

**NETWORK BENEFITS AND NETWORKING INTENTION OF SMES:
INVESTIGATING THE MODERATING ROLE OF NETWORK COMPETENCE**

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Abstract

This study aims to investigate the moderating role of network competence in the relationship between the network benefits and the networking intention of 183 SMEs located in the industrial zone of Shiraz city in Iran. This research data is collected using a questionnaire that involve three parts including the network competence questionnaire proposed by Ritter and Gemünden, the networks' benefits' questionnaire designed based on Jarrett's model, and finally the networking intention's questionnaire designed based on the related literature. SmartPLS 3 is used in order to analyze collected data based on the partial least squares method. Findings show that firms' perception of network benefits influence the intention of SMEs to join inter-organizational networks. The network competence impacts the firms' perception of network benefits and their networking intention. The relational competence of firms has a moderating role in the relationship between the firms' perception of network benefits and their networking intention.

Keywords: Network benefits, networking intention, SME, network competence

1. Introduction

During the last decades, large numbers of academic researchers are interested in the inter-organizational network. However, their studies generally cover a small part of the problems in this domain. On the one hand, most of these researches have been conducted in industrialized and developed countries. This is not surprising given the fact that most of networks and organizational alliances take place in developed countries (Hagedoorn et al. 2000). On the other hand, a considerable number of researchers in this area are interested in the contribution of networks in firms' performance. The antecedents of networking behavior, particularly the issues of motivations and intentions for networking, have been less investigated by researchers. Assuming the desirability of inter-organizational networks for firms, a wide majority of researchers in this area focus on issues that take place after the formation of a network. The benefits of networking behavior (Jarrett, 1998), the ties and network structure (Burt 2000; Gilsing and Duysters 2008; Phelps 2010), the contribution of network in organization performance (Tsai 2001; Stam et al. 2014; Baker et al. 2016; Wassmer et al. 2017), network competence and its functions (Ritter &

Gemünden 2003; Yu et al. 2014; Francioli & Albanese 2017) are amongst the interesting issues for researchers in this filed.

A limited number of researchers focus on the intentions and motivations of firms to join networks. Through reviewing the empirical and theoretical researches conducted before 1995, Grandori and Soda (1995), have tried to fill this gap by introducing the antecedents of inter-organizational networks. Their suggested antecedents overlap with the concept of network benefits to a large extent. Mazzola and Perrone (2013) believe that strategic needs lead firms to the inter-organizational networks. The needs efficiency and effectiveness, the need for knowledge and learning and the need for the access to the global market have been emphasized by these researchers. Other researchers have focused on motivations for networking and have introduced other factors. The legitimacy seeking (Abrahamson, 1996), the uncertainty avoidance (Beckman & et al., 2002), and getting bilateral or multilateral material benefits (Aalbers and Dolfsma, 2013), are some of the motivations that have been studied by researchers.

We argue that investigating the intentions and motivations of firms to participate in an inter-organizational network is an important topic for two reasons. On the one hand, networks are associated with both advantages and disadvantages for firms. Partnership limits firm's control on its resources, increase the administrative costs, and consequently make network's member dependent on other members (Horvath, 2006). These disadvantages may decrease firm's trust on networks. The opportunism and its consequences may also influence the intention of firm to participate in networks (Jian & et al., 2010; Maurer, 2010).

On the other hand, the firm's networking experience may increase (or decrease) its intention to participate in networks. Network experience increases firm's capability to internalize networks' contributions (Powell & Grodal, 2005; Ritter & Gemünden, 2004). Firms with high level of network competence profit more from networks (Ritter & et al., 2004; Möller & Svahn, 2009; Ritter & Gemünden, 2004). The network competence may impact firm's intention for networking and its benefits from network. Firms with low level of network experience may have low level awareness concerning network's advantages and disadvantages. In this way, empirical research in developing countries may improve our understanding concerning networking behavior of firms. In these countries firms always have limited experience in networking and are surrounded by firms with same level of experience. This environment leads firms to a different view of networks, always the conservative one. The limited number of inter-form cooperation in these countries can be a sign of this negative attitude toward networks. Despite the importance of this issue, a large part of empirical researches are conducted in developed countries and developing countries are ignored by researchers of this domain. The main purpose of this study is to investigate the effect of the firm's awareness from network benefits on the firms' intention to participate in a network. Considering the literature of the domain the network competence impacts the firms' intention to networking. In this way, we argue that this competence may moderate the relationship between the awareness of firms and their intention to participate in networks.

