamental para una corriente a partir de la investigación.

Principales aspectos metodológicos: La conceptualización de este estudio se basa en la teoría de la dependencia de recursos para la supervivencia de red. La metodología del documento se basa en un ensayo teórico para la formación de un fondo analítico del tema. Presenta el discernimiento de una manera que arroja luz sobre el tema y sienta las bases para futuras investigaciones.

Síntesis de los principales resultados: No aplicar. En este artículo, no hicimos una investigación empírica.

Principales consideraciones/conclusiones: La conceptualización de este estudio se ha basado únicamente en la teoría de la dependencia de recursos para dirigir la supervivencia de la red. Además, se necesita investigación adicional para validar empíricamente el marco.

PALABRAS CLAVE

Supervivencia de la red. Dependencia de la organización. Evolution de la red. Teoría de la dependencia de recursos. Competitividad.

REFERENCES

- Ahuja, G. (2000). Collaboration networks, structural holes, and innovation: A longitudinal study. *Administrative Science Quarterly*, 45(3), 425-455.
- Aldrich, H. (1976). Resource dependence and interorganizational relations: Local employment service offices and social services sector organizations. *Administration and Society*, 7(4), 419-54.
- André, M. R. D. L. (2013). *Factores de sucesso nas redes interorganizacionais de carácter temporário*. Doctoral thesis, Universidade Técnica de Lisboa, Lisboa, Portugal.
- Andrésen, E., Lundberg, H., & Roxenhall, T. (2012). Designing for commitment in regional strategic networks. *Management Research Review*, 35(6), 531-552.
- Balmann, A., Odening, M., Weikard, H-P., & Brandes, W. (1996). Path-Dependence without increasing returns to scale and network externalities. *Journal of Economic Behavior and Organization*, 29(1), 159-172.
- Blau, P. M. (1964). *Exchange and power in social life*. New York: John Wiley.
- Broschak, J. P. (2004). Manager's mobility and market interface: the effect of managers' career mobility on the dissolution of market ties. *Administrative Science Quarterly*, 49(4), 608-640.
- Casciaro, T., & Piskorski, M. J. (2005). Power imbalance, mutual dependence, and constraint absorption: a closer look at resource dependence theory. *Administrative Science Quarterly*, 50(2), 167-199.
- Castro, M., Bulgacov, S., & Hoffmann, V. E. (2011). Relacionamentos interorganizacionais e resultados: estudo em uma rede de cooperação horizontal da região central do Paraná. *Revista de Administração Contemporânea*, 15(1), 25-46.
- Chen, B. (2010). Antecedents or processes? Determinants of perceived effectiveness of interorganizational collaborations for public service delivery. *International Public Management Journal*, 13(4), 381-407.
- Das, T. K., & Teng, B.-S. (2000). Instabilities of strategic alliances: an internal tensions perspective. *Organizational Science*, 11(1), 77-101.
- Das, T. K., & Teng, B.-S. (2002). The dynamics of alliance conditions in the alliance development process. *Journal of Management Studies*, 39(5), 725-746.
- Davis, G. F., & Cobb, A. (2010). Resource dependence theory: past and future. *Research in the Sociology of Organizations*, 28, 21-42.

