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Balla Doucouré, Fatiha Fort, Ibrahima-Samba Dankoco

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The mediating role of innovativeness in the relationship between market orientation and performance: An application to Senegalese agri-food VSEs

Market orientation, innovativeness, and performance: An application to Senegalese agri-food VSEs

In managerial discourse, market orientation and innovativeness are considered imperative to firms' competitiveness. Research on them has particularly focussed on medium and large companies in Europe and the United States, while others have focussed on market orientation's impact on the performance of very small enterprises (VSEs) in developed countries. However, the role of innovativeness in the relationship between market orientation and performance, in micro-enterprises based especially in Africa, is less studied. This research proposes a conceptual model to assess market orientation's impact on VSE performance, establishing the mediating role of innovativeness in this relationship. Focusing on small food processing units and vegetable producers, a sample of VSEs for collecting primary data was compiled for a survey of 150 VSE leaders. A structural equation model was used, based on the LISREL approach. Results confirm a direct link between market orientation and performance, and demonstrate, as noted above, the mediating role of innovativeness.

Keywords: market orientation; innovativeness; performance; agri-food; VSEs

Introduction

Scholars consider market orientation as one of many key determinants of a company's performance. For several years, however, researchers in management sciences have examined one question— 'Which variables enable companies to achieve sustainable performance?' The interest in market orientation has largely centred on answering this question. From the late 1980s, Kohli and Jaworski (1990) and Narver and Slater (1990), initiated a series of marketing researches on market orientation that cemented their reputation as the founders of this movement. Market orientation derives its popularity from the presumed positive influence it has on company performance. Over the last 20 years, scholars have extensively studied the relationship between market orientation and

innovativeness (Slater & Narver, 1994, Jaworski & Kohli, 1993, Greenley 1995, Blankson & Omar, 2002, Rojas-Méndez, Kara, & Spillan, 2006; Gatignon & Xuereb, 1997; Amirkhani & Fard, 2009; Ellis, 2006; Mahmoud, 2010; Shehu, 2014). Then, if the question of the impact of market orientation on performance is not yet settled, it is because the results from the empirical studies are divergent or even contradictory. While some studies concluded that market orientation positively influences performance (Jaworski & Kohli 1993, Slater & Narver 2000, Cano Carrillat & Jaramillo 2004, Ellis 2006), others showed no or a negative effect (Au & Tse, 1995; Bhuian 1997; Greenley, 1995, Sandvik, Sandvik, & Duhan, 2004; Sargeant & Mohamad, 1999). To address this problem, scholars have noted that market orientation alone cannot explain performance as long as there could be other influential variables on it. Market orientation is, therefore, an important factor of performance, but insufficient by itself (Gotteland & Ray, 2008). Hurley and Hult's (1998) research, and subsequent works, recognised innovativeness as a means to conceivably increase company performance and maintain competitive advantage. Since then, over the last 20 years, research on the relationship between innovativeness and performance has gained momentum, with several extant studies having established the existence of a positive relationship thereof (Hatak, Kautonen, Fink, & Kansikas, 2015; Hult, Hurley, & Knight, 2004; Rhee, Park, & Lee, 2010; Verhees & Meulenbergh, 2004). However, most of this research has so far focussed on large companies. In fact, Marchesnay and Julien (1988), Marchesnay (1988), and Marchesnay (2003) especially highlighted the specificities of SMEs and VSEs. While a few researches focussed mainly on market orientation and its impact on VSEs performance in developed countries, fewer examined the mediating role of innovativeness thereof in developing African countries. To address this academic shortfall, this research predominantly focuses on developing a conceptual model to

evaluate the impact of market orientation on VSEs performance, thus establishing the mediating role of innovativeness in this relationship.

In the following section, we review relevant literatures. Then, the hypotheses, research model, and methodology are elaborated. Finally, we present a statistical analysis, and results thereof, followed by a discussion on the theoretical and managerial implications of the research.

Literature review

Market orientation

Market orientation is generally defined as the implementation of the marketing concept. It has been the subject of many debates for more than half a century. Indeed, early works by Drucker (1954), Levitt (1960), and Keith (1960) considered it a philosophy that an organization must adopt to create more value. Combined with them, studies by authors considered the founders of market orientation, such as Shapiro (1988), Kohli and Jaworski (1990), Narver and Slater (1990), and subsequent research make market orientation a concept with abundant literature.

Market orientation is also a philosophy that comprises developing the marketing mindset within a company. The existence of this state of mind must translate into market-oriented behaviours, following approaches such as intelligence gathering, intelligence dissemination, and the responsiveness to this intelligence (Kohli & Jaworski, 1990) or customer orientation, competitor orientation, and inter-functional coordination (Narver & Slater, 1990). Regardless of the approach or author, the general literature has reached a consensus on two points—market intelligence and its use.

Market intelligence is considered as the starting point of market orientation (Kohli &

Jaworski, 1990) and is recognised by most authors as an important element of this phenomenon (Kohli & Jaworski, 1996). It is obtained through the collection of information on current and future needs of consumers and other exogenous factors that influence consumer needs such as technology, competition and regulation. Market intelligence generated is then used to identify and understand the needs of consumers, and then disseminated throughout the company before being translated into action as a response to market needs. This last stage of the process requires a good responsiveness of the VSEs. Responsiveness is the firm's ability to respond to market intelligence collected and disseminated by creating superior value for customers (Kohli & Jaworski, 1990; Narver & Slater, 1990; Shapiro, 1988). Thus, responsiveness is seen as the phase of market orientation that involves coordinating the efforts of the marketing function and those of other functions to provide more value to customers (Hult et al., 2004; Kohli & Jaworski 1990; Narver & Slater 1990). These definitions of Kohli and Jaworski (1990) and Narver and Slater (1990) emphasise specific behaviours and, therefore, facilitate the implementation of market orientation construct. However, while the implementation of market orientation does not seem to be a problem for large companies (Blankson & Cheng, 2005; Jaworski & Kohli, 1993), this is not the case for small businesses.