This study is configured as follow. The theoretical background of the research is investigated in the second section. The third section is devoted to the research methodology and presentation

of the research data. The findings are described in the fourth section and these findings are discussed in the fifth section of the paper. We provide also potential implications of our findings for managers and policy maker in the end of fifth section.

2. Theoretical background

Intention to networking

An inter-firm network is a voluntary cooperation between two or more firms that in most of times lead members to a long-term and stable relationship. The purpose of network formation is usually to achieve a common goal such as launching of a new product or using of a new technology (Grown, 2005). Networks provide different advantages for their members. Achieving higher performance, reaching higher level of efficiency in the exploitation of internal resources, and accessing to external resources are among the member's outcomes from networks (Meyer et al., 2009). In addition networks help their members create customer values, defend their market status, and gain new business capabilities (Jarrett, 1998). Networks' members can also benefit from their partners' experiences, access to new customers, and improve their knowledge and competences (Gantioler & et al., 2014). The fact that network help their members to access to the knowledge and interactive learning makes this structure one of the most attractive forms of organization for developing new knowledge (Samsivan & et al., 2011).

Partnership helps managers to decrease the costs of firms' development and growth, to increase their agility and innovativeness, and to enhance their ability of environment analyzing (Wynarczyk et al., 2013). Moreover, it may reduce business risks and give firms the access to complementary assets (Pyka & Saviotti, 2002; Pittaway & et al., 2004). In an individual level, networks also help members' employees improve their skills and attitudes (Forret & Dougherty, 2004; wolff & Moser, 2010).

Do these benefits motivate firms to participate in a network? The answer depends on different factors. A limited number of researchers who investigate the firms' motivations for networking consider these outcomes as incentives to participate in networks (Lin & Chen, 2002). Overcoming the uncertainty is introduced as one of the most important incentives for networking among firms (Beckman et al., 2002). Grandori & Soda (1995) see the economy of scale, the distances between firms (geographical, cultural and knowledge distances), the need for complementary assets, the interdependence of firms and the asymmetry between internal and external resources as antecedents of inter-organizational networks. Firms usually participate in a network to achieve an advantage that cannot be reached through market mechanisms (Shaw, 2006). Firm's managers do not study all networks' advantages in order to decide if they participate or not in a network. Instead, they focus on a limited number of advantages and this orientation determines the type of outcomes that they receive from the network (Lin & Chen, 2002). When a firm is aware of the network benefits and believe in its ability to achieve these benefits, they may perform as motivations for its networking behavior. In this way, perception of potential benefits and network competences moderates firm's motivations. Regarding the quality and quantity of inter-firm networks, there is a considerable gap between developing and developed countries (Tseng 2009). Firm located in developing countries, particularly small and medium ones suffer from lack of ability of partnership

with other firms. In order to deal with this problem, some researchers propose to policy makers of developing countries to learn about inert-firms networks and to facilitate network formation process in their country (Schmidtz & Musyck, 1994; Vrgovic et al., 2012). Small and medium-sized firms are unable to remove themselves all barriers in the way of creation of inter-network formation (Vrgovic et al., 2012). Their limited experience in term of partnership may lead them to focus on negative aspects of networking such as partners' opportunism, administrative cost of partnership, dependence on the partners' resources, and low level of control on internal resources (Austin, 2010; Horvath, 2006; Jian et al., 2010; Maurer, 2010). Firms with low level of experience in networking have low level of networks' skills and as a consequence, they absorb a small part of network benefits (De Man, 2005; Heimeriks & Duysters, 2007). These firms suffer from the incapability to find appropriate partners, to deal with different goals and priorities, and to manage power conflicts in the partnerships (Austin, 2010; Horvath, 2006). . However, firm's negative experience can also lead to negative perception and attitudes to take part in networks (Lohrke et al., 2006). We argue that limited experience in partnership decrease the firm's awareness of network's advantages and disadvantages. It leads firms to take negative attitude toward networks. This negative or conservative attitude may be the most important barrier of the network formation and development in the developing countries.

