

MEDIATING ROLE OF THE INNOVATION EFFECTIVENESS ON THE RELATIONSHIP BETWEEN ENTREPRENEURIAL ORIENTATION AND THE SMEs PERFORMANCE IN ALGERIA

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Abstract: Entrepreneurial orientation is a crucial element for a firm's success. Nonetheless, most of the findings from previous studies provide the results of testing the direct effect of entrepreneurial orientation on firm performance. Various factors have been used to determine the relationship between entrepreneurial orientation and firm performance by past studies. In this study, we contribute to the entrepreneurial orientation and firm performance literature by proposing a wider perspective with intermediate step: type of process innovation effectiveness. A quantitative approach and simple random sampling through self-administered questionnaire was adopted to collect the data from SMEs sector which consist of the SMEs owners, directors, and the general managers in Algeria. There were 291 respondents who participated and 258 respondents were usable for further analysis after the screening process. SPSS - 20 and Smart-PLS 2.0 were utilized to screen and analyze the data. The results of data analysis showed that the entrepreneurial orientation does not have significant direct effect on the firm performance. It means that there is an intervening variable between entrepreneurial orientation and firm performance namely process innovation effectiveness. Further, this study found that the process innovation effectiveness mediates the relationship between entrepreneurial orientation and the firm performance.

Key words: entrepreneurial orientation, firm performance, process innovation effectiveness, SMEs, Algeria

DOI: 10.17512/pjms.2017.15.1.18

Article history:

Received January 9, 2017; *Revised* February 30, 2017; *Accepted* March 10, 2017

Introduction

In the current dynamic and competitive global environment, the small-and-medium-sized enterprises (SMEs) in different countries play a key role in the development of economies and have been the driver for economic development and technological progress (Bruque and Moyano, 2007). The development of the SMEs sector occupies top priority in developing countries (Davidsson, 2004; Gibb and Ritchie, 1982). In a developing country like Algeria, the development of SMEs sector is of great importance as SMEs assist the industry and support their large counterparts. In this regard, the development of SMEs is the hope for large industries as every large enterprise has started out, one way or another as an SME.

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Entrepreneurship has long been acknowledged as a main driver behind the productivity and development of firms (Aloulou and Fayolle, 2005) that results in considerable advantages for the whole economy (van Praag and Versloot, 2007). It has been a focus by several researchers and among them, Davidsson et al. (2002) who stressed on the definition of the term 'entrepreneurship' as various definitions have been proposed.

With regards to the entrepreneurship concept, one that has come under scrutiny of scholars is that of entrepreneurial orientation (EO), which refers to organizational-level entrepreneurial activity (Covin and Slevin, 1991; Kreiser et al., 2002; Covin and Lumpkin, 2011; Covin and Wales, 2012). Entrepreneurial orientation (EO) basically describes how a new entry is undertaken and is a reflection of the operation of the firm and as such, EO measure can be gained through the firm level entrepreneurship (Stetz et al., 2000; Knight, 1997; Morris and Sexton, 1996).

Innovation refers to the successful use of new ideas (Myers and Marquis, 1969) and two criteria have to be satisfied; novelty and use. Novelty is required as the innovation practice actually uses the invention, the scientific discovery or new production or management method, while utility is required as the inventory has to be used or it has to be commercially successful. Outcomes from the innovation include product and process innovations – both of these outcomes are interrelated (Utterback and Abernathy, 1975) and comprise a complex process involving the entire functions of the company.

Prior findings from studies that examined the direct EO relationship with performance display only a partial picture of performance (Lumpkin and Dess, 1996; Wiklund and Shepherd, 2005) as studies evidencing such relationship is affected by firm size, national culture (Rauch et al., 2005) financial resource access (Wiklund and Shepherd, 2005), network capability (Walter et al., 2005), and strategic processes (Covin et al., 2006). In related studies Covin and Miles (1999), Ireland and Webb (2007) and Schumpeter (1934) contended that entrepreneurial actions directly impact product, process and administrative innovations while other studies (e.g. Drucker, 1998; Ireland et al., 2005; Schumpeter, 1934) considered innovation outcomes as antecedents of entrepreneurship - a relationship that needs more validation and confirmation. To this end, EO maximizes firm's proactiveness and its inclination to take on risks and bring about innovation (Zahra et al., 1999). In fact, innovation is a significant factor of firm performance that evolves from a dynamically competitive market place (Newey and Zahra, 2009; Wheelwright and Clark, 1992).

