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Success Factors of Entrepreneurial Teams: Modeling Through the Cognitive Mapping

Ahlem Omri*, Younes Boujelbene**

Abstract

Little research in entrepreneurship has sought to determine what factors can lead to entrepreneurial team venture success. The present study examined the role of resources such as human capital, social capital, and financial capital and how team processes influenced entrepreneurial team success. Findings from survey data of 80 entrepreneurial teams show that these resources and team dynamics were key factors of entrepreneurial team success. We enrich the entrepreneurial literature by introducing cognitive map as a new technique to measure entrepreneurial team success. Using this technique, we provide a methodological contribution to develop and analyse the cognitive map which reflects collective thinking of entrepreneurs about the factors of their success.

Keywords: Entrepreneurial Team, Key Success Factors, Cognitive Map, Entrepreneurial Success

Introduction

The promotion of entrepreneurship as the main source of job creation and development has occupied an important place in the attention of policymakers and academics (Singh, Corner, & Pavlovich, 2007). Entrepreneurial team is a form of collective entrepreneurship that emerged in the 1990s with the work of Kamm, Shuman, Seeger, and Nurick (1990). Entrepreneurial team is an omnipresent phenomenon in economy and entrepreneurial research should explain the phenomenon of entrepreneurial teams and their success factors in more depth.

All studies, independent of the country or industry, showed more or less a positive influence of the entrepreneurial team on venture success. Generally, the main argument for the advantages of teams is based on the positive effects of a combination of individual with diverse personalities, characteristics, knowledge, skills and abilities (Vesper, 1990; Vyakarnam, Jacobs, & Handelberg, 1997).

Research on entrepreneurial team had given several number of success factors such as human capital attributes (Colombo & Grilli, 2005), social capital (Bhagavatula, Elfring, Tilburg, & Van de Bunt, 2010; Lin, 2011), financial capital (Audretsch & Lehmann, 2004; Engel & Keilbach, 2007) and team processes (Ensley, Pearson, & Amason, 2002; Lechler, 2001). Important empirical research has been done explaining the formation of entrepreneurial teams, their functioning and their influence on the success of new ventures (Cooper & Daily, 1996; Vyakarnam *et al*., 1997).

Furthermore, positive psychological effects were identified. Working together in a team reduces entrepreneurial stress caused by the entrepreneurial situation. The team members are also more likely to trust and support each other.

In this study, we enrich the entrepreneurial literature by introducing the cognitive map as a new technique to measure entrepreneurial success. Through this technique, we provide a methodological contribution in the development and analysis of the "average" cognitive map which reflects the collective thinking of teams about their

* Doctor, Department of Economic Sciences, Laboratory URECA, University of Sfax, Street of Airport, Tunisia.
Email: omri_ahlem@yahoo.fr

** Professor, Department of Economic Sciences, Laboratory URECA, University of Sfax, Street of Airport, Tunisia.
Email: boujelbene.younes@yahoo.fr

success. To this end, we chose the structural analysis as a tool to structure ideas and schematic mental image of teams in relation to their success.

Literature Review

Entrepreneurial Success

In entrepreneurship, the concept of success generally refers to a firm's financial performance. Some authors defined success from tangible perspective such as revenue or a firm's growth, personal wealth creation, profitability, turnover (Amit, Mac Crimmon, Zietsman, & Oesch, 2000). Other studies (Watson, Hogarth-Scott, & Wilson, 1998; Taormina & Lao, 2007) related entrepreneurial success with continued business operations, operating for at least three years. Furthermore, several studies have interpreted the success from intangible perspective where intangible assets are linked to key factors of success. Although the fact that success has been widely studied topic in the field of entrepreneurship, no consensus on what is understood by the success of the firm can be found in the literature (Perez & Canino, 2009).

Researchers tried to define success from key success factors that have the advantage of precision versus the concept of success that is too vague. In 1979, Rockart defined critical success factors (CSFs) as the minimum number of domains in which satisfactory results will ensure competitive performance for the individual, department, or organisation. The majority of studies have grouped the success factors of firms into three categories: entrepreneur, enterprise and economic environment. These categories make it possible to distinguish significantly between successful and failed firms. Indeed, the success of a company is the result of combinations of factors relating to the individual, the organisation and the environment.

