

The Factors of the Collaboration between the Upstream Supply Chain Actors: Case of the Automotive Sector in Morocco

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Abstract

This communication aims to identify collaboration determinants between actors in the supply chain of the automotive industry in Morocco. In fact, much research and publication have been conducted in the areas of relationships in the European and North American context supply chain (SC), which have to have a comprehensive understanding of the determinants that can influence the collaborative relationship between actors in the industrial supply chain. However, in developing countries such as Morocco, few authors have attempted to examine this question. In this context, it seemed appropriate to study industrial relations in order to achieve a better understanding of the determinants of collaboration. By entering in a sequential process, our methodology consists of two phases: an exploratory qualitative—to contextualize the model through semi-structured interviews with 15 actors of Moroccan automotive industry and the other confirmatory quantitative based on the development of a questionnaire to collect data and test hypotheses. Data collection was conducted among 67 companies. The empirical findings indicate that the determinants both transactional (dependence, formalization and control) and relational (trust, commitment, communication and information technology) influence the collaboration.

Keywords: supply chain, relationship, collaboration, automotive, Morocco

1. Introduction

The new constraints and market pressures have “intensified the competition among the firms, prompting them to be innovative in order to reduce costs, enhance quality, and improve their performance and responsiveness to customers’ demand” (Charan, 2012: 67). To achieve these goals, industrial companies are all attempting to establish more collaborative relationships with their supply chain partners, in order to ensure their sustainability development and the achievement of competitive advantages (Zhao et al., 2006; Corsten & Kumar, 2005; Field & Meile, 2008). Recently, many studies and researches have been done in the collaborative supply chain field and on its modelling implication particularly in the European and North American contexts (Paulraj et al., 2008; Chen et al., 2009; Yeung et al., 2004; Noordewier, John & Revin, 1990; Ganesan, 1994; Doney & Canon, 1997; Mohr & Spekman, 1994). However, these works become scarce, or when is in the context of developing countries and some emerging economies such as Morocco.

In this context, our interest is to achieve, in the Moroccan context, a better understanding of the determinants influencing collaboration between the actors in the automotive supply chain upstream. In fact, this industry appears as the most dynamic and most innovative in the upstream logistics, it mobilizes a multiplicity of actors, all called to work in the long term, to create mutual benefits (Bonet & Boissinot, 2012).

This sector, in the case of Morocco, is expected to play a locomotive role in economic growth. Strengthening its potential was demonstrated by an investment program that will make this sector a strategic industry, Morocco wants to take its competitive advantages. This interest is related to the primary role of the automobile industry in the Moroccan economy (6% of GDP, 14% of exports and 300,000 jobs). How, in the Moroccan automotive context, do the actors perceive the collaboration between them, and what are the determinants?

This research question puts us in an associative approach to the development of our conceptual framework. Indeed, the previous researches have examined only “transactional perspectives” or only the “relational

perspectives” (Heide & John, 1990; Noordewier, John & Revin, 1990; Anderson & Weitz, 1989; Ganesan, 1994; Doney & Canon, 1997; Spekman, 1992). Our present research expands on such previous studies to provide a theoretical foundation for our proposed model of collaboration in the Moroccan context.

To highlight the variables that explain the dyadic collaboration, we will proceed as follows: in a first point we will present the literature of collaboration between actors upstream SC. This will allow us to identify the variables and hypotheses used in our research purpose. A second point concerns the choice of the methodology and the interpretation of results. This work will conclude by the discussion, managerial implications, limitations of our study and future research.

2. Literature Review

In the literature review that follows, we discuss transaction approach analysis and social exchange theory, building on this review, in the subsequent section; we develop a theoretical model that outlines the factors and determinants of collaboration in an industrial context.

2.1 Collaboration, a Shift from Transactional Approach to Relational Approach

In recent years collaboration between supply chains partners have received increased attention in the supply chain literature (Whipple & Russell, 2007; Prakash & Deshmuk, 2010). Since the early 1990s, there has been a growing understanding that collaboration supply chain should be built around the integration of trading partners (Baratt, 2004). Bowersox (1990) state, that firms collaborate in the sense of “leveraging benefits to achieve common goals”. Similar points are made by (Simatupang & Sridharan, 2002), As have also been noted, that the outcomes of the collaboration among supply chain companies, which also share losses and gains, must be quantifiably beneficial for everyone.

In fact, inter-organizational relationships are primarily perceived in terms of the transactional paradigm represented by economic approach: the transaction costs economics (Williamson, 1979; 1993) and the agency theory (Jensen & Mecklin, 1976). Based on contractual arrangements in the market or in the organization, this approach emphasizes the contract as a mechanism for managing relationships between stakeholders in order to reduce uncertainty and to fight against potential opportunism of a party Williamson (2008). Although Williamson (2008) considers that this approach is more suitable for managing interactions between actors under conditions of uncertainty. In this context, the theory of resource dependence (Pfeffer & Salancik, 1978) sets out the principle that actors will seek to reduce uncertainty and manage dependence through linkages with other partners to deliberately increase the extent of collaboration in a dyadic approach. In this way, (Zouaghi et al., 2012) stipulates that companies establish relationships with others to warrant mutual advantages.

