

Open innovation: a response to time based competition

Menara Cluster Case

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Abstract: In a complex and uncertain environment characterized by the supremacy of time based competition, organizations face significant changes, challenges and risks. They have to manage the pace of information and communication technologies, the explosion of knowledge and the competition based on flexibility and quality. In this context, innovation is a key for competitiveness. It is seen as a requirement for bringing together sustained advances in technology and knowledge. Through this study, we try to identify one of the models of innovation, namely the open innovation paradigm and to understand the adoption factors of this form within a cluster.

Keywords: Innovation, Time based competition, Open Innovation, Cluster, Collaboration...

Nowadays, time is a competitive factor for companies because the environment in which they operate is characterized by globalization of markets, complexity and uncertainty. The success of companies is related to the degree and the mode of action taken against aggressive competitors and demanding customers in terms of price, quality and delivery time. According to Saida (2014), the competitive advantage, as a position of strength, follows a dynamic pace, which presents new challenges requiring the deployment of new and more appropriate managerial approaches that must take into account the notion of time based competition (Stalk, 1988).

This latter is a new feature of the environment that describes a situation where organizations compete with each other to streamline implementation time. At this level, time, previously considered implicit and neutral, becomes an explicit strategic variable, or even a fundamental variable of strategy. In this context, the innovation which is associated with the concept of competitive advantage can be considered as the modification of competition's conditions or the modification of the value proposed to the customer. According to Christensen, Anthony and Roth (2004), innovation is anything that creates or enhances resources, processes or value within the company. It can offer a competitive advantage to the organization and an opportunity to increase its competitive position in the market.

Faced to fast environmental change with complex technologies, companies adopt a new form of innovation instead of the inside one as in the model of closed innovation to capture new opportunities (Chesbrough, 2003). It's essential for companies to find partners with whom they can collaborate. In this line, open innovation is presented as a potential solution that allows the optimization and profitability of innovation's activities (Herstad, Bloch, Ebersberger and Van de Velde, 2008).

I. PROBLEMATIC

Through this research, we seek to understand the concept of open innovation in the context of time based competition and understand the factors that determine the choice of this innovation model by a cluster. Our goal is to arrive to theoretical reflections related to the concept of open innovation by providing answers to the following questions:

- What are the features of open innovation in the context of based time competition?
- How open innovation is presented in a cluster?
- What are the factors explaining the adoption of open innovation by a cluster?

II. CONCEPTUAL FRAME

Since Schumpeter's work, innovation has continued to attract the interest of researchers. Its primacy is highlighted in the current context of based time competition (according to the principle "faster is better"). Innovation through new products and services launch on the market, the introduction of new production technologies or the creation of new managerial practices, represents the stepping stone to ensure the company's sustainability.

For some authors, although the challenge of innovation is based on new ideas, time is crucial because the just-in-time delivery of a new idea is very critical for the innovation's success.

1. Time-based competition

Some researches emphasize the importance of the time variable in relation to the competitiveness game through the analysis of the launches effectiveness. Mac-Millan et al. (1985) and Bowman and Gatignon (1995) analyze the determinants of the time taken by competitors to respond to new products' launch. Heil and Walters (1993) and Robertson et al. (1995) study the influence of signals associated with launch or launch announcement on the intensity of the competitive response. Shankar (1999) is interested by the influence of market characteristics on pioneers' behavior to new entrants.

According to Saida (2016), time is a lever of action, but also a resistance to overcome competitors. Inside, it may be a source of competitive advantage to capitalize on or a constraint that help to develop more effective management methods. Outside, organizations can integrate time into their decision-making process by changing their behavior to face the environment components (customers, suppliers, competitors, etc.). In other words, the competition can be played mainly in terms of time named time based competition according to Stalk et al. (1990). Becoming an organization that acts in this context assumes three specific phases proposed by Stalk et al. (1990): vision and decision, change and also continuous improvement through innovation.

Success in the context of time based competition is possible if time is integrated in strategic purposes through the techniques of lean management, methods of strategic intelligence and economic intelligence or open innovation approach, etc.

2. Innovation

Innovation is a basic element that enables business to survive and grow, and it is considered to be the most important competitiveness' factor (Moati, 2008). Schumpeter (1940) sees innovation as the first sale use of a product or process that has never been used before. In its subsequent work, Schumpeter defines innovation as a result of research and development carried out in large industrial research laboratories, or as an endogenous process integrating technological and organizational forms. Atamer, Durand and Reynaud (2005) categorized research on innovation into three fields.

