

The correlation between the human and material parameters of the innovation strategy and the competitiveness of Moroccan companies

La corrélation entre les paramètres humains et matériels de la stratégie d'innovation et la compétitivité des entreprises marocaines

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Abstract

In the current global economic downturn, the top priority for Moroccan companies is to improve their competitiveness. To achieve this, innovation strategies are considered an effective lever. The results collected during the empirical part of the innovation strategy and its human and material factors, from a sample of 45 SMEs of the Tangier-Tetouan axis show that the human factors of the innovation strategy favour the deployment of the material factors of innovation, which are strongly correlated to a successful innovation strategy. Finally, the impact of the latter appears significant on the competitiveness of Moroccan SMEs.

Keywords: Innovation strategy; human factors of innovation; material factors of innovation; competitiveness; Moroccan SMEs.

Résumé

Dans le contexte de ralentissement économique mondial actuel, la priorité absolue des entreprises marocaines est d'améliorer leur compétitivité. Pour y parvenir, les stratégies d'innovation sont considérées comme un levier efficace.

Les résultats recueillis lors de la partie empirique de la stratégie d'innovation et de ses facteurs humains et matériels, d'un échantillon de 45 petites et moyennes entreprises de l'axe Tanger-Tétouan montrent que les facteurs humains de la stratégie d'innovation favorisent le déploiement des facteurs matériels de l'innovation, qui sont fortement corrélées à une stratégie d'innovation réussie. Enfin, l'impact de cette dernière apparaît significatif sur la compétitivité des PME marocaines.

Mots clés : Stratégie d'innovation ; facteurs humains de l'innovation ; facteurs matériels d'innovation ; compétitivité ; PME marocaines.

Introduction

In response to the spread of coronavirus and its variants around the world, the inescapable magnitude of the shock has impacted on the supply, demand and financial side (Triggs and Kharas 2020). Hence the major concern for companies to ensure their sustainability in a competitive and turbulent environment.

This need is even greater for SMEs, as the majority of SME managers see the lack of internal resources and the uncertainty of the business environment. This hampers the implementation of effective strategies, and makes the strategic models adopted by managers obsolete.

Thus, it seems wise to implement an evolutionary dynamic of progress (Héraud and Nanopoulos, 1994). These are innovative actions that affect technological orientations and organisational structures.

As a result, the commitment to innovation becomes an essential necessity for competitive differentiation in the markets. It is a complex procedure related to the know-how and/or the application process in order to conquer new market shares (Castro and Fernandez de Lucio, 2001).

In Morocco, given the fact that more than 95% of Moroccan companies are SMEs¹, it is imperative to determine the endogenous comparative advantages. Thus, the innovation strategy is a determining factor to make them more competitive in an uncertain world. Therefore, referring to the SMEs² in the Tangier-Tetouan area, our central problematic is the following: To what extent do the human and material parameters of the innovation strategy impact on the competitiveness of Moroccan companies?

In order to answer our problem, the plan of our essay is structured around three parts. First, a theoretical overview of innovation strategy, SME competitiveness and the interaction between them is presented. In addition, the second part focuses on the methodological rationale adopted and the process of data collection in the target area. Furthermore, the third part is in the form of a presentation of the results as well as their analysis and discussion which allow us to confirm or refute our initial hypotheses. A conclusion is appropriate to recapitulate all the steps elaborated during this study and the limitations revealed necessary to take into account in future academic research.

¹ - www.hcp.ma/fille/212713

² The SME charter (promulgated in 2002 by law n°53-00 in the Official Bulletin 5036 of 5/9/2002) retains three criteria to define an SME, namely management, capital ownership and size.

1. Literature review

1.1. Innovation strategy

Military in origin, the concept of strategy emerged in the field of business management around the 1960 (Ingham 1995). Thus, Chandler (1962) defined it as the implementation of an efficient approach by optimising the resources deployed to achieve objectives. In addition, Ansoff (1965), identified the different strategic movements and key decisions. According to Ingham (1995), strategy covers all the functions of the company to make long-term decisions.

