

Network Usage, Entrepreneurial Orientation and Their Effectiveness on SMEs Growth

The Journal of Entrepreneurship
25(1) 18–41

© 2016 Entrepreneurship

Development Institute of India

SAGE Publications

sagepub.in/home.nav

DOI: 10.1177/0971355715616230

<http://joe.sagepub.com>



Izaias Martins¹

Abstract

Research findings suggest that networks provide small- and medium-sized enterprises (SMEs) opportunities to achieve sustainable competitive advantages and thus compete successfully in the marketplace. In this study, the research question explores the effectiveness of the network usage on the entrepreneurial orientation (EO) development and the moderate role of the EO in the network-SME growth relationship. The empirical part of the study comprises a survey of 121 manufacturing SMEs in Spain. Structural equation modelling confirmed the importance of both organisational networks and EO on SMEs growth and pointed out the positive effect of network usage on EO development.

Keywords

entrepreneurial orientation, SME growth, effectiveness, network usage

¹ Assistant Professor and Researcher Fellow, Accounting Department, EAFIT University, Medellín, Colombia.

Corresponding author:

Izaias Martins, Assistant Professor and Researcher Fellow, Accounting Department, EAFIT University, Carrera 49 #7 Sur-50, Avenida Las Vegas, Medellín, Colombia.
E-mail: imartins@eafit.edu.co

Problem Statement

Patterns and determinants of firm growth are one of the classic, but still most emphasised, topics in management studies. At the same time, both organisational networks and entrepreneurial orientation (EO) emerged as an important area of inquiry within entrepreneurship. However, these three constructs have not previously been linked together. This study examines how organisational networks and EO are connected and how they together influence the small- and medium-sized enterprises (SMEs) growth.

Organisational networks can be classified as a social resource (Burt, 1992). Companies have long been recognised as embedded in networks of social, professional and exchanging relationships with other actors in the environment (Granovetter, 1985; Gulati, Nohria & Zaheer, 2000), including customers, suppliers and strategic allies (Torkkeli, Puumalainen, Saarenketo & Kuivalainen, 2012; Walter, Auer, & Ritter, 2006). On the other hand, the EO concept refers to the strategy-making processes that provide organisations with a basis for entrepreneurial decisions and actions (Covin & Slevin, 1989; Lumpkin & Dess, 1996).

Some earlier studies have tended to focus on the role that entrepreneurs' networks play in the process of business creation (Hansen, 1995; Ostgaard & Birley, 1996; Sengupta, 2011) and sometimes have linked the network usage with company growth (Hite & Hesterly, 2001; Johannisson, Alexanderson, Nowicki & Senneseth, 1994; Ostgaard & Birley, 1996). However, the issue of the study has always been focused on how network resources impact creation or growth in a new venture context. In turn, EO is a well-defined concept (Covin & Slevin, 1989; Lumpkin & Dess, 1996; Miller, 1983) and is widely studied (Rauch, Wiklund, Lumpkin & Frese, 2009), so the vast majority of past studies have found a positive relationship between EO and firm performance (Madsen, 2007; Moreno & Casillas, 2008; Wiklund, 1999). Nonetheless, over the years, the object of the study, generally, was in the context of the US and the North of Europe (e.g., Covin, Green & Slevin, 2006; Lumpkin, Wales & Ensley, 2006; Wiklund & Shepherd, 2005); only in recent years has it been the subject of research in other contexts, such as emerging regions (e.g., Chow, 2006; Levenburg & Schwarz, 2008; Tang, Tang, Zhang & Li, 2007) or in another European context (e.g., Casillas & Moreno, 2010; Ferreira & Azevedo, 2008; Martins & Rialp, 2013; Ripollés, Menguzzato-Boulard & Sánchez-Peinado, 2007).

Despite more than two decades of research, organisational networks and EO still make several contributions to the strategy and entrepreneurship field; just see the recent publications involving this topic (e.g., Kreiser, 2011; Torkkeli et al., 2012; Wales, Monsen & McKelvie, 2011; Zhao, Li, Lee & Chen, 2011). Furthermore, in any studies, the limitations or suggestions represent opportunities to advance in the research. In this way, new proposals in methodology analysis and potential moderator variables are still needed (Rauch et al., 2009; Torkkeli et al., 2012). Another suggestion in the current literature encourages researchers to test the EO–performance relationship using objective measures of performance (Chow, 2006; Madsen, 2007; Martins & Rialp, 2013).

Once that the distinctive features of EO and firm networks have been described, this study observes whether firm networks contribute to EO development in established SMEs. Then, it proposes an analysis of the impact of these intangible resources on SME growth. Finally, through a multi-group analysis, this article examines whether there are differences between small- and medium-sized firms in terms of the proposed relationships. Objective measures of growth performance over a three-year period have been used.

The article begins with a brief summary of the literature regarding firm networks as a resource which may be linked to EO development. It will then present a summary of the literature on EO and its linking with firm growth. In the next section, the article presents the main ideas about network resources and links them with firm growth, proposing both a direct and indirect causal effect. This subsection concludes by advancing testable hypotheses. Then, it presents the study's research design and sample. The study results are presented below. The article concludes with a discussion of the findings.

Theoretical Framework, Previous Research and Hypotheses

Firm Networks and EO Development

Some intangible resources can be characterised as inimitable and therefore valuable to the firm (Barney, 1991; Teece, Pisano & Shuen, 1997). In this context, a new concept where firms are embedded in networks of social, professional and exchange relationships with other individuals

and organisations (Gulati et al., 2000) replaces the idea of firms as autonomous entities and highlights the important role played by the development and use of networks for firm survival and growth (Gulati, 1998; Hite & Hesterly, 2001). Thus, an important research topic within the field of entrepreneurship emerged, and the role of networks in the entrepreneurial process, has been widely studied in recent decades (Jack, 2010; Jack, Moulton, Anderson & Dodd, 2010).