The first one concerns the diffusion of innovations according to their "type" by distinguishing between incremental or radical innovations, products or processes innovations and architectural or modular innovations. The purpose of these studies is to determine which type of innovation provides the best advantage according to the firms' characteristics and the nature of their competition environment.

The second field of studies is related to the internal mechanisms that help the creativity emergence. In this context, the structural aspects of the company, the cognitive and psycho-sociological dimensions of the leaders, and even the identity and culture of the members committed in the innovation process are summoned to evaluate the reasons of success (or failure).

The third field is dedicated to the innovative response to external shocks (deregulation, globalization, etc) and internal shocks (decision to adopt new evaluation procedures, information systems, etc.). The capacity of innovation results from the ability to transfer, translate, and represent the strong injunctions. Our research is a part of this last field where innovation means adopting new management methods, new values, and new processes in order to create the evolution.

3. The open innovation model

The need to act in the context of time based competition and in front of the rise of a "knowledge market" has led researchers to emphasize the opening of the firms' borders with the aim of introducing knowledge and technologies produced by the others, but also to transfer knowledge and technologies created inside. In this context, a new innovation model has been designed, it is the open innovation.

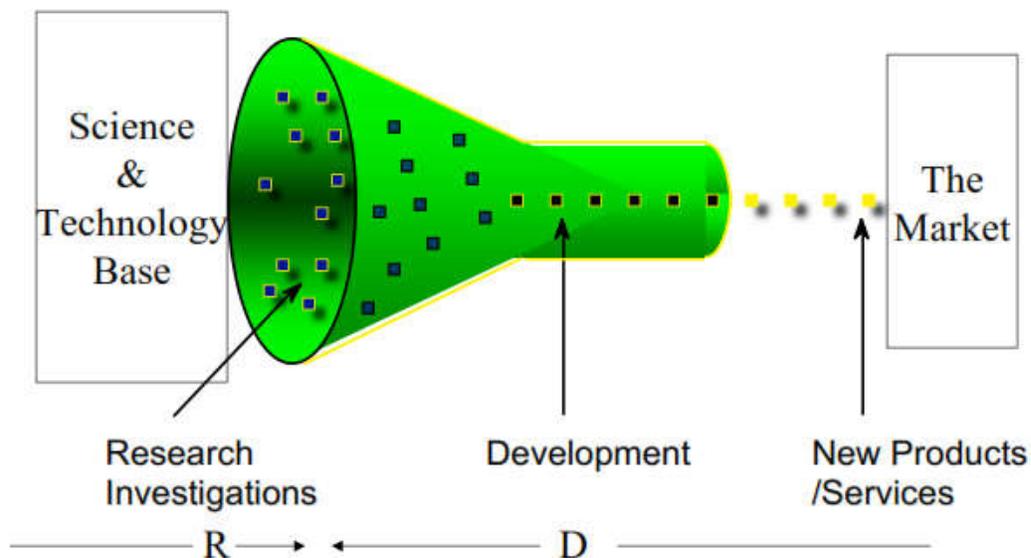
The concept was first proposed in 2003 by Chesbrough in his book "Open Innovation: The New Imperative for Creating and Profiting from Technology", which defines it as a paradigm of innovation that let companies use both inside and outside generated ideas, while considering new ways to market and advance their own technologies. Open innovation incorporates new ideas and new ways of doing business into a new business prototype that has been reorganized and deemed more appropriate.

According to this trend, it uses in upstream the outside information and knowledge sources in order to multiply downstream marketing channels to accelerate innovation. The launch of projects under the open innovation model can be done through internal or external technologies and projects can access to market by various kinds: through licenses, spin-off companies, internal sales or the marketing channels. The term open innovation is primarily related to the existence of many ways for knowledge to incorporate and exit the process.

Thus, Chesbrough makes the open innovation a median that allows the acceleration, the optimization of innovation processes and the exploitation of new business opportunities for companies. For him, open innovation uses the inputs and outputs of knowledge in order to accelerate the firm's internal innovation, to amplify external markets and to perfect the usual forms of research deemed inadequate for new mutations that has seen the business world.

The paradigm of open innovation is presented by Chesbrough (2003) as the antithesis of the traditional vertical integration model where internal research and development activities lead to internally developed products that are then put on the market by the company.