Recently, Mintzberg (2004) has highlighted the various conceptions of the "5P" strategy, notably strategy as plan, ploy, pattern, position and perspective. Marchesnay (2004) gave a global definition of strategy, based on four variables: the goals targeted over a long period of time, the means deployed the planning of the collection and the use of relevant resources. Finally, it allows for the achievement of a competitive advantage (Barney and Hesterley, 2008). As for innovation, its concept has similarly evolved over time (Miller, 1983). For Schumpeter (1934), who is considered to be the father of innovation, innovation is an essential tool. It can be technological, commercial, organisational, or legal, in line with the needs and desires of individuals, which allows for the acquisition of competitive and appropriate potentialities in order to position oneself well in a market (Ciampi et al. 2020).

Furthermore, innovation is a process with cognitive and social dimensions that depends on knowledge and new opportunities (Tidd et al., 2006). Its evolution can be fuelled by the specificity of the region and the sources of learning and knowledge 'Learning Region' (Maillat and Kébir, 1999). According to Anwar and Louis, (2017), the process of innovating is essential to promote innovation.

For Tushman and Anderson (1986), technological change is a key driver of innovation. In addition, R and D also play an important mission in innovation (Jankowski, 1998). According to (Klein & Sorra, 1996), other factors are considered as a contextual stimulus for R&D and technology management such as leadership, corporate culture and managerial practices (Prajogo and Ahmed, 2006). Furthermore, according to Claver et al (1998), technological innovation is a competitive resource focused on the research and development department (tangible resources) and the corporate culture (intangible resources).

1.2. Concept of SME competitiveness

The concept of competitiveness is very complex and is the subject of much controversy in management science. Courbis (1980), based himself on market share and considered that the competitiveness of national or foreign companies is measured by their greater or lesser ability

to achieve a high market share. However, the definition of the Boston Consulting Group (BCG, 1984) confirmed that the most competitive company is able to produce with the lowest cost thanks to its accumulated experience.

J. Bourdu (1989) defines competitiveness by linking it to profit and shows that the achievement of profits is an indispensable condition without which the company can no longer ensure its sustainability. For Bienaymé (1977), he integrated the notion of quality and cost (Piperopoulos. P & Scase. R, 2009).Guillaume (1993), retained the notion of the sustainability of the competitive advantage to explain competitiveness. Finally, structural (non-price) competitiveness links competitiveness with other factors, namely innovation culture, quality, staff training (Dejardin, 2006).

1.3. The impact of the innovation strategy on the competitiveness of SMEs

Despite the many problems associated with its management, innovation has become an unavoidable outcome for most firms, and a large body of research has highlighted several advantages for companies that have successfully implemented more innovative strategies to increase their profit (Narver and Slater, 1990, Cooper. 1993, Pawar and al. 1994, Han and al. 1998).

Michael Porter (1985) was one of the first authors to demonstrate the interaction between innovation and competitive advantage. He showed that the current importance of innovation policies in business strategies is manifested in penetration, expansion and diversification (Porter, 1999). As for Martinet (1983), he emphasised that the experience effect, which is a fundamental factor in the cost strategy, is in fact centred on learning, size, serial effects, economies of scale and innovation.

Furthermore, the differentiation strategy is based on the specificity of its offer which is valued by the market (Porter, 1999). This offer can be obtained by acquiring patents or by adopting a policy of services and quality. Differentiation through innovation thus constitutes, after cost domination, the second major type of competitive advantage that can be built up by the firm from innovative actions. (Ingham, 1995)

Even for the specialisation strategy, according to J. Liouville & C. Nanopoulos (1998), although traditional know-how is the key to the success of the specialised firm, this hypothesis is only true in a static economy. In a dynamic universe, firms can rarely guarantee their survival without innovation.

1.4. Research framework and questions

The expected aim of our paper is to highlight a contribution and interaction between a human factors of innovation management and technological in the purpose of clarifying the successful innovation strategy, before finally showing the correlation between this strategy and the competitiveness of Moroccan SMEs.