In this sense, Ryu et al. (2007) suggests that the transactional model and the dependent resources are complementary; in that the large flows of transactions relating to interdependencies between actors are sometimes the main reason of collaborative behaviors. The dependence suggests that the interaction between the actors in dyadic relationships, customer/supplier, must also include elements that help to gradually reduce the uncertainty in the relationship for the mutual benefit of customers and suppliers (Ahmed & Ullah, 2012).

The transition to relational approach is based on a social science perspective social exchange theory (SET) (Blau, 1964; Emerson, 1976), the SET focuses on the norms of reciprocating benefits such that people cooperate under the expectation that they will give and receive from the relationship (Macualy, 1963) and relational contract (Macneil, 1980), the SET is characterized by long-term (Dwyer et al., 1987; Ganesan, 1994), continuity of the relationship (Heide & John, 1990), desire of the partners to collaborate on a long period (Abbad et al., 2012), trust (Morgan & Hunt, 1994; Ring & Van de Ven, 1994), interdependence (Ryu et al., 2007) and communication to limit opportunism of actors in a situation of dependence (Ahmed & Ullah, 2012).

The collaboration relationships are important elements that have also been cited in the literature including mutuality of benefits, risk, and rewards sharing (Baratt, 2004). In this sense, “partnerships tend to exhibit behavioral characteristics that distinguish these more intimate relationships from more traditional (conventional) business relationships” (Mohr & Spekman, 1994). Indeed, actors engaged in collaboration relationships achieved improved visibility, higher service levels, increased flexibility, greater end-customer satisfaction, and reduced cycle times (Min et al., 2005).

In the same sense of ideas, a lot of studies (Chen et al., 2009; Whipple & Russell, 2007; Bratt, 2004; Xiande et al., 2008) have affirmed that strong relationships increase the likelihood that firms achieve common goals for obtaining the competitiveness of the partners. In this context, collaboration is seen as a necessary component of strong relationships (Soosay et al., 2008). The concept of collaboration can be seen as a mode of governance of the relationship between customers and suppliers (Prakash & Deshmuk, 2010).

2.2 Determinants of Collaboration, Conceptual Framework

Before presenting the factors that influence collaboration between stakeholders in the automotive upstream SC (the explaining variables), we should present the concept of collaboration (explained variable).

2.2.1 Collaboration

The collaboration concept began to be popularized in the field of SC in the mid-1990s (Barratt, 2004). Collaboration is defined as occurring when “two or more independent companies work jointly to plan and execute supply chain operations with greater success than when acting in isolation” (Simatupang & Sridharan, 2002). Min et al. (2005) indicate that collaborative strategies focus on joint planning, coordination, and process integration between suppliers, customers, and other partners in a supply chain. Indeed, collaboration is a necessary component in the automotive supply chain (Charan, 2012).

In this context, Whipple and Russell (2007) indicate that “collaborative supply chain initiatives continue to be developed and to gain prominence based on the assumption that closer inter-enterprise relationships and enhanced information exchange will improve the quality of decision-making, reduce demand uncertainty, and, ultimately, improve supply chain performance. Recent research studies have shown that collaboration offers promise for improved supply chain performance in several core areas, including increased sales, improved forecasts, more accurate and timely information, reduced costs, reduced inventory, and improved customer service”. In this order, the supply chain partners need to share both, the losses and the gains (Ouazzani, 2009). Mentzer et al. (2001) argued that developing and maintaining a collaborative relationship requires: trust, longevity of the relationship, sharing information and openly discussing processes and systems, leadership, technology, and benefit sharing. Ganesan (1994) adds and suggests that the requirements for effective collaboration are trust, communication, and commitment. The literature has focused on commitment, coordination, interdependence and trust as important attributes of partnerships (Mohr & Spekman, 1994).

Now that the notion of collaboration has been clarified, we define the concepts regarding the factors of collaboration.

