

## Mediation Role of Absorption Capacity on the Relationship between Relational Network and the Entrepreneurial Orientation of Tunisian Contractors

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### Abstract

The objective of this paper is to analyze the mediating effects of the absorption capacity between relational network of contractors and their entrepreneurial orientation in the specific case of Tunisian SMEs. The originality of this approach lies in the development of the concept of absorption capacity for SMEs which lack the means to profit from their own relational fabrics in terms of identification and exploitation of opportunities business.

**Keywords:** Absorption capacity; Knowledge; Entrepreneurial orientation; Relational network; Tunisia

### Introduction

Today, SMEs operate in an environment marked by increased competitive intensity and a hardening global competition. Indeed, SMEs are constrained in terms of price, quality, quantities and time. Moreover, competitive strategies refer to major decisions taken by contractors to ensure the sustainability of their businesses. These decisions are a response to an environment marked by unpredictability, threat and hyper-competition.

In this context, the company must deploy strategies and resources to meet the new challenges posed by this new competitive environment and stand out from its rivals thanks to a competitive advantage [1-3].

In fact, the concept of entrepreneurial orientation (EO) emerged following the work of Miller [4], on which this author postulates that in the simple organization (according to the concept advocated by Mintzberg [5]) is the personality of the leader and leadership that matter; For this purpose, unlike the planner organization in which the company's performance is enhanced by planning, in the organic organization, what counts is the adaptation of the business and its adjustment to the specific features of environment. Moreover, in order to assess the entrepreneurial intensity, Miller [4], founded a proxy integrating innovation, pro-activity, and the propensity to take risks. Therefore, the EO is treated as an organizational phenomenon that incorporates planning, analysis, decision making and other aspects of organizational culture [6,7]. Based on these ideas, EO refers to various policies and practices that are embodied by strategic decisions and entrepreneurial actions. In addition, it is treated as a process of formulating business strategies in which policy makers can modify the organization and see the future of their businesses.

In this regard, entrepreneurship is a process that allows companies to earn economic rents by identifying opportunities, evaluate and select those with the greatest potential, and then put up the operating strategies for marketing and maximizing value [8,9]. Companies that focus on this process as part of their corporate strategies, tend to be more related to innovation, pro-activity and risk taking, comparing to

those who did not [4,7,10,11]. These three dimensions have also been processed by Danny Miller [4]. This author defined the EO through these three dimensions, namely innovation, risk taking and pro-activity.

For their part [12,13] have defined entrepreneurial orientation as a strategic posture, a nested organizational philosophy that facilitates decision taken specific to the organization. Therefore, the EO is not synonymous with entrepreneurship, but rather to articulate the perspective of the strategic choices leading to an entrepreneurial trend, in accordance with the definition of Lumpkin and Dess [7].

Moreover, given the lack of resources to pursue their entrepreneurial orientation, SMEs are required, actually more than other time, to benefit from their relational networks thanks to a sufficient absorption capacity. Therefore, the objective of this paper is to analyze the mediating effects of the absorption capacity between relational network of contractors and their entrepreneurial orientation in the specific case of Tunisian SMEs.

### Absorption Capacity and Entrepreneurial Orientation

Todorova and Durisin [14] have examined and refined the concept of absorption capacity of Zahra and George [15]. They had also re-conceptualized the model proposed by Cohen and Levinthal [16]. From their side, Mahroum et al. [13] have inserted the absorption capacity in their innovation model. More recently, Julien et al. [17] had applied the model of Zahra and George [15] in a context of Congolese small businesses while identifying the various informational sources. To build on the knowledge gained from the outside, these later must be relayed by individuals within their functional area, and between different services (e.g. between R&D and production). This is the "realized absorptive capacities" within the meaning of Zahra and George [15], which are assimilated as "inward looking absorptive capacities". In this regard, absorption capacity is essential for processing and operation phases, and allows the commercial exploitation of knowledge. Once knowledge has been acquired outside, by people, qualified as "gatekeepers who stand at the interface of the firm and the external environment" [16], they must be disseminated as widely as possible within the company. This is to build the absorption

capacity at a service in which individuals possess similar technical knowledge. Then, this absorption capacity will be targeted to all the organization, where individuals have very diverse backgrounds, including through the "boundary spanning" [16]. To allow a good flow of knowledge within the company, it is necessary that individuals possess knowledge and common modes of reasoning<sup>1</sup>. Individuals who communicate must share either the same scientific discipline or the same type of practical know-how, and often also have a vision of common goals. For example, a researcher and a mechanical engineer may communicate on the development and the industrialization of a new type of engine developed by the R&D<sup>2</sup>. This case is all the easier for both parties since they master the same field of expertise and therefore, they have the same vocabulary and a common understanding of problems to solve. If there is no redundancy<sup>3</sup>, no communication is possible.