Kessler (2007) found four factors influencing the success and survival of SMEs: (i) the human dimension represented by the personality traits of the creator and his need to achievement, (ii) the environmental dimension that includes the creator network, (iii) the third dimension relating to resources among which we find the managerial experience, the entrepreneurial experience, and the initial financial situation, and (iv) the process dimension regarding achieving expectations, taking into consideration the startup failure, the startup team, the size of the company, and strategies to achieve startup goals.

The Entrepreneurial Team: A Determinant of Venture Success

Several definitions have been attributed to the entrepreneurial team by researchers in this field. This is owed to the youth of this topic and the variety of approaches that animate these authors. In our study, we have taken as reference the definition by Cohen and Bailey (1997) who considered the team as a group of individuals who share interdependent tasks and outcomes associated with these tasks, which had also seen as a social unit by themselves and by others.

Despite the variety in definitions of entrepreneurial team, the literature has been able to establish that the entrepreneurial team has a significant impact on venture success (Cooper & Daily, 1997; Kamm *et al*., 1990; Watson, Ponthieu, & Critelli, 1995). Compared to solo entrepreneurs, venture teams can offer greater resources, varying perspective, greater checks and balances, and a broader array of ideas and abilities (Hansen, 1991; Hofer & Sandberg, 1987). Ventures created as teams have a positive influence on the profitability, survivability, and growth potential of new business. Cooper and Bruno (1977) reported that team founded companies are more financially successful than solo entrepreneurs. In addition, research on entrepreneurial team found that the executive team has a greater influence on the organisational performance than the individual executive (Hambrick & Mason, 1984).

Kamm *et al*. (1990) found that 56 of the 100 best performing firms were team ventures, and that team ventures had higher revenues, greater net incomes, and more successful market capitalisation than individual ventures. Therefore, as Cooper and Daily (1997) express it, "Entrepreneurial teams are at the heart of any new venture".

Key Success Factors of Entrepreneurial Team

Entrepreneurial literature provides several factors influencing the success of the team creation. These factors can be divided into two categories: the first includes factors such as resources needed to create essentially human

capital, social capital and financial capital, and the second category is represented by the team process factors such as leadership style, communication, cooperation, decision making, knowledge sharing, cohesion, commitment etc.

Human capital represented in most of studies by education, experiences, and skills. Human capital is considered a critical resource for entrepreneurial success (Florin, Lubatkin, & Schulze, 2003; Unger, Rauch, Freese, & Rosenbusch, 2011). Furthermore, social capital is a determinant factor of success and survival of the company. The social capital is considered as an asset and a competitive advantage. In addition, the entrepreneurial literature showed a positive relationship between firm performance and social capital especially in its structural dimension (Henttonen, 2010; Huang *et al*., 2012; Mehra, Dixon, Brass, & Robertson, 2006).

Access to financial resources is a challenge for a team that desire to succeed its project. This access is very important during the startup and business development of small and medium sizes firm. Financial resources contribute according to several researchers in the growth and survival of the firm (Audretsch & Lehmann, 2004; Engel & Keilbach, 2007).

The entrepreneurial team's success depends not only on the skills of its members, but also on the process by which team members interact with each other to accomplish their tasks (Marks, Mathieu, & Zaccaro, 2001). The team process reflects the team dynamics and the interaction between the team members. This interaction explained by many characteristics such as leadership is considered as an important source of competitiveness (Daily, McDougall, Covin, & Dalton, 2002) and efficiency. In addition, Lechler (2001) confirmed that the quality of social interaction within the entrepreneurial team influenced positively the success of team venture. Furthermore, Watson *et al*. (1995) confirmed a positive influence of team interpersonal process on venture success.

Henceforth, our research hypothesis is to confirm the importance of the factors discussed previously on the success of entrepreneurial teams.

Hypothesis: Success of entrepreneurial team is the result of combination of resources factors (education, skills, experiences, social networks, initial capital) and team processes factors (leadership style, cooperation, cohesion, communication, decision making, motivation).