2.2.2 Trust

Trust is defined as a belief, a feeling or expectation vis-a-vis an exchange partner that results from its expertise, reliability and intentionality (Ganesan, 1994). The research of (Gansan, 1994; Doney & Cannon, 1997) regarding trust in the supply chain assumed that trust is a multidimensional phenomenon consisting of two components: credibility of an exchange partner, an expectancy that the partner’s word or written statement can be relied on-and benevolence: which is the extent to which one partner is genuinely interested in the other partner’s welfare and motivated to seek joint gain. It is the belief of an actor that the other actor in the supply chain will carry out actions that will have positive outcomes (Anderson & Narus, 1990; Moorman et al., 1993). According to Doney and Cannon (1997), this definition of trust is relevant in an industrial buying context. It is widely treated as a major component of collaboration relationship, Doney and Cannon (1997) state that “Such collaborative relationships rely on relational forms of exchange characterized by high levels of trust”. Also, “the high levels of trust characteristic of relational exchange enable parties to focus on the long-term benefits of the relationship” (Ganesan, 1994). Mohr and Spekman (1994) indicate that trust (i.e., the belief that a party’s word is reliable and that a party will fulfill its obligation in an exchange) is highly related to firms’ desires to collaborate. Anderson and Narus (1990) add credence to the above and suggest that once trust is established, firms learn that joint efforts will lead to outcomes that exceed what the firm would achieve had it acted solely in its own best interests. According to (Morgan & Hunt, 1994), the trust reduces transaction costs and reduces the perception of risk associated with opportunistic behavior on the other.

2.2.3 Commitment

Commitment can be defined as an implicit or explicit guarantee on the continuity between exchange partners (Dwyer et al., 1987). It refers to the desire to see the relationship continue in the long term (Gansan, 1994), It as a durable desire to maintain a privileged relationship (Morgan & Hunt, 1994). The mutual commitment implies a willingness of partners to make sacrifices in the short term to achieve long-term benefits (Dwyer et al., 1987). As the literature indicate (Abbad, 2012), commitment results in mutual gain and performance for both parties in a supply chain relationship (Tellefsen & Thomas, 2005; Mohr & Spekman, 1994). Lambert et al. (1999) found that when firms commit to long-term partnerships, both parties can achieve individual and joint goals without raising the specter of opportunistic behavior. In this context, El Alaoui et al. (2012) found that commitment had a direct and positive impact on performance and is an important indicator of the health of the relationships.

2.2.4 Communication

Communication acts as a process by which information is transmitted (Frazier & Summers, 1984). For Anderson and Narus (1990), communication is a formal or informal sharing of relevant information between firms. By communication, partners are able both to act independently in maintaining the relationship over time and to reduce uncertainty (Moor, 1998). It also reduces doubt, mistrust, asymmetric information and opportunistic behavior (Mohr & Nevin, 1990). However, this communication must avoid any ambiguity in the information transmitted between actors (Zhou & Benton, 2007); therefore, the strategy of communication between actors explicitly involves some characteristics: quality, frequency, direction and content (Mohr & Nevin, 1990). These characteristics are important determinants for a successful collaboration (Anderson & Narus, 1990) and for a long-term performance. In this order, Mohr and Spekman (1994) state that “Communication captures the utility of the information exchanged and is deemed to be a key indicant of the partnership’s vitality ... Is an important predictor of partnership success”.

2.2.5 Information Technology

Information technology (IT) is used to connect users and facilitate the optimization process in the supply chain (Ahmed & Ullah, 2012). Collaboration between partners grows on the basis of adequate formal and informal communication using information technology (Anderson & Narus, 1990; Heide & Miner, 1992). The use of IT strengthens the links between actors in the supply chain, reduces transaction costs and limits opportunistic behavior (Pramatari, 2007). This technological aspect is facilitated by the use of EDI interface technologies, Extranet, CPFR, and VMI (Whipple & Russell, 2007; Ahmed & Ullah, 2012). This is a critical factor if partners are to realize benefits of collaboration (Bowersox, 1990). In this order, Pramatari (2007), indicate that “IT has clearly played a leading role in most if not in all the various supply chain collaboration practices referred to above and industry participants often use the terms ‘enablers’ and ‘integrators’ when referring to technological elements such as EDI, standards, Internet, etc.”

2.2.6 Dependence

The desire of companies to acquire the resources necessary for their survival and development puts them in a situation that each is dependent on the other (Pfeffer & Salancik, 1978). Several authors (Kumar et al., 1995; Lush & Brown, 1996) emphasize that all businesses depend on their environment and on other organizations for obtaining resources necessary to achieve their goals. Dependence is determined by two dimensions: the “essentiality” of resources and the “difficulty of replacing the partner” (Kumar et al., 1995; Heide & John, 1988). These dimensions require a mutual dependence leading to interdependence between actors in the supply chain over time. Interdependence results from a relationship in which actors perceive mutual benefits from interacting (Mohr & Spekman, 1994). In the same sense of ideas, Interdependence develops collaboration relationships in order of complementary contributions of each partner and the assets exchanged (Pfeffer & Salancik, 1978). Each actor recognizes that this interdependence offers more benefits than either could attain singly (Benton & Maloni, 2005). Therefore, mutual dependence appears as a key to achieve mutually beneficial goals of both parties within the supply chain (Ryu et al., 2007).