Social networks can be defined as a set of actors (individuals or organisations) and a set of linkages between these actors (Brass, 1992; Hoang & Antoncic, 2003). Entrepreneurs are embedded in a social network that plays an important role in the entrepreneurial process (Aldrich & Zimmer, 1986). Entrepreneurs also use their interpersonal and inter-organisational relationships to achieve relevant information (Ripollés & Blesa, 2006), advice and in some cases solve problems (Johannisson et al., 1994). In this sense, these relationships are viewed as the media through which actors gain access to a variety of resources (Hoang & Antoncic, 2003). It reinforces the belief that not only performance but also the conduct and behaviour of firms can be more fully understood by examining the networks of relationships in which firms are embedded (Gulati, 1998). Thereafter, Gulati et al. (2000) indicated that the considerable and growing research in this field began to attest the importance of understanding the inter-firm relationships and how the social context influences a firm's behaviour. In other words, how the use of a leader's and organisation's networks can strengthen characteristics, such as, innovation, proactivity and a risk-taking propensity. Considering that networks are both cognitive structures in the minds of individuals and actual structures of relationships that link individuals (Balkundi & Kilduff, 2006), the potential synergy between firms and their social networks can generate capabilities in learning that play an important role in creating and increasing skills to innovate and make the first move by introducing new products and services. Furthermore, networks are vital when topics are discovery of opportunities, securing resources and gaining legitimacy (Elfring & Hulsink, 2003). Likewise, 'networks act as a buffer against shocks or surprises from the global market' (Madsen, 2007, p. 191). Members of social networks can directly influence the propensity to assume greater or lesser risk activities.

In addition, Ripollés and Blesa (2005, 2006) found a direct causal effect of the entrepreneur's contact frequency with members of his/her families or social networks on firm's entrepreneurial behaviour. The authors argue that entrepreneurs need a balanced personal network to better develop the EO. 'To foster EO, the entrepreneurs need to access

different resources to identify new entrepreneurial opportunities, as well as, the resources and competences needed to exploit these opportunities economically ahead of competitors, thus facilitating innovative and proactive performance, and a moderate risk-taking approach' (Ripollés & Blesa, 2005, p. 243). According to these results, the following general hypothesis about the relation between organisational networks and EO can be addressed.

H1: A firm's emphasis on using networks will affect EO development positively.

EO and Firm Growth

EO refers to the entrepreneurial strategic posture that characterises the behaviours which a manager engages in to discover and exploit entrepreneurial opportunities (Lumpkin & Dess, 1996). Essentially, it refers to a firm's strategy orientation, capturing the specific entrepreneurial aspect of decision-making styles, methods and practices (Chow, 2006).

In the current literature, if, on one hand, several studies support that there is a positive relation between EO and firm performance (Covin & Slevin, 1991; Martins & Rialp, 2013; Wiklund & Shepherd, 2005), on the other hand, some studies report lower correlations between EO and performance or were even unable to find a significant relationship (Lumpkin et al., 2006; Madsen, 2007). The long-term influence of EO on performance is somewhat more insecure, and few studies have used longitudinal data to analyse the phenomenon. Thus, further empirical evidence on the long-term or lagged effects that might exist among sets of antecedents, entrepreneurship and performance would be important to advance cumulative knowledge in the field.

Concerning the EO–firm growth relationship, it has generally been proposed that EO has a positive influence on firm growth (e.g., Brown, Davidsson & Wiklund, 2001; Covin & Slevin, 1991; Moreno & Casillas, 2008; Wiklund, 1999). Considering that entrepreneurial companies are defined as firms with innovativeness and that assume relevant risks to growth (Covin & Slevin, 1991), one of the important dimensions of a firm's entrepreneurial management is precisely its orientation towards growth (Brown et al., 2001). Likewise, some findings suggest a positive effect of EO on a firm's growth rate, but it depends on several strategic process-related variables such as strategic decision-making participativeness, strategy formation mode and strategic learning from failure (Covin et al., 2006).

In an attempt to improve the knowledge regarding the long-term effect of corporate entrepreneurship, Zahra and Covin (1995) collected data from three different samples over a seven-year period to assess the longitudinal impact of EO on growth revenue. The results suggest a positive impact and indicate that this posture is particularly effective among firms operating under specific environmental conditions.

Likewise, other studies have examined whether EO affects firm growth rates over an extended period of time. For example, Wiklund (1999), using data from Swedish small firms, has shown that there is a positive relationship between EO and performance (reflecting growth and financial performance), and this relationship also increases over time. Using data from Norway, Madsen (2007) also concluded that the sustained and increased EO level was positively associated with high performance (employment growth and performance compared with competitors). However, in Madsen's research, the absolute level of EO does not have a positive association with firm performance.

In line with findings from previous research, Yamada and Eshima (2009), using longitudinal (2 years) data from 300 small technology-based Japanese firms, have concluded that EO in Time 1 is positively related to firm performance (reflecting innovation, growth and profitability) in Time 2. Furthermore, EO did not show a statistically significant impact on a firm's performance when it maintains the same or even decreased level over time. The sustainability of the EO–performance relationship was only confirmed when the level of EO has increased.

Recently, in the Spanish context, Casillas and Moreno (2010), incorporating the influence of family on EO dimensions, have highlighted the effects of EO on firm growth (the period used was four years), and their results suggest a positive and significant effect of innovativeness and pro-activeness on firm growth, constrained to the model without interaction of family involvement. However, their results do not support a positive relationship between risk-taking and growth rates, confirming that the influence of EO on performance can be somewhat more insecure, which confirms the need for more longitudinal research.

Finally, after this review, it is possible to recognise the relevant relationship between EO and firm growth. However, in the recent literature, there are few empirical studies that explicitly analyse this relationship, which measures the EO effects on firm growth in the long term. Thus, the aforementioned theoretical arguments provide reasonable justification for advancing H2.

H2: There is a positive relationship between EO and SME growth.

Firm Networks and Growth: Direct and Indirect Causal Effects

Networks are one of the most powerful assets that anybody can possess: it provides access to power, information, knowledge and capital as well as other networks (Aldrich & Zimmer, 1986; Birley, 1985; Elfring & Hulsink, 2003; Sengupta, 2011).

