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Contribution to Collaborative Innovation Studies: Cases of SMES Moroccan Automotive Suppliers and their Client

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Abstract— *The aim of this work is to study how collaborative innovation succeeds between a large enterprise and SME relationship (Manufacturer-Equipment) in automotive supply chain using case studies. Data were collected from semi-structured interviews with managers in nine firms. The main intention was to understand how these companies engaged collaborative innovation and what the factors were to make it successful. The study adopted a qualitative approach in the study of these factors. The results show the importance of the internal capacities of SMEs (management style, innovation capacities, knowledge management ...) in the success and valorization of such a project. The study provides important lessons on how these relationships can impact the way businesses operate and how they innovate.*

Keywords— Automotive industry, Collaborative innovation, Knowledge management, Open innovation, SMEs.

I. INTRODUCTION

The Automotive Supply Chain is characterized by strong and rapid globalization, significant technology advances and great competition. This reality requires companies in the sector to look beyond their organizational boundaries to create exceptional value.

In this context, logistics and innovation become the mean that Constractors (large groups) use to acquire a competitive advantage. To achieve this, they need to integrate the various partners in their innovation and logistical optimization processes, and the automotive suppliers Rang1 as Direct Suppliers constitute the category concerned first and foremost among all the supply chain partners. the collaborative innovation - also referred to as open innovation - is an alternative solution to make saving budgetary.

II. BACKGROUND

The semantic sources of the word open innovation come from the "open source software" movement and it was in 2003 by Chesbrough. [9] Open innovation opposed to close one uses communities, external partners with a more open approach. Open innovation can be likened to collaborative innovation. Collaborative innovation is found especially in publications related to corporate networks for the development of a new product in project mode.

In the OECD sense [40], collaborative innovation must focus on the active participation of partners in the innovation development project. The definition excludes the simple outsourcing of R & D to put a single focus on innovation processes, outsourcing purely and simply work without active collaboration is not considered collaboration.

According to Miles [36] and Ketchen [30], « Collaborative innovation is the creation of innovations across firm (and perhaps industry) boundaries through the sharing of ideas, knowledge, expertise, and opportunities ».

We will consider open innovation as the paradigm of collaborative innovation. We see that Collaborative innovation is defined as the fact that an entity actively participates in innovation projects with other actors external to the company [26], in our case it is Suppliers with their Client.

III. THE THEORETICAL FRAMEWORK FOR COLLABORATIVE INNOVATION

The Many researcher like Yaseen [59] speaks about two orientations in collaborative innovation: the Relationship Orientation and Innovation Orientation. We propose to these two orientations a third one, the Knowledge Management Orientation which seems to us just as pertinent and which was strongly confirmed by our study.

In the current researches it becomes clear that organizations can enhance their innovation capabilities by developing collaborations with a variety of partners. [7] The continuous and frequent exchange of information within and outside the organization (with customers and

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suppliers) can improve Collaborative Innovation and constitutes the Relationship Orientation.

Innovation Orientation has been increasingly recognized explicitly or tacitly in research on collaborative innovation [49]. Researchers call it a company's ability to innovate [60] [25], a propensity to innovate [13], a culture of innovation [15] [24], and shared learning integrated into practices and routines Organizational structures [23] [1]. The main of Innovation Orientation is to examine innovation capacities that capture perceptions and approaches across the organization to develop innovation [1] [48].

Also, many researchers have promoted the knowledge management and the culture of learning as an antecedent to innovation [25], [48] [23] [25] [1] [1]. Thus, the organization's propensity to create, use and disseminate knowledge enhances innovation capacity. [47] [1]. And the exchange of information, which includes the production, consumption and dissemination Which aims to strengthen the interaction between learning and innovation [47] [43].

IV. INTEREST AND PROBLEMS OF THE STUDY

We analyze the collaborative innovation within the relationship of Moroccans SME s equipment suppliers Rang1and their client, which is present in Morocco at Through its acquisition of the famous SOMACA factory in Casablanca.