The operationalization of market orientation, along the lines of research by Kohli and Jaworski (1990), in very small enterprises is subject to some difficulties, primarily due to the management of these very small structures. Some scholars (Dyer, 1988; Zahra, Hayton, & Salvato, 2004; Beck, Janssens, Debruyne, & Lommelen, 2011) argued that centralised decision-making, which often exists in VSEs, is an obstacle to the exchange of information and ideas. Here, centralisation refers to the concentration of decision-making and powers in the hands of the owner-manager. However,

restricting all important decision-making to a company's leader does not promote exchange of information within it. Thus, for Matsuno, Mentzer and Özsomer (2002), centralisation negatively affects market orientation, as it inhibits the dissemination and use of market intelligence in the company. Intelligence dissemination across the company proves irrelevant in small businesses, especially since the owner-manager is responsible for all major decisions (Verhees & Meulenbergh, 2004). Nevertheless, in VSEs, there are ways of disseminating information within the company (especially with other employees) which are often informal. We thus adopt the behavioural approach of Kohli and Jaworski (1990), which results in the establishment of activities of the organization-wide generation of market intelligence, dissemination of the intelligence across departments, and organization-wide responsiveness to this market intelligence.

Innovativeness

Innovativeness is a psychological concept originally defined as a situation where an individual adopts innovations before other members who exist in the same social context (Rogers & Shoemaker, 1971). In other words, it is a phenomenon exhibited by individuals with a desire to always be amongst the first, that is, before the other members of his or her reference group, to use innovations. When applied to an organisation, innovation refers to the speed with which a company adopts an innovation before its competitors (Rogers, 2003). Besides the variety of definitions, there are also several approaches that make it quite complex innovativeness's conceptualisation. In fact, studies distinguish the psychological approach of innovativeness which refers to a personality trait of individuals (Goldsmith & Foxall, 2003; Marcati, Guido & Peluso 2008, Midgley & Dowling, 1978) from the strategic approach which requires a firm's ability to acquire and act on market-based information (Hult et al., 2004). In addition,

proponents of the psychological approach consider innovativeness as a component of the individual's personality which manifests itself in two forms: general innovativeness and specific innovativeness (Marcati et al., 2008). General innovativeness relates to the openness and creativity of individuals, to their readiness to follow new ways, and, in the specific rendering we are adopting here, to the degree of creativity in the cognitive style, that is, the way by which individuals mentally process information, take decisions, and solve problems. Goldsmith and Hofacker (1991) criticised the general innovativeness as a construct which is unable to fully explain adoption behaviour on the part of individuals. They underlined its high level of abstraction because its take into consideration only the decision-maker's cognitive style, ignoring any relationship to the specific innovation domain (e.g., a product, a technological process, a market). Domain-specific innovativeness (DSI), in turn, refers to the predisposition to adopt innovations sooner than others in a specific domain. DSI captures thus the innovativeness of the VSEs' owners for a particular domain of interest (i.e., what decision-makers consider as an innovation in their specific domain). In general, small enterprises are characterized by the personality traits of the leader who is in the same time the owner, the manager and the center of decision making (Verhees & Meulenberg, 2004). According to Hausman (2005), the presence of certain character traits among entrepreneurs explains the existence of the capacity to respond to changing needs in the environment. The proximity of these companies to their markets and the special relationships they have with their customers allow them to better ascertain the customer's state or lack of satisfaction. This environmental knowledge makes small companies increasingly innovative. The proximity of clients to small business owners can foster the propensity for innovation because of the ease with which they can identify the needs of unmet customers (Hausman, 2005). Therefore, innovativeness, in very small enterprises, can

result in the owner-manager's willingness to know and adopt innovations, both in upstream and downstream markets (Verhees, 2005).

Performance

Business performance refers to marketing effectiveness and financial performance (Che Ha, Mavondo, & Mohd Said, 2012). For these researchers, marketing effectiveness is the company's ability to achieve marketing objectives which result in improved market share, gross margin, and sales in relation to the previous year. Financial performance is the achievement of corporate profitability objectives measured by the return on investment, the achievement of profit objectives, and other strategic financial objectives set for the company (Che-Ha et al., 2012). Knowing that creating customer value which can, in turn, create value for shareholders and commercial performance predisposes the firm to higher financial performance (Szymanski, Bharadwaj, & Varadarajan, 1993), we adopt the view most in line with the conceptual framework implemented. We thus focus on business indicators only (customer satisfaction, innovation, market shares, and competitive position).

Hypothesis and conceptual framework

The relationship between market orientation and the company's performance has been the subject of several studies. Several articles and meta-analyses have emerged since the seminal works of Kohli and Jaworski (1990) and Narver and Slater (1990). Some focussed on understanding the phenomenon, while others went further in trying to explain its effect on company performance. This is how a number of meta-analyses (Rodriguez Cano, Carrillat and Jaramillo, 2004; Kirca, Jayachandran and Bearden, 2005; Ellis, 2006) developed; amongst them, all have one thing in common—the

demonstration of a positive and significant relationship between market orientation and organisational performance (Gotteland, 2009). Based on these observations, we thus hypothesise:

H 1: Market orientation has a direct and positive impact on commercial performance.

The link between market orientation and innovativeness has been the subject of several research studies in extant literature (Hult et al., 2004, Rahab 2012, Rhee et al., 2010, Shoham, Vigoda-Gadot, Ruvio, & Schwabsky, 2012; Tsai & Yang 2013). In marketing, market orientation is considered the main source of innovation within a company. Hult et al. (2004) stated that a company's innovative processes stem from the attention it gives to market orientation. It is thus a state of mind that results in the collection of information from the market, the sharing of this information across different departments of an organisation, and the company's response to market requirements. In addition, Hult et al. (2004) held that the collection of market information is part of a broader planning and decision-making process which affects internally oriented changes. Moreover, many researchers viewed market reaction as an external part of market direction (Kohli & Jaworski, 1990, Hult et al., 2004). Market orientation essentially comprises doing something new or different in response to market conditions; hence, it can be considered a form of innovative behaviour (Jaworski & Kohli, 1993). Farley and Webster (1993) also studied the close link between market orientation and innovativeness which other authors (Rhee et al., 2010, Shoham et al., 2012) subsequently analysed too. We thus hypothesise:

H 2: Market orientation has a positive and significant influence on innovativeness

Many researches revealed that innovativeness and performance of a company are closely related (Hult et al., 2004; Lin Peng, & Kao, 2008; Hoq & Che Ha, 2009; Rahab, 2012; Tsai & Yang, 2013). According to Tsai and Yang (2013), innovativeness enables the company to develop innovative and problem-solving approaches to improve its competitiveness and performance. Thus, for these authors, companies with a very high level of innovativeness are able to perform better than those with a low level of innovation. Other authors studied this link using the resource-based approach (Hult et al., 2004, Hoq & Che Ha, 2009, where it helps explain how companies gain competitive advantage by mobilising resources in the development of new products and processes, among others. Innovation is a way for an organisation to adapt to change, either in response to changes in the internal or external environment or in a proactive way to influence the environment (Hult et al., 2004). Companies thus need to innovate over time to adapt to evolving environments. The most important innovations are those that enable a company to achieve competitive advantage which contributes to its performance (Damanpour, 1991; Henard & Szymanski, 2001). We thus hypothesise:

H3: Innovativeness positively influences commercial performance.