A number of scholars have asserted that several elements of networks can create advantages in a firm's environment (Gulati et al., 2000; Hite & Hesterly, 2001; Johannisson et al., 1994). Gulati et al. (2000) highlighted that strategic networks provide a firm with access to information, resources, markets and technologies. Moreover, they noted that the conduct and performance of firms can be more fully understood by examining the network of relationships in which firms are embedded. For instance, entrepreneurs who use their customers and suppliers as sources of support in the gestation period are more likely to grow faster (Capelleras & Greene, 2008). Other features are linked with the relational mix (Lechner & Dowling, 2003; Lechner, Dowling & Welpé, 2006), namely different network types: social networks, co-operative networks, marketing information networks, reputation networks and cooperative technology networks, enable growth in different stages of firm development (Lechner & Dowling, 2003). It can support the established firm and it can help SMEs beyond their early stages of development.

The private and invisible nature of some firm-specific resources renders ties inimitable, which is a valuable advantage (Teece et al., 1997); thus it may also be important to firm performance (Madsen, 2007). In this regard, several researchers have examined different aspects of a firm's network and in some cases related it to performance (e.g., Elfring & Hulsink, 2003; Hite & Hesterly, 2001; Lechner et al., 2006). However, more empirical evidence on the causal effect of networks on firm growth is welcome. Namely, how is SMEs growth affected by the firm's network? In established SMEs, what is the value of the use of networks as an important resource? Thus, this study proposes a model which allows us to observe two aspects: a direct effect of network usage and the indirect effects of this practice through EO on firm growth.

If networks are considered to be important for all types of companies particularly due to the fact that the economic environment is becoming increasingly competitive (Madsen, 2007), it is interesting to note that previous research on inter-firm networks has often focused on the initial

phase of the firm's development, during the process of early growth (e.g., Hite & Hesterly, 2001; Lechner et al., 2006; Ostgaard & Birley, 1996; Ripollés & Blesa, 2005), addressing the distinctive role played by different types of networks in the beginning years after foundation. However, entrepreneurs continue to use their networks to provide themselves with business information, advice and problem-solving (Johannisson et al., 1994). That is, the reliance on networks is not constrained to the start-up stage (Hoang & Antoncic, 2003). Thus, the following hypotheses can be addressed:

H3a: SME growth is more likely when the firm consistently uses its networks as a resource.

As pointed out before, many scholars suggest that firm networks can play an important role in the entrepreneurial process (Balkundi & Kilduff, 2006; Elfring & Hulsink, 2003; Gulati et al., 2000) and even stress that the repeated use of an entrepreneur's personal contacts has a positive effect on EO (Ripollés & Blesa, 2005). In other words, network usage plays a positive role on EO development (H1). Furthermore, some literature confirms that EO is positively related to firm growth (Brown et al., 2001; Moreno & Casillas, 2008)—as proposed in H2. Considering this two-fold evidence, and the potential direct effect of networks on firm growth—as proposed in H3a, it can obviously be further argued that networks have an indirect effect on firm growth through the latent variable EO.

Therefore, the following hypothesis arises:

H3b: The relationship between networks and growth can be enhanced with a positive indirect effect through the mediator EO construct.

Our proposal is based on the idea that there are causal relationships among network usage, EO and SME growth. Thus, the core focus from H1 to H3b is illustrated in Figure 1.

Size as a Moderator Term

In order to go one step further, the analysis seeks to identify if there are differences in how network usage affects EO development and firm growth, in terms of firm size (see Figure 2). The theoretical argument

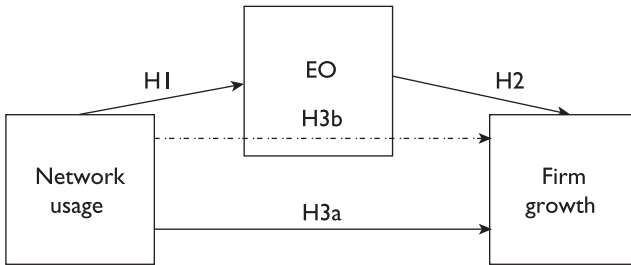


Figure 1. Proposed Model and Relationships among Network Usage, EO and Firm Growth

Source: Author's own.

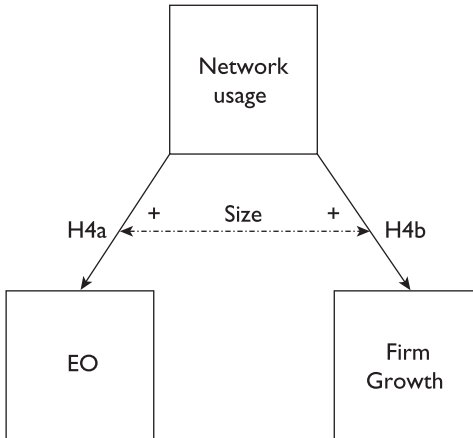


Figure 2. The Moderating Role of Size

Source: Author's own.

that justifies the different moderator effect of firm size on the influence of network usage on EO development and firm growth follows some findings in the literature. The conduct of firms is influenced in important ways by the strategic networks in which they are embedded (Gulati et al., 2000). In this sense, it can be intuited that the more developed the networks in number and in quality of the ties, the more beneficial to the firm. The survival and growth of an entrepreneurial firm depend on its ability to maintain and extend its networks of external relations (Venkataraman & Van de Ven, 1998). It is acknowledged that the role of entrepreneurs, managers and employees is critical in building external

relations (Lechner & Dowling, 2003). In this vein, the larger the organisational team, the more the hours likely to be spent contacting their networks or making new contacts (Kamm & Aldrich, 1991). In this research, the construct of network includes, among others, the use of managers' own networks, as well as employees' networks as a source of information for the firms. To sum up, a number of managers or employees can influence the number of ties developed by firms and, in turn, be directly related to the degree of involvement in the use of networks and their effects on entrepreneurial behaviour, as well as on firm growth. This leads to the following hypotheses:

H4a: The emphasis on using networks affects EO development more intensely in medium-sized firms than in small ones.

H4b: The emphasis on using networks affects firm growth more intensely in medium-sized firms than in small ones.

Research Design

Sample and Data Collection

To test the relationship among EO, network usage and firm growth, data were collected from a sample of SME Spanish firms.