2.2.7 Formalization

Formalization or formal contracts are “agreements in writing between two or more parties, which are perceived, or intended, as legally binding” (Lyons & Mehta, 1997; Klein Woolthuis et al., 2005). It is an agreement or a bilateral coordination mechanism by which two parties agree on another’s behavior (Baudry, 2003). As indicated by Zouari and Samuel (2012), the formalization of collaboration is one of the most effective mechanisms to enable stakeholders to overcome the contradictions and control potential hazards that may occur throughout the supply chain. Consequently, the formalization (embodied in the contract) is critical to making effective collaboration within the supply chain (Malhotra & Lumineau, 2011). In this perspective, it must clearly state the goals pursued and the means (technology developed jointly, frequency of meetings, update contacts ...) to achieve these goals (Ellram, 1995) and then, provide solutions to differences of potential interest (Poppo & Zenger, 2002; Dekker, 2004; 2008). In a context characterized by increased risks and uncertainties related to international trade actors, Williamson (2008) states that the use of contract in the medium term would discourage opportunistic behavior. In supply chain context, Ellram (1995) adds formalization reduces uncertainty about the opportunistic behavior of partners and minimizes operating costs.

2.2.8 Control

According to Fenneteau and Naro (2005), control is the set of mechanisms and processes that enable the parties of a chain to ensure that decisions and behaviors developed by them in line with the objectives. Indeed, the concept of control includes the idea of mastery in order to coordinate the activities involved in the value chain (Kanda & Deshmukh, 2008), the control is mobilized in the form of an incentive monitoring and evaluation to

ensure that partners behave as expected (Baudry, 2003). For these reasons, tracking devices and monitoring tools are needed to establish a collaborative framework between actors of the supply chain: evaluation and monitoring. Some authors (Krause & Ellram, 1997; Noordewier et al., 1990; Frankel et al., 1996) state that, in the context of the supply chain, these devices can set collaborative behaviors (Kanda & Deshmukh, 2008) and lead to a level of motivation of the players in terms of learning and as a safeguard against the risk of opportunism (Williamson, 2008). In the same context, Klein Woolthuis et al. (2005) and Fenneteau & Naro (2005) consider that control is a necessity for efficiency and value creation in a supply chain.

2.3 Research Purpose and Hypotheses

The purpose of this work is to determine the factors of collaboration between actors in the supply chain (SC) upstream of Moroccan automotive sector, the analysis of our problematic led us to focus on two areas of research to be more precise:

- The nature of dyadic relationships between actors upstream in the automotive sector in Morocco SC.
- Transactional and relational determinants of collaboration between actors upstream of automotive SC Morocco.

To answer these questions we will put the following assumptions:

Hypothesis 1: Trust has a positive impact on collaboration between the actors of the SC.

Hypothesis 2: Commitment has a positive impact on collaboration between the actors of the SC.

Hypothesis 3: communication has a positive impact on collaboration between the actors of the SC.

Hypothesis 4: Information technology has a positive impact on collaboration between the actors of the SC.

Hypothesis 5: Dependence has a positive impact on collaboration between the actors of the SC.

Hypothesis 6: Formalization has a positive impact on collaboration between the actors of the SC.

Hypothesis 7: Control has a positive impact on collaboration between the actors of the SC.

3. Research Methodology

3.1 Data Collection and Procedure

Our research consists of 67 of the largest automotive companies in Morocco. Our choice of the target people is focused on those in charge. These responsible managers can be regarded as the essential source of information on the results of the collaboration in which their company is engaged. The choice of automotive is due to the fact that this sector must now consider new constraints and challenges facing increasingly present (flexibility, responsiveness and traceability). So the choice of the automotive industry is not neutral. Indeed, in this sector procurement and monitoring methods providers are considered a strategic issue.

As noted above, our research methodology is divided into two phases, which should explain the purpose and methodology of each phase.

The exploratory qualitative phase: In order to refine our problem, to better understand the factors of collaboration between actors, documentation and interviews are the two techniques for which we opted to collect qualitative data. While the literature (secondary data) is to reconstruct events and improve the understanding of the problem studied and for a better understanding of the environment of the study (automotive industry in Morocco) and mechanisms relating to the operation of the chain upstream (transactional and logistics), we conducted interviews (primary data), with practitioners and experts in the automotive industry in Morocco, during the second half of 2011. A standard semi-structured guide was developed from a review of the literature. The interview is practiced with the 10 industrial practitioners and 5 experts (consultants and academics), while satisfying the validation criteria of the qualitative study (internal acceptance, completeness, saturation; internal consistency and external confirmation). Our interview guide was organized around themes related to the problem. The duration of an interview is between 180 minutes and 4 hours. For that the analysis of the interviews will refine the assumptions made, to facilitate the drafting of the questionnaire and check the adaptation of concepts from the literature with the field of our issue, we have, after complete transcript, made thematic categorical analysis.