According to the mentioned arguments, the first hypothesis of the research can be formulated as follow:

Hypothesis 1: *perception of networks' potential benefits has a positive impact on the firm's networking intention.*

Network competence and networking intention

Network competence is a set of special skills that enable firms to recognise the opportunity of a partnership, to initiate and manage this partnership and to absorb its benefits. Network competence can be the result of networking experiences or be obtained through training and preparation process (Powell & Grodal, 2005; Ritter & Gemünden, 2004; Müller-Seitz, 2012). The partnership experience can increase employees' communicative capabilities and improve the capability of partnership management in firms. Network competence provides firms the efficient control of their internal as well as shared resources and asset in a partnership (Möller & Svahn, 2009). Most of empirical researches in this domain focus on the impact of network competence on a member's performance. Since the capacity of knowledge absorption and interaction learning are presented as an important element of network competence (Ritter, 1999; Ritter & Gemünden, 2004; Ritter et al. 2004; Ting Helena Chiu, 2008; Human & Naudé, 2009), a large number of researchers in this domain focus on the relationship between network competence and innovation activity of firms. Knowledge acquisition (or creation) of firms (Yu et al., 2014; Ren et al., 2013), success in international markets (Torkkeli et al., 2012), services innovation (Li et al. 2016), formation of the innovative organization (He & He 2013), success in open innovation (Lefebvre et al., 2013), and increase of organizational creativity (Ritter et al., 2002) are some direct and indirect outcomes of network competence which are highlighted in empirical researches. Most of

these studies have investigated firms that are member of a network or have already some experience in partnership.

There are a limited number of empirical studies, in which network competence has been considered as a moderator variable in the relationship between networking behavior and network benefits (Jian & Osman, 2015; Tortoriello, 2015; Ahlin et al. 2014). Firms participate in a network in order to profit from its outcomes. However, several factors can affect their achievement. One of the most important factors is their ability to take advantage of network. It consists of individual and organizational skills and the abilities to absorb the shared resources and knowledge. Network competence in individual and organizational level increase firm's awareness of network opportunities (Barnes & Liao, 2012) and in this way it affects firm's intention to participate in a network. In fact, network competence play a vital role in the decision making stage of networking (Bertrand & Mol, 2013; Khachlouf et al., 2014). The study of Gammoh & Voss (2013) indicates that network competence has a significant impact on the firm's willingness to enter in a network and the networking experience mediates this relationship. Heimeriks & Duysters (2007) have emphasized the role of networking skills in the relationship between network experience and network performance. When firms deal with a negative network experience they have a low level of motivation to participate in another network (Lohrke et al. 2006). Most of researchers have separated the network experience from the network competence. However considering the both concepts definition, there is a very close relationship between them. For instance, De Man (2005) indicates that American companies have stronger network competence due to their high level of experience in networking activities comparing their European counterparts. Experienced firms have higher level of network competence and are aware of their capability. As a result, they are less worried about the negative consequences of the cooperation and their costs (Horvath, 2006). These firms can create and apply structural solutions facing the problem of trust in a partnership (Kwon et al. 2016). These companies can cooperate with their rivals without worrying about their opportunistic behaviors (Ritala, & Hurmelinna-Laukkanen, 2013). Based on this literature review, we can conclude that network competence can influence firm's decision to enter in a network. It also impacts the firm's perception of networks' benefits. .

These arguments lead us to present the second and the third hypotheses of the research:

Hypothesis 2: *network competence has a positive effect on the networking intention of firms.*

Hypothesis 3: *network competence moderates the relationship between firms' perception of networks benefits and networking intention of firms.*

3. Research methodology and data

In order to collect research data, 210 small and medium-sized firms (with less than 250 employees) have been selected randomly from 850 companies in the industrial zone of Shiraz city. Due to busy schedules of managers, researchers have met all managers of these 210 companies and have explained briefly the research process and purposes in order to ensure a high rate of questionnaire return. By the end of the survey we received 183 filled questionnaire that gave us a return rate of 87%. Table 1 indicates the number respondent companies and their sector of activity.

Insert table 1 around here

In order to measure our variable we have used a questionnaire involving three parts. The first part evaluates the firm's networking intention including the perception of network's value, the membership experience in a network, the willingness to participate in a network or to develop the existing partnership, and the attitude toward negative consequences of networks. The second part of the questionnaire evaluates firm's perception of networking benefits. This part is designed based on a model proposed by Jarrett (1998). The third part of the questionnaire evaluates network competence of firms. Ritter and Gemünden (2002) have suggested a standard questionnaire to measure the network competence and we have integrated the same questionnaire in part three of our questionnaire. Reliability of the questionnaire has been confirmed using Cronbach's Alpha coefficient. . Table 2 shows the results for reliability test.