Mediating effect of innovativeness

Several studies demonstrated the existence of links between market orientation and performance (Alhakimi & Baharun, 2010; Ellis, 2006; Hilman & Kaliappen, 2014; Mahmoud, 2010; Rojas-Méndez et al., 2006; Schalk, 2008). However, some authors (Denis et al., 2000; Gotteland, 2005) advocated studying the link between market orientation and performance by incorporating a third variable to observe its effect on this relationship. Following these recommendations, we consider innovativeness to be a variable which can affect this relationship. Indeed, some authors argued that

innovativeness is one of the main determinants of performance (Rhee et al., 2010), while others stated that innovativeness is a consequence of market orientation (Hult et al., 2004; Hoq & Che Ha, 2009; Rhee et al., 2010).

O'Cass and Ngo (2011) demonstrated that market orientation enhances a company's innovativeness by focussing on the continuous and proactive knowledge and understanding of current, but also latent, needs of customers. Recent meta-analyses also showed that market orientation is linked to a variety of innovation activities, such as creativity, innovativeness, and the development of new products. Market orientation thus plays a key role in developing innovation capabilities which enable performance achievement. Thus, like some authors (Pelham, 1997; O'Cass & Ngo, 2011), we study the role of innovativeness in the relationship between market orientation and performance. We thus hypothesise:

H4: Innovativeness has a mediating effect in the relationship between market orientation and performance

Figure 1. Conceptual model of research

Methodology

Context of the study

Senegal imports a large portion of its food, a structural dependence on foreign markets which reached its limits during the 2008 crisis. The resultant food insecurity which affected a majority of the population ultimately led to 'hunger riots'. This also led to food shortages of basic commodities like rice and a general rise in prices. In Senegal, urbanisation, which rose from 40.7% in 2002 to 45.2% in 2013 (R.G.P.H.A. E¹), further

¹ General Census of Population and Housing, Agriculture and Livestock conducted by the ANSD in 2013.

aggravates food insecurity. This rapid developing has led to changes in consumption habits, and consequently, in the production and processing of foodstuffs in quantity and quality. The demand for food products is turning towards more diversified goods, with a focus on convenience, and with assurance of quality for consumers (Broutin and Bricas, 2006). In Senegal, the agri-food sector is made up of a group of agricultural and food companies, whereof activities production, processing, and packaging of agricultural products in foodstuffs intended for human and animal consumption are primary activities. Most of the companies in this sector consist of VSEs and some medium-sized companies. This is only a reflexion of the composition of the total companies' population wherein small- and medium-sized companies account for nearly 97.4% of the population (BDEF, 2015). Hence, we define VSEs, which rely on Senegalese legal framework², as a company with a staff of between 1–20 people, and where manager is the owner who takes care of all management and organisational tasks.

In addition, we have been witnessing the development of mass retail dominated by a few major international brands. These brands, due to the saturation of their domestic market, especially in Europe, are finding new opportunities in Africa, where a middle-income class with an increasing purchasing power has begun to emerge. To find its place on supermarket shelves, agri-food VSEs would then gain from modernising and developing their ability to adapt in order to meet the requirements of supermarkets. In fact, these VSEs and SMEs, which are generally of small-scale, do not have modern means, both in production and marketing. Finally, the agri-food sector has been facing quality issues, both on the organisational and sanitation front, related to health and well-

² Law No. 2008-29 of 28 July 2008 on the promotion and development of Small and Medium Enterprises.

being concerns. This modernisation involves the adoption of new organisation and production methods in line with the expectations of distributor clients and consumers.

Sample and data collection

Senegal's dependence on foreign markets, combined with the low competitiveness of the agri-food sector, provides a unique context to explore the relationship between market orientation and VSEs' innovativeness, and consider how these characteristics contribute to the company's performance in developing countries. The reference population of our study is composed of Senegalese VSEs. They are of companies with staff size between 1–20 employees. Data were collected through a survey of managers. The sampling was done in a reasoned manner. In fact, to our knowledge, there are no databases of all companies (with details on the size or sector of activity, and its membership in formal or informal sectors). At the end of the survey, we obtained a sample of 150 VSEs. Questionnaires were administered face-to-face by three investigators from a specialised research company. The key characteristics of the sample are summarised below.

Table 1. Characteristics of the sample.

Variables	Frequency	Percentage
Number of employees		
1 to 5	80	53,3
6 to 10	38	25,4
10 and more	32	21,3
Type of sector		
Primary	50	33,3
Secondary	100	66,7
Type of company		
Informal	109	72,7
Formal	41	27,3

Age of the company		
Less than 5	44	29,3
6 to 10	44	29,3
11 to 15	26	17,3
16 more than	36	24,1
Belonging to producers' organisation		
Yes	118	78,7
No	32	21,3

Measurement

Although the market orientation measurement, based on the cultural approach of Narver and Slater (1990), is by far the most widespread in empirical studies, for reasons of good construct validity (Denis et al., 2000), we chose the one based on the behavioural approach of Kohli and Jaworski (1990, 1993). On the one hand, the reference population we targeted has specific characteristics that influenced our choice. VSEs are thus characterised by a lack of formalisation and decentralisation, thus explaining the autocratic behaviour of managers. In doing so, the choice of the cultural approach involves the existence of an organisational structure within which this marketing culture must be disseminated, so that the functions carry out their activities in a coordinated manner. However, small VSEs' managers are involved, at the same, in all managerial tasks, in addition to their ownership status. The MARKOR scale of Kohli and Jaworski (1990, 1993) allows the evaluation of the company's responsiveness and pro-activeness, which is not possible with the MKTOR scale (Rojas-Méndez et al., 2006). Based on this observation, we decided to adapt the market orientation scale of Rojas-Méndez et al. (2006). Their scale was applied in the context of small Chilean companies.

