«Innovation culture and performance of processes and products in Moroccan Startups»

Abstract:

This research aims at investigating the impact of innovation culture on the innovation performance of processes and products in startups created within the youth’s platform Argana in Souss Massa Region in Morocco. In fact, several research have investigated the links between these concepts, focusing mainly on the context of developed countries but only few studies have investigated the innovation culture-performance nexus for the case of developing countries. We deeply investigate the linkage between innovation culture and innovation performance. The survey was carried out with a selection of 62 Moroccan startups randomly selected using the normal distribution approach. Structural equation modeling was used to extrapolate and evaluate the data. Empirical results suggest that the innovation culture, via its elements communication, strategy, organization, support mechanisms, and behaviors that drive creativity, has an impact not only on product innovation but also on process innovation. We have also established a model that integrates process and product innovation success with strategy, structure, support mechanisms, behavior, and communication based on a variety of related scientific studies.

Keywords: Innovation ; Innovation Culture ; performance ; Processes and Products ; Startups
INTRODUCTION

Startups are private sectors that can be viewed of as vital entities that form the backbone of Moroccan economy (Serena Sandri and al; 2019; Ilias Majdouline and al 2020). Startups undoubtedly contribute to the country’s economic development, and their achievements also show the effectiveness of government policies in cultivating an entrepreneurial culture in an economy. In Morocco, the importance of Startups was first articulated in the New Development Model in 2019, and then a concerted effort to aid Startup development was put forward in this model, to promote support for businesses to strengthen their managerial, organizational, and technological capacities, to contribute significantly to the providing of economic, social, and environmental benefits, ensuring long-term environmental growth which enables businesses to increase profits, reduce environmental impact, and use a more resource-efficient material (Usama Awan 2021).

Furthermore, to give the Moroccan private sector every chance of successfully completing its productive transformation, the new development model places business support at the heart of its economic policy to strengthen their human and organizational capabilities and support their modernization, jointly and in a complementary way with financing solutions. In truth, startup investing in Morocco is still in its early stages, but it is making a strong comeback and is poised to become a fast-growing industry, notably in Morocco and North Africa in general (Ilyas Azzioui and Serena Sandri 2021; Nomita Sharma 2018).

Moreover, the Moroccan government provides various initiatives to support the development of startups, and as a result, they are projected to continue and expand their vital role in propelling Morocco toward being a developed and inclusive nation (the new development model 2019). In this context, innovation culture is based on a favorable environment characterized by a social perception of innovation, a joint involvement around the product and the customer, processes that allow the use and development of discovery skills, a philosophy of action based on flexibility, speed of decision making on the one hand, and accepting risks in the other hand (Buisine & Davis, 2017; Ilias Majdouline and all 2020).

The purpose of this research is to investigate the impact of innovation culture on the innovation performance of processes and products in the startups created through the ENACTUS program1 as part of the first youth’s platform ARGANA inaugurated by His Majesty King Mohamed 6 in Souss Massa Region in Morocco. Therefore, it was used as a basis for studies by (Martins & Terblanche 2003) from the point of view of the determinants of the innovation culture, namely, strategy, structure, support mechanisms, behaviors that promote innovation and communication. The model employed in this study was separated into two aspects to measure product and process innovation performance. For the process dimension, the concepts proposed by (OECD 2005) were

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1 Enactus is a community of students and business leaders committed to using entrepreneurship to improve lives and make the world a better and more sustainable place.
used. As an extension of these observations, we raised a problematic, which is articulated as follows: "Can the innovation culture contributes to the performance of process and product innovation in Startups".

Overall, this research work will take a sequential approach, dealing with three major axes, first, we expose a theoretical and conceptual framework, passing through research of theoretical models and going to the empirical investigation that will allow us to detect the particularities of the innovation culture in the Startups created through the Enactus program within the youth platform in Souss Massa Region in Morocco.

The selection of Souss Massa is based on the argument that it is an important and critical national region with significant regional disparities but a certain potential for socioeconomic development. And the need to propel a long-term vision for the region (20-30 years) that addresses the region’s economic issues and takes into account its changing geography and position as a gateway to sub-Saharan Africa and southern provinces.

I. LITERATURE REVIEW

1. Culture and innovation performance

Culture is not a new phenomenon in startups, and it is deeply ingrained in the literature. The term culture is derived from the Latin word which means (to inhibit, to cultivate, or to honor). According to the present literature, "that is the way things are done around here," and most firms are knowledgeable of the organization's culture that has grown firmly entrenched in Startups over the last decades (Hasliza Abdul-Halim and al 2018).