Conceptual Framework

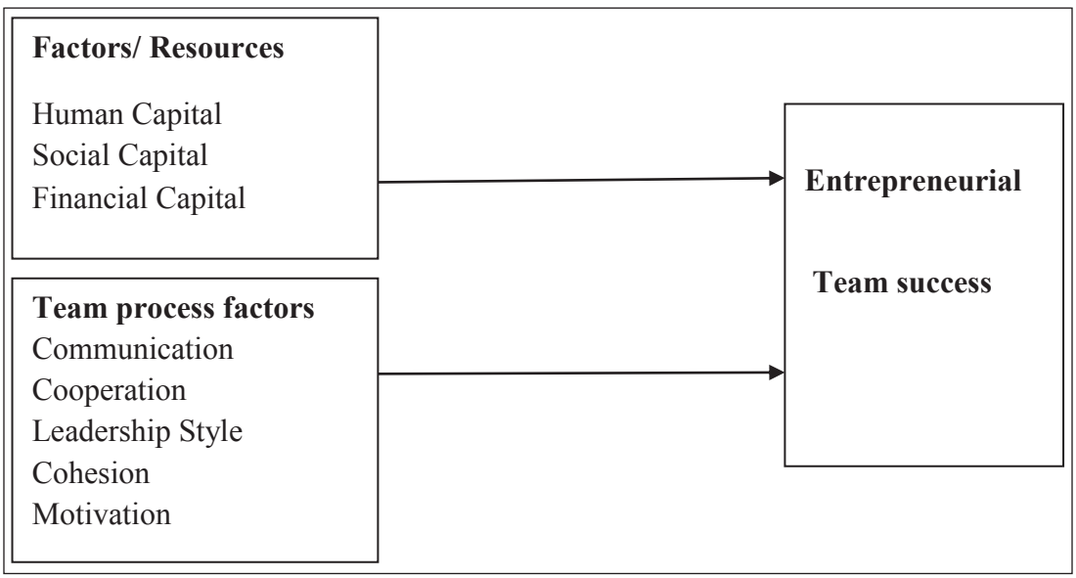

Fig. 1: Conceptual Model of the Research

Methodology and Data

Method

A cognitive map, which is collective or individual, is composed of two essential elements: concepts and links. Concepts are considered as variables and links as influences/causal between these variables. A concept may be influenced by other concepts according to its degree of importance in the map. Therefore, a concept (variable) is said important if it has many links with other concepts in the map.

We recall that our main purpose in this study is to find out the success factors of 80 Tunisian entrepreneurial teams. To this end, we propose a new approach which includes three steps to collective map (average) using the MicMac[1] program. This approach is based on the alternation of two design steps: individual and collective.

The three steps of this approach are summarised in Table 1.

Table 1: Process of Building the Collective Cognitive Map (average)

Step 1: Identification of concepts (variables)	Collect a perception of individual interviewed about the success factors of their teams through semi-structured interviews. Pull-through these interviews different concepts or ideas related to this topic. The creation of concepts list (variables) to be used in the next step.
Step 2: Analysis of the links between concepts	Each interviewee will assess the strength of relationships between these concepts (the concepts identified in the first step) by constructing a cross-impact matrix for each of them which contains only common concepts.
Step 3: The construction of the collective cognitive map	Construction of a collective matrix in which there are all common concepts of respondents and a "causal aggregate intensity". The construction of the collective map from the program (MicMac).

[1] It is a program for matrix multiplication applied to the structural matrix.

Relating to the second step, the interviewee (team member) is required to fill the boxes at the intersection of the i^{th} row and the j^{th} column by two points: the first from 1 to 3 when the variable "i" has a direct influence on the variable "j"[2], that is to say if there is a weak link of influence (score = 1), medium influence link (score = 2), strong influence link (score = 3). The second note is equal to "zero" if there is not a causal relationship and the diagonal cells.

Data

This study established an investigation of a sample of entrepreneurial teams that have been succeeded. Two hundred forty entrepreneurs were interviewed, for a period of three months, providing data from 80 companies. The sample included companies in the following sectors: industry, services and trade. These participants were asked about the factors that seem to support the creation and survival of their businesses.