- Drees, J. M., & Heugens, P. P. M. A. R. (2013). Synthesizing and extending resource dependence theory: a meta-analysis. *Journal of Management*, 39(6), 1666-1698.
- Ebers, M., & Semrau, T. (2015). What drives the allocation of specific investments between buyer and supplier? *Journal of Business Research*, 68(2), 415-424.
- Emerson, R. M. (1962). Power-dependence relations. *American Sociological Review*, 27(1), 31-40.
- Frazier, G. L. (1983). On the measurement of inter-firm power in channels of distribution. *Journal of Marketing Research*, 20(2), 158-166.
- Galaskiewicz, J. (1985). Interorganizational relations. *Annual Review of Sociology*, 11(1), 281-304.
- Gardet, E., & Mothe, C. (2012). SME dependence and coordination in innovation networks. *Journal of Small Business and Enterprise Development*, 19(2), 263-280.
- Geisler, E. (1995). Industry-university technology cooperation: a theory of interorganizational relationships. *Technology Analysis & Strategic Management*, 7(2), 217-229.
- Gulati, R. (1998). Alliances and networks. *Strategic Management Journal*, 19(4), 293-317.
- Gulati, R. (2007). Silo busting: transcending barriers to build high growth organizations. *Harvard Business Review*, 85(5), 98-108.
- Gulati, R., & Sytch, M. (2007). Dependence asymmetry and joint dependence in interorganizational relationships: effects of embeddedness on a manufacturer's performance in procurement relationships. *Administrative Science Quarterly*, 52(1), 32-69.
- Guo, C., & Acar, M. (2005). Understanding collaboration among nonprofit organizations: combining resource dependency, institutional, and network perspectives. *Nonprofit and Voluntary Sector Quarterly*, 34(3), 340-361.
- Hausman, A., & Stock, J. R. (2003). Adoption and implementation of technological innovations within long-term relationships. *Journal of Business Research*, 56(8), 681-686.
- Hillman, A. J., Withers, M. C., & Collins, B. J. (2009). Resource dependence theory: a review. *Journal of Management*, 35(6), 1404-1427.
- Hoffmann, W. H. (2007). Strategies for managing a portfolio of alliances. *Strategic Management Journal*, 28(8), 827-856.
- Isett, K. R., Mergel, I. A., Leroux, K., Mischen, P. A., & Rethemeyer, R. K. (2011). Networks in public administration scholarship: understanding where we are and where we need to go. *Journal of Public Administration Research and Theory*, 21(1), 157-173.
- Jacobs, D. (1974). Dependency and vulnerability: an exchange approach to the control of organizations. *Administrative Science Quarterly*, 19(1), 45-59.
- Jones, C., Hesterly, W. S., & Borgatti, S. P. (1997). A general theory of network governance: exchange conditions and social mechanisms. *Academy of Management Journal*, 22(4), 911-945.
- Kapucu, N., & Van Wart, M. (2006). The emerging role of the public sector in managing extreme events: lessons learned. *Administration and Society*, 38(3), 279-308.
- Kogut, B. (1988). Joint-Ventures: theoretical and empirical perspectives. *Strategic Management Journal*, 9(4), 312-332.
- Kumar, N., Scheer, L. K., & Steenkaap, J-B. E. M. (1995). The effects of perceived interdependence on dealer attitudes. *Journal of Marketing Research*, 32(3), 348-356.
- Lamb, C., Hair, J. F., & McDaniel, C. (2008). *Marketing*. Cincinnati: Southwestern Publishing.
- Lavie, D. (2007). Alliance portfolios and firm performance: a study of value creation and appropriation in the U.S. software industry. *Strategic Management Journal*, 28(12), 1187-1212.