Insert table 2 around here

4. Research Findings

A structural equation has been used to investigate the research hypotheses. Among different types of structural equation we have chosen the Partial Least Square method which is Variance-based method. This method does not require a normal distribution of data and is not biased by limited size of research sample. In order to apply this type of structural equation we have used PLS-SEM (SmartPLS) software which is the most used modelling software for this method (Hair et al. 2016). Three main variables are investigated in this study: the networking intention, the perception of network benefits, and the network competence. The first variable is the dependent variable in our empirical models. The perception of network benefits is the independent variable and the network competence is the moderator one. Table 3 represents research variables and their definitions.

Insert table 3 around here

Figure 1 indicates the results of the first empirical model. In this model, firm's perception of network benefits is the independent variable and the networking intention is the dependent variable. The network competence is assumed as moderator of the relationship between these two variables. As we can see in the figure 1, the perception of network benefits has a significant effect on the networking intention of firms. The path coefficient of this effect is 0.39 and the calculated t for this path is 4.87. It shows that if a firm has a positive perception of network benefits, it will tend to enter in the network. Network competence as an independent variable has a positive impact on the networking intention (path coefficient is 0.3 and the calculated t for this path is 3.75). Firms that are capable of managing a partnership have a higher level of intention to enter in a network. While, network competence has a positive influence on the networking intention, this variable does not moderate the relationship between the perception of networking benefits and the networking intention. As it is indicated in the figure 1, the interaction effect of network competence and the firm's perception of networks benefit is weak and not significant (the path coefficient is 0.04 and the calculated t for the path is 0.92).

Insert figure 1 around here

Table 4 indicates different parameters of our first empirical models (Figure 1). According to the Cronbach's alpha coefficient that is above 0.7, the reliability of the internal consistency of

model is accepted. The Composite Reliability coefficient (CR) is another factor which is used to evaluate the reliability of internal consistency of the model and the value of 0.7 shows the suitability of the model. The positive values for the Redundancy index and Communality index highlight the acceptable quality of the structural model. The AVE calculated value is above 0.5 and indicates that the internal convergence of the constructs is higher than the correlation between the constructs. The calculated coefficient of determination (R^2) for the model is 0.37 indicating that thirty seven percent of the variation of dependent variable will be explained by the model. Since, the effect of interaction between independent variable and the moderator variable is not significant, the calculation of the Cohen Convention is avoided.

Insert Table 4 around here

Since the observed companies have low level of experience regarding partnership, we investigated different empirical models in which we examined the moderating role of every single dimension of the network competence. Among the four investigated dimensions, the moderating effect of relational competence in the relationship between firms' perception of networks benefits and networking intention is confirmed. Figure 2 shows the details of this empirical model.

Insert figure 2 around her

In this model, the firm's perception of networks benefits is an independent variable and the networking intention of firm is dependent one. The relational network competence play a moderating role in the relationship between these two variables. The impact of the firm's perception of networks benefits on the networking intention of firm is significant and it confirms the findings of our first model. The relational competence also has a positive effect on the networking intention of firm, but this impact is not significant (the path coefficient is 0.13 and the calculated t is 1.78). The relational network competence moderates the relationship between the firm's perception of networks benefits and the networking intention of firm. As the figure 2 shows the impact of the interaction between the firm's perception of networks benefits and the relational network competence on the networking intention of firm is significant (the path coefficient is 0.13 and the calculated t is 2.47).

Table 5 shows different index of goodness of fit for our second empirical model. The coefficient of Cronbach's Alpha, the AVE, the Redundancy, the Communality, and the CR indicate the acceptable quality of the model. The model's coefficient of determination without the interaction effect is 0.32 and with the interaction effect reaches 0.35. These results reflect that the quality of the model is improved by the integration of moderating variable. In order to investigate the size of moderation effect Cohen's Convention can be applied (He & He et al., 2016). The calculated value of Cohen's Convention (0.05) indicates that the moderating effect in the empirical model is not strong.