The type of questions in this study is like: "In your opinion, what are the factors that have supported your team creation?" We did not chose to say the two words "success" and "failure" based on the work of Rogoff, Lee, and Suh (2004), because the person interviewed agreed their successes to internal factors that is to say their own (experiences, skills, motivations), and their failures to external factors (competition, lack of funding, partners). Two hundred forty interviews were conducted from which we identified between 40 and 60 concepts for each respondent. These interviews allowed us to identify a list of 30 common concepts for all respondents. Using this information, we can organise them in individual cross-impact matrix, then collective matrix (average).

Results

We obtained with the MicMac software the classification of factors according to the criteria of motricity and sensitivity (Appendix A: Table 2).

[2] The influence of the variable "i" on the variable "j" is not necessarily the same as influence of the reciprocal (that is to say, the influence of the variable "j" on the variable "i").

The Plan of Influences/ Dependencies

The plan of influences/ dependencies is a graph where each concept/ variable is projected based on its global influence and dependence compared to other concepts (Fig. 2). The positioning of cloud point of all variables on the influences/ dependencies plan resulting from structural analysis allowed us to distinguish four groups of variables (motor, relay, autonomous, and result or dependent) for perfect readability of entrepreneurial success phenomenon. Each group is different from other depending on the specific role that can play these variables in the success of entrepreneurial teams.

Zone A: "Motor" Variables

These are very influential and still somewhat dependent variables. These variables are called "explanations" as they are the explanatory factors of entrepreneurial success.

Area A of the most influential factors showed clearly four categories of success factors. The first category included factors related to the social capital of entrepreneurs which were represented by social networks. The second category highlighted the influence of human capital attributes of entrepreneurs. These factors, which were expressed through the team member skills, the educational level and prior experience, play an important role in explaining entrepreneurial success at the team level.

For the third category, we found that the influence of variables related to the dynamics of entrepreneurial teams like the leadership style, the cohesion between members and cooperation in the tasks were major factors of success. Apart from these factors can be seen in the fourth category, the influence of variables related to financial resources as the initial capital to start the business and equity which were factors supporting the entrepreneurial teams success.

Zone B: "Relay" Variables

"Relay" variables are both very influential and highly dependent. Any action on these variables will affect others and it has turn effect on itself. They are also the mutation point between success and failure. Looking closely at Fig. 2, which summarises the plan of influences / dependencies, we see that these variables are located in the top right. These variables related to decision-making, the commitment of team members, knowledge sharing within the group, strategy and clear vision were factors that affected the team success. These factors were themselves influenced by drive variables.

Consequently, the "relay" variables redistributed the influence. It reinforced or alleviated the impact caused by the driving variables. It was points of enrichment or weakening influence, supporting or slowing the entrepreneurial team success.

Zone C: "Autonomous" Variables

These variables had a low index of motricity and dependency. Its development was relatively independent: it did not have a significant influence on entrepreneurial success. From the plan of influences / dependencies (Fig. 2) we can identify some "autonomous" variables, for example, the age of entrepreneur, environment, the entrepreneurial family, and competition.

Zone D: "Result" Variables

These variables had a low index of influence and a high index of dependency. These result variables (effect variables) may be explained by acting on the motor and relay variables. It is conditioned by several factors. For example, the review of the influences/ dependencies plan allowed us to identify the indicators of entrepreneurial team success. These variables: sales growth, market share growth, increase of employee, innovation and profit were therefore considered as the result of success factors.