### Absorption capacity and pro-activity

The absorption capacity enhances the existing knowledge base of the company and encourages new knowledge creation activities, which in turn influence entrepreneurial success [18]. In addition, the absorption capacity allows the exploitation and the integration of external knowledge, increasing the likelihood of reaching a better understanding of entrepreneurial companies [19].

The capacity of absorption represents a form of learning that involves the pursuit of knowledge that does not exist in the organization in order to enrich the current value, starting with the internal management of this new knowledge by the organization. On the other hand, the exploitation involves being able to transform existing knowledge to an added value created by the organization to its current customers [20].

Absorptive capacity affects competitive advantage through the development of new products, processes, systems and forms of organization, activities related to corporate entrepreneurship. The continuous pursuit and the exploitation of new business opportunities of entrepreneurial companies [21] require injection of resources and new knowledge in business operations from several external sources. Therefore, companies that develop their absorption capacities and knowledge exploitation through the use of different external sources (e.g. alliances) can boost the results of their entrepreneurial activities [18].

The ability to acquire knowledge is important, but the company must also be able to integrate and use the knowledge gained to his advantage. The need to integrate and use knowledge focuses on the absorption capacity of the enterprise. The literature of entrepreneurship is filled with examples of the role of capabilities related to learning in business performance. For example, Hurley and Hult [22] have showed that market orientation and learning orientation are associated with the company's ability to innovate in order to achieve favorable results. In addition, Hult, Nichols, Giunipero and Hurley [23] find that organizational learning improves relationships in the supply chain. Organizational learning is a dynamic process of creation, acquisition and integration of knowledge necessary to the development of resources and capabilities that improve organizational performance [24]. Previous studies e.g., Dale and Nevis et al. 1995 [25,26] have highlighted the place of organizational learning

which can be identified as a complex process integrating knowledge acquisition, dissemination and shared implementation (interpretation). Therefore, this process facilitates the exploitation of knowledge, distribution, application and transformation of this knowledge to resources for the organization, and thus, serving as a database, procedures and systems important for the expansion of the business. Hence, one can formulate the following Central hypothesis.

**H1:** The absorption capacity affects directly and indirectly the pro-activity of the contractor.

### Absorption capacity and innovation

The absorption capacity is defined as a set of organizational routines by which firms acquire, assimilate, transform and exploit knowledge to produce a dynamic organizational capability [15]. Knowledge acquisition is the ability to recognize, value, and acquire external knowledge which is essential for a company's operations [15,27].

The acquisition, assimilation, transformation and exploitation of knowledge are important for organizational innovation. The absorption capacity appears to be one of the most important determinants of a company's ability to acquire, assimilate, and to use new knowledge in order to enhance its performance of innovation. Companies need to increase their absorption capacity to acquire, assimilate, transform and exploit knowledge that can lead to organizational innovations [28]. Therefore, businesses absorption capacity can affect the efficiency of innovation activities [29]. In addition, the absorption capacity enables businesses to acquire and use external and internal knowledge which affect their innovation capabilities [28].

The absorption capacity is the capacity to acquire, assimilate, transform and exploit knowledge that can determine its levels of organizational innovation and competence [16,28,30]. In this regard, Cohen, Levinthal, and Daghfous [16,28] emphasized that the absorption capacity of a company is beneficial for organizational learning and R&D activities. From his side, Schilling [31] stated that with the absorption ability, companies expand their knowledge base and skills to improve their ability to assimilate, to use future information and thus, the possibly improve of technological developments. Therefore, when companies have a higher absorption capacity, it would increase their innovation performance [32]. Therefore, in this study we consider that innovation activity that relies on the creation and sharing of information tends to pool knowledge in space. The sharing of tacit knowledge, usually transmitted by direct contact, makes this point vividly. Moreover, the proximity, the prior knowledge [9], the trust and the sharing of information help to transform information into knowledge. For the entrepreneur, relational network [33,34] and the absorption capacity of the organization [15,16] help to transform information into knowledge. The latter, in turn stimulates innovation and identification of business opportunities, and facilitates appropriate decision-making [17]. In other words, the apprehension guides action, and it can also facilitates understanding of the information. For his part, Zeleny, [35] showed that knowledge is synonymous with contextual, relevant and developed information. In addition, a more detailed distinction between the two concepts can be apprehended by postulating that "knowledge is an action and information is a description of the action.

<sup>1</sup> That is to say, an overlap in their respective areas of expertise.

