

How did the implementation of the innovation processes to influence the business environment guarantee the success of the internationalization process: Cases of Moroccan mining companies.

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Abstract: The business environment is becoming increasingly globalized and complex. Our study relates to: how can a company install environment effect processes to support its in-house built innovation capability. Instances of SME in the Moroccan mining sector were studied to work out a model of integrated approach of business environment effect to support the company's innovation capability.

Key Words: Innovation domain, innovation processes, Morocco, internationalization.

1. Introduction

The success of the innovation efforts of a company is an important lever of its capability to work within an uncertainty and risk environment. The conventional innovation approach focuses exclusively on the company's internal factors (Capacities, processes) whereas the external factors are also important [1]. In the same way, the limits of the conventional innovation model based on the ideas' tunnel were highlighted [2]. The companies shall be restructured in order to benefit from the landscape's knowledge richness henceforth available externally. These conditions impose a more open innovation model.

A synthesis of the literature related to the innovation process models will be drawn up in the first section while focusing on the importance of the external factors. A section will describe the methodology. Then, we will deal with the results of this study and their discussions. We emphasize on: How did the control of the innovation processes related to the external environment effect result in the success of the internationalization process. Later on, the integrated approach related to the management of the external innovation process will be presented. The conclusion will deal with the developed approach's usefulness as well as the improvement axes of this approach by future studies.

2. Literature Analysis

The SME internationalization models are divided into two models: the incremental model [3]. and the other model [4] : "Born international" which assumes the companies can be internationalized from their creations. These two models show commonly the importance of innovation and learning for the internationalization success[5]. To summarize, we can say that to ensure a successful internationalization, continuous innovation capability must be supported. Similarly, the internationalization ensures innovation opportunities, which are not provided to local companies.

The product development process is designed by sequential steps as follows[6]: generation of ideas, project definition, concept development, detailed development and launching on the market All these processes are supported by support processes inside the company (knowledge, skills, physical infrastructure, resources and culture).

The company's environment effect processes have been taken into account in the implementation of the innovation strategies but the development of an integrated approach to connect them with the company's internal processes have not been fully studied.

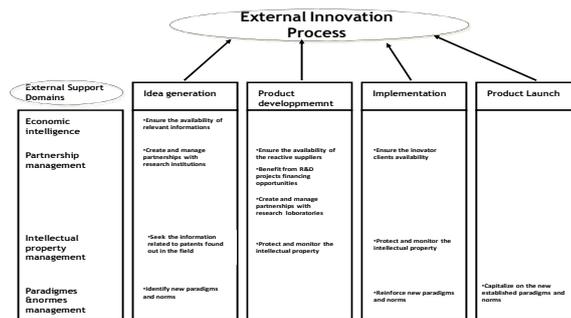
3. Methodology

A systems approach was adopted to integrate all the innovation system's components. In order to validate the model, we have adopted the case-study method [7], [8]. The instances of companies in the Moroccan mining sector were selected because it is an internationalized sector and according Moroccan mining history, companies have developed a structured approach to manage the external processes relating to the R&D projects. For the extraction of relevant information, we adopted the approach suggested by Glaser and Strauss [9]. The information and the declarations were encoded and categorized. The encoded information was used to argue or review the model.

4. Results and discussions

We note from this study that four domains of skills of external business environment are important to support the innovation carrying out processes. This study highlights the fact that the companies, which developed processes to activate the four domains skills (Economic intelligence management, partnerships management, intellectual property management as well as paradigms and standards management) were successful in their internationalization process.

Table1: External innovation process



4.1. External effect processes

4.1.1. Economic intelligence processes

Ideas generation: The information collected relates to the potential of the idea, the product's features or process components and the available skills. "Each manager shall enlarge his knowledge network especially that the Moroccan engineers and managers are widespread in the world". The interviewed companies have also focused on their method to benefit from the information collected via the specialized reviews and the recorded patents documents and suppliers which are an excellent source of information.

4.1.2. Partnerships management process

Ideas generation: Partnership were built by studied companies and a group of universities, research laboratories. "We have concluded a lot of contracts with the national and international research laboratories but the engagement required from these research laboratories or institutions is really upstream or in the outline of our main business. All the interviewed companies have installed a process to create and manage the partnerships with the research institutions at the international level.

