

Interfirm Networks and Organizational Performance: A Theoretical Review.

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Abstract

The performance of firms globally is threatened by the dynamic business environment thus shifting competition from individual firms to networks of different firms. Recently, there is increased interest in the concept of inter-firm network as a viable strategy for survival and enhancing performance of organizations in such a competitive environment. In this strategy, different organizations cooperate in terms of research and development, business collaborations, virtual cooperation, knowledge based and social networks. Inter-firm networking is undertaken by various organizations for a number of reasons which include knowledge sharing, joint actions, building technological capacities, taking advantage of local marketing skills, decentralizing to be closer to local markets, building user-supplier networks, and taking advantage of knowledge spillovers from location-based proximity. It has been proposed that the adoption of this strategy by different organizations enables them gain competitive advantage because it has a positive impact on their market share and organizations also leverage on technology; thus producing a positive effect on their performance. However, extant theoretical and empirical literature is inconclusive on how to conceptualize interfirm networks, its dimensionality and measurement. Few studies, if any, have examined the role played by competitive advantage and legal framework in mediating and moderating the relationship between interfirm networks and organizational performance, respectively. Consequently, this study was conducted with the objectives of reviewing, conceptualizing and examining conceptual, empirical and theoretical literature; identifying theoretical and methodological gaps, and finally, proposing a conceptual model that would demonstrate the relationship between interfirm networks and organizational performance. Relevant theories underpinning the study were analyzed, various constructs and their operational indicators identified and compared against existing empirical work. The paper finally proposed that there is need to conduct an empirical study based on the proposed theoretical model to contribute to the advancement of knowledge in this area.

Keywords: interfirm networks;Competitive advantage; Legal framework; Firm performance.

Introduction

The dynamic business environment has created a shift in focus for the search for firms' competitive advantage. Through interactions with other firms and partners, firms can achieve a better understanding of industry benchmarks and competitive trends. Firm interactions are also sources of knowledge (Nahapiet & Ghoshal, 1998). According to Maina, Marwa, Waiguchu and Riro (2016) inter-firm networking has been recognized as a vital element for the survival and growth of business organizations. In most cases, a firm's networking partners are the most important sources of new ideas and information that potentially could result in performance-enhancing technology and innovations.

Interfirm networks are relationship between firms which share information, resources and responsibilities to jointly plan, implement, and evaluate a program of activities to achieve a common goal (Camarinha-Matos & Afsarmanesh, 2006). Broadly speaking, networks are defined by enduring exchange relations established between organizations, individuals, and groups involved in the creation of products and services which are mainly informal with the objective of mutual benefits (Simsek, Lubatkin, & Floyd, 2003; Weber & Khademian, 2008). Among the reasons for interfirm collaboration include sharing of know-how, joint action, building technological capacities, taking advantage of local marketing skills, building user-supplier networks, and taking advantage of knowledge spillovers from location-based proximity.

Firm performance is an important concept in strategic management (Guérard, Langley & Seidi, 2013; Singh, Darwish & Potočnik, 2016). Various studies have shown conflicting conclusions on the influence of inter-firm networks on firm performance. Some empirical studies suggest that network relationships play a role in the firm performance (Burlina, 2018; Maina, 2015; Gulati, Nohria & Zaheer, 2000). Different partners with different resources can add value and knowledge to the inter-firm network they belong to thus enhancing the probability for the firms to increase their productivity and profitability (Burlina, 2018).

Statement of the Problem

Inter-firm networks have become key to the performance of many firms in the current business environment that is dynamic and highly competitive. According to Ngigi and Kilika (2019) new technology, globalization, new trends and increased turbulence in the business world contribute to an increased need of forming networks within industries. The nature of relationship between firm performance and inter-firm networking has been a subject of research for some time now. However, extant studies reveal that there lacks a consensus on its measurement; and its operationalization is contextual (Kumar & Anderesen, 2000). Ozman (2006) posits that although there is a huge increase on research on networks, drawing robust conclusions and generalizable results remains a challenge. This is because a great majority of these studies focus on different sectors under different conditions and define networks in different ways.