<sup>2</sup> Through the knowledge acquired from universities or collaborators.

<sup>3</sup> For example, each individual control an area of expertise totally different from those of others.

Furthermore, many research [36,37] showed that firms can be considered as interpretation systems that analyze the environment and carry out a filtration of technologies to guide future action. From this point of view of demand, knowledge providers are considered static owners of relevant knowledge waiting to be discovered by active researchers in possession of sufficient absorption capacity. The studies focusing on networks suggest, however, that the knowledge providers are not that dumb, or knowledge dispersed easily recognizable and easily integrated. This is especially true in emerging technological environments where many companies lack of knowledge internally and established routines required for the absorption capacity [38] due to a lack of both past experience [39] and an appropriate business orientation to knowledge [40]. In what follow, we try to test the following hypothesis:

**H2:** The absorption capacity affects directly and indirectly the innovation of the contractor.

### Absorption capacity and risk taking

Innovation is not without risk. Innovation, as Schumpeter foresaw, is a destructive processes, new tools and methods, and it always includes that part of leap in the dark, synonymous with risk. It carries within it a feature that hinders its development: the concept of failure; we do not innovate without the risk that is to say before the action without accepting the failure and the discovery of unpredictable elements at one time, given the state of knowledge. These risks are mainly of two types: In one hand, the technical risk that is to say that the characteristics of the product or service may not comply with specifications, or simply the expected performance. The many delays in the marketing of "new" products come in large part of this deviation from the forecast. In the other hand, social or societal risk related to the reaction of the consumer, the customer or distribution channels, competition, the legislator, the most diverse lobbies which can inhibit the dissemination of new ideas.

To these reserves, or obstacles, have been added in recent years so more and more, the concept of a global risk that is to say the refusal to accept the error, trial and error or possible collateral damage.

Thus, innovation can provide greater opportunities for growth, but also, a higher risk [41]. In the same way, several studies have showed the idea that the diversity of sources of information affects the potential negative learning [42,43]. In fact, this idea goes back to Cohen and Levinthal [16] who eagerly analyzed the concept of absorption capacity. For this purpose, these authors have demonstrated that the absorption capacity of a firm is positive depending on its level of prior knowledge. Moreover, Lubatkin and Lane [27] highlighted the fact that the similarity of the sources of knowledge determines positively differences of absorption capacity of firms as a result of a greater capacity for learning different innovation partners. This issue has already been addressed in an individual perspective by psychologists, who proposed that the prior knowledge facilitates learning because treatment of knowledge is established by associative memory [44]. In other words, the potential absorption capacity prevents companies to lock in a specific area of expertise and run the risk of not seeking alternative technologies by providing strategic flexibility to adapt in various contexts of industry.

If we follow conceptualizations of Zahra and George [15]; Lane et al. [42] and apply them to the context of cross-industry innovation, we see that the notion of potential absorption capacity comprises the steps of recognition process, assimilation and retention of knowledge from

other external industries to prepare the ground for future knowledge transfer. Hence, we can formulate the following hypothesis:

**H3:** The absorption capacity affects directly and indirectly the risk taking of the contractor.

### Methodology and Results

Before presenting the results of the confirmatory analysis, we want to clarify the conditions for its implementation. The majority of variables cannot be considered normal or pseudo-normal. This is the reason that the use of Bootstrap procedure with 100 replications of the sampling and the method of Maximum Likelihood (ML) has been selected for the parameter estimates. We try in what follow to test the mediation of the variable related to the absorption capacity between relational network and entrepreneurial orientation. We expose below the necessary calculation steps in order to identify the mediating effect and the strength of this indirect effect will be tested through the complete model. The technique of structural equations, as recommended by Keny and Baron [45], was used among all possibilities of analysis of causal effects. Several indices will be mobilized to assess the validity, quality and relevance of a measurement model. The use of confirmatory factor analysis with adjustment function (ML) is sensitive to the violation of the assumption of normality of the different multi-dimensional relational network.

However, we preferred to use a bootstrap procedure to ensure the validity of results. As for the validity of relations, two types of service must be assessed. Statistical significance is assessed through e "t-student" tests on correlations. The practical significance is assessed by the value of R-square. Given this wealth of information, the use of indices to compare the suitability of several models between them (NFI NNFI, CAIC, GFI, AGFI) and an index associated with a confidence interval (RMSEA). In consequence, we retain the indicators according to their availability in STATISTICA 5.1.