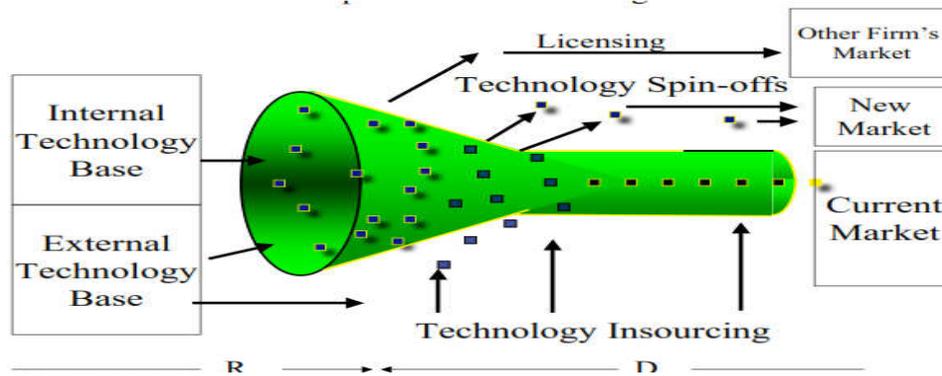
Figure 1: Closed innovation model



Source: Chesbrough (2003)

The open innovation model proposed by Chesbrough is characterized by a large use of actors and external resources. The purpose of this increased use is the creation of value as well as the acceleration of innovation.

Figure 2: Open innovation model



Source : Chesbrough (2003)

This figure illustrates the open innovation model; the dashed lines represent the firm's boundaries that allow ideas to reach inside and to flock outside it. In first step (research), these ideas are filtered and purified. After selection of those that can be marketed, they are transferred to the second step (development) so that they are ultimately oriented to a new market (Chesbrough 2003b).

The transition from the closed innovation paradigm to the open innovation paradigm requires firms to change the form of innovation. This modification can be done according to certain dimensions. The first dimension is the research and development in association with different evaluation criteria. The second dimension is the human, organizational and cultural dimension. Finally, it is about the competitive dimension (the relation to "others") and the mechanisms that allow a management to increase "competition-collaboration" especially in industries that are characterized by a strong actors' interdependence (Thierry, Lescop, 2011).

According to this paradigm, the company aims to integrate outside resources that are not owned through collaborations made mainly with the universities, the researches' centers and the new companies. The company associates these ducted resources and combines them with its own knowledge in order to ensure fast innovation by relying on external channels (license transfer, start-ups ...) to develop and enhance the new results. It is a configuration of strategic permeability of a company to its environment that allows, through an offensive management of private intellectual property (possibly mitigated in its use), to integrate external technologies into its model and create downstream value.

Leadbeater (2007) distinguishes between two types of open innovation, open innovation in and open innovation out. The first one represents a basic model where ideas are circulated within the company from different sources (Crowdsourcing). This model allows shrinking down a wider set of contributions into a funnel of business development. For the second one, according to Leadbeater (2007), it is a platform with a few tools, created by a group of people, a movement or sometimes by a company and on which people can add their ideas and contributions.

According to Enkel et al (2009), open innovation is characterized by a process of innovation from outside to inside or an innovation process from inside to outside (inside-out.) or through a coupled innovation process that corresponds to the combination of the first two processes (Gassmann and Enkel, 2004).

4. Why choosing open innovation?

Weil, De Charentenay and Sanz (2010) gather all the motivations of companies that adopt an open innovation approach, the first motivation is related to the cost problem, the authors consider that open innovation can represent a solution that allows to limit expenses by using their own ideas and those of the different stakeholders (suppliers, customers, academics, etc.) at reduced costs.

Companies can also participate in open innovation approaches to ensure specialization and concentration of stakeholders by using specialization in one stage of a process or component of a system. In addition, firms can adopt open innovation to control technology through joint work with suppliers, the corporate venture capital or the hosting start-up companies. Another motivation is to control the markets because open innovation allows companies to work with their customers on their specific needs and can also take advantage of their skills through crowdsourcing or financing the software exchange places.

Finally, according to the authors, a company may choose open innovation in order to develop its skills. Weil (2010) considers that the inside-out open innovation can provide the company's skills value through an expansion of the firm's field of activity, spin-offs, joint ventures and technology transfers.