Product development: Several interactions were carried out between the interviewed companies and the reactive suppliers. "The objective is to become trusted by these suppliers as a customer ready to test their newly developed products. This allows us to be informed of the R&D tendencies in the sector and to have the components newly developed".

Implementation: All the interviewed companies made it important to be informed about the availability of the innovating customers, who are likely to acquire the product newly created. This is ensured via the international subsidiary of the same group or via the international sales agents, or by the purchase of turnkey studies already carried out. The development of new products by these companies has forced to an intensive interactivity with new customers at the international level. This has required a reinforcement of the marketing efforts. “Before this effort we were mono-customer but now our products exist in more than 70 countries in the world”.

4.1.3. Intellectual property management process

Ideas generation: To guarantee an intellectual property management from the generation of idea until its implementation, the interviewed companies have pointed out that: “Each Engineer & Manager signs a contract of confidentiality before its recruitment”. In the same way If it is necessary to use a patent via acquisition, they should not hesitate to acquire it. “Currently we are installing a factory based on our processes newly created and completing it by a Chinese technology in order to produce sulfuric acid and creating CO₂-free energy.

Product development: Once the development of the product has reached an advanced stage and before proceeding to patent application, the company shall limit the team working on the development of the idea. Once the pilot is developed, the patent application process is started nationally or internationally according to the value of the patent. “What assures us is that we have developed a system, which cannot be easily reproduced elsewhere. Cases of employees left us but could not reproduce it elsewhere”.

4.1.4. Standards and paradigms management process

Ideas generation: The interviewed companies pointed out that the team in charge of the R&D projects is not only multidisciplinary (Biologists, Metallurgists, Chemists, mining engineers, etc) but also internationally multicultural. Similarly, more than one hundred of contracts were signed with national and international institutions, this ensures a variety of interactions that help in the improvement and the richness of the potential of ideas generated. It has allowed us to take part in the development of standards, which are being established in this sector”. As said above, the company needs to implement a process to identify the standards available which are likely to be modified.

Product development: In this phase, the interviewed companies ensure the availability of a pallet of reagents and equipments newly developed by the suppliers of these companies. The result of this effort is that these equipments and reagents, which are the state of the art herein, offer a variability, which ensures the independence of the company towards the suppliers or the technologies. This ensures independence of the company compared from the standards and paradigms related to specific technologies. To sum up, the company needs to implement a process to ensure its independence towards the old standards.

Implementation: Interviewed Companies have developed an expertise by valuing the raw material. They are currently acting not only as a company which extract the ore but they process it as well. Thus, they can acquire the raw material and process it based on the developed process expertise capability. This ensures their independence towards the availability of the raw material and flexibility towards the business environment. This ensures us a precious flexibility in a volatile international business environment”.

Product launch: In addition, the innovation capability has allowed the companies to dictate their standards in sectors in progress of development. “The fact of imposing ore wastes processing conditions has allowed us to take part in the establishment of importation standards related to the sector of wastes recycling in collaboration with the effective institutions”. Internationally, the fact of developing ore processing methods by decreasing drastically the cyanidation has allowed the company to dictate standards in the environment impact studies of the mining projects in Africa. As said above, to take advantage of the innovation results, the company needs to implement a process to capitalize on the new standards in which it took part to develop.

4.1.5. Integrated management of the external innovation processes.

In the previous section, we have described the individual components of the integrated approach of international business environment influence to support the innovation capability, which will support the internationalization process. We have adopted the four innovation carrying out sub-process: generation of idea, development of product or process, implementation and product launch. All these processes, which are supported by the company's in-house processes, must be supported by external business environment influence processes. The domains of support related to the external environment are: business intelligence management, intellectual property management, partnerships management and standards management domain. These four domains must be dealt with by the company's management in order to ensure the success of the internationalization process based on the company's innovation capability.