Research Framework and Hypothesis Development

The EO-performance relationship is among the most important subjects that have been focused on by researchers. Majority of studies in this area consider firm performance as a dependent variable and the firm's entrepreneurship activities as the independent variable. There is a strong agreement among researchers concerning the final outcome of the entrepreneurial activities stem from

the performance enhancement. According to some researchers, high level of entrepreneurial orientation activities would be facilitating superior performance (e.g. Wiklund and Shepherd, 2005; Wiklund, 1999; Pearce and Carland, 1996; Zahra and Covin, 1995; Zahra, 1991). Based on the literature review that mentioned before, the framework below was designed.

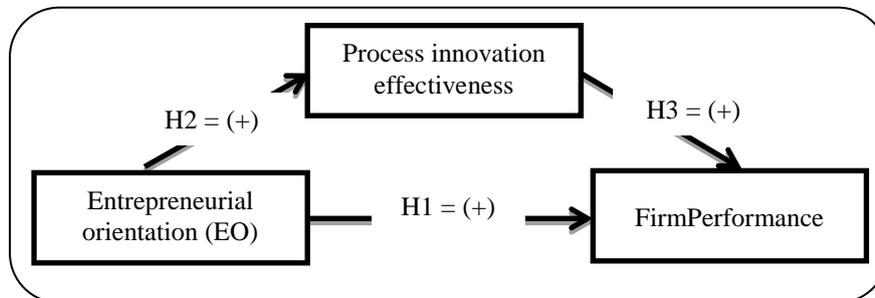


Figure 1. The research framework

In the past literature, it is common to relate EO to firm performance (e.g. Zahra and Covin, 1995; Wiklund, 1999; Jogaratnam et al., 1999; Madsen, 2007) but this relationship may not be discernible (Dess et al., 1999) because empirical studies demonstrate that the EO benefits may not show up until after the passing of many years (Zahra and Covin, 1995; Madsen, 2007), and that the performance of the firm directly hinges on different internal and external organizational conditions and factors (Thoumrungroje and Tansuhaj, 2005). The modeling of EO-firm performance relationship entails other dependent variables that are sensitive towards EO.

Empirical studies have advocated that EO positively impacts firm performance (Barrett and Weinstein, 1999; Runyan et al., 2006; Fairouz et al., 2010). To this end, Wiklund (1999) stated that EO's impact upon performance is especially significant among small firms as smaller sized firms have a tendency to be flexible and innovative. Similarly, Covin and Slevin (1991) claimed that EO is related to performance in the context of small firms within a hostile surrounding.

Hypothesis 1: There is a positive and significant relationship of Entrepreneurial orientation (EO) on Firm performance.

Covin and Miles (1999), Ireland and Webb (2007), and Schumpeter (1934) claimed that entrepreneurial actions directly impact product, process and administrative innovations while Drucker (1998), Ireland, Reutzel and Webb (2005) and Schumpeter (1934) evidenced innovation to be an indicator of entrepreneurship. These mixed results call for further examination of the relationship. According to Zahra et al. (1999), EO increases proactiveness and inclination towards risk taking and innovation within a specific firm. Consequently, EO may be deemed to be among the innovation performance antecedents (Baker and Sinkula, 2009; Renko et al., 2009). Moreover, innovation is a significant factor in the performance of the

firm brought about by the competitive dynamic environment (Newey and Zahra, 2009; Wheelwright and Clark, 1992). The significance of innovation for the company's long-term outcome is extensively acknowledged in theory and practice. As a result, innovation performance is deemed to directly impact the performance of the firm (Baker and Sinkula, 2009; Renko et al., 2009; Wheelwright and Clark, 1992), and an accurate dependent variable of EO as opposed to firm performance (Ireland et al., 2003).