Docherty (2006) lists a set of benefits related to open innovation:

- Opportunity to leverage research developed by others;
- Ability to have new ideas and technologies;
- Improving recovery of internal R & D by sale or otherwise unused IP license;
- Sense of emergency for internal groups to act on ideas or technology (use or lose it);
- Ability to conduct strategic experiments at lower risk and resource levels, with the opportunity to expand critical activities and create new sources of growth;
- Opportunity to create more innovative culture from the outside through ongoing exposure and relationship with external innovators.

Sapp and Bergeron (2011) summarized these benefits into four major elements:

The synergy of technical expertise and knowledge of the market, the valuation of existing intellectual property, the acceleration of the process' innovation and the sharing of risks and costs. For Bogers et al. (2016), open innovation strategies allow employees to establish professional commitment than organizational commitment. For these authors, people working at the cutting edge of the organization may lose some of their organizational identity, which could have negative effects on the quality and relevance of their innovation activities. Similarly, R & D staff working on the edge of the organization - moving from a problem solvers' role identity to becoming solution seekers (Lifshitz-Assaf, 2015) could develop a set of decreasing levels of satisfaction at work since they could begin to pose a set of questions. Together, these social, cognitive and structural factors lead to open innovation effectiveness.

At the organizational level of the analysis, open innovation is associated, according to Bogers et al (2016), to opportunities, processes and entrepreneurial results. Open innovation implies important implications for the entrepreneurial activities. More specifically, it can help entrepreneurs to identify opportunities far from their own expertise (distance research), and therefore, to gain a superior view of the opportunities' landscape (Gruber, MacMillan and Thompson, 2013). In addition, open innovation allows entrepreneurship's opportunities to be approached and created for different types of organizations and in different types of contexts (Bogers et al, 2016).

5. How is open innovation in clusters?

In 1990, Porter popularized the explanation of the agglomeration of companies' phenomena, treated by Marshal (1980) and Becattini (1979), and particularly the concept of cluster. This later is defined by Porter as being a geographical concentration of related enterprises, specialized suppliers, service providers, and related industries and associated institutions (eg universities, standardization agencies or professional organizations) in a particular field, which compete and cooperate. Andersson et al. (2004) define the cluster as a process of businesses and other co-locating actors in a concentrated geographical area, cooperating around a certain functional niche and establishing close links and operational alliances for improve their collective competitiveness (Andersson et al., 2004).

Clusters are considered as enabling ecosystems for the innovation process and the opening up of innovation activities. Although, the effects are mainly related to the sector, the characteristics of the companies and actors of each cluster (Uyarra and Ram Logan , 2012).

In his article "Open Innovation in Clusters: The Portuguese Case", Santos (2015) shows through his study on the determinants of open innovation adoption within clusters in Portugal, that there is a group of activities where the open innovation approach represents a reality within the clusters (especially in informal and formal collaborations and in the development of ideas). Another group of activity dominated by a closed innovation (IP management, innovation management and support for start-up / spin-off creation) and activities that appear to be in transition from the closed innovation model to the open innovation one (management of R & D activity and the use of public funding).

The author also points out that open innovation is most evident in formal and informal collaborations with external actors (inbound or outbound processes) and that cluster entities embrace open innovation in identification, selection analysis of technology, knowledge generated externally and in their production process (knowledge / inward absorption). With regard to transfers of knowledge and technology activities (developed in-house) to other (outgoing) entities, they take the form of licensing agreements and the creation of joint ventures.

III. RESEARCH METHODOLOGY

In this research, we opted for unique case study. Indeed, we chose the Menara cluster by adopting a qualitative exploratory approach. The case study provides an understanding of processes' complexities in their natural settings, and it is also suitable for an exploratory research (Yin, 1994). The data collection was carried out at the Menara Cluster where we administered a semi-directive interview guide. We were also able to access the cluster documentation.

Presentation of the study

Morocco, according to the report "The global innovation index 2016: Winning with global innovation" is ranked in 72 rang. In this context, the Menara Cluster, which is a Moroccan association operating in the luxury cosmetic and food industry, aims to consolidate its competitiveness and the emergence of growth opportunities in international markets and betting mainly on innovation. The Menara cluster is a group of regional and national social and economic actors representing three types of organizations. The first type is formed by big companies, SMEs and Start-ups. The second type is composed by regional and national institutions and economic development agencies. The third type is represented by scientific research and training and includes universities and private research centers and training organizations.