- Lee, H., Kim, M. S., & Kim, K. K. (2014). Interorganizational information systems visibility and supply chain performance. *International Journal of Information Management*, 34(2), 285-295.
- Lefroy, K., & Tsarenko, Y. (2013). From receiving to achieving: the role of relationship and dependence for nonprofit organisations in corporate partnerships. *European Journal of Marketing*, 47(10), 1641-1666.
- Lewis, M. C., & Lambert, D. M. (1991). A model of channel member performance, dependence and satisfaction. *Journal of Retailing*, 67(2), 205-225.
- McNamara, P., Pazzaglia, F., & Sonpar, K. (2015). Large-scale events as catalysts for creating mutual dependence between social ventures and resource providers. *Journal of Management*, 20(10), 1-31.
- Narula, R. (2004). R&D collaboration by SMEs: new opportunities and limitations in the face of globalisation. *Technovation*, 25(2), 153-161.
- Ngowi, A. B. (2007). The role of trustworthiness in the formation and governance of construction alliances. *Building and Environment*, 42(4), 1828-1835.
- Oliver, C. (1990). Determinants of interorganizational relationships: integration and future directions. *Academy of Management Review*, 15(2), 241-265.
- Park, S. H., & Ungson, G. R. (2001). Interfirm rivalry and managerial complexity: a conceptual framework of alliance failure. *Organization Science*, 12(1), 37-53.
- Pesämaa, O. (2007). *Development of relationships in interorganizational networks: studies in the tourism and construction industries*. Doctoral thesis, Luleå University of Technology, Strömsund, Sweden.
- Pfeffer, J. (1992). *Managing with power: politics and influence in organizations*. Boston, MA: Harvard Business School Press.
- Pfeffer, J., & Nowak, P. (1976). Joint ventures and interorganizational interdependence. *Administrative Science Quarterly*, 21(3), 398-418.
- Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. New York: Harper and Row.
- Pfeffer, J., & Salancik, G. R. (2003). *The external control of organizations: A resource dependence perspective*. Stanford: Stanford University Press.
- Provan, K. G. (1984). Interorganizational cooperation and decision-making autonomy in a consortium multi-hospital system. *Academy of Management Review*, 9(3), 494-504.
- Provan, K. G., Beyer, J. M., & Kruytbosch, C. (1980). Environmental linkages and power in resource-dependence relations between organizations. *Administrative Science Quarterly*, 25(2), 200-225.
- Provan, K. G., & Kenis, P. (2008). Modes of network governance: structure, management, and effectiveness. *Journal of Public Administration Research and Theory*, 18(2), 229-252.
- Provan, K. G., & Lemaire, R. H. (2012). Core concepts and key ideas for understanding public sector organizational networks: using research to inform scholarship and practice. *Public Administration Review*, 72(5), 638-648.
- Provan, K. G., & Skinner, S. J. (1989). Interorganizational dependence and control as predictors of opportunism in dealer-supplier relations. *The Academy of Management Journal*, 32(1), 202-212.
- Ritter, T., Wilkinson, I. F., & Johnston, W. J. (2002). Measuring network competence: some international evidence. *Journal of Business & Industrial Marketing*, 17(2/3), 119-138.
- Rosignoli, C., & Ricciardi, F. (2015). *Inter-Organizational Relationships: theories explaining inter-organizational relationships in terms of coordination and control needs* (pp. 7-36). New York: Springer International Publishing.

- Sadowski, B., & Duysters, G. (2008). Strategic technology alliance termination: an empirical investigation. *Journal of Engineering and Technology Management*, 25(4), 305-320.
- Schiele, H., Ellis, S. C., Eßig, M., Henke Jr., J. W., & Kull, T. J. (2015). Managing supplier satisfaction: social capital and resource dependence frameworks. *Australasian Marketing Journal*, 23(2), 132-138.
- Schulz, K., & Geithner, S. (2010). Between exchange and development: Organizational learning in schools through inter-organizational networks. *Learning Organization*, 17(1), 69-85.
- Skinner, S. J., Donnelly Jr., J. H., & Ivancevich, J. M. (1987). Effects of transactional form on environmental linkages and power-dependence relations. *Academy of Management Journal*, 30(3), 577-588.
- Somfleth, N. (2011). *Stronger together: small and medium sized tour operators in a horizontal network*. Master thesis, University of Lund, Campus Helsingborg, Sweden.
- Vestrum, I., & Rasmussen, E. (2013). How community ventures mobilize resources: developing resource dependence and embeddedness. *International Journal of Entrepreneurial Behaviour & Research*, 19(3), 283-302.
- Villanueva, J., Van de Ven, A. H., & Sapienza, H. J. (2012). Resource mobilization in entrepreneurial firms. *Journal of Business Venturing*, 27(1), 19-30.
- Westerlund, M., & Rajala, R. (2010). Learning and innovation in inter-organizational network collaboration. *Journal of Business & Industrial Marketing*, 25(6), 435-442.
- Wicker, P., Vos, S., Scheerder, J., & Breuer, C. (2013). The link between resource problems and interorganisational relationships: a quantitative study of Western European sport clubs. *Managing Leisure*, 18(1), 31-45.
- Wincent, J., Thorgren, S., & Anokhin, S. (2014). Entrepreneurial orientation and network board diversity in network organizations. *Journal of Business Venturing*, 29(2), 327-344.
- Xia, J. (2011). Mutual dependence, partner substitutability, and repeated partnership: the survival of cross-border alliances. *Strategic Management Journal*, 32(3), 229-253.
- Xia, J., & Li, S. (2013). The divestiture of acquired subunits: a resource dependence approach. *Strategic Management Journal*, 34(2), 131-148.
- Zahra, S. A., & George, G. (2002). Absorptive capacity: a review, reconceptualization and extension. *Academy of Management Review*, 27(2), 185-203.