Other studies show contradictory findings on how inter-firm networks influence firm performance. Korir, Kipruto, Maru and Koskei (2012) found that network structure has no significant influence on performance of event management ventures. Teng (2007) asserts that a firm may have difficulty in finding suitable partners and managing the interactions due to shared decision making, need for control and conflicting objectives hence affecting its performance. Hammill and Gilbert (2009) argue that the cost associated with maintaining the network may be prohibitive thus limiting the benefits to firm performance. From these studies it is evident that there exists no common conceptualization of the constructs of inter-firm network strategies and their impact on firm performance. There is a scarcity of studies also that include the mediating effect of competitive advantage and moderating effect of legal environment on inter-firm networking and organizational performance.

This study therefore aimed at systematically reviewing relevant conceptual, empirical and theoretical literature on the concept of inter-firm networks, its definitions and measurement parameters to address the identified gaps. It also included the concept of competitive advantage and the legal framework as mediating and moderating variables respectively to expand the theorization of the concept of inter-firm networks. Finally, the study proposed a theoretical model that can be used in future academic studies.

Interfirm Networks

Inter-firm networks enable firms to pool knowledge and resources and come up with high-quality products and services for global markets. According to Hoang and Antoncic (2003), inter-firm networking concerns a set of actors (nodes) which may be individuals or firms and a set of relationships (links) which connect the actors in long term interactions for the purpose of allowing resources and other mechanisms to flow across the boundaries of individual firms. Borgatti and Foster (2003) define a network as a set of actors connected by a set of ties; the actors being persons, teams, organisations or concepts. According to Camarinha-Matos & Afsarmanesh (2006) collaboration networks are relationship between firms which share information, resources and responsibilities to jointly plan, implement, and evaluate a program of activities to achieve a common goal.

Dimensions of Inter-Firm Networks

A review of literature reveals various dimensions of inter-firm networks including Research and Development (R & D) networks, inter-firm collaborative networks, virtual inter-firm networks and social networks, and knowledge based networks. Research and development networks are formed by organizations that retain their independence while partnering to achieve research and innovation goals (Hagedoorn, 2001; Hagedoorn, Link & Vonortas, 2000; Pippel, 2012). König, Battiston, Napoletano, and Schweitze (2012) argue that R&D collaborations enable firms to directly combine the knowledge, skills and physical assets needed to innovate. Inter-firm collaborative networks have continued to gain importance as firms move towards forming alliances

with several partners (Ritter, Wilkinson & Johnston, 2004; Tsai, 2009; Shuman & Twombly, 2010). A collaborative network is made up of businesses, individuals and other organizational entities which combine capabilities and resources needed to achieve a specific objective (Shuman & Twombly, 2010). The partners involved could be customers, competitors, suppliers, or complementors.

Virtual inter-firm networks consist of individuals or organizations who, although independent and found in different geographical and socio-cultural environments, collaborate for successful achievement of mutual goals while interacting through computer network (Camarinha-Matos & Afsarmanesh, 2006). There are different dimensions of virtual inter-firm networks in both goods and services industry. These include virtual teams, virtual organizations, virtual enterprises, and professional virtual communities.

Social networks consist of a set of nodes which could be individuals, events, organizations or firms connected to a specific type of social relationship (Serrat, 2010; Yu & Chiu, 2013). Collins and Clark (2016) describe TMT social networks as the sets of relationships formed by top managers and others, either internally or externally, which hold potentially valuable information to the firm. Such networks facilitate access to resources or valued sources of information that are beneficial to business enterprises (Hoag, 2006). Konak (2018) posits that managerial social ties and ties with managers of other firms can be used to improve organizational performance by allowing organizations to access knowledge, resources and information.