Confirmatory quantitative phase: Due to the lack of databases automobile industry to public access, we have used several ways to built our database, in collaboration with the some actors of the Moroccan automotive in the qualitative phase, which gave us a database that was not exhaustive, we have a complete list of twenty firms located in the free zone in Tangier (this list includes: phone numbers, email addresses, addresses, Fax, names of responsible ...), we then created the frame which can represent concrete elements of the target population to a

number. Then, to test our hypotheses, we sent questionnaires to 97 suppliers, manufacturers and logistic service providers. 67 usable questionnaires have been processed, a return rate of 69%. The survey was administered by us (in the month of July to December 2012). We used several possibilities: the telephone approach, Email and administration face to face.

Measurement: Concerning measures of variables, we adopted survey measurement items from past studies based on relevant literature and where appropriate, we adapted the items to our specific context (Moroccan case), all the variables of the model have been the subject of a multi-item measure, all measures used a five point likert scale (strongly agree/strongly disagree). These measures were then being translated and pre-tested.

3.2 Analysis of Data

The exploratory qualitative phase: The interviews we conducted were subject to a content analysis using NVivo software. This process is characterized by a technical analysis of the speech from a set of structured procedures. As Evrard et al. (2003) indicated content analysis consists of cutting back the text in units of basic analysis, to group them into homogeneous categories, exhaustive and exclusive, and then record their frequent appearance. As Evrard et al. (2003) say, content analysis has a heuristic function “content analysis enriches the exploratory trial and error, increases the propensity to discover and to see questions or interim statements as guidelines (...) to be verified in the sense of a confirmation or refutation: it is content analysis to prove”.

The thematic analysis focuses on a cutting theme (e.g., frequency of occurrence of themes and association frequency). It is a division of the corpus theme, theme is defined as “a unit of meaning of variable length, and its reality is not linguistic but psychological: a statement but also an allusion may be a theme and conversely a theme can be developed in several statements” (Evrard et al., 2003). After the interviews, the corpus was transcribed and divided into themes (or content units). The plan of the interview guide includes the following topics: (the nature of the collaborative relationship power/dependence, relational determinants, transactional determinants, and the potential benefits of introducing a collaborative relationship). Finally, we conducted a horizontal analysis that treats the interview transversely focusing on each topic formalized the analysis grid. For each theme, the elements and sub-elements are identified according to their frequency. Then the research focuses on the vocabulary used, the chains and the nature of synonyms used to compare the contents of topics, for processing and interpretation of our results.

Confirmatory quantitative phase: The general approach to treatment of the data collected in the quantitative phase is organized as follow.

In order to ensure the validity of the scales of our research, we perform the KMO test, the Bartlett’s test of sphericity for the data to be factorized. Thus, the factor analysis with rotation (Varimax) was conducted. This will allow us to consider the dimensionality of each variable. In the end, to ensure the internal reliability of the scale of measurement thus obtained, we have used Cronbach’s alpha > 0.6.

In addition, to test the hypotheses, we use multiple regressions analyzes to put relations correlation between variables observed: on the one hand, the explanatory variables (trust, commitment, communication, IT, dependence, formalization and control) and the other variable to explain the collaboration. The tests were performed using SPSS 20.0 software.

4. Results

The influence of explanatory variables on the dependent variable “collaboration between actors” is examined using multiple regressions (see table 1).

Table1. Overall goodness of fit of the regression model (sample of actors in the automotive industry in Morocco)

| Indicators | R | R-squared | Adjusted R-squared | Standard error of the estimation | Number of individuals |
|------------|-------|-----------|--------------------|----------------------------------|-----------------------|
| Value | 0,994 | 0,988 | 0,986 | 0,11857760 | 67 |

From this table, the overall accuracy of the model, measured by the adjusted coefficient of determination (adjusted R²), shows that 98.6% of the variance of the concept is returned by four variables, trust, commitment, dependence and the formalization of the collaborative relationship. We can say that the model is of satisfactory quality. It can be considered as an explanation of the concept of collaboration between stakeholders in the

Moroccan automotive industry.

Regarding the contribution of each variable in the explanation of collaboration, the test results show that the seven variables removed from the regression equation, only four of the twelve variables have significant regression coefficients (see table 2). It is trust (Credibility), commitment (Implication), dependence (Essentiality of the relationship) and the formalization of the collaborative relationship.