Thus, according to the work of Prajogo and Ahmed (2006), the innovation is the capacity as the organizational potential for innovation being determined by skills, R&D and technological strengths. These are the hard factors of innovation. Studies covering these factors, such as Napolitano (1991) and Leblanc et al. (1997), the scientific and technological programme are the pillars of innovative firms. Therefore, for the Moroccan context, the following hypothesis is reformulated:

Hypothesis H1: The material factors of innovation would have a positive effect on innovation performance.

In addition, in order to have a suitable climate for innovation, practices related to the management of citizens have been the subject of theoretical discussions. Their study is based on the organisational structure, the cultural component, knowledge management (Nonaka and Takeuchi, 1995), the empowerment and involvement of people (Spreitzer, 1995), creativity (Glynn, 1996) and entrepreneurial leadership within the firm (Heygate, 1996). In other words, it is the cultural and managerial environment of the firm that provides the stimulus for any innovation (see for example Zien and Buckler, 1997). The following hypothesis is re-established:

Hypothesis H2: The interaction between the human factors of innovation and innovation performance would be positive.

After examining the human and technological components separately, a proposal developed by Hult and Hurley (1998) that organizational innovation is identified by two parameters: culturally and human and technological factors, which are referred to as innovative capacity, are discussed.

Specifically, we argue that the effect of innovative capability is fixed by the gestures of the stimulating factors. Indeed, to take advantage of research and technology, a favorable stimulus is needed. That is, it depends on factors such as leadership and corporate culture and managerial practices, which function as a contextual stimulus. (Prajogo and Ahmed, 2006). Therefore, we suggest the following hypothesis:

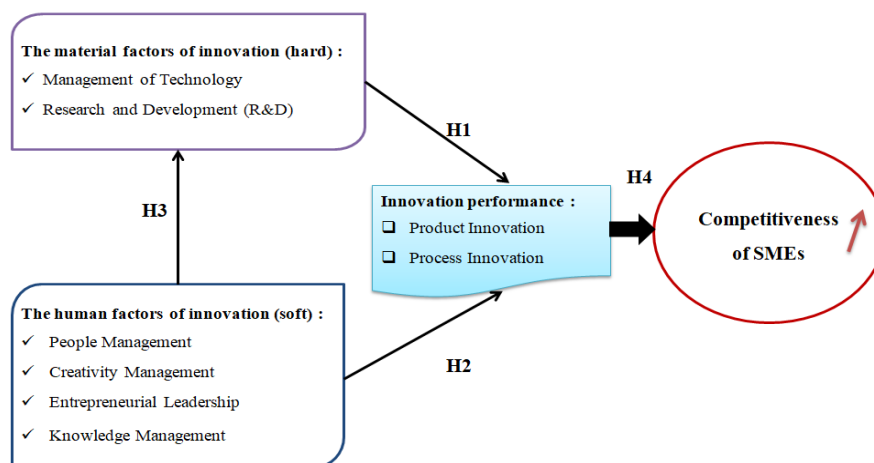
Hypothesis H3: There would be a significant interaction between human and material factors in the management of innovation.

Ultimately, the aim is to know not only the need for innovation but also the procedure for doing so (McEvily and Chakravarthy, 2002). The success of the innovation depends on a range of environmental parameters of each unit (Roberts and Amit, 2003). Therefore, successful innovation can only boost the competitiveness of SMEs, as explained above. Finally, the following hypothesis will be tested:

Hypothesis H4: There would be a strong correlation between successful innovation strategy and firm competitiveness.

The illustration below is a summary of the concepts mentioned in our analysis and the relationships between them.

Figure n° 01: Conceptual framework



Source: Construction Authors 2021

2. Material and Methodology

The methodology followed in this paper is articulated in three stages. Firstly, a literature review is essential in order to identify the key concepts. Thus, this phase allowed us to build the conceptual framework above, which defines the interaction between the different concepts of our study. Secondly, in order to test our hypotheses, a questionnaire, with questions based on the explanatory variables of the successful innovation strategy calculated by scales taken from previous work (see especially Prajogo and Ahmed, 2006). Thus, the human factors of innovation are determined by four constructs that constitute the innovation stimulus, and the technological practices that underpin the ability to innovate are measured by two constructs: technology and R&D management.