Knowledge based networks have developed out of the importance attached to knowledge as a strategic resource (Arikan, 2009; Phelps, Heidl & Wadhwa, 2012; Wang, Rodan, Fruin & Xu, 2014). Knowledge networks are made up of nodes that act as repositories of knowledge and agents that search for, adopt, transmit, and create knowledge (Phelps, Heidl & Wadhwa, 2012). These nodes can be made up of individuals or teams with diverse repositories of knowledge connected through various social relationships and serve as the linkages between the cores of scientific and technological knowledge (Wang, Rodan, Fruin & Xu, 2014).

Firm Performance

Organizational performance is one of the most important constructs in strategic management (Guérard, Langley & Seidi, 2013). This is because performance measurement is crucial in the efficient and effective management of firms (Kennerley & Neely, 2002). Wernerfelt (1984) defines performance as posting high returns over longer periods of time. Koontz and Donnell (2003) describe organizational performance as the ability of an enterprise to achieve such objectives as high profit, quality product, large market share, good financial results and survival at pre-determined time using relevant strategy for action. According to Muchemi (2013) organizational performance refers to efficiency and effectiveness in utilization of resources as well as the accomplishment of an organization's goals.

Richard *et al.*, (2009) posits that organizational performance encompasses three specific areas of firm outcomes:

financial performance, product-market performance and shareholder return. The financial performance uses such methods as return on assets, Total Assets, Profit before Tax, market share, share price and sales revenue (Muchemi, 2013). The indicators for product/market performance include, among others, sales and market share. The last, shareholder return, includes indicators such as total shareholder return and economic value added.

The Mediating Role of Competitive Advantage

Porter (1980) posits that a firm's competitive advantage arises from the value that it is able to create for its customers that surpasses the costs of creating it. Grupe & Rose (2010) describe competitive advantage as a firm's ability to improve the quality of its products, reduce the costs of its products, and enlarge its market share or profit. Porter (1985) posits that a firm can use either low cost or differentiation advantage to achieve a competitive advantage. These strategies focus on an individual firm competing against its rivals in the business environment.

However, intense competition and environmental turbulence has made it almost impossible for a firm to achieve competitive advantage (D'Aveni, Dagnino & Smith, 2010). Consequently, firms have formed inter-firm networks to acquire information and resources needed to achieve a competitive advantage. Under this relationship, the competitive advantage of actors in a network is based on how network resources are integrated within a partner's strategic resources (Das & Teng, 2000). A firm's inter-organizational network becomes its major source of sustained competitive advantage (Koch & Windsperger, 2017); derived from relation-specific assets, knowledge sharing routines, complementary resources and effective governance found within these networks (Duschek, 2004).

The Moderating Effect of Legal Framework

The legal framework has an impact on the relationship between inter-firm networks and firm performance. Elements of political risk are embedded within the political environment hence pose a challenge to managers in defining and predicting it (Mark & Nwaiwu, 2015). The enactment of changes in regulation can either encourage or inhibit market competition (Sheng, Zhou & Li, 2011). Firms operating in environments with extensive regulation and market intervention have fewer strategic options available to them because they are forced to adapt their activities in order to comply with the requirements (Spencer & Gómez, 2003). Firms also incur increased costs in ensuring that they adhere to the set regulations, thus impacting on their performance. These limitations may encourage firms to form networks with other firms in order to have access to external resources and information to survive and grow. Balachandran and Hernandez (2016) assert that the strengthening of intellectual property rights (IPR) laws encourage foreign firms to partner with a wider range

of firms from the reforming countries because they can rely on formal means to protect their assets.

THEORETICAL REVIEW

Resource Dependency Theory (RDT)

This theory was first formulated and proposed by Pfeffer and Salancik (1978). It is based on the principle that resources are key to an organization's success and access to and control over these resources are a foundation for power. According to Barney and Arikan (2001) resources are tangible or intangible assets used by firms to conceive and implement their strategies. The basic tenet of RDT is that firms need to access resources in their environments for strategic and tactical management. Scarcity of resources forces many organizations to compete for the same or similar sets (Hessels & Terjesen, 2010). The basic assumption of RDT theory is ensuring organizational survival by minimizing any situation of uncertainty and dependency and characterizes an organization as an open system, dependent on contingencies in the external environment (Pfeffer & Salancik, 1978).