Survey

All companies included in this study that develop manufacturing activities can be classified as SMEs, and have been active and are in the business at least for the last five years. According to the European Union recommendation, companies that employ between 10 and 249 employees and whose annual turnover does not exceed €50 million or whose annual balance sheet does not exceed €43 million are considered as SMEs.

The data were collected in two distinct stages. First, a questionnaire which has been adapted and designed to collect the necessary information was applied. The questionnaire is presented in a seven-point Likert scale, and the adapted version was reviewed by a specialist researcher in strategy management and tested with a manager who participates in strategic decisions. After receiving all comments and suggestions, the questionnaire was revised and the final version was sent by e-mail to the companies, focusing on the CEO involved in strategic decision-making processes. Although it may be considered imprecise because of the

subjectivity in the responses, the use of personal information collected with the same level of authority within each organisation reduces the variability of the data (Nasrallah & Qawasmeh, 2009).

Using the sampling frame of the Iberian System Analysis of Balance (SABI), a total of 1,144 firms were previously selected according to the criteria mentioned above. However, the questionnaires were sent to 703 firms because some companies did not report their e-mail, phone or website to contact. Of these 703 questionnaires, 51 were returned incomplete for the following reasons: the e-mail of potential respondent was incorrect or had changed, or the business had closed. Firms that did not respond to the initial request for data were contacted a second time via telephone one month after the initial contact, and the questionnaire was sent again. From the remaining 652 questionnaires, 138 were returned completed (83 primary and 55 secondary), indicating an overall response rate of 21.16 per cent (138/652). The current study was focused on 121 firms, which had available data in the investigated years. The survey was carried out in the winter of 2009.

The second step of data collection was performed through companies' publications and annual reports to make annual updates to the database of firms which answered the questionnaire. The financial statement data are obtained from the SABI 2007–2009 database.

Techniques for Controlling Biases

To ensure the absence of bias in the data, some techniques have been used. First of all, the bias of non-response was evaluated; thus a sample of 121 firms, which have not responded to the questionnaire, was compared with reference to the ROA and number of employees. The results revealed no significant difference between the two groups. Then, a comparison of the early respondents (i.e., those firms that returned the questionnaire before being contacted a second time) and the late respondents (i.e., those firms that returned the questionnaire only after having been asked a second time) revealed no differences (i.e., $p > 0.10$) in terms of age, number of employees or any of the research variables assessed in this study. These results suggest the absence of response bias.

Then, in order to address concerns related to common method biases, there are two primary ways: the design of the study's procedures and/or statistical controls (Podsakoff, MacKenzie, Lee & Podsakoff, 2003). First, if the research interest is on the relationship between organisational behaviour and organisational performance, according to Podsakoff et al. (2003, p. 887), the researcher can obtain the behavioural measures from

key informants and the measures of firm performance from archival sources (i.e., accounting information). The main advantage of this procedure is that it makes it impossible for the mindset of the informant to bias the observed relationship between the predictor and criterion variables, thus eliminating the effects of potential sources of common method biases, such as, *consistency motif*—respondents try to maintain consistency in their responses producing, thus, relationships that would not otherwise exist at the same level in real-life settings (Podsakoff & Organ, 1986; Salancik & Pfeffer, 1977). Particularly, in this study, the illusory correlation might appear in the perception about the relationship between entrepreneurial behaviour and firm growth. Nonetheless, using objective measures of performance, we can minimise the potential effects of method biases produced by a common source.

Finally, an additional statistical control was also employed. One of the most widely used techniques to address the common method biases is the Harman one-factor test (Meade, Watson & Kroustalis, 2007; Rhee, Park & Lee, 2010). The basic assumption of this technique is that if a substantial amount of common method variance is present, a single factor will emerge from the factor analysis or the majority of the covariance will be concentrated in one of the factors (Podsakoff et al., 2003, p. 889). As expected, the results yielded three factors which accounted for 77.91 per cent of the total variance. Therefore, neither a single factor emerged from the Harman one-factor test nor did any factor accounted for the majority of the variance. These results revealed little serious concern regarding common method biases, and provided support for the validity of the measurement.

Variables

Entrepreneurial Orientation

EO is a variable constructed from three distinct dimensions: innovativeness, pro-activeness and risk-taking propensity (Covin & Slevin, 1989). An exploratory factor analysis was applied to assess dimensionality and validity. Statisticians KMO of 0.94 and Bartlett's sphericity test ($p < 0.01$) support the idea of the validity of the implementation of factorial analysis and allow us to see whether there were significant correlations between variables. To validate the construct and its dimensions, a confirmatory factor analysis (CFA) was carried out highlighting the existence of a multidimensional construct. Prior research suggests the use of these dimensions and claims that while each dimension focuses on different aspects of strategic orientation, they are related, thus allowing

Table 1. Scale Reliability

Dimension		Cronbach's Alpha	CR	AVE
Innovativeness	Three items	0.917	0.918	0.78
Pro-activeness	Three items	0.865	0.965	0.70
Risk-taking	Three items	0.896	0.984	0.74

Source: Author's own.

them to consider a single construct (e.g., Covin & Slevin, 1991; Wiklund & Shepherd, 2005).

Each dimension was measured using three sets of questions. The first dimension tries to identify the company trend towards innovation, while the second and third dimensions measure the pro-activeness and the propensity for risk-taking, respectively. The higher the score (minimum 1 and maximum 7), the more the entrepreneurial firm strategic orientation. The scale obtained an average of 4.165. The reliability of the dimensions was investigated by Cronbach's alpha, construct reliability (CR) and AVE. On all the occasions, the reliability coefficient was greater than 70 per cent (see Table 1).

Firm Networks

Networks were measured through the four-item scale in accordance to Borch, Huse and Senneseth (1999) and Madsen (2007). The first item deals with the use of the manager's own networks, the second item deals with the use of networks as a knowledge resource and the third and fourth items collect information about the use of networks to influence the environment and the use of employees' networks as an information source, respectively. The higher the index (minimum 1 and maximum 7), the more important and more usable this intangible resource is for the firm. The scale obtained an average of 3.884. The reliability of the dimensions was presented: Cronbach's alpha of 0.945, CR of 0.948 and AVE of 0.82 were obtained.