Table 2. Confirmatory factor analysis

| Variable | Factors | % variance explained | Bêta | t | Cronbach's alpha |
|----------------------|----------------------------------|----------------------|-------|-------------|------------------|
| Trust | Credibility | 67.2% | ,390 | 4,331** | ,777 |
| | Benevolence | 67.44% | -,012 | -,179 n.s. | ,516 |
| Commitment | Implication | 82.79% | ,597 | 3,050** | ,926 |
| | continuity of the relation | 68% | ,049 | ,719 n.s. | ,529 |
| Communication | Desire to exchange information | 56.93% | ,006 | ,201 n.s. | ,594 |
| | Regular exchange of information | 67.88% | -,073 | -1,919 n.s. | ,508 |
| IT | Information technology | 46.26% | -,073 | | ,657 |
| Dependence | Essentiality of the relationship | 92.6% | ,061 | 2,857** | ,919 |
| | Difficulty of replacing | 77.70% | ,051 | 1,827 n.s. | ,401 |
| Formalization | Formalization | 70% | ,216 | 5,429** | ,757 |
| Control | Evaluation | 79% | -,074 | -,426 n.s. | ,904 |
| | Monitoring | 61% | -,034 | -,914 n.s. | ,627 |

** Parameters are significant at 1%.

n.s. parameters are not significant.

Examination of the regression coefficients shows that:

1) The four selected variables have different weights in the regression equation. Coefficients to assess the explanatory power of each variable on collaboration are all significant, the significance level of 5% or less. It should be noted that the four selected variables all have the (t) Student value are greater than the threshold of 1.96 (which explains the positive impact of the explanatory variable on the variable explained) on the standardized multiple regression coefficient called (beta) which has a power in the explanation of the collaboration as follows: (Commitment: involvement and the importance of the relationship 39%; Trust: credibility almost 60%; Dependency: essentiality of the relationship 6.1% and Formalization almost 22%) of the explanation of the collaboration.

2) The eight hypothesis have been excluded and removed from the regression namely trust (benevolence), commitment (continuity), dependence (difficulty of replacement), communication (Desire to exchange information and Regular exchange of information), IT and control (Evaluation and Monitoring) are overturned therefore be rejected in the Moroccan context.

Regarding the contribution of each variable in the explanation of collaboration, the test results allow identifying by using the multiple regression analysis following significant variables:

$$Y = a + b1X1 + b2X2 + \dots + bnXn$$

a: Predicted values

X1...Xn : independent variables

b1... Y bn : Regression coefficients of the independent variables, representing the specific effect of the respective independent variable on the dependent variable.

$$\text{Collaboration} = 0,390 \text{ trust} + 0,597 \text{ commitment} + 0,061 \text{ dependence} + 0,216 \text{ formalization} + e$$

These results demonstrate the existence of two types of variables: variables with significant regression coefficient (trust, commitment, dependence, and formalization) and excluded from the regression equation having no causal variables.

Table 3. The perception of variables of collaboration relationships in the Moroccan automotive context

| Variable | Signification in the Moroccan context automotive | Verbatim |
|---------------|--|---|
| Trust | Is based on the skill, experience, reputation, size ...it increases in the trade, it can reduce conflict and the level of satisfaction finally it contributes to the development of collaboration between partners. | <i>"Trust, excellence and implication are now the hallmarks of the partnership relationship. It is more than simple market relations but relations of collaboration, functional association of design and production and division of labor based on the business".</i> |
| Commitment | Is the desire to maintain a long-term relationship with the partner being involved with short-term sacrifices, keeping promises and interpersonal relationships are key collaborative relationships elongated. The collaboration requires the mutual commitment of partners. | <i>"Indeed we are very involved and we aim in the long term, but nothing is certain, it is the instability of the environment that can make the unstable collaboration My experience in the automotive field the success of the relationship depends on the involvement of the heart to maintain the long-term possible ...".</i> |
| Communication | Is a way that connects actors in the supply chain and shows the desire to share information, however, the direct discussion and oral communication before the written submission, its quantity and quality that is essential in collaboration | <i>"Information is obtained sometimes by all means even if the culture of communication is often characterized by informational ambiguity".</i> |
| IT | Is an important element even essential in the effective management of a supply chain. But, expensive. | <i>"Frankly for us, small and medium-sized suppliers, the use of EDI are very expensive so the use of means of communication traditional, Web EDI, fax, phone and including meetings are largely sufficient to exchange all necessary information".</i> |
| Dependence | It determines the power level of each party in the relationship. it refers to the need for a company to maintain an exchange ratio to achieve goals, even if it harmful, it is accepted. | <i>"Even if we don't like to be always dependent, I think we need require us to get started ... I worked despite the dominance of my partner".</i> |
| Formalization | Is a very important step in the initiation of a collaborative relationship. This phase is the beginning of a new relationship is to define primarily the main rules to be observed by all members | <i>"The establishments of contractual relations allow sitting collaborative behavior between all stakeholders and bring them to be more responsive and more efficient in light of unanticipated changes, whether technical or organizational".</i> <i>"The value of a contract is to feel quiet."</i> |
| Control | Is essential, since it allows to organize activities to meet the success of a collaborative relationship, this is to know how to handle disturbances (conflicts, and unforeseen problems occur during the contract) that can hinder the relationship. | <i>"In my opinion the control devices are supposed to further stimulate the partner, not a sort of policeman for the partner because they provide regular monitoring is to detect in advance the potential conflicts and risk between the different actors and to see the relationship continue in the long term".</i> |