All data collected by a questionnaire were subjected to a number of statistical analyzes with the aim to discover, describe and understand the process of access to external resources. However, the information provided by the questionnaire was not all directly usable as is. They were submitted to a preparatory work to make them operational for statistical processing. Preparing data includes a number of steps which are intended to transmit the questionnaires variable file on which will be considered complete statistical processing. Two main phases can then be distinguished: the verification of questionnaire "and" codification of answers.

This systematic work has shown that the successful questionnaire is completed legibly. Only a very few cases involved minor anomalies. It was essentially a few unintentional oversights responses to an item, generating few missing values. Thus, there was no removal of relevant questionnaires.

The questions were articulated as follows:

- First, questions related to innovation adopted by companies (including their industry, specialization in the IT sector, characteristics of the innovation model to follow, innovation typology and the minimum values of innovation);
- Then, questions on attitudes towards risk and related to the factors of assuming the risk necessary to the transition to the act of creation. In this regard, items were measured by measuring scale to 4 points;

- Finally, questions related to the pro-activity and which was focused on benefits to anticipate needs in terms of business creation.

After filtering, our sample consists of 140 Tunisian SMEs. To study the dimensionality of the entrepreneurial orientation, a first factor analysis with SPSS 17 software, the vari-max rotation method with Kaiser normalization were selected because of the various scales are not assumed to be independent. Before the analysis, we first checked whether the conditions for the factorization of the variables were observed.

Items	Variables
-Sector of company	Innovation attitude towards risks
-Specialty In the IT sector	
-The Model to follow in the innovation system	
-Product type according to the degree of innovation	
-Conductor and project monitoring	
-The Minimum values of innovation	
-Risks towards the economic environment	
-Risk towards the relational and family members	
-Risk towards institutions	
-Risk towards funding	
-Risk towards the competence and training skills	
-Lack of customer responsiveness towards the product	
-Lack of flexibility and insufficiency of regulations	
-Lack of market information	
-Lack of information on technology	
-Lack of qualified people	
-Organizational rigidities within the enterprise	Pro-activity
-Lack of appropriate funding sources	
-High cost of innovation	
-Excessive perceived economic risks	
-Fort need for independence	
-Search Job	
-The need for recognition	
-The taste of defiance	
-The Need for self-esteem	
-Search of power	

**Table 1:** Items and variables of entrepreneurial orientation.

Measuring KMO is of the order of 0.617. This value is satisfactory for the exploratory phase. The statistical picture of the anti-correlation

matrix is satisfactory. The Bartlett sphericity test is also significant to the threshold of 0.001. This analysis has reduced the number of items from 34 to 28 (total outstanding items) which justify the use of a second factor analysis. Three factors were obtained and their interpretation is specified in the Table 1.

Index	Value (ML function)
AGFI	0.94
GFI	0.99
RFI	0.87
TLI	0.89
CFI	0.95
RMSEA	0.02 [0.007; 0.041]

**Table 2:** Validation of the determinants of absorptive capacity using index.

Statistical significance	Practical significance
Scale of network → Absorption capacity	R <sup>2</sup> =0.274 After bootstrap=0.289
Correlation: 0.218 (t=3.16)***	
After Bootstrap: 0.217 (s=0.032)	
Density of network → Absorption capacity	
Correlation: 0.07 (t=1.18)***	
After Bootstrap: 0.01 (s=0.124)	
Structural holes → Absorption capacity	
Correlation: 0.324 (t=3.24)***	
After Bootstrap: 0.284 (s=0.034)	
Nature of social ties → Absorption capacity	
Correlation: 0.229 (t=5.12)**	
After Bootstrap: 0.135 (s=0.007)	
Attribute of alters → Absorption capacity	Threshold of significance: *** (1%), ** (5%), no stars (not significant)
Correlation: -0.141 (t=3.28)	
After Bootstrap: 0.101 (s=0.004)	

**Table 3:** Statistical and practical significance of the determinants of absorptive capacity.

The first factor related to innovation is interested in different types of organizational innovation (product, process, and marketing) that can be implemented to develop the new production methods, a new idea, and thus, to give a dynamic entrepreneurial and latent capacity in both forms: technological form and behavioral form. From 6 items we have valued innovative capacity of the contractor based mainly on the exploitation of his innovative skills and his experiences with the product and technology used and therefore, to have a good knowledge of markets, technologies or industry. The second factor which is related



to attitude towards risk, it reflects the perception of risk and the deterioration of well-being staff (extra work, uncertainty) incurred during the creation. For some, this risk can be an element of entrepreneurial orientation, whereas for many others, there is a brake factor. This reflects exposures to behavioral and emotional risks which depend on both of its features and the perception developed in the literature. The 14 items express the will of the contractor to incur significant resources, seize opportunities, and also making the allocation of resources. The third factor related to pro-activity, it includes items of dynamic organizational behavior as a facet of assertiveness and a strategy of competition. Pro-activity is represented by six items to assess the competitive position of the contractor in relation to his competitors in order to achieve continuous monitoring of the environment, allow companies to generate competitive advantages.