Firm Growth

To explore firm growth, this study has considered objective measures. Using information from the firm's annual balance sheets, firm growth has been measured first by calculating the sales growth for each company for the period 2007–2009, in accordance with previous studies

(Delmar, Davidsson & Gartner, 2003; Evans, 1987; Lee, 2010; Moreno & Casillas, 2008). To measure the dependent variable by annual sales growth between 2007 and 2009, the following formula was used, in accordance with Evans (1987) and Lee (2010), $(\ln S_{09} - \ln S_{07})/3$, where $\ln S_{09}$ and $\ln S_{07}$ are the logs of the real firm sales in thousands of Euros for 2009 and 2007, respectively. The second indicator has been measured by calculating the change in the number of employees (Capelleras & Greene, 2008; Capelleras & Rabetino, 2008; Ferreira & Azevedo, 2008) which took place from 2007 to 2009 in logarithmic form $(\ln E_{09} - \ln E_{07})/3$. Finally, the assets growth in the same period was also calculated. To measure the dependent variable by annual assets growth between 2007 and 2009, the same formula used to calculate sales growth and employment growth has been adapted: $(\ln A_{09} - \ln A_{07})/3$, where $\ln A_{09}$ and $\ln A_{07}$ are the logs of firm assets in thousands of Euros for 2009 and 2007, respectively.

In spite of the potential existence of correlation among growth measurements, this article examines more than one measure of growth because, according to Delmar et al. (2003), firms do not grow in the same way, and this implies that the researchers should measure different forms of growth with different growth measures. Then, in order to develop just one construct to firm growth, considering the information from the three growth rates discussed above, an exploratory factor analysis was carried out. The reliability of the dimensions was presented: Cronbach's alpha of 0.761, CR of 0.765 and AVE of 0.52 were obtained.

Empirical Findings

All hypotheses were tested via structural equation modelling (SEM) using Amos Graphics. SEM can be understood as a combination of CFA and multiple regression (Schreiber, Stage, King, Nora & Barlow, 2006). This multi-variate statistical model extends the possibility of relationships among the latent variables. A structural model displays the interrelations among latent constructs and observable variables in the proposed model as a succession of structural equations. The research model is illustrated in Figure 3. The model-fit indices suggest that the overall adjustment is correct. The chi-square statistic measures the distance between the original data matrix and the matrix estimated by the model, so it shows a value of 159.56 ($p < 0.001$). Despite the importance of chi-square in order to make statements regarding significance

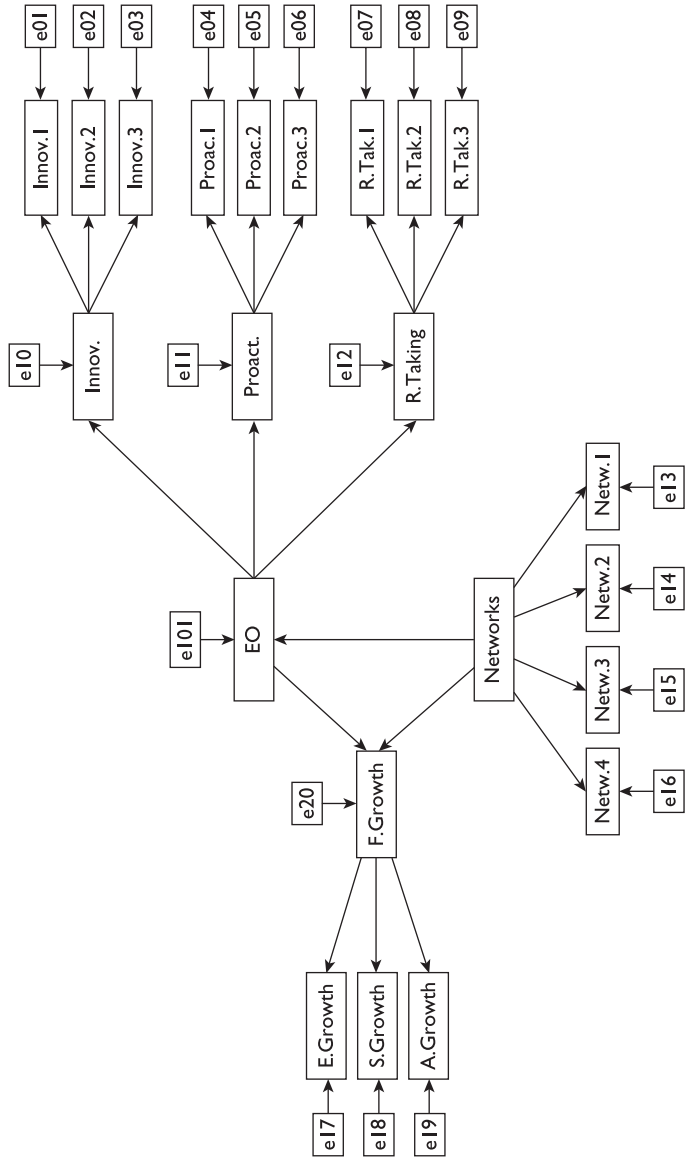


Figure 3. Proposed Model to SEM

Source: Author's own.

or hypothesis testing, this inferential statistic sometimes presents problems. For example, chi-square is very sensitive to sample size. Usually, in samples which are large enough for the estimates, chi-square presents a significant probability level, which is not good for the adjustment. ‘...It is the case that as N increases, Chi-square blows up. A Chi-square will almost always be significant (indicating a poor fit even with only modest sample size’ (Iacobucci, 2010, p. 91). To solve this problem, the statistic chi-square adjusted by its degrees of freedom was considered, and the model has presented an index of 1.628 (159.56/98). There is a consensus that an adjusted chi-square (chi-square/degrees of freedom) of less than 3.0 presents a reasonable fit (Iacobucci, 2010; Kline, 2005). Moreover, GFI (0.869) and the adjusted GFI (0.818) explain how well the data fit to the proposed theoretical model. Additionally, the comparative fit index (CFI) with a value close to 1 (0.963) indicates a very good fit. With regard to RMSEA (0.072) and RMR (0.062), both are within the range of accepted values and indicate a close fit of the proposed model in relation to degrees of freedom and the sample variances and covariance, respectively. Finally, the critical N (Hoelter, 1983) suggests a sample size which must be reached in order to accept the setting of a given model on a statistical basis, so in this study the sample size should be larger than 101 (significance level of 0.01) or 92 (significance level of 0.05) and the number of observations was 121.