The two most successful types of innovation comprise two constructs measuring: performance in product and process innovation. The indicators for measuring competitiveness were derived from the research of Porter (1980), the consulting firm (BCG, 1984) and Afuah (2009) and are offered to respondents to choose from according to their own perception of the concept of competitiveness.

The questionnaire used a five-point Likert scale to capture attitudes ranging from strongly disagrees to strongly agree. In addition, 45 SMEs located in two Moroccan cities (Tangiers and Tetouan) and operating in the different sectors of activity (construction and public works, services, etc.) were interviewed face to face.

As the definition of "SME" in the Charter³ remains complex, we have retained the approach adopted by "Maroc PME" based mainly on turnover. Similarly, the definition of the SME in Morocco, which was validated at the end of 2012⁴, takes into account only this criterion. Thus, the SMEs surveyed have a turnover of less than Dhs. 175 million (with a workforce ranging from 15 to 125, as a secondary criterion).

The choice of this region was dictated by its strategic position at the north-western tip of Morocco, the presence of an important agglomeration and sectors of industry and commerce in rapid development compared to other regions of the country, thanks to the improvement of the motorway network, the construction of the Tangier Med port and the free zones.

3. Analysis and discussion of results

3.1 Results

3.1.1. Descriptive statistics

The expected objective of our study, especially during the preparation and administration of our questionnaire, is to obtain reliable results. Thus, the internal consistency of the items is essential for each scale. To this end, we conducted the Cronbach's alpha test. In our case, this rate was 83.7%, which exceeded the reference value of 0.7, suggested by Nunnally (1978) and appropriate for the reliability of a research (Table 1). Furthermore, the consistency was also validated by the rates of total items being higher than 80% (Table 2).

³ The "official version" given by the SME charter (promulgated in 2002 by law n°53-00 in the Official Bulletin 5036 of 5/9/2002).

⁴ Ministry of Economy and Finance, Report No. 5/2013.