IV. RESULTS' PRESENTATION AND DISCUSSION

The cluster leaders say that innovation and internationalization are at the heart of the cluster's strategies. The cluster offers services to the partners: support for technology transfer, incubation of startups, and support for international development.

We considered it useful to present how the cluster leaders perceive the paradigm of open innovation. For the manager, open innovation is a collaborative innovation that involves "sharing the issues and ideas but also confronting them to come up with solutions".

This is the cluster's vocation, open innovation is reflected in the daily missions of its animation's team that consist in sharing the issues, objectives and skills of the members (companies) in order to seek complementarities and therefore to solve the problem(s) identified by triggering B to B meetings.

Addressing the issues and moving towards pooling resources are considered by cluster leaders as a pure practice of the principles on which the open innovation paradigm is based. This later takes the form of collaborations according to the companies' problems. The collaborations that can take place are:

- Collaborations between the cluster and the companies which are members;
- Collaborations between the cluster and companies that are not members;
- Collaborations between the companies members and the cluster partners;
- Collaborations between the cluster and other clusters;
- Collaborations between the cluster and the university and research centers;
- Collaborations between the cluster and the European research centers.

The motivations and the reasons for concluding these collaborations are many (technology transfer, good practice, marketing, visibility, development of territory attractiveness, etc.). According to cluster leaders, these motivations can be grouped into three types:

- Technology transfer,
- Sale aspect,
- Good governance practices.

For Cluster collaborations with the university, European research centers and companies that are not members of the cluster, the goal is the technology transfer. In addition to a spin-off contract already concluded between Cadi Ayyad University and the cluster, the members firms are working with the university to design a solar parable of 34 m2 in area, which will result in a second spin-off contract once this parable will prove its effectiveness, usefulness and will be marketed.

Regarding collaborations between the cluster and the other national and foreign clusters, the aim is to make a benchmarking of management and animation practices with a view to improving and perfecting those practices.

We remark that the choice of open innovation paradigm by the cluster was adopted spontaneously and informally, the aim was to innovate and lead innovation projects in a collaborative way. Remon (2010) classified the practices of open innovation as follows:

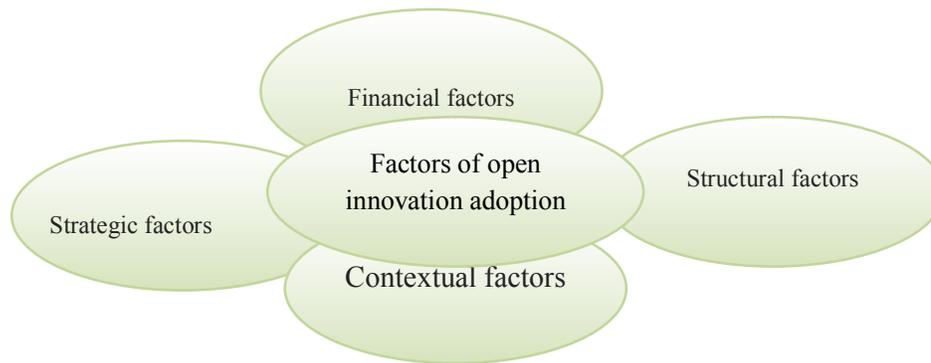
Table 1: Practices of open innovation

Cases	Explanation
Constitutive Cases	They form the concept of open innovation (Chesbrough, 2003), they are the cases that studied innovation with large companies (IBM, Xerox) and that preceded the appearance of the appellation of the open innovation concept.
Derivative cases	Are the cases that have adopted the concept of open innovation, once the latter has taken shape and has been known (Proctor & Gambia, General Mills).
Intuitive cases	Where the companies practice open innovation without knowing it, according to the concerns and needs related to the desire for innovation.
Attributive cases	Are the cases that come from studies that have attributed the term open innovation to firms (Lichtenthaler, 2008).

Source: Remon (2017)

We can therefore consider that the Menara Cluster is one of the intuitive cases. However, the activities applied by the cluster keep up a correspondence to the activities surrounding the open innovation model namely partnerships and alliance, knowledge integration (also called the Inbound process by Gassmann and Enkel (2004)), the transfer of knowledge (also called the Outbound process by Gassmann and Enkel (2004)) and the management of intellectual property. So, the factors that influence this choice can be presented as follows:

Figure 3: the influencing factors on open innovation choice



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Financial factors

The cluster Manager says that open innovation is more suited for organizations and companies that do not have large capacity for financing innovation projects. Thus, in the absence of calls for projects to finance innovation, open innovation is a timely way for the cluster whose financial means are limited.