How does collaborative innovation work between the Constructor and these SMEs? How does collaborative innovation succeed in breaking through the barriers of business and allowing the passage of knowledge? How is collaborative innovation spread and how it is perceived in the partner organization? And what are the best practices to recommend to these SMEs to assert themselves in such projects?

V. METHODOLOGY

The research consisted of a multiple qualitative case study, as little research was done on collaborative innovation in logistics. Appropriate research methods which produce valid interpretative knowledge require close contact with the field, as it is necessary to situate actors and their actions in their social context [52].

This research aims to understand the factors and examine relationships using content analysis and case comparison. Data were collected for nine case studies from semi-structured interviews with 15 managers.

The main intention was to understand how these companies supported the collaborative innovation initiated by their Large Group client. The study adopted a qualitative approach in the study of these factors. Data were collected from participants in their workplace using semi-structured interviews.

This method allowed the input of data with details on the research problem and gave the researchers the flexibility to explore other issues raised by the participants. The use of multiple cases has also contributed to the reliability and generalizability of the results.[60][61]

A total of 15 interviews were conducted in nine organizations with senior and middle managers. During our meetings with the constructor's Teams, we selected the cases according to three main criteria: The first criteria relates to the direct relationship with the constructor so that they will be Rang1 equipment suppliers working in the automotive supplier sector Directly to the manufacture. The second is the geographical positioning, the study is limited to the factory area of the Casablanca and regions constructor. The third criteria is that they will only be Moroccan SMEs. The companies that meet these criteria are nine companies that all participated in the study by at least one representative. A summary of the activities of the nine companies is given in Table I.

TABLE I. *THE PRESENTATION OF THE CASE STUDY*

The firms	**Information**		
	The activity	***Number of employees***	***The product***
E1	Plastics processing: bumpers, trim parts and lining	More than 100	Plastic Components
E2	Glass manufacturing For building and industrial vehicles	More than 100	Glass
E3	Manufacturing and Foundry Machining of Foundry Component	More than 100	Foundry Component
E4	Manufacture of car seats, seating covers and self-extinguishing cold mold foam, covers for automobiles, various accessories for automobiles, synthetic foam for car seats, cataphoresis painting for metal parts	Between 50 and 99	Seats and side dishes(fillings) Parchoc, …
E5	Manufacturing of seats for automobiles, coaches, trucks and others.	Between 50 and 99	Seats and side dishes
E6	Manufacturing of cables of remote control for the car	More than	Filters and

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The firms	Information		
	The activity	*Number of employees*	*The product*
	industry	100	cables of remote control
E7	Manufacturing of the Filters of the air, the oil and the fuel for the engines of passenger cars and industrial applications	More than 100	Filters and cables of remote control
E8	Transformer of wire for the car industry, the display stands in wire, epoxy paint(painting)	More than 100	Metal Wires
E9	Manufacturing Exhaust pipes and transformation(processing) of metals (collision, folding)	More than 100	Exhaust pipes and transformation of metals

The main intention was to understand how a notion such as collaborative innovation is engaged in the automotive sector between these Moroccan SMEs and a large Group.

VI. RESULTS AND DISCUSSIONS

The results of this study show that there was collaborative innovation in the nine companies providing SOMACA, but elementary and closed between the manufacturer and one supplier at a time.

Examining the reasons for the launch of collaborative innovation shows that the search for suppliers capable of offering more competitive. The Constructor plays both the role of Controller and / or Accompanist in order to upgrade them.

Other analyzes were also conducted to show how the various initiatives and strategies improved collaborative innovation for each case. This is summarized in Table II.