5. Discussion and Managerial Implications

5.1 Discussion

Collaboration aims to achieve common goals, make good use of the available resources of each partner and increase competitive advantage in the SC (Zhang & Chen, 2008). Collaboration must be intensified to better serve the consumer. Partners are value broadly in collaboration. Our results confirm that collaboration supply chain in Moroccan industry is becoming a popular strategy in the last few years. However, the course to

collaboration is not an easy one.

Trust constitutes a major determinant of collaboration between actors Moroccan industry. These results are consistent with empirical studies of Ellram (1995) and Brulhart (2002) that reflect the importance given by respondents to the trust regarding the collaboration between actors upstream SC. The study confirms and extends the empirical contributions of Moore (1998) and Mohr & Spekman (1994), which validates the hypothesis of a significant positive impact of trust on the effectiveness of the relationship between logistics partnership with a 339 enterprise customers provider.

The results validate our hypothesis H2 and show that commitment constitutes an important factor for collaboration between the actors of the upstream SC. Our results are consistent with some studies that highlight specific logistics positive role of commitment on collaboration (Ellram, 1995; Krause & Ellram, 1996) and studies that, if they do not specifically relate to the field of logistics partnerships nevertheless show an influence of commitment on the success of vertical partnership in different types of customers/suppliers relations (Mohr & Spekman, 1994).

Dependence has two components: the essentiality of the relationship and the difficulty of replacing partners. The mutual dependence (becoming interdependence) plays an important role in linking stakeholders to develop collaborative relationship. The results show that our hypothesis H5 dependence includes “the essentiality of the relationship” to impact on the collaboration of actors upstream SC.

In the Moroccan context, the dependence between the actors is rather forced as when it is the logic of power and dependence underlying relationship, in this sense, the actors manage their dependence collaboration. Thus, our results for the dependence between the parties in the relationship are generally similar to those of the study of Skinner et al. (1992) and Lusch & Brown (1996).

Formalization of the collaboration: The results obtained in our quantities study allow specifically its convergence with the exploratory qualitative study on the role of the formalization of collaboration between actors upstream SC. Indeed, we were able to validate hypothesis (H6) on the impact of the formalization of collaboration between actors of upstream SC. In this sense, our findings are consistent with some empirical contributions about the collaboration between actors upstream SC, as the study of Frankel et al. (1996) shows that respondents case studies give a positive role in the formal contract in the success of the partnership. We can then interpret this validation of our assumptions by advancing the idea that written agreements can play a big role in the development of a strong and enduring commitment of the collaboration.

These practical results seem consistent with the exploratory results. It should, therefore, first establish rules to engage the actors (the role of the contract). In the context of Morocco, formalization plays an important role in the process of designing and developing collaboration. The contract allows the development of collaborative projects and to address issues that arise in the collaborative relationship. Thus, the results for the formalization of the parties in the relationship are generally similar to those of the study Brulhart (2002) and Dekker (2004).

The variables removed from the regression equation are those that are associated with statistically non-significant regression coefficients: communication (the desire to share information and regular exchange of information), IT and control (evaluation and monitoring).

The link between these three independent variables and collaboration (dependent variable) does not validate the assumptions from the literature. In other words, the assumptions H3, H4, H7 are rejected.

Despite the fact that communication appears to reduce the fears of opportunistic behavior by reducing the uncertainty associated with the relationship, causing a greater commitment to the partnership, our results our H3 hypothesis does not validate a significant impact of communication on collaboration. Indeed, as Brulhart (2002), we have not been able to validate the hypothesis of a positive impact of communication on the collaboration. However, this hypothesis has been validating in the collaboration studies context of Mohr and Spekman (1994).

Concerning information technologies (IT), we have not been able to validate the hypothesis of a direct positive impact of IT on collaboration between actors upstream SC. However, we found a negative effect of IT on collaboration in the Moroccan automotive context. The explanation of this non-significance of collaboration could be part of the transaction cost approach. According to Williamson (1979), “more the assets are specialized, more transaction costs increase”. In addition, in the sense of Brulhart (2002), the computer tool can be also seen sometimes as a pretext or excuse for poor performance, malfunction or inadequacy of the tool would then be advanced as explanations of deficiencies appearing on one side or the other, which would contribute to obscure the relationships and increase the uncertainty and ambiguity of the performance of the collaboration. Indeed, adequate IT to the functioning of collaboration are related not only to the mutual sharing of information

and the quality of information exchanged, but also confidentiality, which is sometimes very difficult to make sure.