The results of the relation between variables in the model are displayed in Table 2. The analysis of the hypotheses presents significant values and confirms the three previous relationships in the proposed model. The first finding (H1) shows that when the SMEs use their networks as

Table 2. Hypotheses Estimates

Hypothesis	Estimate	SE	CR	p
H1 confirmed	0.365	0.101	3.617	**
Networks → EO	(0.343)			
H2 confirmed	0.011	0.005	2.266	*
EO → firm growth	(0.193)			
H3a confirmed	0.040	0.006	7.050	**
Networks → firm growth	(0.657)			
H3b confirmed	–			
Indirect effect	(0.066)			

Source: Author’s own.

Notes: (1) The numbers in brackets are standardized regression weights.

(2) * $p < 0.05$, ** $p < 0.01$, SE—standard error and CR—critical ratio.

a resources source, they increase the likelihood of increasing their EO (standardised $\beta = 0.365$, $p < 0.01$), which supports this hypothesis. H2 shows that an increase in a firm's entrepreneurial orientation has a positive relationship with growth ($p < 0.05$). In other words, if we consider the standardised regression weights, it is possible to state that when EO goes up by 1 standard deviation, firm growth goes up by 0.193 standard deviation. With regard to H3, which examines the direct and indirect causal effects of networks on SME growth, the estimates highlight that SME growth is directly and positively affected by the use of networks (standardised $\beta = 0.657$, $p < 0.01$). Equally important, besides a direct effect, this study hypothesised that the relationship between network usage and firm growth was mediated by EO. In short, with mediation analysis, a partial moderating effect of the EO construct on network-growth relationship can be observed (standardised indirect effect of 0.066). This indirect effect strengthens the role that networks play in firm growth and can be observed in the total effects index of 0.723 ($0.657 + 0.066$).

In this estimate, the study takes advantage of using SEM, which allows for a simultaneous and more efficient analysis of the proposed direct and indirect relationships without the need to fit a series of regressions to estimate an indirect effect through a mediator (Iacobucci, 2010). Table 2 presents a summary of the support received by the hypotheses. In all cases, the standard error (SE) and critical ratio (CR) are also shown.

Multi-group Analysis

With regard to multi-group analysis, it was performed to test a moderating effect of size in both network-EO and network-firm growth relationships (H4a and H4b, respectively). First, the sample was divided into two groups of firms based on their number of employees. This procedure gave one group of small firms (minimum 10 and maximum 49 employees) and another group of medium-sized firms (minimum 50 and maximum 249 employees). The *t*-test confirmed the significant difference of network usage on EO development between small and medium-sized firms; however, these differences were not reflected in the relationship of network usage on firm growth. As can be seen in Table 3, the proposed influence of networks on EO is stronger in medium-sized firms than in small ones (H4a confirmed), whereas the effect of networks on firm

Table 3. Multi-group Analysis: Small and Medium-sized Firms

Direct Causal Effect	Group 1—Small		Group 2—Medium		z-score
	Estimate	P	Estimate	P	
Networks → EO	0.166 (0.224)	0.137	0.785 (0.511)	0.000	2.871*
Networks → firm growth	0.055 (0.694)	0.000	0.035 (0.647)	0.000	n.s.

Source: Author's own.

Notes: (1) The numbers in brackets are standardized regression weights.
(2) * $p < 0.01$ and n.s.—non-significant differences.

growth does not present significant differences between both groups (H4b not confirmed).

Concluding Remarks

As argued by Capelleras and Rabetino (2008, p. 95), growth is a complex and multidimensional phenomenon and cannot be adequately explained from a single perspective. However, on the basis of the findings and analyses, this study has provided some evidence with suggestion on how to turn intangible resources, such as, organisational networks and EO, into the determinants of SME growth.

First, it is relevant to point out some peculiarities of the results found. The companies' annual reports are from 2007 to 2009 when the growth measurements were observed in different periods (2007–2008 and 2008–2009). Thus, especially in the second period, many SMEs have shown a negative growth in terms of sales and number of employees, probably influenced by the peculiar environment of the economic crisis in which this research was conducted. It can be explained by a stochastic factor, namely, that Spanish economy was more affected by the economic crisis from 2008 onwards, which is reflected in the growth rates presented by SMEs. In this way, Hart and Oulton (1996) highlighted that, superimposed upon all of the systematic forces, there are large stochastic factors such as wars, terrorism, economic crisis and so on.

Returning to the research questions and aims stated in the first section, the first objective using these SME data was to reply whether network usage affects the EO development in these Spanish firms or not. By incorporating firms' network usage in the analysis, we can

achieve a better understanding of the development of entrepreneurial posture within organisations. Early discussion of this relationship has been presented by Ripollés and Blesa (2005), who consider the usefulness of the information from the entrepreneur's personal networks as a valuable resource for EO development. In a similar vein, the findings attest to a positive effect of firm networks on the proclivity of a firm exhibiting higher levels of EO. In this sense, in part, the results reinforce previous research. Furthermore, this study uses a wider network perspective, namely, not only an entrepreneur's networking activities, but also attempting to capture the total networking activities going on in the firms as a whole: firm networks as a wide construct measured from the use of a manager's own networks, network as a knowledge resource, the use of networks to influence the environment and employees' networks as an information source. Likewise, this article has found significant differences when considering small and medium enterprises separately. A multi-group analysis has illustrated that the networks play a stronger role in EO development in medium-sized companies than in small ones, probably driven by personal networks within the network resources of companies.

The second purpose of this article was to highlight how firm growth is influenced by EO. In this way, this research is consistent with findings around the EO–performance relationship, supporting a positive effect of entrepreneurial posture on firm growth (Covin et al., 2006; Moreno & Casillas, 2008; Wiklund, 1999). Moreover, it also provides more empirical findings based on longitudinal approach.