TABLE II. THE RESULTS ARISING FROM THE ANALYSIS OF THE SITUATION OF COLLABORATIVE INNOVATION BETWEEN THE 9 SMEs AND THE SOMACA

Specifications	Explanations	Représentativité chez les cas étudiés PME
The type of collaborative	Closed system: The customer (builder) with each supplier (SME)	All Business E1 E2 E3 E4 E5 E6 E8
innovation system	alone Low SME opening rate	
The types of innovation that are the subject of collaborative innovation	Non-contractual innovation Organizational innovation Process innovation Product innovation	All Business E1 E2 E3 E5 E6 E7 E8 E9 E1 E2 E4 E5 E6 E7 E8 E9 E1 E4 E5 E7
Involvement in collaborative innovation	Lack of involvement of SMEs in the idea-finding phase Involvement of SMEs in the implementation	All Business All Business
The frequency of relationship	high frequency of the relationship Geographic proximity Exchange of direct information (Meetings, Reports and Audits)	All Business E4 E5 All Business
Quality of the relationship	SMEs' dissatisfaction with the quality of the collaborative relationship Good Communication and Trust Expectations not met (loyalty, financial aid ...) and Relationship governance (verification of compliance with mutual commitments)	All Business All Business E2, E3, E4, E6, E7, E8, E9. E2, E3, E4, E6, E7, E8, E9.
Internal SME Management Capabilities	The executive's management style The management structure of the collaborative innovation	E2, E3, E5, E6, E7, E8, E9. E2, E3, E4, E5, E6, E7,

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Specifications	**Explanations**	**Représentativité chez les cas étudiés PME**
to Succeed in Collaborative Innovation	project (the profile of the project team on both sides, the internal project manager)	E8, E9.
Internal innovation capacities of SMEs to succeed in collaborative innovation	Dynamic capabilities (ability to take a present situation and reshape it to its advantage) Absorption capacity (capacity to recognize and use information for commercial purposes) Capacity of ownership (the ability to incorporate advances into everyday life)	E2, E3, E4, E5, E6, E7, E8, E9. E1, E2, E4, E5, E6, E7, E8, E9. E2, E3, E4, E5, E6, E7, E8, E9.
Knowledge management of SMEs	The innovation capacity of an SME largely depends on its ability to learn Innovation capabilities are core capabilities for Knowledge Management The frequent collaborative relationship offered data for Knowledge Management	All Business Except E1 and E3 All Business Except E1

We found that the relational aspect in their collaborative innovation projects is based more on the mechanisms of exchange and governance of the relationship.

The interviews confirm the importance of explicit intention and the predisposition of the constructor to share his knowledge and information.

At several stages of the interviews the component leader profile appeared in the remarks as internal factors very influential in terms of:

- Personal qualification and Values
- Strategic Capabilities of the Leader
- Quality of social links with its environment

Moreover, the capabilities and the predisposition of the supplier also determine the success of collaborative innovation, such as dynamic capacities

The role of the two organizations to involve and empower the teams in interface to encourage the setting up of a context conducive to the sharing of knowledge between the Constructor and its supplier. Through the setting up of an internal project team whose interest will be firstly to enable the company to have a vision and an understanding as complete as possible of the innovation initiated.

it emerged from our analysis that the major challenge in the success of collaborative innovation is the knowledge management and the internal capacities of the SME with which the project is made.

VII. CONCLUSION AND PERSPECTIVES

In this study, the client is committed to continuously improving the supplier and sharing knowledge by exchanging relevant information and working together to initiate innovations and solve problems. The executive interviewed reported that the significant performance are observed in terms of: improved customer service, improved productivity, reduced costs, reduced cycle times and improved quality. It can be concluded that collaborative innovation improves the position of a company and can lead to a competitive advantage as well as innovative results.

The literature supports the results that emerge from this study. The collaborative innovation capabilities and initiatives discussed in the document provide the decision-maker with inspiration for future decisions and to encourage the development of innovative relationships that interact with different actors in the environment. It also shows the importance of collaborative innovation in the formation of knowledge in the organization and access to new skills and technological means that may be above the means of SMEs.

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