Innovativeness has been the subject of several different measurements in the field of innovation research and management science in general. According to Goldsmith and Foxall (2003), the way to measure innovativeness depends on the intentions of the researcher and the conception he or she has of the phenomenon which guides his or her work. For these authors, the measurement of innovativeness will only

be considered once the researcher has clearly defined his or her position in relation to this phenomenon. In other words, the measurement of innovativeness depends on the intention and conception that the researcher has of the concept. In addition, the measurement of innovativeness depends, in part, on the motives of those who measure, and the contexts of their measurement (Goldsmith & Foxall, 2003). Thus, we measure the domain-specific innovativeness of agri-food VSEs' managers to understand, at first, the influence that market orientation exerts on them, and then, its effect on VSEs performance. The scale we have chosen for this purpose is that of Marcati et al. (2008).

For the performance variable, there are two kinds of measurements—objective and subjective. The choice of the subjective measurement to the detriment of the objective measurement is due to practical and conceptual reasons. Indeed, it is difficult to access objective data, especially primary data; hence, some authors do not consider it feasible to collect financial data from busy managers, even if they are allowed to do so (Pitt, Caruana, & Berthon, 1996). In addition, according to these authors, objectively collected data are of little value in explaining the variation in performance between companies. In addition, objective performance measurements—such as return on investment (ROI) and profit levels—sales volume, and market shares are very difficult to compare between companies of different sizes, operating in different markets, and using different accounting standards (Hooley et al., 2000). Following these developments, we opt for the subjective measurement of performance.

We estimated the psychometric qualities of the measuring instruments used in this research by applying the procedure proposed by Churchill (1979) and revised by MacKenzie et al. (2005). First, we performed an exploratory factor analysis applied to the scales of measurement. A series of principal component analyses was conducted; the results are consolidated by the significance of the KMO tests and Bartlett's Sphericity

(see values in appendices). Items whose factorial contributions are less than 0.5 (Evrard, Pras, & Roux, 2003) are eliminated. Finally, the Cronbach's alpha coefficients were calculated in order to prove the reliability of the measurement scales. Values range between 0.72 and 0.85, and are, therefore, superior to 0.70 (Nunnally, 1967). These results reinforce the reliability of the scales developed in the context of developed countries.

The confirmatory factor analysis was performed using the AMOS software. The parameters of the confirmatory factor analysis are estimated by the maximum likelihood adjustment function. The reliability of our instruments is confirmed by the calculation of the Rhô of Jöreskog (1971). The Jöreskog Rhô values exceed the minimum threshold of 0.7. However, their use may not be necessary because the alpha and rho coefficients have very similar values (Peterson & Kim, 2013). In addition, the use of the procedure of Larcker and Fornell (1981) makes it possible to determine the convergent and discriminant validities of the scales. The Rhô of the convergent validity is greater than the threshold of 0.50 for each scale. Similarly, the conditions of discriminant validity have been respected, since the average variance extracted is greater than the square of the correlation between the latent variables of the measurement model. The results of the factor analysis are summarised in Tables 2 and 3. These results confirm the internal consistency, reliability, and validity of measurement instruments.

Results

Hypothesis test

The hypothesis test is performed using the structural equations method (LISREL approach under AMOS). The values of all the adjustment indicators are satisfactory, and show the good adjustment quality of the model to the data. In fact, the standardised

Chi-square has a value lower than 2. The GFI, AGFI, and CFI indices are superior to 0.9 and close to 1. In addition, the RMR and the RMSEA are inferior to 0.1 and converge towards 0. Moreover, the test of the proposed model confirms the hypotheses of our research, except the hypothesis which deals with the relationship between market orientation and commercial performance. The results of the global model are summarised in Table 4.

Market orientation and commercial performance (H1): Direct effect

Unlike many studies, our results do not confirm the existence of a relationship between market orientation and company performance. The negative influence of collecting information on the performance is not significant ($\beta = -0.039$). Similarly, the reaction to information is not significantly on company performance ($\beta = 0.045$).

Market orientation and innovativeness (H2)

The results confirm the hypothesis stated. There is a negative and statistically significant relationship between the collection of information and innovativeness ($\beta = -0.341$; $p \leq 0.001$). The reaction to the information, in turn, is positive and significant for innovativeness ($\beta = 0.457$; $p \leq 0.001$).

Innovativeness and commercial performance (H3)

The results show that there is a positive and statistically significant relationship between innovativeness and company performance. In other words, innovativeness positively and significantly influences commercial performance ($\beta = 0.121$; $p \leq 0.05$).

Demonstration of mediating variable: Innovativeness

The mediation effect is tested through structural equation modelling (LISREL approach using AMOS) by comparing successive models in four steps following the approach of

Baron and Kenny (1986). The results show a good adjustment quality of model to the data. Thus, when the mediation of ‘innovativeness’ is checked, the relationship of market orientation–performance’ is more significant. Hence, the mediating effect of innovativeness is properly identified and confirmed. Finally, to know whether the mediation is total or partial, a Sobel test has been carried out. The results of mediation are summarised in Table 5.

The results show that the links between the two constructs of market orientation (intelligence generation and responsiveness) and commercial performance are no more significant after the introduction of innovativeness (mediating variable), though they were significant without the presence of the mediating variable (first step). Hence, the mediation through innovativeness is complete between market orientation and performance. The calculation of the Sobel test was performed to test the significance of the mediating effect of innovativeness. The results indicate that the innovativeness of the mediating effect is statistically significant for links between constructs of market orientation and company performance ($Z=1.785$, $p \leq 0.037$ and $Z=1.696$, $p \leq 0.044$).