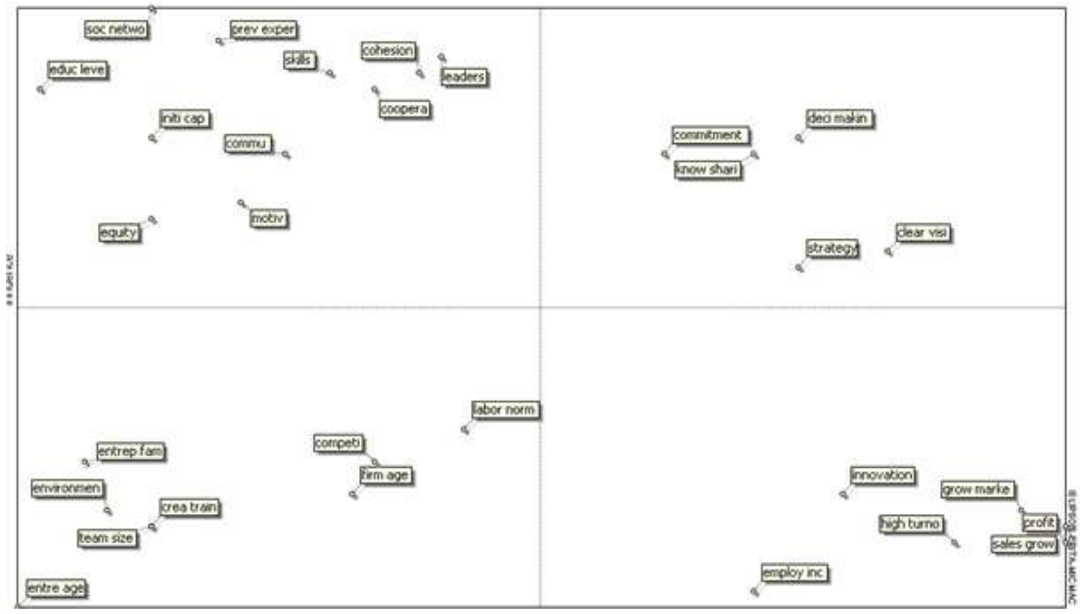

Fig. 2: Cognitive Map "Average" of Entrepreneurial Team in the Form of Influences/ Dependencies Plan (MicMac Program)

Discussion and Conclusion

The main objective of this study was to present a general model for understanding the dynamics of entrepreneurial success. We developed a theoretical framework that includes factors/ resources and factors related to the team process (Fig. 1). Our conceptual model is based on the Kessler model (2007). Indeed, we have analysed almost the same factors as Kessler, but our classification of the variables according to dimensions differs from those of (Hannu, 2000; Kessler, 2007; Lasch, Lee Roy, & Yami, 2005).

Our results support the influence of the human capital attributes of teams on the entrepreneurial success. Several studies (Bhagavatula *et al*., 2010; Kinias, 2013; Shane, 2000) confirm this result. The present work shows that factors related to social networks clearly explain the success of the teams. This result is confirmed by the studies by Birley (1985), Elfring and Hulsink (2003), and Packalen (2007) which have shown that social capital is a determining factor for the success of entrepreneurial teams. Furthermore, our research proves the importance of factors related to team dynamics for its success (Lechler, 2001; Lin & Rabbah, 2014; Talaulicar, Grundei, & Werder, 2005; Watson *et al*., 1995).

This study offers some contributions: first, it is an enrichment of the upper echelon theory which considers that the firm is the reflection of characteristics of their team leaders. Besides, it should be noted that the heart of our study lies in the methodological approach used in the construction and analysis of the map and not only at the stated outcomes.

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Appendix A

Table 2: Classification of variables (factors) according to the criteria of motricity and sensitivity (MicMac program).

S. No.	*Variable*	*Total no. of rows*	*Total no. of columns*
1	Age of entrepreneur	2	0
2	Education level	34	1
3	Previous experience	37	9
4	Skills	35	14
5	Motivation	27	10
6	Social networks	39	6
7	Commitment	30	29
8	Firm's age	9	15
9	Team size	7	6
10	Leadership	36	19
11	Communication	30	12
12	Cohesion	35	18
13	Cooperation	34	16
14	Initial capital	31	6
15	Equity	26	6
16	Clear vision	24	39
17	Sales growth	7	47
18	Profitability	6	47
19	Innovation	9	37
20	High turnover	6	42
21	Knowledge sharing	30	33
22	Decision making	31	35
23	Entrepreneurial family	11	3
24	Competition	11	16
25	Strategy	23	35
26	Market share growth	8	45
27	Labour norms	13	20
28	Environment	8	4
29	Employees increase	3	33
30	Creation training	7	6
	Total	609	609