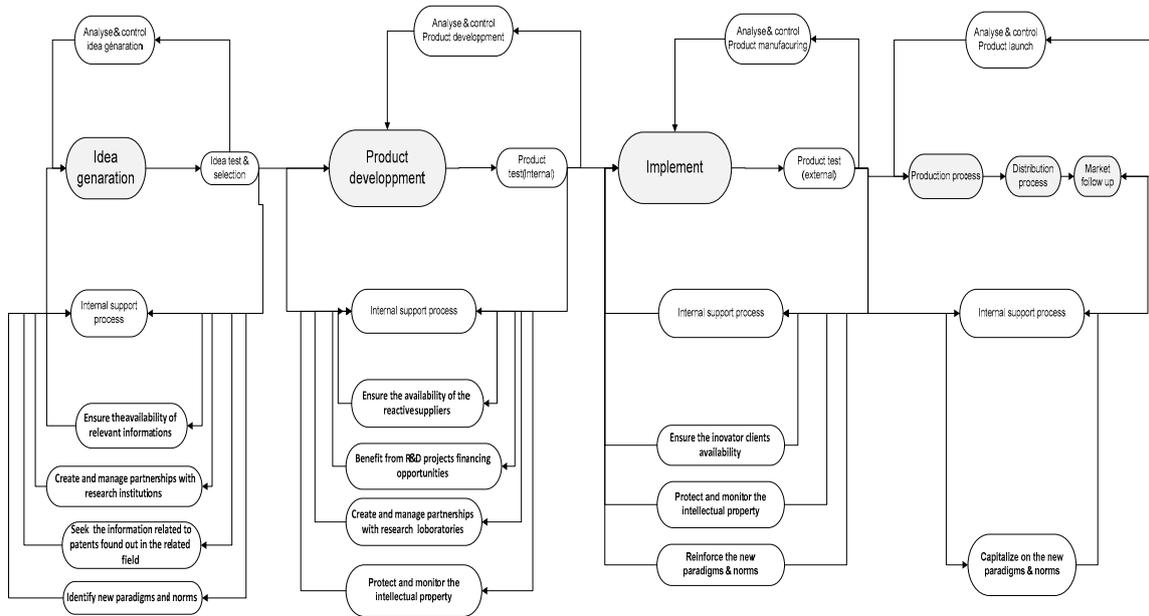


Fig. 1: Integrated management of the external innovation process.

Economics intelligence management: To influence and exploit the opportunities offered by the increasingly internationalized environment, the company shall be able to collect the information related to its business field by installing a economic intelligence management process. This can be realized through direct contacts, subscriptions with the specialized reviews, access to the documents relating to the patents recorded and interactions with innovating customers and reactive suppliers.

Partnerships management: To influence and exploit the increasingly globalized environment, the company needs to implement of partnerships management processes adapted to the product or process development phases. During the generation of idea, it must create rich and various partnerships with research institutions. To support the product or process development, the company needs to implement processes to guarantee the availability of reactive suppliers within an international environment. In the same way, the company needs to implement a process to take advantage of the financing opportunities and finally it shall guarantee the availability of the innovating customers who are ready to test the product newly created.

Intellectual property management: As far as the increasingly technological changes are concerned, the company must implement specific intellectual property management processes. During the phase of generation of ideas, the importance is to ensure the availability of the information related to the patents recorded in the related field, their potential and their usability conditions. Once the company has selected its business field, it must install its specific process for the protection and follow-up of the intellectual property.

Standards and paradigms management: During the generation of ideas, the company shall be interested in the identification of the standards and paradigms, which are likely to change. To ensure the company's independence towards these standards, it must install, during the product or process development, a process to ensure the variability of technologies adopted, by varying vendors and reinforcing the cultural

variety of the employees. Once the company has established or participated in establishing new standards, it must implement a process to reinforce these standards so that it can benefit from it during the product launch.

5. Conclusion

To ensure the internationalization process success, the company needs to implement an integrated approach to support its innovation capability. It must implement processes of adaptation and influence of this environment. To ensure the consistence of the approach, four skill domains shall be pointed out: Economic intelligence management, intellectual property management, partnerships management and standards & paradigms management.

The study of Moroccan mining cases companies has allowed us to map the implemented processes in the four domains. This results in an integrated approach of the innovation, which is an important factor of the internationalization process success. The internationalization process is itself an innovation potential that the company take advantage of once these processes are implemented. The result of this study could be improved by future studies by studying the processes of reconfiguration of the company's value chain, as a consequence of the internationalization process.

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