Table n° 01: Cronbach's alpha test

Reliability statistics	
Cronbach's Alpha	Number of items
0,837	15

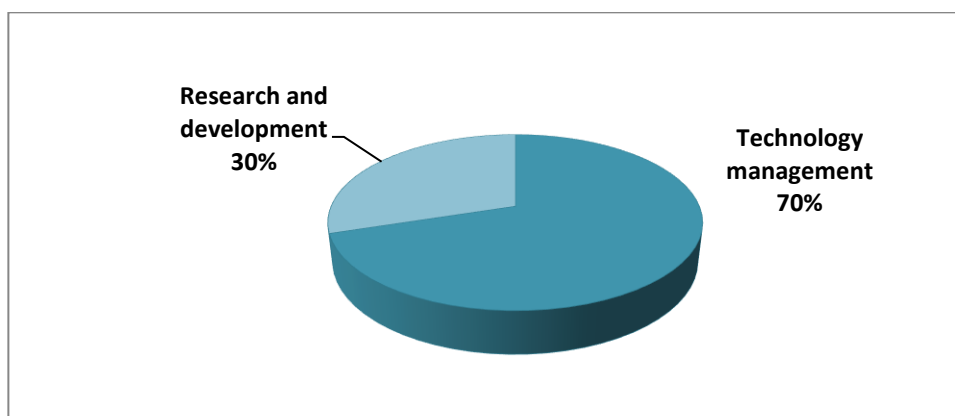
Source : SPSS 2021

Table n° 2: Total item statistics

	Mean of scale with item deletion Variance of scale with item deletion	Variance of the scale when an item is deleted	Full correlation of corrected items	Cronbach's Alpha for item deletion
3-What do you think of the material factors?	39,87	73,436	,168	,840
6-What factors do you think create a successful innovation strategy for your company?	39,27	71,927	,210	,840
5-What do you think about the human factors of innovation (soft)?	38,98	74,204	-,042	,866
16-What do you think are the measures of competitiveness?	38,93	70,155	,178	,847
8. innovation strategy promotes shared beliefs and high degree of unity of purpose	37,84	63,180	,502	,826
4-What are the characteristics of innovation performance?	39,89	80,783	-,671	,862
16-In your opinion, does the innovation strategy have an impact on the competitiveness of SMEs?	39,71	75,256	-,046	,846
7. The innovation strategy encourages top management to improve knowledge, skills and learning	38,07	63,655	,613	,818
9. the innovation strategy has taken measures for employee satisfaction and reward and recognition of creativity to create a quality working environment	37,80	61,527	,734	,810
10. the innovation strategy needs sufficient time and resources to generate creative ideas by working groups with diverse skills	37,89	61,783	,740	,810
11. the innovation strategy encourages senior management to constantly think about new technologies to stay ahead of the game	37,73	58,927	,787	,804
12-La stratégie d'innovation a permis au département de la recherche et du développement (R&D) d'entreprendre des projets à haut risque et à haut rendement afin de poursuivre une technologie de pointe.	37,91	58,446	,854	,800
13-The innovation strategy leads to the use of the latest technologies with a high rate of technology change	38,07	59,882	,806	,805
14 The innovation strategy aims at The creation of a significant number of new products with an accelerated speed of development through the innovation strategy	37,89	59,192	,822	,803
15 The innovation strategy encourages top management to improve knowledge, skills and learning	37,89	60,465	,742	,809

Source: SPSS 2021

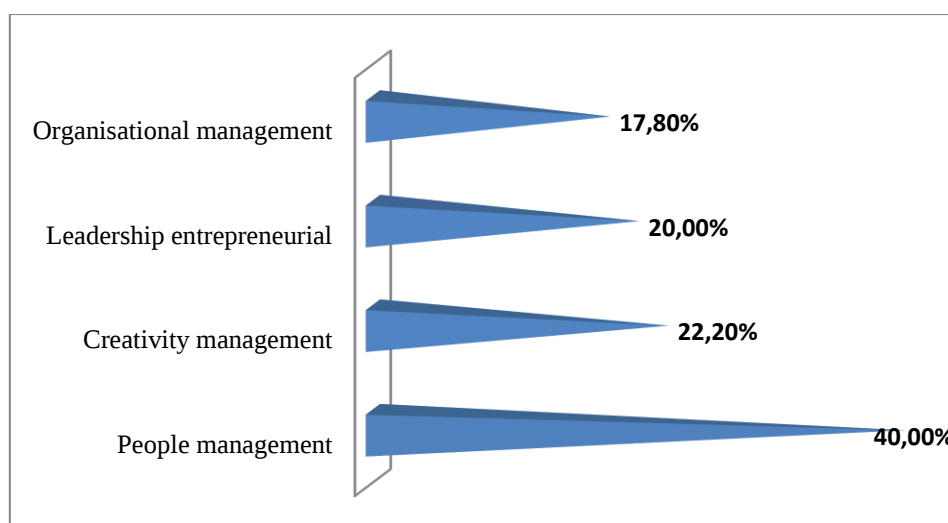
Figure n° 02: Material factor of innovation



Source: Authors construction

The material factor of innovation (hard) was considered a vital element in the development of the company. Technology management was chosen by 70% of respondents.

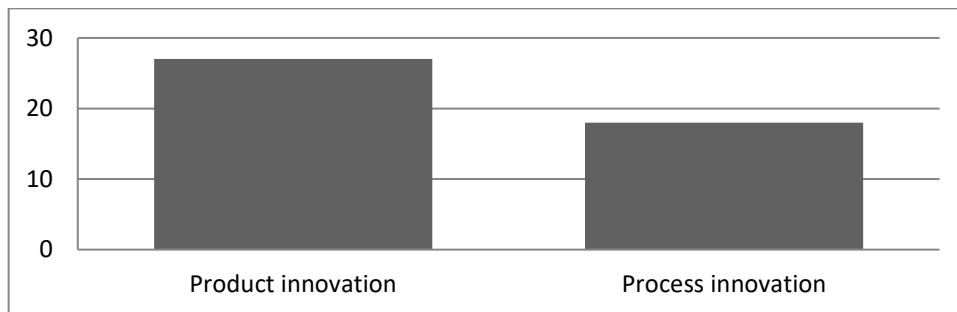
Figure n° 03: Human Factors of Innovation (soft)



Source: Author construction

The human factors involved in the success of the project of the companies' innovation. It focused on "people management" with a rate of 40% followed by "creativity management" 22.20%. Next, come "leadership" and "organizational management" with 17.80% and 20% respectively.