Furthermore, innovation practices are difficult to implement in the absence of an innovation-friendly culture. As a result, a company must cultivate an innovative culture in its day-to-day operations (Haniruzila Hanifah and al 2019). Thus, Buisine & Davis 2017 have proposed a model of innovation culture based around 5 dimensions, which are Innovative leaders and managers, Existence and promotion of innovative teams, Organizational context, Presence, and valorization of innovative individuals and finally the links external to the organization. In a similar vein, (Stokes et al 2016) described culture as a complex set of principles, beliefs, assumptions, and symbols employed by an organization over the course of its operations. According to (Kitchell 1995) and (Greffe 2016), the major cultural components of innovativeness include creativity, openness to new ideas, risk-taking, and an entrepreneurial attitude.

As a result, a company with an innovation culture will encourage individuals to be aware, creative, and inventive in their organizational movements (Dabic, Kiessling and al 2019). Perspective, ambidexterity alignment, open innovation, and innovation culture are precious and significant for business owners or startups as these factors help the startups understand themselves, gain knowledge, build skills about their own personal growth and for the betterment of the company, as well as the capacity to create ideas about making adjustments and business strategies which may well ultimately led to organization.
Innovativeness. Moreover, we argue that government funding improves the link for both innovation culture and innovation performance (Wayan Edi Arsawan and al 2020).

Culture of innovation is crucial because it increases cohesion, loyalty, and establishes certain clear norms for attitudes and suitable behavior (Dobni 2008). Startups play a vital role in the growth of a cultural setting that encourages innovative performance in this context. (Dobni 2008) divides innovation culture into 4 groups: the intention to be innovative, as well as the infrastructure to facilitate innovation, the behavior to impact market orientation and perception, and the environment for innovation implementation. In this regard, culture of innovation is seen to be multidimensional; yet, in the context of Startups, which are fragile and limited in nature, the culture of innovation can be considered unidimensional to contain the comprehensive approach innovation culture wherein communication and network are streamlined, and adaptable structure, empowering staff members, taking risks, alignment, learning and knowledge are welcomed (Hanifah 2017). While the innovation culture is prevalent among Startups (Addison, and Smallman 2011), there is growing concern in Startups about the culture of innovation (Hanifah 2017). According to (Achelhi, H and al 2016), there appears to be an apparent absence of empirically confirmed advantages in Moroccan Startups and SMEs adopting an innovation culture. They have) also claimed that Moroccan industry’s innovation culture is still regarded young, and it is thus of significant importance to examine this issue in the context of Startups. As a result, it would be quite fascinating to delve deeper into the practice of innovation culture among Moroccan Startups.

2. TERBLANCHE paradigm and the innovation culture

(Terblanche and al. 2004)’s model offers a first vision for improving understanding of the variables that determine the aspects of innovation culture. The suggested model is separated into five determinants: strategy, structure, support mechanisms, innovative behaviors, and communication. 15 variables to be assessed were designed based on these characteristics. Five organizational culture determinants are listed below.

**Strategy:** A plan that fosters the creation and execution of innovative products and services is known as an innovation strategy (Martins & Terblanche 2003). According to (Covey 1993), the source of creativity and innovation is a shared vision and purpose. In the same context, (Ahmed 1998) says that mission and vision, when effectively defined, affect the establishment of a strong culture by influencing the behaviors and activities of organizational actors. According to (Crossan and Apaydin 2010) the effective execution of innovative ideas demands collaboration across all company components. According to (Dombrowski et al 2008), a task and a vision statement serves to concentrate an organization’s energy by acting as guidelines that link people, their work practices, and the overall corporate being. Organizations with a customer-centered goal and vision seem to be more willing to innovate.

**Support mechanisms:** Support mechanisms should incorporate an organization’s culture to create an environment conducive to the promotion of innovation and creativity.
Intrinsic motivation, according to (B Okanga and D Groenewald 2017), is the type of motivation most strongly connected with creativity. When intrinsic motivation is high, organizational members get more interested and seek out additional knowledge about the activity, allowing them to deviate from typical idea creation methods (Amabile and al., 2016). This role is served through processes like as rewards and recognition, as well as information and inventiveness (Arad and al., 1997). Organizational cultures that encourage creative ideas should provide for time flexibility for employees to feel inspired and innovative. (Shattow, 1996). Information technology is a feature used for innovation-friendly performance (Martins & Terblanche, 2003).