Discussion and conclusion

Discussion of results

Our results show that market orientation in its dimensions, intelligence generation and responsiveness, does not significantly impact company’s commercial performance in the presence of innovativeness as an intermediate variable. However, when the model is tested without integrating this variable, the link becomes statistically significant. First, it should be noted that the intelligence generation acts negatively on commercial performance. Indeed, VSEs managers do not positively link their tendency to collect

market intelligence to their perception of their company's commercial performance because, for them, intelligence gathering cannot be a sufficient condition for performance achievement; in fact, it is a condition that should favour the company's responsiveness. On this basis, intelligence generation can be seen as the market intelligence phase. Once the market intelligence is obtained, VSEs' managers engage in its exploitation and processing, with respect to a set of skills, to better meet customer needs. Thus, the role of this phase of market intelligence is oriented towards developing the capacity of VSEs' managers to propose an offer that meets customer requirements, rather than affect their companies' commercial performance. The responsiveness to market intelligence corresponds to the second phase of market orientation process. In this phase, one must note the VSEs' managers will to integrate the preferences and needs of customers in their products. Market orientation in VSEs is then a process that begins with the knowledge of the market activity, and ends with the responsiveness activity.

Results show that intelligence generation and responsiveness both have a significant effect on innovativeness. First, the intelligence generation has a negative effect on innovativeness. Low innovativeness of a VSE means that the owner is highly intelligence generation oriented. The results of this study support the finding of Verhees (2005) which stated that owners who are less innovative in a specific domain are stimulated to innovate through customer market intelligence. In fact, owners who focus on gathering information to innovate are becoming less interested in innovations coming from their sector, and therefore have a low domain-specific innovation. On the other hand, when information gathering activities are difficult to implement due to the very limited resources of VSEs, domain-specific innovativeness can be an alternative way to encourage owners to innovate. Second, responsiveness has a positive influence

on innovativeness. This means that with increasing levels of response to managers' information, we see a corresponding rise in the degree to which innovativeness increases. These results confirm the results of most other studies which researched this link. Indeed, in their research, Jaworski and Kohli (1993) suggested that market orientation is primarily related to radical innovation activities or enhanced in response to market conditions. Deshpande, Farley and Webster (1993), meanwhile, demonstrated the effect of market orientation on the innovation capacity of the company. Other more recent authors also established this link (Hult et al., 2004; Rahab, 2012). Thus, the desire to provide a response to customer requirements contributes to the improvement of the manager's propensity to innovate.

Our results also show that innovativeness has a positive influence on business performance. This means that high innovativeness of a VSE results in an improvement in its business performance. Thus, the innovative behaviour of TPE owners seems to be decisive for the commercial success of the companies. Therefore, owner-managers would benefit from enhancing their domain-specific innovativeness in order to achieve superior business performance. This result is in accordance with research findings from the past, which consider innovativeness as a determinant of business performance (Hult et al. 2004).

In the end, the results show that there is a total mediation of innovativeness in the relationship between market orientation and commercial performance. They thus highlight the mediating role of innovativeness in the achievement of commercial performance of the company. Nevertheless, VSEs' managers should, in addition to being market-oriented, focus on innovativeness to achieve a higher level of commercial performance. The presence of domain-specific innovativeness among VSEs' managers is justified not only by the rapid development of markets, but also the

virtual absence of research and development activities due to their lack of financial and material resources. In VSEs, this personality trait encourages owners to be much more attentive and sensitive to the innovations existing in their sector. Owners of VSEs with high innovativeness innovate by drawing on innovation practices (product, process, organizational, marketing) to adapt their offer to the needs and requirements of customers.

Theoretical contributions

One of the major theoretical implications of this research is the fact that we are able to offer a conceptualisation of market orientation and innovativeness constructs in VSEs' managers. The concept of market orientation has particularly undergone several conceptualisations in the context of large companies in developed countries. However, only few studies focussed on the study of the phenomenon in small companies. In this research, we thus conceptualised market orientation in the context of VSEs in Senegal, a developing economy. We analysed market orientation by considering two specificities. On the one hand, the VSEs population, characterised by a strong heterogeneity, is largely unexplored in extant research. On the other hand, the country's economic context, where empirical investigation is conducted, is a new research field. Market orientation is thus understood as a phenomenon that occurs specifically in VSEs. In fact, the confirmatory factor analysis revealed the presence of market orientation through two dimensions—the collection of information and reaction to information. These results are validated by good reliability and a good adjustment of the market orientation measurement model, allowing us to confirm the presence of this phenomenon in VSEs' managers.

As for innovativeness, several studies have been conducted in several contexts with many conceptualisations which may become confusing. From this plethora, a

choice was made to consider innovativeness as a personal trait. Thus, we have analysed this phenomenon in VSEs' managers, which allowed us to understand innovativeness as their personality trait. The results of the confirmatory factor analysis have informed us of the one-dimensionality of the phenomenon. This is confirmed by the validation of our measurement model which reinforces the idea of the presence of innovativeness among VSEs' owner-managers.

The validation of the commercial performance model is also an important implication of this research. In fact, the relationships between the variables of the model were statistically significant. Some links are positive and some are negative. The analysis of these links has led to a better understanding of how VSEs' managers could define their strategy to achieve a higher level of performance.

Managerial implications

Performance improvement is a concern for any company manager, particularly for very small enterprises. In this research, we demonstrated that, to achieve a higher level of performance, VSEs' managers should consider strategic directions. Of these, market orientation appears to be a strategic resource to develop the capacity to know and meet market needs. Thus, VSEs' managers should implement a commercial philosophy in order to better adapt to their market. This refers to the establishment of a set of activities related to the collection of information and reaction thereof. Therefore, these managers should note the rapid change in market needs, and adopt strategic directions to develop a marketing mindset that better satisfies customers. To this end, VSEs' managers, who succeed in developing this mindset through the implementation of collection and response activities to information, see their companies achieve sustainable competitive advantage. Specifically, the philosophy of market orientation should be widespread among VSEs' managers. However, the focus should be on the implementation of this

philosophy which results in the integration of activities in the information gathering and response to it within the company. A successful market orientation allows VSEs' managers to have good control of their commercial environment. That said, market oriented VSEs' managers are those who use the collection of information to develop a capacity to meet customer needs and preferences. Thus, development would thus meet customer needs which VSEs' managers could manage to improve their company's commercial performance. Managers' ability to incorporate the preferences and expectations of customers should lead to a better measure of both combined. In fact, good knowledge of customers includes the answers to the 'what, where, when, and how' of customers. Thus, a company that manages to answer all these questions is a company that incorporates a commercial philosophy that allows it to better adapt to its market. The operationalisation of this marketing philosophy will then be achieved through the establishment of a set of activities offering VSEs' managers a better understanding of their market. This passage is very difficult and delicate because it is not only very critical, but requires great care. The success of the implementation of this philosophy is demonstrated by the ability of VSEs to define their own marketing approach. The first phase involves taking a series of decisions to better identify and understand customers (survey, segmentation, positioning ...). In the second phase, it's about making good use of the mix variables marketing in order to propose products which meet customer needs. In addition, market orientation is used as a strategy to allow VSEs' managers to conform their offers to customer expectations. In doing so, it can be seen as a means of disseminating marketing practices in VSEs. In addition, the implementation of market orientation can be facilitated by the inclusion of certain company characteristics.