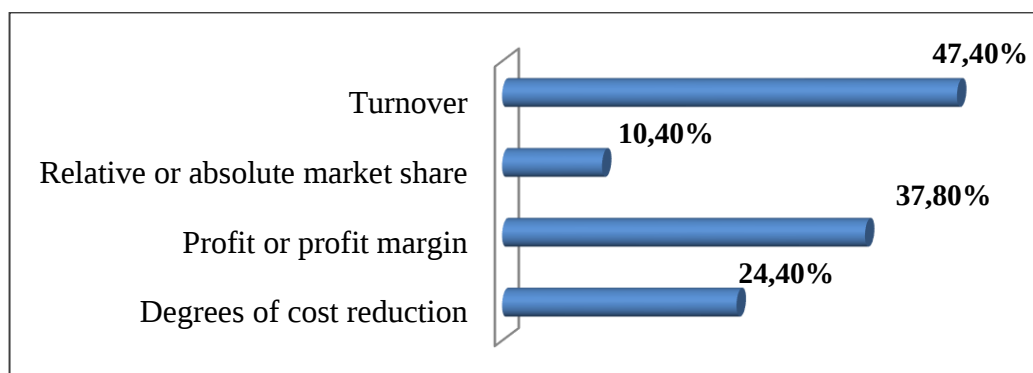
Figure n° 04: Type of innovation that gave rise to innovation performance



Source: Authors Construction 2021

More than half of the respondent managers in our sample of companies favored “product innovation” over “process innovation”. Because, It is usually the product that is the output, targeted by the processes, and apparently attracting the customer by its innovative aspect.

Figure n° 05: The preferred indicator of measuring competitiveness for respondents



Source: SPSS 2021

The following graph shows that the measurement of competitiveness can be based first on turnover 47.40%, followed by the calculation of profit margin 37.80%. This can be justified by the fact that this is the easiest indicator for the company to measure and quantify, unlike the other indicators that require robust management accounting, analytical information systems or data on competitors, such as the calculation of costs, profit margins, or market share.

3.1.2 Correlations

Table n° 03: Correlations between material factors and innovation performance strategy

	What do you consider to be the most important material factors?	What do you think of the successful innovation strategy for the company?
Pearson correlation	1	,429**
What do you consider to be the most important material factors?	Sig. (bilateral)	,002
N	45	45
Pearson correlation	,429**	1
What do you think about managerial innovation for the company?	Sig. (bilateral)	,002
N	45	45

** . The correlation is significant at the 0.01 level (two-tailed).

Source: SPSS 2021

From the above results, it is clear that the interaction between material factors and innovation performance is statistically positive and strong 0.002. Moreover, there is a medium and fairly significant correlation between these two variables with a threshold of about 43%. Therefore, hypothesis 1 is confirmed.

Table n° 04: Correlations between human factors and successful innovation strategy

	What factors do you think create a successful innovation strategy for your company?	What do you think about the human factors of innovation (soft)?
Pearson correlation	1	,268
What factors do you think create a successful innovation strategy for your company?	Sig. (bilateral)	,075
N	45	45
Pearson correlation	,268	1
What do you think about the human factors of innovation (soft)?	Sig. (bilateral)	,075
N	45	45

Source : SPSS 2021

The relationship between human factors (the stimulus) and innovation performance is't statistically significant (7.5%). And we note that there is no correlation between human factors and innovation performance with a significance level not exceeding 27%. So, the hypothesis 2 is rejected.

Table n° 05: Correlations between human and material factors

	Which human factor of innovation (Soft) is more relevant for innovation performance ?	What do you consider to be the most important material factors?
Which human factor of innovation (Soft) is more relevant for innovation performance ?	Pearson correlation 1 Sig. (bilateral) ,568** N 45 45	Pearson correlation ,568** 1 Sig. (bilateral) ,000 N 42 42

**. Correlation is significant at the 0.01 level (two-tailed)

Source: SPSS 2021

The above results tell us that the relationship between human factors (the stimulus) and material factors or innovative capacity, as defined in our research framework, is statistically significant at the 0.00 level. And we note that there is a fairly significant correlation between human and material factors at a threshold of about 57%, which supports hypothesis 3.