Insert table 5 around here

5. Discussion and Conclusion

Nowadays, partnership is considered as a strategic solution for a wide range of business problems. Firms look for various advantages in networks and thereby show different networking behaviors. Empirical researches in the domain of inter-firm networks have been generally

conducted in developed countries. In these countries, the concept of networks is familiar for firms and their networking behavior is based on related knowledge or experiences. However, there is a significant difference between firms in these two groups of countries in terms of attitudes and preparations to join a partnership (De Man, 2005). Due to the limited number of inter-firm networks in less developed countries, local firms have generally a very low level of knowledge and experience and in this why they may have negative perception of and approaches toward networks (Tseng, 2009). Regarding the wide gap between these two worlds some researchers suggest that in less developed country policy makers should intervene in order to persuade and facilitate networks formation (Schmitz & Musyck, 1994; Vrgovic & et al., 2012). In this study we assume that the lack of experience can boost companies' negative attitudes toward networks and weaken their network competence. These two factors can in turn affect the networking behavior of firms. We have investigated the effects of attitude toward the network (the firm's perception of network's benefits) and network competence on the networking intention of firm. Our findings show that the firm's perception of networks benefits influences the networking intention of firm (confirmation of our first hypothesis). This finding confirms previous studies such as Lin and Chen (2002), Grandori & Soda (1995) and Shaw (2006). If the companies want to enter a network, they have to be aware of its benefits and they have to believe in these advantages. The influence of network competence on the networking intention of firm was also confirmed in this study (confirmation of our second hypothesis). It support previous studies regarding the influence of network competence on the firms' decision to enter inter-firm networks (Bertrand & Mol, 2013; Khachlouf et al. 2014; Gammoh & Voss 2013), and confirms the researchers' arguments concerning the positive role of network competence in overcoming the negative consequences partnership (Horvath, 2006; Kwon et al. 2016; Ritala & Hurmelinna-Laukkanen, 2013).

The most interesting finding of this study is the moderating role of the relational competence in the relationship between the firm's perception of networks benefits the networking intention of firm (confirmation of our third hypothesis). According to the definition of Ritter and Gemünden (2003), relational competence involves capacities of initiation, exchange, and coordination in a partnership. These capacities enable firms to identify potential partners, to establish a relationship with them, to exchange knowledge and technology with partners and to coordinate joint activities. We argue that for firms with limited experience the negative aspects of networks are much more important comparing the positive ones. Inappropriate and uninterested partners, opportunistic behaviours, and asymmetric distribution of network benefits are among negative aspects of networks (Austin, 2010 ; Horvath, 2006 ; Jian et al., 2010 ; Maurer, 2010). Managers who consider their firm as incapable of managing these aspects are less likely to participate in a network. The definition of Ritter and Gemünden (2003) of relational competence is comparable to the definition of network entrepreneurship suggested by Khalid and Larimo (2012). Khalid & Larimo distinguish this competence from network competence and suggest that the network entrepreneurship impact network performance through the mediating role of network competence. In their approach, relational competence is a primary competence for networking and firms assess it before making decision on inter-firm cooperation. Firms with limited experience in inter-firm networks consider

themselves to be less prepared to cooperate with other firms (Gammoh & Voss, 2013; Heimeriks & Duysters, 2007). However we can develop the argument of researchers regarding the importance of network competence in networking initiation (Bertrand & Mol, 2013; Khachlouf et al. 2014) by highlighting the role of the relational competence in the networking intention of firms with low level of network experience. This competence improve firms' attitude toward inter-organizational networks and reduces their anxiety concerning consequences of networking (Horvath, 2006; Barnes & Liao, 2012). Firms that strengthen their internal knowledge and relational competence are more motivated to participate in a network (Srivastava et al., 2015). The relational competence is an important element of network competence; however for firms which suffer from the lack of network experience this competence play a vital role in the networking intention.

In summary, we confirmed the important role of firms' perception of network's benefits and network competence in the networking intention of firms. We showed that, for firms with low level of experience, the relational competence is vital. Based on this finding we support the suggestion of Schmitz & Musyck, (1994) and Vrgovic et al. (2012) regarding the necessity of policy making in less developed countries regarding the inter-firm networks. This study provides some insight on how policy maker can help firms in these countries by focusing on the relational competence.