We have also shown in this research the total mediating role of innovativeness in the relationship between market orientation and performance. In other words, the influence of market orientation on innovativeness drives commercial performance. Thus, to improve the performance of their companies, VSEs' managers should first implement market orientation which then will inhibit or stimulate the degree of innovativeness. The implementation of market orientation should be achieved through greater emphasis on reaction, since a high level of information collection may inhibit the tendency of VSEs' managers to innovate and vice versa. The phenomenon of innovativeness is considered a complementary strategic resource which could enable managers to reach a higher level of performance; that is, the weakness of the level of information collection could be a barrier to the design activities of new products. Thus, the focus should be on innovativeness, in particular, in specific areas, as far as VSEs' managers are more sensitive to innovations from their sectors. This innovativeness should result in the reproduction, imitation, or resumption of innovative practices which emerged in the sector. In addition, innovativeness in VSEs implies a willingness of the owner to know and adopt innovations from both the upstream and downstream markets. Owners with high innovativeness are then better predisposed to adopt any domain-specific innovation. These innovations could come partly from state and non-governmental structures which are tasked with supporting agri-food companies. On the other hand, some large agri-food companies can also be the source of these innovations.

Research limits and perspectives

This research is subject to limitations which may be addressed in future works. The mono-sectorial specificity and regional nature of our research limits the generalisation

of our results. Furthermore, we have not addressed a number of other aspects which we raise below:

- Are there any other variables that moderate the relationship between market orientation and innovativeness, such as marketing learning?
- Do company characteristics moderate the relationship between market orientation and commercial performance when innovativeness mediates the same relationship?
- What is the role of perceptions that the managers have of their environment, in the relation between innovativeness and commercial performance?

These are many such avenues that could be the subject of further research. Methodologically, several variables could be integrated; amongst them, we can mention the distributors' orientation which allows us to understand the special relationship between them and VSEs' managers, and market uncertainty informing their perception of changes in their market.

References

- Amirkhani, A., & Fard, R. S. (2009). The effect of market orientation on business performance of the companies designing and manufacturing clean rooms. *American Journal of Applied Sciences*, 6(7), 1373–1379. doi: 0.3844/ajassp.2009.1373.1379
- Atuahene-Gima, K. (1996). Market orientation and innovation. *Journal of Business Research*, 35(2), 93–103. doi: 10.1016/0148-2963(95)00051-8
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. doi: 10.1.1.169.4836&rep=rep1&type=pdf

- Beck, L., Janssens, W., Debruyne, M., & Lommelen, T. (2011). A study of the relationships between generation, market orientation, and innovation in family firms. *Family Business Review*, 24(3), 252–272. doi: 10.1177/0894486511409210
- Blankson, C., & Cheng, J. M.-S. (2005). Have small businesses adopted the market orientation concept? The case of small businesses in Michigan. *Journal of Business & Industrial Marketing*, 20(6), 317–330. doi: 10.1108/08858620510618156
- Broutin, C., & Bricas, N. (2006). *Agroalimentaire et Lutte Contre la Pauvreté en Afrique Subsaharienne: Le Rôle des Micro et Petites Entreprises*. Paris: Gret
- Cabrera-Suárez, M. K., de la Cruz Déniz-Déniz, M., & Martín-Santana, J. D. (2011). Familiness and market orientation: A stakeholder approach. *Journal of Family Business Strategy*, 2(1), 34–42. doi: 10.1016/j.jfbs.2011.01.001
- Che-Ha, N., Mavondo, F. T., & Mohd-Said, S. (2012). Performance or learning goal orientation: Implications for business performance. *Journal of Business Research*, 67(1), 2811–2820. doi: 10.1016/j.jbusres.2012.08.002
- Churchill, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16(1), 64–73. doi: 10.2307/3150876
- Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, 34(3), 555–590. doi: 10.2307/256406
- Denis, J. E., Czellar, S., & Graber, S. (2000). Orientation marche et performance: integration des evidences empiriques. *XVI^e Congrès de l'Association Française du Marketing* (pp. 1–20). Geneva: Université de Genève. Retrieved from http://hec.info.unige.ch/recherches_publications/cahiers/2001/2001.01.pdf
- Deshpandé, R., Farley, J. U., & Webster Jr, F. E. (1993). Corporate culture, customer orientation, and innovativeness in Japanese firms: A quadrad analysis. *The Journal of Marketing*, 57(1), 23–37. doi: 10.2307/1252055
- Ellis, P. D. (2006). Market orientation and performance: A meta-analysis and cross-national comparisons. *Journal of Management Studies*, 43(5), 1089–1107. doi: 10.1111/j.1467-6486.2006.00630.x
- Evrard Y., Pras B., & Roux E. (2003). *Market : Etudes et recherches en Marketing 3^{ème} edition*. Paris: Dunod.

- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. doi: 10.2307/3151312
- Gatignon, H., & Xuereb, J. M. (1997). Strategic orientation of the firm and new product performance. *Journal of Marketing Research*, 77–90. doi: 10.2307/3152066
- Goldsmith, R. E., & Foxall, G. R. (2003). The measurement of innovativeness. In L. V. Shavinina (Eds.), *The International Handbook of Innovation* (pp. 321–330). Oxford: Elsevier Science.
- Gotteland, D. (2005). L'orientation marché: nouvelle méthode, nouveaux outils. Paris: Editions d'Organisation.
- Gotteland, D., & Ray, D. (2008). Optimiser le rendement des actions de marketing. *Expansion Management Review*, 131(4), 98–107. doi: 10.3917/emr.131.0098
- Gotteland, D. (2009). L'orientation marché affecte-t-elle la performance des produits nouveaux? une approche méta-analytique. *M@ N@ Gement*, 12(3), 204–223. doi: 10.3917/mana.123.0204
- Greenley, G. E. (1995). Market orientation and company performance: empirical evidence from UK companies. *British Journal of Management*, 6(1), 1–13. doi: 10.1111/j.1467-8551.1995.tb00082.x
- Hatak, I., Kautonen, T., Fink, M., & Kansikas, J. (2015). Innovativeness and family-firm performance: The moderating effect of family commitment. *Technological Forecasting and Social Change*, 102(2016), 120–131. doi: 10.1016/j.techfore.2015.02.020
- Henard, D. H., & Szymanski, D. M. (2001). Why some new products are more successful than others. *Journal of Marketing Research*, 38(3), 362–375. doi: 10.1509/jmkr.38.3.362.18861
- Hooley, G., Cox, T., Fahy, J., Shipley, D., Beracs, J., Fonfara, K., & Snoj, B. (2000). Market orientation in the transition economies of Central Europe: Tests of the Narver and Slater market orientation scales. *Journal of Business Research*, 50(3), 273–285. doi: 10.1016/S0148-2963(99)00105-8
- Hoq, M., & Chowdhury, A. (2012). An empirical study of the antecedents and consequences of innovativeness. *World Journal of Social Sciences*, 2(5), 184–197. doi: 10.2139/ssrn.1976925

- Hult, G. T. M., Hurley, R. F., & Knight, G. a. (2004). Innovativeness: Its antecedents and impact on business performance. *Industrial Marketing Management*, 33(5), 429–438. doi: 10.1016/j.indmarman.2003.08.015
- Hurley, R. F., & Hult, G. T. M. (1998). Innovation, market orientation, and organizational learning: an integration and empirical examination. *The Journal of Marketing*, 62(3)42–54. doi: 10.2307/1251742
- Jaworski, B. J., & Kohli, A. K. (1993). Market orientation: Antecedents and consequences. *The Journal of Marketing*, 57(3) 53–70. doi: 10.2307/1251854
- Kirca, A. H., Jayachandran, S., & Bearden, W. O. (2005). Market orientation: A meta-analytic review and assessment of its antecedents and impact on performance. *Journal of Marketing*, 69(2) 24–41. doi: 10.1509/jmkg.69.2.24.60761
- Kohli, A. K., & Jaworski, B. J. (1990). Market orientation: The construct, research propositions, and managerial implications. *The Journal of Marketing*, 54(2) 1–18. doi: 10.2307/1251866
- Kohli, A. K., Jaworski, B. J., & Kumar, A. (1993). MARKOR: A measure of market orientation. *Journal of Marketing Research*, 30(4) 467–477. doi: 10.2307/3172691
- Lee, Y., Kim, S., Seo, M., & Hight, S. K. (2015). Market orientation and business performance : Evidence from franchising industry. *International Journal of Hospitality Management*, 44(2015), 28–37. doi: 10.1016/j.ijhm.2014.09.008
- Lin, C.-H., Peng, C.-H., & Kao, D. T. (2008). The innovativeness effect of market orientation and learning orientation on business performance. *International Journal of Manpower*, 29(8), 752–772. doi: 10.1108/01437720810919332
- MacKenzie, S. B., Podsakoff, P. M., & Jarvis, C. B. (2005). The problem of measurement model misspecification in behavioral and organizational research and some recommended solutions. *Journal of Applied Psychology*, 90(4), 710–730. doi: 10.1037/0021-9010.90.4.710
- Mahmoud, M. A. (2010). Market orientation and business performance among SMEs in Ghana. *International Business Research*, 4(1), 241–251. doi: 10.5539/ibr.v4n1p241
- Marcati, A., Guido, G., & Peluso, A. M. (2008). The role of SME entrepreneurs' innovativeness and personality in the adoption of innovations. *Research Policy*, 37(9), 1579–1590. doi: 10.1016/j.respol.2008.06.004

- Martínez-Román, J. a., Tamayo, J. a., Gamero, J., & Romero, J. E. (2015). Innovativeness and business performances in tourism SMEs. *Annals of Tourism Research*, 54, 118–135. doi: 10.1016/j.annals.2015.07.004
- Matsuno, K., Mentzer, J., & Özsomer, A. (2002). The effects of entrepreneurial proclivity and market orientation on business performance. *Journal of Marketing*, 66(3), 18–32. doi: 10.1509/jmkg.66.3.18.18507
- Midgley, D., & Dowling, G. (1978). Innovativeness: The concept and its measurement. *Journal of Consumer Research*, 4(4), 229–242. Retrieved from <http://www.jstor.org/stable/2488813>
- Nunnally, J. (1967). *Psychometric Theory*. New York, NY: McGraw-Hill.
- O’Cass, A., & Ngo, L. V. (2011). Winning through innovation and marketing: Lessons from Australia and Vietnam. *Industrial Marketing Management*, 40(8), 1319–1329. doi:10.1016/j.indmarman.2011.10.004
- Pelham, A. M. (1997). Mediating influences on the relationship between market orientation and profitability in small industrial firms. *Journal of Marketing Theory and Practice*, 5(3), 55–76. Retrieved from <http://www.jstor.org/stable/10.2307/40469836>
- Peterson, R. A., & Kim, Y. (2013). On the relationship between coefficient alpha and composite reliability. *The Journal of Applied Psychology*, 98(1), 194–198. doi: 10.1037/a0030767
- Pitt, L., Caruana, A., & Berthon, P. R. (1996). Market orientation and business performance: Some European evidence. *International Marketing Review*, 13(1), 5–18. doi: 10.1300/J042v14n03
- Rahab. (2012). Innovativeness model of small and medium enterprises based on market orientation and learning orientation: Testing moderating effect of business operation mode. *Procedia Economics and Finance*, 4(2004), 97–109. doi: 10.1016/S2212-5671(12)00325-5
- 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. doi: 10.1016/j.technovation.2009.04.008
- Rodriguez Cano, C., Carrillat, F. A., & Jaramillo, F. (2004). A meta-analysis of the relationship between market orientation and business performance: Evidence

from five continents. *International Journal of Research in Marketing*, 21(2), 179–200. doi: 10.1016/j.ijresmar.2003.07.001