Table n° 06: Correlations between the successful innovation strategy and the competitiveness of Moroccan SMEs

Correlations

	In your opinion, does the innovation strategy have an impact on the competitiveness of the company?	What do you think about the innovation strategy for the company?
In your opinion, does the innovation strategy have an impact on the competitiveness of the company?	1	,730**
Pearson correlation		,000
Sig. (bilateral)	45	45
N		
What do you think about the innovation strategy for the company?	,730**	1
Corrélation de Pearson	,000	
Sig. (bilateral)	45	45
N		

**. The correlation is significant at the 0.01 level (two-tailed).

Source : SPSS 2021

This shows that the link between a successful innovation strategy and SME competitiveness is statistically significant (0.00) and that there is a strong and significant link between these two parameters at a threshold of about 73%. Hypothesis 4 is therefore accepted.

Table n° 07: Coefficient of determination R-two & the Durbin-Watson test

Summary of models ^b					
Model	R	R-two	Adjusted R-two	Standard error of the estimate	Durbin-Watson
1	,931 ^a	,867	,828	,190	1,918

a. Predicted values: (Innovation strategy encourages top management to improve knowledge, skills and learning, 8. Innovation strategy promotes shared beliefs is similar and high degree of unity of purpose, 7. Innovation strategy encourages top management to improve knowledge, skills and learning, 10. The innovation strategy needs time and resources are sufficient to generate creative ideas by working groups with diverse skills, 11. The innovation strategy encourages top management to constantly think about new technologies to stay ahead of the curve, 9. The innovation strategy has taken measures of employee satisfaction and reward and recognition of creativity to create a quality working environment, 13. The innovation strategy leads to the use of latest technologies with high rate of change of technology, 12. The innovation strategy has emphasized the R&D department to undertake high risk and high return projects to pursue the research of cutting edge technology, 14. The innovation strategy aims at The creation of a significant number of new products with accelerated development speed through the innovation strategy

b. Dependent variable: 16. For you, does the innovation strategy have an impact on the competitiveness of SMEs?

Source : SPSS 2021

According to this table, the R-square is 0.867. This means that the explanatory variables contribute to 87% of the variability and that the improvement of the competitiveness of SMEs depends on the performance of the innovation strategy. As for the Durbin-Watson test, we read a value of 1.918 which means that the variables are correlated and the regression model is valid.

Table n° 08 : Fisher's test

ANOVA ^a					
Modèle	Sum of squares	ddl	Mean of squares	D	Sig.
1 Regression	8,016	10	,802	22,187	,000 ^b
Residual	1,228	34	,036		
Total	9,244	45			

a. Predicted values: (Innovation strategy encourages top management to improve knowledge, skills and learning, 8. Innovation strategy promotes shared beliefs is similar and high degree of unity of purpose, 7. Innovation strategy encourages top management to improve knowledge, skills and learning, 10. The innovation strategy needs time and resources are sufficient to generate creative ideas by working groups with diverse skills, 11. The innovation strategy encourages top management to constantly think about new technologies to stay ahead of the curve, 9. The innovation strategy has taken measures of employee satisfaction and reward and recognition of creativity to create a quality working environment, 13. The innovation strategy leads to the use of the latest technologies with a high rate of technology change, 12. The innovation strategy has emphasized the R&D department to undertake high-risk and high-reward projects to pursue the research of advanced technology, 14. The innovation strategy aims at The creation of a large number of new products with accelerated development speed due to the innovation strategy b. Dependent variable: 16. In your opinion, does the innovation strategy have an impact on the competitiveness of SMEs?

Source: SPSS 2021

In our case, the level of significance tends towards 0%, which means that the explanatory variables related to the strategy of successful innovation contribute significantly at a threshold of 5% to the improvement of the competitiveness of Moroccan SMEs.