This study has also examined the effectiveness of network usage on firm growth. First, it has been argued that networks directly impact SME growth with a positive causal effect. Second, it has been argued that the relationship between networks and firm growth is enhanced by the presence of an indirect effect through EO (i.e., the EO construct positively moderates the relationship between network usage and firm growth). Moreover, this study stressed empirically that the reliance on networks is not constrained to the start-up stage. In established firms as well, networks remain a source of business information, advice and problem-solving. This has been reflected in the results obtained with the sample of established SMEs.

The result of this effort provides some implications for academics, business managers and public-support policy. For academics, as discussed previously, this study attempts to contribute to the literature by identifying the effects and supporting the relations proposed and explained before. For business managers, it is important to know the effectiveness

of network usage as an important resource in order to capture information, influence the environment, improve the proclivity of higher levels of EO and thus achieve high levels of growth. For public policy-makers, the findings indicate that the social network approach, as well as entrepreneurial spirit in companies' environments, can be valuable to society as a whole because they represent more than just entrepreneurship topics and have a direct influence on potentially successful firms. Particularly, in the Spanish context, they make it easier for public-support agencies to identify SMEs with resources and potential growth. Results of this practice are businesses with higher growth rates, while at the same time generating more richness and employment.

References

- Aldrich, H., & Zimmer, C. (1986). Entrepreneurship through social network. In D. L. Sexton & R. Smilor (Eds), *The art and science of entrepreneurship* (pp. 3–23). Cambridge, MA: Ballinger Publishing Company.
- Balkundi, P., & Kilduff, M. (2006). The ties that lead: A social network approach to leadership. *The Leadership Quarterly*, 17(4), 419–439.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.
- Birley, S. (1985). The role of networks in the entrepreneurial process. *Journal of Business Venturing*, 1(1), 107–117.
- Borch, O. J., Huse, M., & Senneseth, K. (1999). Resource configuration, competitive strategies and corporate entrepreneurship: An empirical examination of small firms. *Entrepreneurship Theory and Practice*, 24(1), 49–70.
- Brass, D. J. (1992). Power in organizations: A social network perspective. In G. Moore & J. A. Whitt (Eds), *Research in politics and society* (pp. 295–323). Greenwich, CT: JAI Press.
- Brown, T. E., Davidsson, P., & Wiklund, J. (2001). An operationalization of Stevenson's conceptualization of entrepreneurship as opportunity-based firm behavior. *Strategic Management Journal*, 22(10), 953–968.
- Burt, R. S. (1992). *Structural holes: The social structure of competition*. Cambridge, MA: Harvard University Press.
- Capelleras, J. L., & Greene, F. J. (2008). The determinants and growth implications of venture creation speed. *Entrepreneurship and Regional Development*, 20(4), 317–343.
- Capelleras, J. L., & Rabetino, R. (2008). Individual, organizational and environmental determinants of new firm employment growth: Evidence from Latin America. *International Entrepreneurship and Management Journal*, 4(1), 79–99.
- Casillas, J. C., & Moreno, A.M. (2010). The relationship between entrepreneurial orientation and growth: The moderating role of family involvement. *Entrepreneurship and Regional Development*, 22(3–4), 265–291.

- Chow, I. H. S. (2006). The relationship between entrepreneurial orientation and firm performance in China. *SAM Advanced Management Journal*, 71(3), 11–20.
- Covin, J. G., Green, K. M., & Slevin, D. P. (2006). Strategic process effects on the entrepreneurial orientation-sales growth rate relationship. *Entrepreneurship Theory and Practice*, 30(1), 57–81.
- Covin, J. G., & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, 10(1), 75–87.
- Covin, J. G., & Slevin, D. P. (1991). A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship Theory and Practice*, 16(1), 7–25.
- Delmar, F., Davidsson, P., & Gartner, W. B. (2003). Arriving at the high-growth firm. *Journal of Business Venturing*, 18(2), 189–216.
- Elfring, T., & Hulsink, W. (2003). Networks in entrepreneurship: The case of high-technology firms. *Small Business Economics*, 21(4), 409–422.
- Evans, D. S. (1987). The relationship between firm growth, size and age: Estimates for 100 manufacturing industries. *The Journal of Industrial Economics*, 35(4), 567–581.
- Ferreira, J., & Azevedo, S. G. (2008). Entrepreneurial orientation (EO) and growth of firms: Key lessons for managers and business professionals. *Problems and Perspectives in Management*, 6(1), 82–88.
- Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, 91(3), 481–510.
- Gulati, R. (1998). Alliances and network. *Strategic Management Journal*, 19(4), 293–317.
- Gulati, R., Nohria, N., & Zaheer, A. (2000). Strategic networks. *Strategic Management Journal*, 21(3), 203–215.
- Hansen, E. L. (1995). Entrepreneurial networks and new organization growth. *Entrepreneurship Theory and Practice*, 19(4), 7–20.
- Hart, P. E., & Oulton, N. (1996). Growth and size of firms. *The Economic Journal*, 106(3), 1242–1252.
- Hite, J. M., & Hesterly, W. S. (2001). The evolution of firm networks: From emergence to early growth of the firm. *Strategic Management Journal*, 22(3), 275–286.
- Hoang, H., & Antoncic, B. (2003). Network-based research in entrepreneurship: A critical review. *Journal of Business Venturing*, 18(2), 165–187.
- Hoelter, J. W. (1983). The analysis of covariance structures: Goodness-of-fit indices. *Sociological Methods & Research*, 11(3), 325–344.
- Iacobucci, D. (2010). Structural equation modeling: Fit indices, sample size, and advanced topics. *Journal of Consumer Psychology*, 20(1), 90–98.
- Jack, S. L. (2010). Approaches to studying networks: Implications and outcomes. *Journal of Business Venturing*, 25(1), 120–137.
- Jack, S., Moulton, S., Anderson, A. R., & Dodd, S. (2010). An entrepreneurial network evolving: Patterns of change. *International Small Business Journal*, 28(4), 315–337.