Contextual factors

For cluster leaders, the environment impacts the form of innovation adopted by the cluster. These factors have two components:

- **The internal context:**

The need for innovation support from cluster members and the nature of identified issues and complications are among the internal cluster factors that partly explain the adoption of the open innovation paradigm.

- **The external context:**

The cluster's external environment also impacts the choice and adoption of open innovation. Competition in the industries of the cluster members, competition with other clusters and the need to respond quickly are among the elements of this external context that pushes the cluster to practice monitoring.

Structural factors

Among the structural factors impacting the adoption of open innovation, our interviewees cited size and brand image.

- **Size:** For the cluster manager, the open innovation paradigm is more suited for small and medium sized businesses.
- **Branding:** The cluster adopts a novel approach for innovation characterized by the will of its leaders to establish itself as a development actor in Marrakech, focused on the investment fueled by the needs expressed by the members (companies), in parallel with an international ecosystem of open innovation.

Strategic factors

The adoption of open innovation is also impacted by strategic factors that are manifested in the decisions of the leaders and the priority of the top management to carry out innovation projects based on collaboration and openness. Open innovation is in the intersection of two influencing factors, factors that determine the choice made by the cluster and the activities that flow from that choice.

The following figure summarizes these two spheres of impact: The choice of open innovation is a result of a set of strategic, contextual, financial and structural factors. This choice impacts the activities applied by the cluster as part of its innovation's management. These activities are also impacted by the nature of the members' issues, by the expected objectives of various actors constituting the ecosystem of the cluster.

The absence of favorable innovation system to innovate in a collaborative way leads to a set of obstacles that the members should overcome in order to ensure the smooth operation and continuity of their innovation projects. The obstacles are linked to financial barriers because of the end of calls for projects since 2013 due to the locking of the Moroccan Center for Innovation and the transfer of its funding programs to the National Agency for SMEs. The cluster is also facing organizational and other barriers related to the legal framework of universities that not allow them to work with the private sector.

Even if faced to these obstacles and barriers, the cluster is setting up actions that aimed to integrate open innovation into the daily basis activity of the cluster and to open up its borders, which are happening across the globe coaching and startups creation. In this sense, the cluster plans to create five startups for this year.

According to our study, the cluster represents an important and strategic tool in the activity of innovation. It allows collaborations between actors seeking for innovation and creation of projects. If we consider all the companies that integrate the cluster as a single entity, this situation could increase the risk of limiting openness and therefore the risk of entering less open networks, especially when all members are part of the same industry. In the literature, this point was mentioned by Bhardwaj, Professor of Growth Management and Innovation at the European Business School (EBS), who considers that policy makers should review some priorities to increase the potential benefits to their area or country from becoming part of more open networks. They will offer their companies a different framework to enable them to generate more radical and creative innovations. Therefore, in addition to collaborations between the members, it will be interesting to widen the areas of collaboration and to engage with other networks and actors.

CONCLUSION

This study allowed us to identify different factors that impact the adoption and practice of open innovation within a cluster (financial, strategic, contextual and structural factors). We concluded that the cluster represents a breeding ground for innovation, which leads to a wide dissemination of knowledge as well as a generation of ideas and the creation of new businesses that aim to cope with the pressure emanating from environment in order to succeed in the new context of time based competition. This later is demanding in term of creativity and speed action. The main contribution of this work is to have dealt with an almost unexplored theme in the Moroccan context, namely the practice of open innovation within clusters.

All research work being perfectible, we propose to present the short-comings of our work mainly related to the lack of Moroccan works that have focused on the practice of open innovation within clusters. The second one concerns our choice to study a single case. This is justified by the fact that the study of several clusters will not allow to ensure a coherent explanation of the determinants affecting the choice and the practice of innovation.

Another short-coming which is related to the empirical framework is that we have not been able to examine deeply the relationship between the cluster and the environment from the point of view of the actors that are the collaborative panorama of the cluster. So, we propose as a perspective to conduct a qualitative study to better understand the different relationships between the cluster and the companies that integrate it.

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