Therefore, firms develop relationships of dependency with other firms in the external environment that will enable them to acquire the needed resources for survival. On the other hand, organizations will strive to reduce their dependence on others who will wield this control over them. Hessels and Terjesen (2010) posit that this can be done through acquiring control over the resources in order to minimize their dependence on others or acquiring control over resources that will maximize the dependence of other organizations on themselves. This leads to interdependence among them which eventually creates uncertainty. Therefore, this theory is relevant to this study because it highlights reasons why firms may form linkages with other enterprises for the sake of achieving their organizational objectives and hence gain a competitive advantage as well as improve their performance. In doing so, various networks like R&D, knowledge -based, social networks, collaborative and virtual inter-firm networks will be formed.

Transaction Cost Economics Theory (TCE).

This theory was first proposed by Coase (1937) and reinforced by among others Williamson (1998) and Benkler (2006). The theory focuses on how firms reduce costs associated with manufacturing and other transactions due to their activities. Specifically, the theory examines why some economic transactions are conducted within the boundaries of firms while others are outsourced to external parties (Martins, Serra, Leite, Ferreira, & Li, 2010). According to Uddin (2017) transaction costs are made up of environmental and human uncertainty, asset specificity and frequency of occurrence. Coase (1937) maintains that the firm will conduct its transactions within the enterprise if the costs are less than doing so in the market. However, an enterprise will prefer the transactions to be organized outside it if there are additional transaction costs from doing so within it.

The major assumption of this theory is that the actors will be guided by bounded rationality. Bounded rationality is an assumption that people will tend to make rational decisions regardless of imperfect cognitive abilities and imperfect information (Williamson, 1998). This theory is relevant to this study because it highlights how firms stand to lower their costs associated with business transactions as a result of inter-organizational networking. Organizations will always link up with other organizations that will enable them to acquire information and resources that assist in lowering their transaction costs.

Social Network Theory

Although Jacob Moreno is credited with developing this theory in the 1930s, various scholars including Cartwright and Harary (1956) and Milgram (1967) have contributed to its development over the years. This theory focuses on relationships existing between various actors, either as individuals or firms. It highlights the role of social relationships in transmitting information, channeling personal or media influence, and enabling attitudinal or behavioral change. The theory holds that the main factor responsible for the differences in firms' performance lies in the relationships between it and others in the business environment.

Social network theory examines how people; organizations or groups interact with others inside their networks for the common purpose of business growth. The networks usually comprise of actors and relationship between the actors, whereby the actors are nodes that include individuals, organizations and companies. The intense competition in the global markets has increased the focus on social networking among players to achieve differentiation and competitive advantage. The theory is relevant to this study as it underpins the various social networks among business organizations as well as giving insights on how individuals and group members are connected and relate to one another. The social network dimension of inter-firm networks will be greatly anchored in this theory.

Institutional Theory

This theory was postulated by Di Maggio and Powell (1983) and seeks to explain the processes by which structures including pre-existing rules, beliefs, norms and routines become established as authoritative guidelines for institutions. The theory explains how these components are created, diffused and adapted over space and time, and how they fall into decline and disuse. Institutional theorists assert that the institutional environment can strongly influence the development of formal structures in an organization, often more profoundly than market pressures. The focus of the theory is on conformations with social norms and legitimacy of organizations within the institution's operating environments.