We mentioned that control is seen as a tool for securing partners and developing collaboration (Poppo & Zenger, 2002) and the implementation of monitoring procedures is to assure and verify that everything is in line with what was expected. It seems to be perceived by some actors of Moroccan automotive supply chain upstream as a tool imposed to punish rather than collaborate. In this sense, our results (hypothesis H7) fully refute the idea that control and monitoring facilitate the development of collaboration relationships (Poppo & Zenger, 2002). In this sense, the validation corresponding to the significant impact of control on collaboration in the context of the automotive upstream supply chain is invalid.

Communication, IT and control, seem do not have a positive impact on collaboration relationships (hypothesis H3, H4 and H7 are reversed). The invalidation of the assumptions may well be explained by the insufficient number of observations. Hair et al. (2006) argue that the application of the regression method on a small sample size could lead to unreliable and reject some key variables in the real world results. The small size of our sample (67 respondents) could justify the absence of a linear relationship between these variables and collaboration could also be an explanation for rejection of these three independent variables involved. This smaller size leads to a bias in the estimation of regression coefficients. Otherwise, the non-causality between these three variables and collaboration can also be explained by an error in model specification or measurement error.

It should be noted here that communication, IT and control were mostly operationalized using statements from previous research. The results for these three variables may be due to the transposition of scales (U.S. measure for these three variables: communication, IT and control) in the Moroccan context. Because of cultural differences, these scales are not relevant in the field of investigation, which is the customer/supplier relations industry in Morocco. We can argue that the sensitivity of the subject (questions on these three variables) introduced a response bias, although care has been taken when administering questionnaires face to face (to ensure confidentiality of respondents). The set of assumptions could be deepening in future research.

5.2 Managerial Implications

The put forth in this research allow managers to have a better collaborative design relationship between customers and industry suppliers. This research also highlights the factors that have a significant impact on collaboration between actors of automotive industry in the Moroccan context. The research examines various factors of collaborative relationships in order to categorize collaborative relationships for Moroccan academicians and practitioners. In this perspective, managers may employ a mix of collaboration factors. Managers need to consider that to have better collaborative relationships, they must take account the specifics Moroccan determinants to develop collaborative strategies of relationships.

It has been indicated that each partner plays an important role not only in the development of the relationship, but the perception of the collaborative partner's relationship and its implementation in practice has an impact increasingly important in the development of collaboration. In this perspective, Moroccan and strange industrial managers can also use these results to assess current collaborations and seek ways to improve current collaborative efforts.

Finally, more practically, the automotive industry in Morocco is a big craze in recent years, especially with the establishment of the factory of car maker Renault on the Tangier Free Zone in Morocco. The results of our research have in their exploratory component to describe the relationships in this sector, and will be eager to enjoy the automakers to settle in Morocco a better understanding of these actors. This can reorient policies established supply chains and international managers wishing to settle in Morocco to take into account the Moroccan relationships specificity.

6. Conclusion, Limitations and Future Research

Relationships between actors within SC have experienced significant developments in recent years. Now, to gain a competitive advantage and be competitive, the Moroccan automotive industry must be engaged in collaborative relationships with a long-term look. We are well past a purely traditional relationship characterized by an economic approach to a less confrontational relationship, whose foundations are built on trust and continuity.

The results of the empirical study in the Moroccan context seem to agree with this theoretical assertion. These results show that the relationships between the actors move towards more collaborative relationships. In general, the results strongly support the hypotheses presented in previous studies. The interest of these studies is to allow those involved in the automotive industry to develop a stimulating collaborative relationship in the economic policies and development commitments. In Moroccan automotive context, collaboration is changing, but slowly

turning into relationships with a vision beyond the short term. The actors of supply chain are forced to feed a collaboration based on trust, commitment and involvement.

Many limitations of our work relates to the sample size of only 67 respondents, this inherent to the number of the entire population, this has reduced and limited the results of the study, therefore, the results obtained in this research can't be generalize and do not support the requirements of external validity. Other limitations:

- It is possible that there are other specific cultural variables in Morocco that we have not used that could have an impact on collaboration.

- We have neglected the phenomena of interactions between variables, which may be questionable in this area of research.

- In our study, trust and commitment are not as a mediating variable as most research regarding relationships.

- The small size of our sample is fully compatible with the implementation of partial least squares (PLS) which allows using the Structural Equation. We are just working with the regression method for data analysis.

The propositions put forth in this work imply a path for future research and to enrich the knowledge of the subject treated. Also, it would interesting to focus a single theoretical framework "transactional" or "relational". In addition, the adoption of a dyadic approach can be bypassed by the study of multi-stakeholder relations in various sectors. This would help to have a global view of the perceptions of partners influencing industrial collaboration in Morocco, we might think to develop a model of collaboration between partners from other sectors, such aircraft industry, electronics, etc...

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