Based on the prior sections, entrepreneurial orientation can be described as processes, practices, philosophy, and activities of decision-making that motivates the firm into taking up proactive innovation (Lumpkin and Dess, 2001; Wiklund and Shepherd, 2005; Li et al., 2009). The significance of entrepreneurial orientation to the life and performance of firms has been, time and again, brought up in literature (Lumpkin and Dess, 2001b; Wiklund and Shepherd, 2005; Covin and Slevin, 1991; Smart and Conant, 1994; Tambunan, 2007; Hughes and Morgan, 2007). Innovation is invaluable in the performance of the firm owing to the dynamic competitive environment (Bueno and Ordonez, 2004) and innovation performance has been reported to have a direct impact on the overall firm performance (West and Iansiti, 2003; Brockman and Morgan, 2003). In a related study, Ireland and Webb (2007) stated that entrepreneurial activities directly impact product and process innovation. In other words, as EO increases, the autonomy, competitive aggressiveness, proactiveness and willingness of the firm to take risks and innovate also increase (Zahra et al., 1999; Lumpkin and Dess, 2001). Innovation and EO are related to each other despite the fact that innovation has been conceived as an indicator of both entrepreneurship and EO. Nevertheless, only a few studies have been dedicated to analyze the relationship empirically.

Hypothesis 2: There is a positive and significant relationship of Entrepreneurial orientation on Process innovation effectiveness.

Hypothesis 3: There is a positive and significant relationship between Process innovation effectiveness and Firm performance.

Besides that, process innovation effectiveness is treated as a mediator in this study. Thus, the hypothesis can be proposed as follows:

Hypothesis 4: Process innovation effectiveness mediates the relationship between Entrepreneurial orientation and Firm performance.

Research Methodology

The population of the study encompasses the total number of SMEs in Algeria (747, 934). A simple random sampling was used to select the respondents from the list of MISMEP (2013). There were 500 questionnaires distributed to owners, directors and managers of the small and medium enterprises (SMEs) located in Algeria that had been selected randomly from the list of MISMEP (Krejcie and Morgan, 1970; Hair et al., 2010). The researcher himself and a group of appointed enumerators conducted the data collection through self-administered structured

questions. From October 2014 to June 2015, only 291 questionnaires were obtained. However, among the returned questionnaires, only 258 questionnaires were usable for the analysis stage. To examine the model of the study, Partial Least Squares Structural Equation Modeling (PLS-SEM) approach was employed utilizing the Smart-PLS package 2.0.

The measures of the study were adapted from the past literature. The measurements of Innovation performance is deemed to be a construct having three various dimensions. Studies dedicated to the field of innovation have provided an overview of process innovation effectiveness (Brown and Eisenhardt, 1995; Organization for Economic Cooperation and Development – OECD, 2013). Entrepreneurial orientation was adapted from Covin and Slevin (1986; 1989) and Smart and Conant (1994). Firm performance in the present study was specifically adapted from Narver and Slater (1990) as well as Jaworski and Kohli (1993).

Research Results and Discussion

Table 1 shows the composite reliability values are between 0.677 to 0.935 which exceed the pre-set value (0.7). Only I= 0.677 is less than 0.7 but still accepted because $AVE^b = 0.553$ (Fornell and Larcker, 1981; Hair et al., 2010).

Table 1. Convergent validity analysis

Constructs	Items	Alpha	R square	CR ^a	AVE ^b
Entrepreneurial orientation	A	0.891		0.870	0.693
	C			0.858	0.669
	I			0.677	0.553
	P			0.785	0.549
	R			0.888	0.727
Firm performance	FP	0.921	0.377	0.935	0.592
Process innov. effectiveness	PS	0.867	0.501	0.895	0.524

a: $CR = (\sum \text{factor loading})^2 / \{(\sum \text{factor loading})^2 + \sum (\text{variance of error})\}$

b: $AVE = \sum (\text{factor loading})^2 / (\sum (\text{factor loading})^2 + \sum (\text{variance of error})\}$

The average variances extracted (AVE) values ranging from 0.524 to 0.727 illustrate a good level of construct validity related to the used measures. The convergent validity of the remaining model is confirmed from these outcomes.