According to the institutional theory, organizations operate within a social framework of norms, values and assumptions about what constitutes appropriate behavior (Hessels & Terjesen, 2010). The survival of

organizations entirely depends on their conformity to the rules and belief systems prevailing in the environment; this institutional isomorphism will earn them legitimacy (Di Maggio & Powell, 1983). Legitimacy is defined as a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate (Suchman 1995). It is advantageous to an organization and enables it to access critical resources and understanding. One of the ways in which a firm attains legitimacy is through formation of inter-firm relationships. Institutional pressures encourage firms to sign up for inter-firm relationships for other motives (Cowan *et al.*, 2015). This theory influenced this paper because an organization can increase its visibility, recognition, image, and prestige through partnerships with large, hooked up firms (Martin-Rios, 2014). Different firms may also network with already established organizations for the purpose of recognition. If participation in inter-firm relationships becomes an embedded norm in a populace, then firms will participate in inter-firm relationships as a means of variation and survival (Atler & Hage, 1993).

Strategic Choice Theory

This theory was postulated by Child (1972) and relates to the actions or roles played by organizational leaders in making choices to enhance the performance of their firms. Strategic choice refers to the decision which determines the future strategy of an organization. According to Kochan (1984) the strategic choice theory considers the forces coming from the external environment that may affect the entire organization. This means that it is neither the internal or external environment that entirely shapes the strategic actions of firms (Tokman, Richey & Deitz, 2016). It is the internal factors operating within the organizations and individual managers who determine the strategic choices made by an organization as a reaction to pressure in the external environment (Zheng *et al*, 2013).

The theory places emphasis on how organizational choices and actions interact with the business environment, hence influencing organizational outcomes. According to Child (1972) the choices made by the managers have the greatest impact on organizations, as compared to the influence by the environment, on them. Consequently, managers in making choices that determine the future strategic direction of the organization are influenced by their interests, values and beliefs. Since the theory acknowledges the existence of power imbalances among organizational members, power struggles take on a political aspect and are essentially to serve the self-interests of the dominant coalition in the decisions made. The theory underpins this study because in making choices to collaborate with two or more firms, managers need to consider how strategic in nature this could be in enhancing competitive advantage and consequently the growth of firms. Instant efficiency or resource-primarily based rationales or any range of other factors are examples of strategic reasons for which companies might also involve in inter-firm alliance (Kogut, 1988).

Balanced Score Card Model

This is an organization's model that is developed with the objective of translating its mission, vision and objectives into measurable results. By adopting inter-firm networking strategies, organizations tend to enhance their performance in various aspects of financial, customer focus, internal business processes and, learning and growth.

The customer focus perspective involves actions aimed at enhancing both internal and external customer's needs. According to Kaplan & Norton (1992), it indicates how an organization's projects are successful from the point of view of the customer. They assert that objectives of measuring customer perspective should include standard measures like customer satisfaction, customer retention and customer loyalty through market shares, customer value and customer profitability. In the internal business processes, Kaplan & Norton (1992) asserts that the perspective provides objectives for the organization to excel in its performance by identifying and evaluating the value of both the customers and shareholders' goals. The focus of this perspective is on all the activities and key processes in an organization that are required to make it excel in providing the value expected by both internal and external customers in an efficient and productive way. This view ties into the customer and financial perspectives by incorporating the value propositions that are important to its target segment and by meeting shareholder expectations on financial returns (Kaplan & Atkinson, 1998).

In the perspective of learning, growth and innovation, the objective aims at determining what is necessary in order to achieve the goals set in the previous three perspectives. As Kaplan and Norton (1996) points out, objectives in this view usually pertain to one of the following three categories: employee capabilities; information system capabilities; and motivation, empowerment, and alignment. The balanced scorecard constitutes a systematic attempt to measure the relationship between the results and the operating activities as well as a powerful instrument to communicate a firm's goals and objectives to operating managers (Atkinson & Epstein, 2000).

Proposed Theoretical Model

From the review of extant literature on inter-firm networks a theoretical model is proposed here to show the relationship between the variables in the study in figure 1 below.

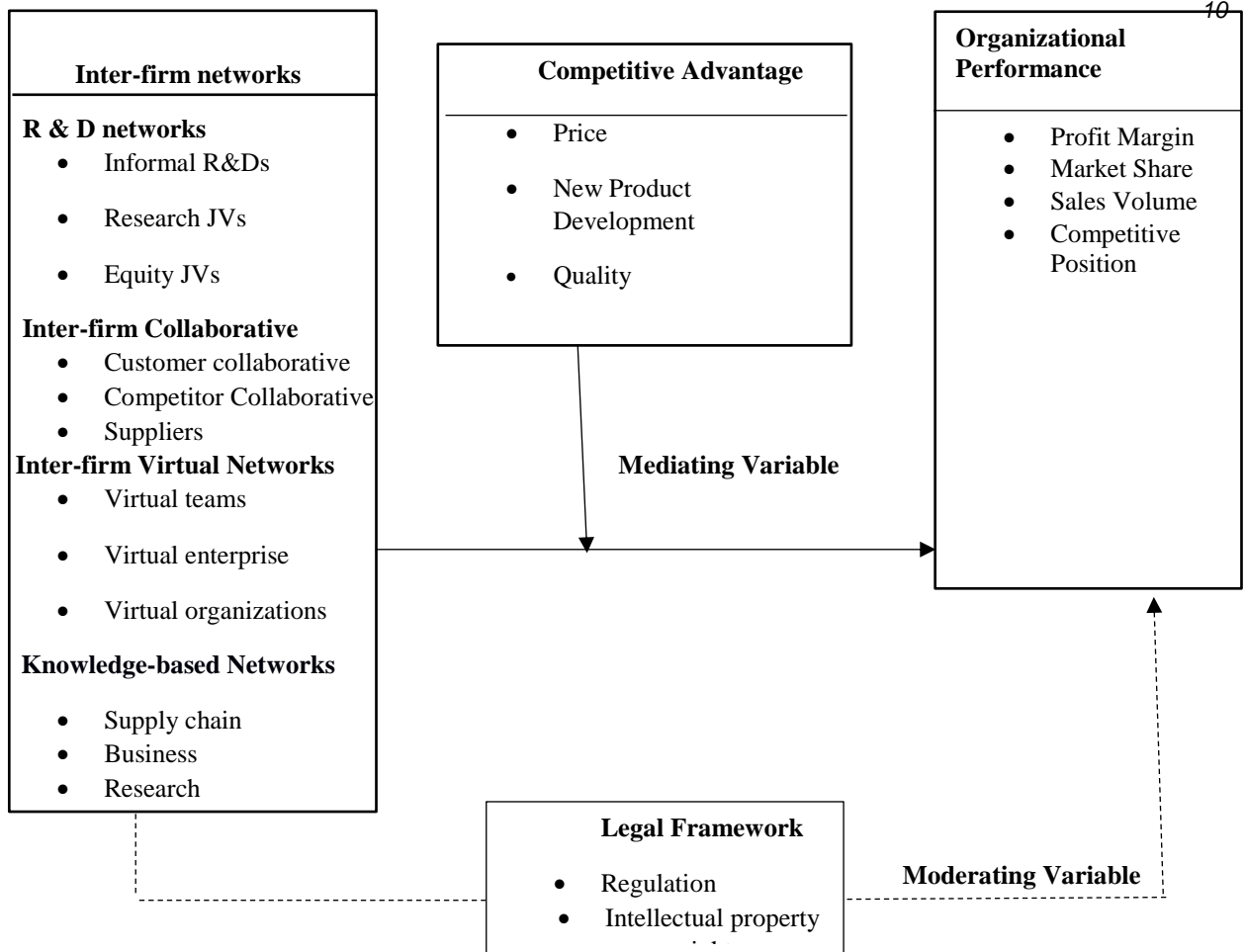


Figure 1: Proposed Theoretical Model

Source: Author (2020)

Interfirm Networks and Organizational Performance

Extant literature reveals that interfirm networking forms a vital element for the survival and growth of business organizations (Maina et al, 2016). Such networks increasingly have the capacity to regulate complex transactional interdependence as well as cooperative interdependence among firms. Additionally, they form links that assist in creation and access by partners to knowledge and other strategic resources (Wilkinson & Young, 2002). The networks enable firms to access key resources including information, access, capital, goods, and services with the potential to maintain or enhance its competitive advantage (Gulati, Nohria & Zaheer, 2000).

Firms experience challenges in finding suitable partners and managing the interactions due to shared decision

making, need for control and conflicting objectives hence adversely affecting its performance (Teng, 2007). Hammill and Gilbert (2009) argue that the cost associated with maintaining the network may be prohibitive, thus limiting the benefits to firm performance. Based on these contradictions, this study makes various propositions as follows:

Proposition 1: There is a correlation between interfirm networks and organizational performance.

Proposition 1a: There is a correlation between R&D networks and organizational performance.

Proposition 1a: There is a correlation between interfirm collaborative networks and organizational performance.

Proposition 1a: There is a correlation between interfirm virtual networks and organizational performance.

Proposition 1a: There is a correlation between knowledge based networks and organizational performance.

The Role of Competitive Advantage

Competitive advantage is attained by a firm if it implements a value creating strategy that is not concurrently implemented by other competitor firms (Barney, 1991; Porter, 1985). There is an increasing shift in attention from competitive advantage achieved by an individual firm to how this firm is able to collaborate with others within its environment to achieve a competitive advantage. The competitive behavior and ultimate performance of a firm depends on the relations and interconnections it is able to create with others within its environment. These relationships form links that facilitate acquisition and access to knowledge and other strategic resources (Wilkinson & Young, 2002). Possession of innovative capabilities leads to new product development, processes or business models which can be harnessed by a firm to achieve a competitive advantage. Consequently, firms have formed inter-firm networks to acquire important information and much-needed resources that enable them to achieve a competitive advantage.

Proposition 2: Competitive advantage mediates the relationship between inter-firm networks and organizational performance.

Mediating Effect of Legal Framework

The legal framework is a significant variable in the external environment influencing the success of inter-firm networks. The legislation, regulation, policies and procedures within the legal framework influence the types of networks that can be allowed to exist and subsequent adoption by firms on local, regional, national or international levels. A strong legal framework will affect the structure, functions, networking and operations within inter-firm networks (Ismael & Emeagwali, 2019). The differences in the cognitive and regulatory framework between one country and another are likely to present challenges in inter-firm networks between partners from dissimilar institutional environments (Abdi & Aulakh, 2012). However, strengthening of intellectual property rights (IPR) laws encourage foreign firms to partner with a wider range of firms from the

reforming countries because they can rely on formal means to protect their assets (Balachandran & Hernandez, 2016). In view of the foregoing discussion, this study makes the following proposition:

Proposition 3: Legal framework moderates the relationship between interfirm networks and organizational performance.

CONCLUSION AND RECOMMENDATIONS

Conclusions

The study aimed at examining the effect of inter-firm networks on organizational performance under the moderating effect of legal frameworks. The study has reviewed extant theoretical and empirical literature on inter-firm networks and its associated phenomena. From the empirical and theoretical reviews, the study has proposed a theoretical model linking inter-firm networks as an independent variable, organizational performance as dependent variable, legal framework as a moderating variable and competitive advantage as mediating variable.

The study identified knowledge gaps in the field of interfirm networks and organizational performance which requires further research. First, there are inconclusive findings on the effect of inter-firm networks on organizational performance. Second, there are inconclusive findings on how competitive advantage mediates the effect of interfirm networks on performance, or how legal framework moderates this relationship. This study contributes to advancement of knowledge on inter-firm networks through the inclusion of legal frameworks as a moderating variable and competitive advantage as a mediating variable.

Recommendations

The study adopted a theoretical review of literature on inter-firm networks and organizational performance. In future it is recommended that an empirical study could be conducted to show the relationship between the variables and also include different contexts. Furthermore, future researchers could consider other inter-firm networks not analyzed in the study to show their effect on firm performance. Lastly, other studies should consider bringing in other mediating and moderating variables other than those proposed for this study.

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