- Johannisson, B., Alexanderson, O., Nowicki, K., & Senneseth, K. (1994). Beyond anarchy and organization entrepreneurs in contextual network. *Entrepreneurship & Regional Development*, 6(4), 329–356.
- Kamm, J. B., & Aldrich, H. E. (1991). Differences in networks activity between entrepreneurial individuals and teams. Paper presented at the Proceedings of the 11th Babson Entrepreneurship Research Conference, 17–20 April, Pittsburgh, PA.
- Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York, NY: Guilford.
- Kreiser, P. M. (2011). Entrepreneurial orientation and organizational learning: The impact of network range and network closure. *Entrepreneurship Theory and Practice*, 35(5), 1025–1050.
- Lechner, C., & Dowling, M. (2003). Firm networks: External relationships as sources for the growth and competitiveness of entrepreneurial firms. *Entrepreneurship and Regional Development*, 15(1), 1–26.
- Lechner, C., Dowling, M., & Welpe, I. (2006). Firm networks and firm development: The role of the relational mix. *Journal of Business Venturing*, 21(4), 514–540.
- Lee, C. Y. (2010). A theory of firm growth: Learning capability, knowledge, threshold, and patterns of growth. *Research Policy*, 39(2), 278–289.
- Levenburg, N. M., & Schwarz, T. V. (2008). Entrepreneurial orientation among the youth of India: The impact of culture, education and environment. *The Journal of Entrepreneurship*, 17(1), 15–35.
- Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1), 135–172.
- Lumpkin, G. T., Wales, W. J., & Ensley, M. D. (2006). Entrepreneurial orientation effects on new venture performance: The moderating role of venture age. Academy of Management Best Conference Paper 2006, ENT: N1–N7.
- Madsen, E.L. (2007). The significance of sustained entrepreneurial orientation on performance of firms—a longitudinal analysis. *Entrepreneurship & Regional Development*, 19(2), 185–204.
- Martins, I., & Rialp, A. (2013). Entrepreneurial orientation, environmental hostility and SME profitability: A contingency approach. *Cuadernos de Gestión*, 13(2), 67–88.
- Meade, A. W., Watson, A. M., & Kroustalis, M. (2007, April). Assessing common methods bias in organizational research. Paper presented at the Proceedings of the 22nd Annual Meeting of the Society for Industrial and Organizational Psychology, New York, NY (pp. 1–6).
- Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science*, 29(7), 770–791.
- Moreno, A. M., & Casillas, J. C. (2008). Entrepreneurial orientation and growth of SMEs: A causal model. *Entrepreneurship Theory and Practice*, 32(3), 507–528.

- Nasrallah, W. F., & Qawasmeh, S. J. (2009). Comparing multi-dimensional contingency fit to financial performance of organizations. *European Journal of Operational Research*, 194(3), 911–921.
- Ostgaard, T. A., & Birley, S. (1996). New venture growth and personal networks. *Journal of Business Research*, 36(1), 37–50.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J., & Podsakoff, N. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903.
- Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12(4), 531–544.
- Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice*, 33(3), 761–787.
- Rhee, J., Park, T., & Lee, D. H. (2010). Drivers of innovativeness and performance for innovative SMEs in South Korea: Mediation of learning orientation. *Technovation*, 30(1), 65–75.
- Ripollés, M., & Blesa, A. (2005). Personal networks as fosterers of entrepreneurial orientation in new ventures. *The International Journal of Entrepreneurship and Innovation*, 6(4), 239–248.
- Ripollés, M., & Blesa, A. (2006). Redes personales del empresario y orientación emprendedora en las nuevas empresas. *Cuadernos de Economía y dirección de la Empresa*, 1(26), 73–94.
- Ripollés, M., Menguzzato-Boulard, M., & Sánchez-Peinado, L. (2007). Entrepreneurial orientation and international commitment. *Journal of International Entrepreneurship*, 5(3–4), 65–83.
- Salancik, G. R., & Pfeffer, J. (1977). An examination of the need-satisfaction models of job attitudes. *Administrative Science Quarterly*, 22(3), 427–456.
- Schreiber, J. B., Stage, F. K., King, J., Nora, A., & Barlow, E.A. (2006). Reporting structural equation modeling and confirmatory factor analysis results: A review. *The Journal of Education Research*, 99(6), 323–338.
- Sengupta, A. (2011). Network strategy an access to business finance: Indian entrepreneurs in the information and communication technology industry. *The Journal of Entrepreneurship*, 20(1), 103–126.
- Tang, J., Tang, Z., Zhang, Y., & Li, Q. (2007). The impact of entrepreneurial orientation and ownership type on firm performance in the emerging region of China. *Journal of Developmental Entrepreneurship*, 12(4), 383–397.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533.
- Torkkeli, L., Puimalainen, K., Saarenketo, S., & Kuivalainen, O. (2012). The effect of network competence and environmental hostility on the internationalization of SMEs. *Journal of International Entrepreneurship*, 10(1), 25–49.
- Venkataraman, S., & Van de Ven, A. (1998). Hostile environmental jolts, transaction set, and new business. *Journal of Business Venturing*, 13(3), 231–255.

- Wales, W., Monsen, E., & McKelvie, A. (2011). The organizational pervasiveness of entrepreneurial orientation. *Entrepreneurship Theory and Practice*, 35(5), 895–923.
- Walter, A., Auer, M., & Ritter, T. (2006). The impact of network capabilities and entrepreneurial orientation on university spin-off performance. *Journal of Business Venturing*, 21(4), 541–567.
- Wiklund, J. (1999). The sustainability of the entrepreneurial orientation–performance relationship. *Entrepreneurship Theory and Practice*, 24(1), 37–48.
- Wiklund, J., & Shepherd, D. (2005). Entrepreneurial orientation, and small business performance: A configurational approach. *Journal of Business Venturing*, 20(1), 71–91.
- Yamada, K., & Eshima, Y. (2009). Impact of entrepreneurial orientation: Longitudinal analysis of small technology firms in Japan. Paper presented at the Proceedings of the Academy of Management, Annual Meeting Proceedings (Conference Theme: Green Management Matters).
- Zahra, S. A., & Covin, J. G. (1995). Contextual influences on the corporate entrepreneurship–performance relationship: A longitudinal analysis. *Journal of Business Venturing*, 10(1), 43–58.
- Zhao, Y., Li, Y., Lee, S. H., & Chen, L. B. (2011). Entrepreneurial orientation, organizational learning, and performance: Evidence from China. *Entrepreneurship Theory and Practice*, 35(2), 293–317.