Rojas-Méndez, J. I., Kara, A., & Spillan, J. E. (2006). Market orientation in the Chilean small business context: An empirical study. *Journal of Global Marketing*, 19(3-4), 93–132. doi: 10.1300/J042v19n03_05

Sandvik, I. L., Duhan, D. F., & Sandvik, K. (2014). Innovativeness and profitability: An empirical investigation in the Norwegian hotel industry. *Cornell Hospitality Quarterly*, 55(2), 165–185. doi: 10.1177/1938965514520963

Sargeant, A., & Mohamad, M. (1999). Business performance in U.K. hotel sector, does it pay to be market oriented? *The Services Industries Journal*, 19(3), 42–59. doi: 10.1080/026420699000000029

Schalk, A. P. (2008). Effects of Market Orientation on Business Performance: Empirical Evidence from Iceland. Retrieved from <https://notendur.hi.is/~th/MSritgerdir/ritgerdir/ArtSchalk.pdf>

Shapiro, B. P. (1988). What the hell is market oriented? *Harvard Business Review*, 66(6), 119–125.

Shoham, A., Vigoda-Gadot, E., Ruvio, A., & Schwabsky, N. (2012). Testing an organizational innovativeness integrative model across cultures. *Journal of Engineering and Technology Management*, 29(2), 226–240. doi: 10.1016/j.jengtecman.2012.01.002

Slater, S. F., & Narver, J. C. (1994). Does competitive environment moderate the market orientation-performance relationship? *The Journal of Marketing*, 58(1), 46–55. doi: 10.2307/1252250

Slater, S., & Narver, J. (2000). The positive effect of a market orientation on business profitability: A balanced replication. *Journal of Business Research*, 48(1), 69–73. doi: 10.1016/S0148-2963(98)00077-0

Szymanski, D. M., Bharadwaj, S. G., & Varadarajan, P. R. (1993). An analysis of the market share-profitability relationship. *Journal of Marketing*, 57(3), 1. doi: 10.2307/1251851

Tsai, K. H., & Yang, S. Y. (2013). Firm innovativeness and business performance: The joint moderating effects of market turbulence and competition. *Industrial Marketing Management*, 42(8), 1279–1294. doi: 10.1016/j.indmarman.2013.06.001

- Verhees, F. J. H. M., & Meulenbergh, M. T. G. (2004). Market orientation, innovativeness, product innovation, and performance in small firms. *Journal of Small Business Management*, 42(2), 134–154. doi: 10.1111/j.1540-627X.2004.00102.x
- Verhees, F. J. H. M. (2005). *Market-oriented product innovation in small firms*. Wageningen University. Retrieved from <http://edepot.wur.nl/121670>
- Webster Jr, F. E. (1992). The changing role of marketing in the corporation. *The Journal of Marketing*, 56(4), 1–17. Retrieved from <http://www.jstor.org/stable/1251983>
- Yaprak, A., Tasoluk, B., & Kocas, C. (2014). Market orientation, managerial perceptions, and corporate culture in an emerging market: Evidence from Turkey. *International Business Review*, 24(3), 443–456. doi: 10.1016/j.ibusrev.2014.10.003
- Zahra, S. A., Hayton, J. C., & Salvato, C. (2004). Entrepreneurship in family vs. non-family firms: A resource-based analysis of the effect of organizational culture. *Entrepreneurship and Practice*, 28(4), 363–381. doi: 10.1111/etap.12143
- Yıldız, S., Baştürk, F., & Boz, İ. T. (2014). The effect of leadership and innovativeness on business performance. *Procedia - Social and Behavioral Sciences*, 150, 785–793. doi: 10.1016/j.sbspro.2014.09.064

Table 2. Results of exploratory analysis.

Latent Variables	Items	Communalities	Cronbach's α	Total explained Variance
Innovativeness	I1	0.81	0.84	0.69
	I2	0.79		
	I3	0.82		
	I4	0.88		
Intelligence Generation (IG)	CI1	0,88	0.90	0.84
	CI2	0,94		
	CI3	0,92		
Responsiveness	RI1	0,86	0.83	0.86
	RI2	0,86		
Performance	P1	0,80	0,85	0.78
	P2	0,94		
	P3	0,90		

Table 3. Results of the measurement model.

Variables	Average	Std. D.	Correlations between constructs			
			1	2	3	4
1. Innovativeness	3,67	0,88	1			
2. Intelligence Generation	3,63	1,13	-,31***	1		
3. Responsiveness	3,67	0,96	,09*	,16***	1	
4. Performance	4,27	0,50	,08*	-,051	,03*	1
Jöreskog Rhôe			0.89	0.91	0,97	0.97
Convergent Validity			0.67	0.77	0,95	0.91
Adjustment Indices	$\chi^2 = 57$, GFI = 0.94, AGFI = 0.91, RMSEA = 0.03, NFI = 0.95, CFI = 0.99					

***: $P < 0,001$; *: $P < 0,05$

Table 4. Results of the global model.

Links	Coefficient	Student's T	Probability
Intelligence Generation→Innovativeness	-0.34	-4.43	***
Responsiveness→Innovativeness	0.45	3.43	***
Innovativeness→Performance	0.12	1.96	*
Responsiveness→Performance	0.04	0.53	NS
Intelligence Generation→Performance	-0.04	-0.82	NS
Adjustment Indices	$\chi^2 = 90$, GFI = 0.92, AGFI = 0.87, RMSEA = 0.03, NFI = 0.91, CFI = 0.96		

***: P < 0,001; *: P < 0,05

Table 5. Mediation effect.

Links	Coefficient	Student's T	Probability
Intelligence Generation→Innovativeness	-0.34	-4.43	***
Responsiveness→Innovativeness	0.45	3.43	***
Innovativeness→Performance	0.12	1.96	*
Responsiveness→Performance	0.04	0.53	NS
Intelligence Generation→Performance	-0.04	-0.82	NS
Adjustment Indices	$\chi^2 = 90$, GFI = 0.92, AGFI = 0.87, RMSEA = 0.03, NFI = 0.91, CFI = 0.96		

***: P < 0,001; *: P < 0,05