Five explanatory variables may influence the absorption capacity. Indeed, in order to measure the relational network of the entrepreneur, we opted for five key variables namely: Scale of network, density of network, structural holes, nature of social ties and attribute of alters.

The values shown in the above two tables (Tables 2 and 3) are those of the bootstrap (100 replications with identical size to that of the sample). The adjustment indices of are satisfactory. However, the results of the causal model indicate significant and positive statistical relationship with the absorption capacity (although the correlations are significant at the 5% and 10%).

The table highlights the value and significance of the correlations between the components of relational network ( $X_i$ ) and variable absorption capacity ( $M'$ ), the correlations between the ( $X_i$ ) and the variable entrepreneurial orientation ( $Y$ ) and finally, the correlations between ( $X$ ) and ( $Y$ ) when mediation ( $M'$ ) is controlled (Table 4).

Regarding the mediating effect of the absorption capacity ( $M$ ), the results show that the relations between the  $X_i$  and absorption capacity are significant at the 1% level, and the relationship between  $X$  and  $Y$  when  $M$  is controlled are more significant than for the variables related to the density of the network and relational structural holes), but for the other structural components of the relationship network, correlations are lower when  $M$  is controlled.

This result is convergent with that of the study and Kelly Hayton [21], and pursuant rather to the organizational model proposed by Prieto [20].

If you want further explanations offered for this phenomenon, it may be noted, for example that according to Zahra [46] in rich countries where cultures are more individualistic, the absorption capacity takes the form of a learning process. At this level, absorption capacity increases the likelihood to achieve a better understanding of the mind.

Relation	$X_i \rightarrow CA$	$X_i \rightarrow OE$	$X_i \rightarrow OE (M, \text{controlled})$
<b>Density of network</b> ( $X_1$ )	Correlation: 0.144 (t=1.77) Bootstrap: 0.122 (s=0.024) R2=0.08	Correlation: 0.131 (t=1.66) Bootstrap: 0.112 (s=0.041) R2=0.06	Correlation: 0.0077 (t=0.45) Bootstrap: 0.008 (s=0.66)
<b>Scale of network</b> ( $X_2$ )	Correlation: 0.125 (t=1.89) Bootstrap: 0.122 (s=0.018) R2=0.036	Correlation: 0.167 (t=2.12) Bootstrap: 0.184 (s=0.04) R2=0.09	Correlation: 0.084 (t=1.69) Bootstrap: 0.095 (s=0.041)
<b>Structural holes</b> ( $X_3$ )	Correlation: 0.244 (t=3.16) Bootstrap: 0.188 (s=0.032) R2=0.125	Correlation: 0.149 (t=5.28) Bootstrap: 0.451 (s=0.03) R2=0.369	Correlation: 0.053 (t=0.94) Bootstrap: 0.064 (s=0.017)
<b>Nature of social ties</b> ( $X_4$ )	Correlation: 0.123 (t=2.17) Bootstrap: 0.144 (s=0.028) R2=0.28	Correlation: 0.354 (t=2.47) Bootstrap: 0.298 (s=0.015) R2=0.128	Correlation: 0.144 (t=1.98) Bootstrap: 0.098 (s=0.032)
<b>Attribute of alters</b> ( $X_5$ )	Correlation: 0.28 (t=2.08) Bootstrap: 0.301 (s=0.04) R2=0.32	Correlation: 0.125 (t=2.12) Bootstrap: 0.128 (s=0.018) R2=0.08	Correlation: 0.075 (t=1.68) Bootstrap: 0.065 (s=0.032)

**Table 4:** Correlation between relational network components and the absorption capacity.

## Concluding Remarks

This paper reveals an interesting result, the preponderant weight of the absorption capacity in predicting new business opportunities which are formulated by the entrepreneurial orientation. Indeed, the absorption capacity appears each time as a set of organizational routines which improve relationships in the supply chain.

Finally, we conclude the evidence of partial mediation in the relations between relational network and entrepreneurial orientation

by the variable absorption capacity". This result confirms partly organizational modeling.

In this respect, in the specific case of SMEs, the absorption capacity is equated with a better interlocutor for an entrepreneur in order to strengthen and identify strong entrepreneurial orientation and, by leveraging its relationship network whether its mechanisms. This observation is all obvious that such companies do not have sufficient resources to choose themselves their entrepreneurial orientation.

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