**Structure:** A company’s structure and operating methods are influenced by its culture (Gonzalez-Loureiro, M and al 2017). Structure is founded on ideals that impact the growth or impediment of innovation and creativity (Terblanche, 2003). Although many organizational levels are looking for new ideas, the actual formulation of ideas on new innovations to be pursued is frequently led solely by executives (B Okanga and D Groenewald 2017). The top-down strategy frequently prevents the establishment of an innovative culture in lower organizational hierarchies (Coffman, 2015). In a top-down method, ideas created from lower structures are often credited to a lower-level management or employee to whom the new successful inventions must be attributed. Few organizations comprehend that diverse groups operate indifferently, hindering innovation growth (Trot, 2012). One of the aspects influencing an organization’s structure and operation is its size. Large businesses offer various advantages, such as more resource availability. They can, however, be more bureaucratic and less adaptable, as well as more resistant to change (Damanpour, 1996). This adaptability is also seen in production (Piccinini, et al., 2006). A culture that encourages flexibility fosters the growth of creativity (Sanz-Valle, et al., 2012). One of the aspects influencing an organization’s structure and operation is its size. Large businesses offer various advantages, such as more resource availability. They can, however, be more bureaucratic and less adaptable, as well as more resistant to change (Damanpour, 1996). This adaptability is also seen in production (Piccinini, et al., 2006). A culture that encourages flexibility fosters the growth of creativity (Sanz-Valle, et al., 2012). Organic structures, as opposed to mechanical structures, can be considered to promote innovation (Ahmed, 1998).

**Communication:** A transparent, trust-based corporate culture has a good impact on the development of creativity and innovation (Barret, 1997). When a person feels confident and emotionally safe in the organization, he or she is free to diverge, allowing new possibilities to be conceptualized in imaginative and inventive ways. This occurs when stakeholders feel self-assured, which allows for open dialogue (Martins & Terblanche, 2003). According to Schein (1993), the development of communication patterns across different groups or hierarchical levels eliminates bureaucratic procedures by forming a shared thought process and allowing employees to grow used to the company’s overall difficulties and goals.
Behaviors that stimulate innovation: Mistake tolerance is vital in building a company culture that encourages innovation and creativity. Recognizing and celebrating failure as much as rewarding achievement helps people recall the facts and learn from their mistakes (Tushman & O’Reilly, 1997). When individuals are allowed to think creatively without fear of punishments, there is an incentive for innovation. they feel surrounded by an environment of accountability because of the positive performance of the organization’s development, which is anchored by diverse teams that give members with a sense of support (Dougherty, 2004).

Table 1: Measurement scales for innovation culture

<table>
<thead>
<tr>
<th>Dimensions of the innovation culture</th>
<th>Strategy</th>
<th>Vision and Mission</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Determination</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Means to achieve objectives</td>
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<tr>
<td></td>
<td>Flexibility</td>
<td></td>
</tr>
<tr>
<td>Structure</td>
<td>Freedom</td>
<td>Cooperation and group integration</td>
</tr>
<tr>
<td>Dimensions of the innovation culture</td>
<td>Support mechanisms</td>
<td>Recognition</td>
</tr>
<tr>
<td></td>
<td>Loyalty</td>
<td>Mistake Tolerance</td>
</tr>
<tr>
<td>Behaviors that stimulate innovation</td>
<td>Idea generation</td>
<td>Idea generation</td>
</tr>
<tr>
<td></td>
<td>Risk optimization</td>
<td>Risk optimization</td>
</tr>
<tr>
<td>Communication</td>
<td>Open communication</td>
<td>Open communication</td>
</tr>
<tr>
<td></td>
<td>Information sharing</td>
<td>Information sharing</td>
</tr>
</tbody>
</table>

Table 1 Source: adapted by Gomes, G. (2013)

3. The performance of process and product innovation in light of several theories

The model employed in this study was separated into two aspects in order to measure process and product innovation performance. The research of Alegre and al, (2006) were utilized as a foundation for the first dimension "Product," which constitutes a scale of measuring of performance in product creation where the psychometric qualities were
investigated and verified in the setting of biotechnology firms. The principles offered by the OCED (2005) were utilized for the "Process" component. Process and product innovations require various talents to implement product innovation necessitates an understanding of consumer demands in design and production, whereas process innovation is concerned with the use of technology to increase efficiency in product creation and marketing. The product innovation tends to adapt to the process innovation, being that the first is easier to observe and advantageous.