Particularly, the GoF value of this model was found to be 0.500 which is considered large when compared to the baseline values suggested by Wetzels et al., (2009) (large =0.36, medium =0.25, small =0.1). The results showed that the model goodness of fit measure based on the average variance explained is large which indicates an adequate level of global.

As illustrated in Table 2, EO does not have significant effect on the Firm Performance ($\beta=0.056$, $t= 0.948$, $p>0.05$). Thus, H1 is rejected. Further, the results

showed that EO has a positive and significant effect on Process innovation effectiveness ($\beta=0.708$, $t= 18.481$, $p<0.001$). Similarly, Process innovation effectiveness has a positive and significant effect on the Firm performance ($\beta=0.090$, $t= 1.287$, $p<0.001$). Based on the results of hypothesis testing, two hypotheses are accepted: H2 and H3. In addition, as H1 is rejected, thus, we expect the variable of Process innovation effectiveness mediates in relationship of EO on the Firm Performance.

Table 2 . The results of the hypothesis testing

No	Hyp	Path Coefficient	Std. Error	T Value	P Value	Decision
H1	EO -> FP	- 0.056	0.059	- 0.948	0.344	Rejected
H2	EO -> PS	0.708	0.038	18.481	0.000	Accepted
H3	PS -> FP	0.090	0.124	1.287	0.000	Accepted

***:p<0.01; **:p<0.05

Testing the Mediating Role of Process Innovation Effectiveness in Relationship of EO on the Firm Performance

To test the mediating effect of the Process innovation effectiveness on the relationship between EO and firm performance, the PLS bootstrapping algorithm was run to estimate the indirect effect among the variables. As illustrated in Table 3, the chi-square statistic for the model is significant, but other relevant fit indices suggest a good overall fit (Tippins and Sohi, 2003). The mediating effect of innovation performance on the relationship between EO and firm performance is established due to the following conditions (Tippins and Sohi, 2003). First, there is a positive relationship between EO and Process innovation effectiveness. Second, there is a positive relationship between Process innovation effectiveness and firm performance. And third, the direct effect of EO on firm performance is low and not significant. These conditions provide compelling evidence for the full mediating effect of Process innovation effectiveness on the relationship between EO and firm performance and lend substantial support to H4. So, this mediation relationship represents a significant contribution to our understanding of the positive influence of EO on firm performance.

Table 3. Mediation analysis results

Hyp	Hyp	Path Coefficient (a*b)	Std. Error	T Value	P Value	Decision
H4	PS*OE -> FP	0.064	0.005	23.785	0.000	Accepted

Managerial Implication

Since the SMEs are among the most competitive sectors of the world economy (Alegre and Chiva, 2013), it can be derived from this study that firms should put

special emphasis on process innovation, as this type of innovation is found to be important instrument for a firm to achieve sustainable competitive advantage. Algerian SMEs owners or managers could establish and follow plans to improve their firm innovation and organizational learning to develop and encourage entrepreneurial environment in their organizations.

Conclusion

Although entrepreneurial orientation is usually considered to have a positive effect on firm performance, this relationship requires a broader analysis of the intermediate steps between entrepreneurial orientation and firm performance. The results of this study suggest that entrepreneurial orientation enhances innovation performance, which in turn enhances firm performance and process innovation effectiveness plays as a mediating variable in relationship of entrepreneurial orientation on the firm performance.

More importantly, this paper provides a more examination of the effects of entrepreneurial orientation (EO) on firm performance and offers an explanation to intraindustry differences in firm performance (Easterby-Smith and Prieto, 2008; Nelson, 1991). Given that firm performance may vary among SMEs, we attempt to understand this asymmetry within the context of managerial attitudes (EO), innovation performance (Process innovation effectiveness). Results suggest that competitive advantage in the SMEs industry requires firm strategies focusing on entrepreneurial orientation and innovation. This finding represents a contribution to the strategic management stream that seeks to explain differences in firm performance within a particular industry. Furthermore, this study underlines the importance of measuring the effects of entrepreneurial orientation on firms by analyzing their innovation performance (Process innovation effectiveness). Innovation is a key concept for firms today, as it represents.