3.2 Discussion of the results

The results confirm hypothesis H1, which means that the material factors embodied in technology management and research and development (R&D) have a positive effect on the performance of the innovation strategy.

This finding is widely supported by the innovation literature. This is why the term 'technological innovation' is well known in the innovation literature (Berry and Taggart, 1994), although researchers have shown that innovation is not only technological (Kim and Mauborgne, 1999). In contrast, the relationship between the human factors of innovation (Soft) and the strategy of successful innovation is insignificant (the hypothesis H2 rejected). The existence of human factors of innovation is a necessary but not sufficient condition for creating a successful innovation strategy (Prajogo and Ahmed, 2006).

Indeed, at first sight, this result contradicts the claims of the current that supports the importance of human factors for innovation, because the literature on innovation, especially organisational innovation, both theoretical and empirical, emphasises the importance of culture as a major determinant of innovation performance (see for example, Herbig and Dunphy, 1998).

The results obtained do not mean that these "soft" factors do not have a significant value in the production of innovation, but highlight the fact that their effect on innovation performance is achieved through the "hard" aspects. As it will be seen below.

Thus, the human and hard factors of the innovation strategy are strongly correlated, (hypothesis H3 validated). This confirms the role of human factors as a stimulus that favours the deployment of hard factors.

In this study, as stated by Klein and Sorra (1996), we argue that technology management and R&D do produce beneficial outcomes, in terms of product and process innovation, when complemented by a culture and organisational practices that are supportive of the innovation effort (i.e. a stimulus).

These three results suggest that innovation capability (the material factors) plays a full mediating role in the relationship between innovation stimulation (the human factors) and innovation performance. This is corroborated by Claver et al (1998) who point out that people, creativity and knowledge management and entrepreneurial leadership only impact on innovation strategy through their interaction with material factors. Finally, technology management and research and development (R&D) in synergy with human factors are the key elements of innovation strategy performance.

This leaves the relationship between successful innovation strategy and SME competitiveness. According to our investigation within the Tangier-Tetouan area, it turned out that the correlation is significant and strong between these two variables (hypothesis H4 is validated). Thus, the successful innovation strategy has a significant impact on the competitiveness of SMEs. This is in perfect agreement with our theoretical framework developed above.

Moreover, several managerial implications can be drawn for our SMEs in order to set up a more efficient innovation strategy. First, Companies need to focus their energy on human and cultural (soft) factors as well as technology development and R&D, otherwise they may find little or no results in terms of performance. Secondly, the sharing of similar beliefs towards a high level qualitative and quantitative goal among the staff in a unit is imperative. Finally, the constant use of new technologies by senior management is wise to avoid obsolescence of the technical system adopted.

Conclusion

This study examined human and technological factors and the interaction between them and their role in innovation performance. Thus, this paper has used the four hypotheses to highlight a mediating model that links organisational stimulus and innovation capacity and performance to SME competitiveness. Three hypotheses were supported by the empirical data, namely the significant relationships between stimulus and capacity, between capacity and innovation performance and between innovation performance and SME competitiveness.

The results refute the presence of a direct relationship between stimulus and innovation performance. This confirms that innovation capacity is a complete mediator of the relationship between stimulus and innovation performance.

In other words, the hard factors of innovation, such as the establishment of research and development departments and the implementation of good technology management, are complementary to the human factors that act as a catalyst and stimulus for a successful innovation strategy. Thus, only the balance between these determinants leads to the performance of the innovation strategy in an organization. The confrontation of our literature research and our empirical analysis has demonstrated this conclusion.

A number of limitations are recognized in this research, the present study is limited by the self-reported nature of the data, which relies entirely on the perspective of a single individual with all the biases related to the psychological and subjective quality of the stakeholders in the innovation process. In addition, the enlargement of the study area, the choice of a more representative sample of SMEs is likely to provide more reliable and generalizable results.

Finally, the variables included in the study were restricted to facilitate testing. In other words, other studies dealing with the complexity of the "soft" and "hard" aspects of innovation management could add to the explanatory variables, especially control variables and moderating variables, namely the business environment. All these limitations, however, require further research in this area.

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