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Table 1: the research sample and sectors of activity

Sector of Activity	Frequency	Percentage
Food Processing	42	23
Industrial machinery	39	21,1
Oil-based products	57	31,1
Protein industry	20	10,9
Dried fruit and vegetable production	25	13,7
total	183	100

Table 2: Cronbach’s Alpha coefficients of the variables

Variables	Cronbach’s Alpha coefficients
Networking intention	0.753
Network competence	0.858
Perception of network benefits	0.834

Table 3: variables and measurement

Variable	Components	Measurement
Perception of Network’s benefits (NET-BENEF)	Creating new value (CRE-VAL)	Higher diversity of product and services. Higher quality of product and services. Access to and use of Innovation. Facilitating new product development.

STICKY FLOOR: IDENTIFYING BARRIERS TO PROMOTE WOMEN'S LEADERSHIP IN GOVERNMENTAL ORGANIZATIONS OF ILAM PROVINCE WITH A QUALITATIVE APPROACH

	Defending market position (DEF-MARKET POS)	<p>Joint promotional activities</p> <p>Create barrier against new entrants</p> <p>Access resource to compete with dominants</p> <p>Offset impact of product substitute</p> <p>Defend against environmental forces</p>
	Building current business capability (BUILD-CUR-BUSI)	<p>Building business knowledge, expertise and skills</p> <p>Accessing resources required for specific client groups</p> <p>Building finance capability</p>
Networking Intention (INTEN-NET)	-	<p>Perception of network's value, having network experience, the willingness to participate in a network or to develop the existing partnership, and the attitude toward negative consequences of networks</p>
Network Competence (NET-COMP)	Cross relational competence (CR-COMP)	<p>Evaluation of a partnership based on the relationship with other partners and on interferences with other partnership.</p> <p>Assigning people to each partnership, assigning responsibility and Organizing regular internal meetings among them</p>
	Relationship specific competence (REL-COMP)	<p>Using organizations, industrial fairs and exhibitions and company advertisements to identify potential technical partners</p> <p>Discussing ways of collaborating with partners.</p> <p>Putting in contact key people and employees in both side of partnership</p>
	Social competence (SOCI-COMP)	<p>For people in charge of partnership: easily communicate their needs to others, confidently handle negotiations, mix well with other people, easily sense potential conflict, can easily put themselves in another person's position and understand other people's behavior</p>
	Specialist (SPECI-COMP)	<p>For people in charge of partnership: having good relationship with internal important people, good knowledge about their own firms, good knowledge about partner, experience in dealing with partners</p>

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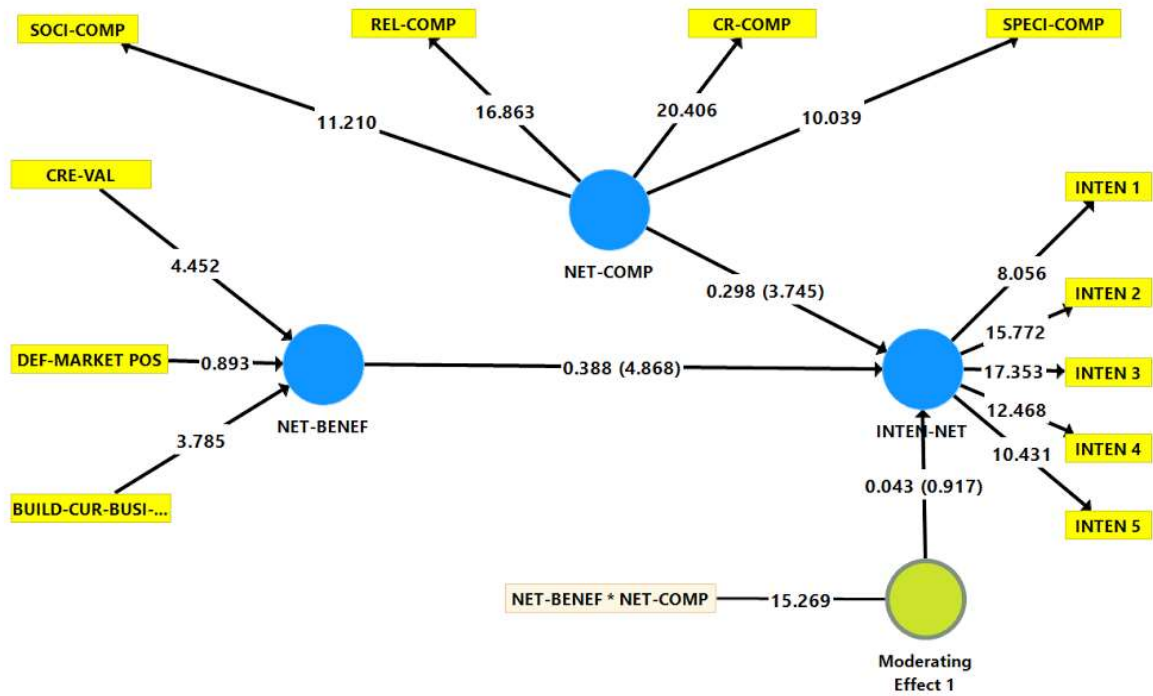