For the future research, it could be of a great value if some other factors are to be included to determine the SMEs performance. For example, Process innovation effectiveness and Project innovation efficiency could be critical factors affecting the level of performance. In addition, the size and sector of the business could be an influential factor of the performance since small and medium businesses' needs of innovation are different from those of bigger businesses. The results of this study are context specific. Although it is theoretically feasible to extend this study to other contexts, the specific differences between Algerian SMEs and other emerging economies restrict the generalizability of this study's findings. Therefore, other useful extension could be applied for this study to be conducted in other emerging countries.

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MEDIACYJNA ROLA EFEKTYWNOŚCI INNOWACYJNEJ POMIĘDZY ORIENTACJĄ PRZEDSIĘBIORCZĄ I WYDAJNOŚCIĄ MŚP W ALGIERII

Streszczenie: Orientacja przedsiębiorcza jest kluczowym elementem sukcesu firmy. Niemniej jednak, większość wniosków z dotychczasowych badań dostarcza wyników dotyczących testowania bezpośredniego wpływu orientacji przedsiębiorczej na wydajność firmy. W badaniach tych w celu określenia zależności między orientacją przedsiębiorczą a wydajnością firmy wykorzystywano różne czynniki. Niniejsze opracowanie stanowi przyczynek do literatury na temat orientacji przedsiębiorczej i wydajności firmy, proponując szerszą perspektywę z etapem pośrednim: rodzajem efektywności innowacji w obrębie procesu. W celu zebrania danych z sektora MŚP, obejmujących właścicieli, dyrektorów i dyrektorów naczelnych MŚP w Algierii, przyjęto podejście ilościowe i proste losowe pobieranie próbek przy wykorzystaniu samodzielnego kwestionariusza. W badaniu wzięło udział 291 respondentów, po przeglądzie, odpowiedzi 258 respondentów nadawały się do dalszej analizy. Do przeszukiwania i analizy danych wykorzystane zostały programy SPSS - 20 i Smart-PLS 2.0. Wyniki analizy danych wykazały, że orientacja przedsiębiorcza nie ma istotnego bezpośredniego wpływu na wydajność przedsiębiorstwa. Oznacza to, że pomiędzy orientacją przedsiębiorczą a wydajnością firmy istnieje interwencyjna zmienna, zwana efektywnością innowacji w obrębie procesu. Ponadto, niniejsze opracowanie wykazało, że efektywność innowacji w obrębie procesu pośredniczy w relacji między orientacją przedsiębiorczą a wydajnością firmy.

Słowa kluczowe: orientacja przedsiębiorcza, wydajność firmy, efektywność innowacji w obrębie procesu, MŚP w Algierii

創新效應對創業精神與中小企業在阿爾及利亞績效之間關係的影響

摘要：創業導向是公司成功的關鍵因素。儘管如此，以往研究的大部分結果都提供了測試創業導向對企業績效的直接影響的結果。通過以往的研究，已經使用各種因素來確定創業導向與企業績效之間的關係。在這項研究中，我們為企業家導向和企業績效文獻做出了貢獻，提出了一個更廣泛的視角：中間步驟：過程創新效率的類型。採用定量方法和通過自我管理問卷的簡單隨機抽樣方法收集中小企業部門的數據，其中包括阿爾及利亞的中小企業主，董事和總經理。有291名受訪者參加，258名受訪者可在篩查過程中進一步分析。利用SPSS 20和Smart-PLS 2.0對數據進行篩選和分析。數據分析結果表明，創業導向對企業績效沒有顯著的直接影響。這意味著創業導向與企業績效之間存在著一個插入的變量，即過程創新的有效性。此外，本研究發現，過程創新有效性調節了企業家導向與企業績效之間的關係。

關鍵詞：創業導向，企業績效，流程創新有效性，阿爾及利亞中小企業。