The company strives to enhance the production process to achieve economic goals in terms of products and markets. Other goals include lowering environmental harm, enhancing product quality, improving working conditions, and increasing manufacturing flexibility (OECD, 2005). The study done should allow for the measurement of the costs and benefits of inventive activities, as well as a knowing of the variables influencing innovation, by taking the process dimension into consideration. Labor expenditures and other current costs are included in the costs of innovation (OECD, 2005). Table 2 summarizes the variables considered for innovation performance.

**Table 2: Measurement scales for innovation performance**

<table>
<thead>
<tr>
<th>Innovation performance</th>
<th>Process</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Productivity improvement</td>
<td>Replacing obsolete products</td>
</tr>
<tr>
<td></td>
<td>Flexibility</td>
<td>Expanding the product range</td>
</tr>
<tr>
<td></td>
<td>Product quality should be significantly increased</td>
<td>Implementing of new product lines</td>
</tr>
<tr>
<td></td>
<td>Improvement of working conditions</td>
<td>Development of environmentally friendly products</td>
</tr>
<tr>
<td></td>
<td>Environmental damage reduction</td>
<td>Development of products outside the organization’s core segment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Increase in market share</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Opening of new national markets</td>
</tr>
</tbody>
</table>

*Tableau 2 Source: adapted from Alegre et al, (2006)*
II. METHODOLOGY, CONCEPTUAL MODEL, AND RESEARCH HYPOTHESES

To discover the causal linkages between the various ideas, we believe it is rational to use a hypothetical-deductive method, which refers to the construction of a systematic relationship between the theoretical corpus of concepts and the observable reality in the field via indicators. In other words, the technique entails linking each idea with measurement items capable of effectively operationalizing the changes observed in reality regarding the concept. As a result of these results, we developed a conceptual model (see Figure 1) that connects cultural factors (Gomes, 2013) with innovation performance (Alegre, 2006).

![Figure 1: Research Model](image)

It should be noted that the organization’s aims express its ideals and can either encourage or inhibit innovation. (Arad et al, 1997). Because it supports the development of creativity and innovation, the use of information technology is a resource for innovation-friendly performance (Martins & Terblanche, 2003). Employees feel more secure when they are allowed to make mistakes, and the practice of praising triumphs and acknowledging and celebrating failures helps to recall events, enabling conversation and learning (Tushman & O’Reilly, 1997).

The innovation process refers to the modification of a routine, such as changes in operations and material exchange (Knight, 1967), and it is associated with the application of technology to improve development efficiency (Damanpour & Gopalakrishnan, 2001), product quality, and production flexibility (OECD, 2005).
This is how we established the hypotheses of the study, which are stated as follows:

H1: Innovation culture contributes positively to innovation performance process

H2: The culture of innovation would favorably contribute to the performance of product innovation.

Hypothesis H1 aims to verify the links between the culture of innovation and the innovation performance, while hypothesis H2 refers to the investigation of the links between innovation culture and product innovation performance.

III. MODELING AND DISCUSSION OF RESULTS

Data analysis

The causal relationships is verified by conducting an empirical study with a selection of startups created within the youth platform Argana in Souss Massa Region in Morocco, whose number is 62 new startups through a questionnaire survey.

It should be noted that we used the "Enactus" database, which contains information on 1,200 enterprises registered in the Souss Massa region. To calculate the percentage of startups in the population, we used the 2021 report "Argana platform," which said that 83 percent of projects are startups. In fact, our primary population is around N = 48 400. The size of the sample distributed according to a normal law is equal to n = 62 startups installed in generated inside the platform of young Argana with a confidence interval of 90% and a margin of error of 10%. The Souss Massa Region in Morocco was chosen not just because of its closeness to the interviewees, but also because of its significant presence.

The sample survey data was extrapolated to evaluate the research model and provide evidence to answer the research question. The model definition is based on a graphical depiction of the entire model's measuring system. The many aspects of the model and their relationships are described at this phase, as shown in the figure below (Figure 2).
According to Schumacker and Lomax (2004), the evaluation of the order condition by the number of degrees of freedom must be larger than zero. The order requirement is well verified in our model, and the degree of freedom is positive (dll=62).