Figure 1: the firm's perception of network benefits, its networking intention and networks competence

Table 4 : calculated parameters for the model 1

	Cronbach's Alpha	rho_A	Composite Reliability	(AVE)	R ²	Redundancy	Communality	GOF
Networking intention	0.708	0.710	0.812	0.51	0.37	0.154	0.220	0.305
Moderat Effect 1	1.000	1.000	1.000	1.000			1.000	
Perception of networking benefits		1.000					0.269	
Network competence	0.736	0.767	0.832	0.555			0.280	

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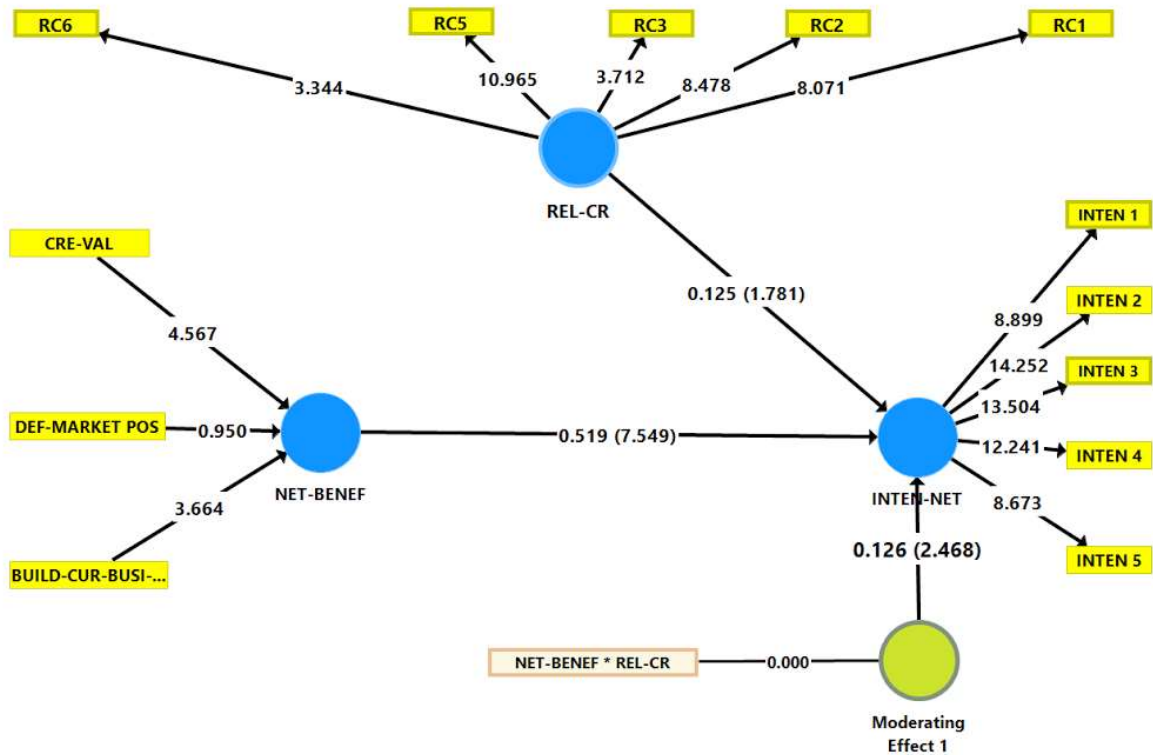


Figure 2: the firm's perception of network benefits, its networking intention and relational competence

Table 5 : calculated parameters for the model 2

	Cronbach's Alpha	rho_A	Composite Reliability	AVE	R ² Before	R ² After	Redundancy	Communality	GO F
INTEN-NET	0.708	0.705	0.810	0.463	0.350	0.326	0.141	0.214	0.255
Moderating Effect 1		1.000						1.000	
NET-BENEF		1.000						0.270	
REL-CR	0.610	0.648	0.740	0.375				0.110	