The estimation of the model using the PLS algorithm on all statistical units, in this case 62 Startups in Souss Massa Region in Morocco. This is how we obtained the figure below.
We discovered that most of the measurement scales had correlation coefficients 0.70 or higher in the model estimation, apart from items related to vision and mission, determination, cooperation and group integration, recognition, loyalty, open communication, information sharing, and improvement of working conditions, as well as product line expansion, which had relatively insufficient correlation coefficients.

Furthermore, evaluating the quality of model adjustment is a critical step in the methodological modeling approach. In this regard, the results show a very good model adjustment, since the indices' values above the critical values required for good adjustment quality. It should be noted that at this point, the construct's reliability and validity require a value greater than or equal to 0.07 for Cronbach's alpha and Dillon-rho. Goldstein's.
### Table 2: Reliability and construct validity (SmartPLS 3.)

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Alpha of Cronbach</th>
<th>Rho_A</th>
<th>Reliability Composite</th>
<th>Average variance Extracted (AVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation culture</td>
<td>0.919</td>
<td>0.927</td>
<td>0.930</td>
<td>0.575</td>
</tr>
<tr>
<td>Process innovation</td>
<td>0.773</td>
<td>0.774</td>
<td>0.846</td>
<td>0.523</td>
</tr>
<tr>
<td>Product innovation</td>
<td>0.862</td>
<td>0.871</td>
<td>0.894</td>
<td>0.546</td>
</tr>
</tbody>
</table>

**Figure 4 Source: Authors**

It should be emphasized that the organization's goals communicate its principles and can either stimulate or discourage innovation (Arad et al, 1997). Convergent validity refers to the study of the correlations of the items with their latent variable, which must be greater than 0.7, as previously stated. Furthermore, discriminant validity requires that each latent variable be more strongly connected to its indicators than to the other latent variables in the model. This implies that the extracted average variance (AVE) of each latent variable must be larger than 0.5. These results will allow us to provide concrete answers to the problem raised through argued discussions.

### IV. RESULTS DISCUSSION

The modeling findings give information on the impact of each facet of the innovation culture to product and process innovation performance. In this view, with coefficients of 0.764 and 0.856, respectively, the innovation culture contributes favorably and considerably to the performance of both process and product innovation. This is how we can confirm our two research hypotheses, H1 (the innovation culture has a favorable effect on process innovation performance) and H2 (the innovation culture has a positive influence on the performance of product innovation).

A finding that can be demonstrated by the role played by the culture of innovation in startups in Souss Massa Region in Morocco in general, and on the performance of process and product innovations in particular, in the improvement of production, flexibility, product quality, reduction of environmental damage, replacement of obsolete products, development of new product lines, development of environmentally friendly products, development of products outside the main segment of the organization, increase in market share and opening of new national markets.

Adoption of new innovative management methods and procedures, as well as changes in organizational structure, can help startups improve their innovation performance. As a result, adopting an innovation culture by startups will boost their competitiveness and improve their overall performance.
CONCLUSION

We have developed a set of theoretical concepts, definitions, and analytical tools relating the key concepts of our research in this paper, which is dedicated to the study of the link between innovation culture and the performance of product and process innovations among startups in Souss Massa Region in Morocco.

We presented the conceptual and evolutionary mechanisms likely to provide concrete definitions of innovation culture and innovation performance in the first section, devoted to the conceptual genesis and theoretical meanings of innovation culture and innovation performance, before highlighting the links that may be observed. Then we provided the methodological choices, as well as the variables and measurement instruments employed. In this regard, we performed a questionnaire survey with 62 startups with the goal of extrapolating the data and continue with the analysis.

As a result, the remainder of the job was devoted to data analysis and discussion of the conclusions acquired. As a result, we applied the SmartPLS v.3 technique and the most recent advances of the PLS algorithm. The analytical results enabled us to derive conclusions on the issue.

In general, the empirical studies revealed that the innovation culture has a favorable and substantial impact on the performance of both process and product innovations in the startups of Souss Massa Region-Morocco, with significant coefficients.

Finally, this research has provided us with insight into the problems that underpin organizational culture and management creativity. In this regard, our effort, as any research work, allows for new views and ideas to be considered in future work by enhancing the quality of the data obtained, broadening the research field, and refining the problem. Indeed, our work has some limitations. The first is that it is quantitative research, which does not allow for more details, as opposed to a qualitative or mixed study, which allows for greater explanation to better comprehend the examined phenomena. The second constraint is the size of our sample, which, while statistically acceptable, remains tiny, potentially affecting the precision of our results.
BIBLIOGRAPHY


Links: