



**HAL**  
open science

# Conceptual model of the cultural factors impacting the deployment of cooperative Supply Chain Management practices: the case of the Moroccan context

Mahmoud El Hassouni, Mustapha Machrafi

## ► To cite this version:

Mahmoud El Hassouni, Mustapha Machrafi. Conceptual model of the cultural factors impacting the deployment of cooperative Supply Chain Management practices: the case of the Moroccan context. 2023. hal-04017672

**HAL Id: hal-04017672**

**<https://hal.science/hal-04017672v1>**

Preprint submitted on 7 Mar 2023

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Copyright

# **Modèle conceptuel des facteurs culturels impactant le déploiement des pratiques coopératives de Supply Chain Management: le cas du contexte marocain**

**Mahmoud El Hassouni<sup>1</sup>, PhD Researcher - University Mohammed V of Rabat**  
**Mustapha Machrafi<sup>2</sup>, Full professor - University Mohammed V of Rabat**

<sup>1</sup> *University Mohammed V of Rabat, mahmoud.elhass@gmail.com*

<sup>2</sup> *University Mohammed V of Rabat, mustapha.machrafi@gmail.com*

# Conceptual model of the cultural factors impacting the deployment of cooperative Supply Chain Management practices: the case of the Moroccan context

## ABSTRACT

---

The purpose of this study is to examine the influence of culture on supply chain cooperation practices in Morocco. We collected data from supply chain managers via LinkedIn and analyzed these data using the chi-square technique on SPSS. The results of the analysis show that hierarchical distance, collectivist culture, and high uncertainty avoidance culture all have positive and equal degree influences on commitment, cooperation, and information sharing among supply chain actors. However, it was also found that collectivist culture and degree of leniency do not affect opportunistic behavior. In conclusion, this study shows that the Moroccan culture is conducive to the deployment of supply chain cooperation practices.

---

**Keywords:** National culture; Supply chain cooperation; Intercultural management; Morocco; Conceptual model; Cultural studies.

# Modèle conceptuel des facteurs culturels impactant le déploiement des pratiques coopératives de Supply Chain Management: le cas du contexte marocain

## RÉSUMÉ

---

L'objectif de cette étude est d'examiner l'influence de la culture sur les pratiques de coopération dans la chaîne d'approvisionnement au Maroc. Nous avons collecté des données auprès des responsables de la chaîne d'approvisionnement via LinkedIn et analysé ces données à l'aide de la technique du chi carré sur SPSS. Les résultats de l'analyse montrent que la distance hiérarchique, la culture collectiviste et la culture d'évitement de l'incertitude élevée ont toutes des influences positives et égales sur l'engagement, la coopération et le partage d'informations entre les acteurs de la chaîne d'approvisionnement. Cependant, il a également été constaté que la culture collectiviste et le degré de clémence n'affectent pas le comportement opportuniste. En conclusion, cette étude montre que la culture marocaine est propice au déploiement de pratiques de coopération dans la chaîne d'approvisionnement.

---

**Mots clés :** Culture nationale ; Coopération de la chaîne d'approvisionnement ; Management interculturel ; Maroc ; Modèle conceptuel ; Études culturelles.

## **1 Introduction**

Supply chain management is an essential factor for the success of companies. We consider in our paper that the cooperation between the different actors of the supply chain is a fundamental element to succeed in achieving the objectives and optimizing the flow of products and services.

Supply chain cooperation is the practice of encouraging and facilitating collaboration between different actors in the supply chain. In this context, this paper explores the influence of Moroccan national culture on supply chain cooperation by proposing a theoretical model that reinforces previous studies on the impact of culture on supply chains in Morocco.

Indeed, the national culture can have a significant impact on the cooperation between the different actors of the supply chain, positively or negatively. Thus, by studying the influence of national culture on supply chain cooperation, we can better understand how companies can improve their relationships and thus their performance.

## **2 Cooperation in a Supply Chain context: Literature review**

### **2.1 The context and reasons for the emergence**

**”Global cooperation is changing the way businesses and societies use knowledge, innovate, and create value.”** (Tapscott Williams, 2008)

The purpose of SCM is to create value. It is the result of optimizing a process designed to sell more by meeting customer expectations, but also to organize the production and circulation process to limit costs (Carbone and Meunier, 2006). Thus, the consequences of the implementation of an SCM approach can be concluded in the creation of value. More precisely, we note that the value created by the SCM could be divided into two categories: value for customers and value for suppliers. In fact, in a supply chain, all actors have two roles: supplier and customer. The implementation of SCM brings value to all actors, but in different forms depending on their roles.

According to the path from logistics to SCM, we see that at the beginning, it is the technology that makes the mode of exchange between commercial agents evolve, little by little, the contribution of the development of technology to the evolution of logistics is less and less important, which can be explained by the decrease of the marginal return of technology.

As the impact of technology weakens, actors return to a mode of interaction, an inter - organizational relationship, which allows another expansion of logistics, namely the birth of the SCM. In summary, the history of the expansion of SCM highlights two main phases. The phase of focus on technology and the phase of focus on management. According to Lamper and Cooper (2000), there are two frameworks of analysis in the SCM literature, namely the physical and technical components and the managerial and behavioral components.

### **2.2 Framework and levels of analysis in supply chain management**

#### *2.2.1 Analysis frameworks in supply chain management*

There is no consensus on the understanding of SCM. In the SCM literature, there are several approaches and different levels of analysis that relate to different disciplines. For this reason, we return to the literature review about the birth of SCM, according to which we say that SCM theories are concluded by induction, i.e. the birth of theories is based on practices. According to the path from logistics to SCM, we see that at the beginning, it is the technology that makes the mode of exchange between commercial agents evolve, little by little, the contribution of the development of technology to the evolution of logistics is less and less important, which can be explained by the decrease of the marginal yield of technology.

As the impact of technology weakens, actors return to a mode of interaction, an inter-organizational relationship, which allows another expansion of logistics, namely the birth of the SCM. In summary, the history of the expansion of SCM highlights two main phases. The phase of focus on technology and the phase of focus on management. According to Lamper and Cooper (2000), there are two frameworks of analysis in the SCM literature, namely the physical and technical components and the managerial and behavioral components, which are illustrated in the following figure:

**Figure 1** – Supply Chain Management Analysis Framework.

Physical and technical components	Managerial and behavioral components
Method of planning and control	Management methods
Structures of activities/flows	Leadership and power structure
Structure of the installation of communication and information flows	Risk and profit structure
The structure of the equipment of the product flows	Culture and attitude

Source: Adapted of Lamper & Cooper (2000)

The first aims at structuring processes and flows to improve the performance of the supply chain, from a technical point of view. In this field, research often focuses, for example, on the implementation of an information system that facilitates inter-organizational communication, the design of packaging that improves the physical flow through the chain, etc.

The second axis aims at managing the behaviors of supply chain actors, often in economic and social approaches. The research concerned often focuses on power, governance, and organizational behavior.

Based on this distinction, our research work logically falls within the second field of research, namely the managerial aspect. Thus, the framework of our work is clear.

### *2.2.2 Analysis levels in supply chain management*

There are several levels of analysis in SCM: dyad, chain, network, etc. As far as we are concerned, we will not deny this typology, but we stress here that the dyad level is the most important level for analyzing coordination. The so-called < dyad > level of analysis is the cornerstone of the other two levels.

Particularly at the operational level, the application of chain and network theories cannot do without analysis at an inter-organizational level.

In addition, the chain companies are legally independent of each other, which is also a characteristic of the SCM compared to other modes of governance. Finally, the definition of SCM proposed by the CSCMP is also a good illustration. According to this definition, « Supply chain management, therefore, integrates supply and demand management, both within the company and between companies». Let us not forget that a supply and a demand corresponding to it are always at the dyad level, more precisely, at an inter-organizational level.

In conclusion, we retain the dyad level (**inter-organizational**) as the level of analysis in our research.

## 2.3 Definition of supply chain cooperation

Petit Robert (1993) defines cooperation as « the action of participating in common work. To cooperate is to act, to work jointly with someone for the success of something, for the execution of a common project ». From this definition, two important ideas emerge: cooperation is an action to carry out a common work. This definition also specifies the notion of participation, which shows a certain involvement of the cooperators who take part in the action according to their objectives. In the same vein, Soubie et al (1996) have shown that cooperation is defined as an activity that aims to meet a need, and not as an end in itself.

In the literature, most definitions focus on the process by which individuals, groups, and organizations work together, interact and relate to each other for mutual gain or benefit (Smith et al. 1995). According to this definition, cooperation can be understood as a situation in which the goals of the stakeholders are positively related. The achievement of one's goal helps others to achieve their own goals. For such a definition, the notion of interaction is fundamental.

A more theoretical definition is that of Barthélemy et al. (2001), for whom organizational cooperations represent « partners who associate to carry out a common work at the end of which results will be shared and exploited according to the modalities defined in the cooperation agreement, in order to increase the efficiency and effectiveness of their enterprise ». This definition takes up the idea of association and participation of the co-operators in common work. We find that this definition takes into account beforehand the objectives of the cooperation and the predefinition of its modalities. In this logic, inter-organizational cooperation can be considered as a formal or informal commitment (of variable duration) involving interaction between organizations that will combine or pool their resources and competencies to achieve the object of the agreement and reach common and individual objectives.

Based on these definitions, we propose a more precise definition of inter-organizational cooperation for our research: **cooperation Inter-organizational is the interaction of two or more organizations, which allows them to coordinate over time activities carried out jointly, involving the pooling of their resources, as well as achieving individual and common goals.** In this logic, « a supply chain is the set of enterprises where inter-organizational cooperation could be carried out ». (Mentzer, 2001).

## 2.4 The managerial and behavioral determinants necessary for Supply Chain Cooperation

Recall that the nature of SCM is inter-organizational cooperation. Such cooperation in its specific context has seven characteristics:

1. A small number of partners for the main elements
2. Profit sharing
3. Joint improvement was driven by mutual interdependence
4. Existence of joint conflict resolution mechanisms
5. An open and complete exchange of information
6. Companies working together to adapt to the changing market
7. Active involvement of companies in Supply Chain Management activities

The question that logically arises is what are the behavioral conditions that allow such cooperation to take place?

Mentzer (2001) gives us the first antecedent of cooperation in the context of SCM, namely the cooperative norm.

### 2.4.1 The cooperative standard

The cooperative norm is defined as a perception of likely cooperation that achieves individual and shared goals while preventing opportunistic behavior (Siguaw et al., 1999). The cooper-

ative norm reflects the belief that all parties in the relationship must combine their efforts and cooperate to be successful (Cannon & Perreault, 1997). Specifically, Cannon (1992) proposes that the cooperative norm can be measured in the following aspects:

1. joint responsibility of the parties for the problems
2. attention on the position of profit
3. abandonment of cooperative changes
4. acceptance of debts or favors to the other party

Recall that the consequences of SCM implementation are value creation. Thus, it constitutes the intention of the SCM implementation (Moran and Ghoshal, 1996). In this logic, the individual and common goals can be concluded in the creation of value. Moreover, the cooperative norm underlines the conviction to escape opportunism. Thus, we can deduce two elements of the cooperative norm: perception of value through cooperation. We will take into account this condition in our model.

#### *2.4.2 Commitment: a condition for the implementation of Supply Chain Management*

The definition of commitment has its beginnings in sociology and psychology (Wong & Sohal, 2002). In the sociological literature, the concept of commitment is used to analyze both individual and organizational behavior. Sociologists use the term commitment as a descriptive concept to highlight the forms of behavioral characteristics of particular kinds of individuals or groups. They also use it as an independent variable to explain certain types of behavior of individuals or groups as well as in the analysis of a wide range of phenomena: religion, and politics. On the other hand, psychologists define commitment in terms of decisions or cognitions that fix or bind an individual to a behavioral disposition (Kiesler, 1971). In the social-psychological framework, commitment is often conceptualized in terms of marriage and profession.

In management science, the concept of commitment is often approached from two perspectives: organizational behavior and rational choice (Robertson and Tang, 1995). Teas and Sibley (1980), Childers and Rucker (1986), Anderson and Weitz (1989), and Wilson (1995) hold the view that commitment can be defined as the active consideration of the desire to develop a cooperative relationship, particularly by having a preference for the cooperative relationship with current partners. Any business transaction between supply chain partners requires the commitment of both parties to achieve their goals. Without commitment, the business relationship and subsequent transactions become fragile and vulnerable.

In this logic, guaranteed commitment is a basic requirement for successful SCM implementation (Kwon and Suh, 2005).

In the next section, we will address the last condition we will consider and one of the most critical to the implementation of the SCM.

#### *2.4.3 The willingness to share information: an essential condition for the implementation of supply chain management*

According to these articles, information sharing is considered a necessary condition for the implementation of SCM, from an information-functional perspective. This angle of attack seems convincing. From this point of view, when we look closely at this literature, when considering information sharing as an outcome, we observe a paradox. For example, according to the characteristics of SCM, (Menczka et al., 1998; Mentzer, 2001; Min and Mentzer, 2004), information sharing is the outcome of SCM implementation. In our research, we adopt the literature's view that information sharing is considered an outcome of SCM implementation.

The point we would like to emphasize is that the willingness to share information remains unresolved. Li (2002) analyzed the effects of information sharing on the price decision in a supply chain composed of manufacturers and several retailers. He showed that retailers are not willing to share their information. Similar results can also be found in Zhang (2002) and Mishra et al

(2006). According to Croom et al. (2000), not all organizations are willing to share information because they view this act as a loss of power. In the same extension, Li and Lin (2006) write that there is a reluctance within the organization to give more information than less because sharing information is perceived as a loss of power and the company is concerned about the disclosure of their information to potential competitors. Thus, a fundamental requirement for building good information sharing in Supply Chain Management is that it is possible to mobilize existing and different information possessed by the stakeholders. We can therefore say that information sharing underlines the need for organizations to open up to the outside world to develop their exploration perspectives, which are essential for improving their performance.

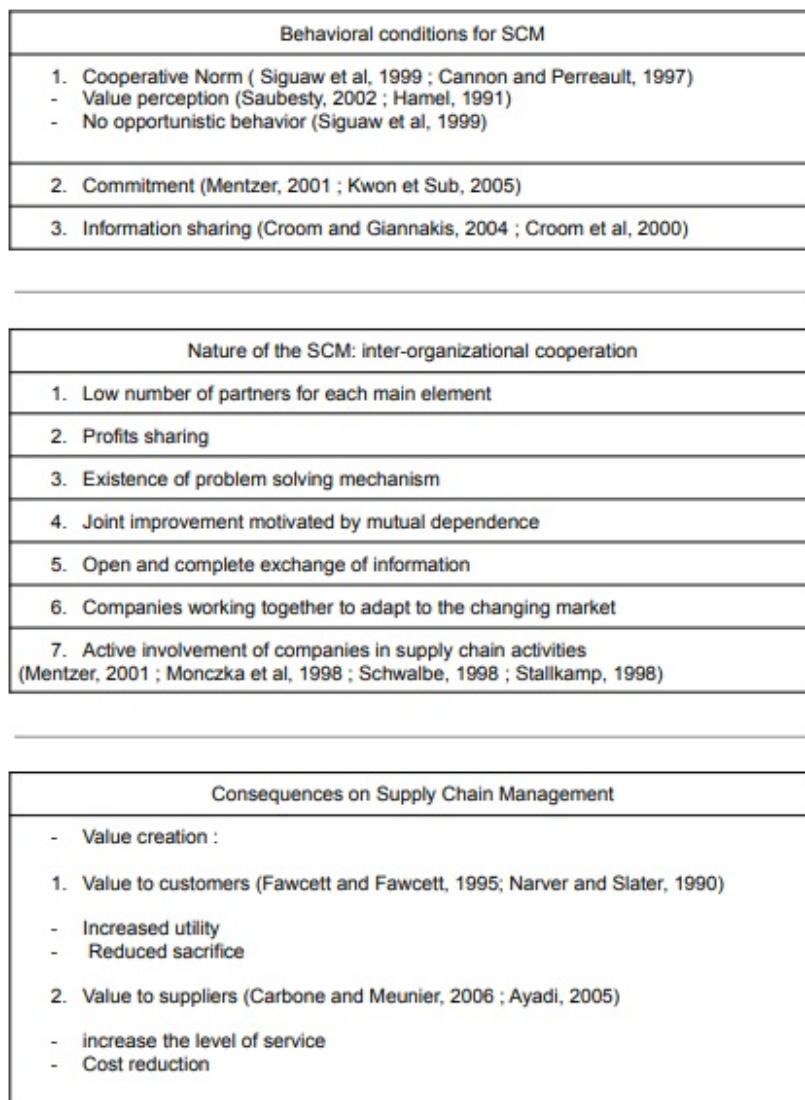
In short, a willingness to share information is another behavioral requirement for SCM implementation.

### Synopsis:

Based on the discussion in the previous sections, we have established an integrated framework for SCM. It includes the conditions for SCM implementation, the characteristics of cooperation in the SCM context, and the consequences of SCM implementation.

Figure 2 illustrates this framework:

**Figure 2 – Cadre intégré du SCM.**





To conclude, we have demonstrated that the behavioral and managerial determinants necessary for Supply Chain cooperation are:

1. The cooperative standard
2. The commitment
3. Information Sharing
4. Absence of opportunistic behavior

## 2.5 The importance of taking culture into account in Supply Chain Management

The end of the millennium was characterized by globalization, the foundations of which had been laid after the Second World War with the creation of the GATT. However, globalization reached a turning point in the early 1980s, favoring a gradual integration of the market for goods and factors of production, as well as a standardization of standards and consumer preferences. Lower transportation costs and advances in information and communication technologies accelerated this integration of the global economy (Heeramun, 2003), and the strategic alliance became a preferred inter-organizational relationship. However, the globalization of the economy and the development of international supply chains raise the question of how to manage cultural differences within supply chains, whether it

Whether they are internal projects (multicultural teams) or relationships resulting from mergers, acquisitions, or strategic alliances (inter-organizational relationships).

Sherman et al (1995) emphasize that culture is an integrated phenomenon, recognizing and adapting to taboos, rituals, attitudes over time, social stratifications, kinship systems, and many other components. Different cultural environments call for different managerial behaviors. Strategies, structures, and technologies appropriate in one cultural context would lead to a cultural environment of its own that could have undesirable, even dire, consequences in another culture. To avoid such a problem, supply chain managers must understand the key concept of "culture".

From the literature review, we can see that there is a lack of research in this area. However, the omission of a discussion of the cultural issue should not lead to the conclusion that the attitudes, reactions, preferences, and emotions of individuals are irrelevant to the SCM. On the contrary, the choice, for any actor in a supply chain, is frequently the result of the exercise of an evolutionary force (personalities, traditions...) operating in the company. In the same vein, and without considering, like Weick (1985), that the concepts of culture and strategy are close or even substitutable, we can think that the choice of coordination mode is a possible indicator of the values of a culture. Dornier (1998) attests to the fact that "*deciphering the meaning of the logistics orientation is in part understanding the meaning of the orientations on trade, purchasing or industry*". Similarly, it can be seen that the orientation of the SCM is also influenced by the conception of human nature, the environment, the business... i.e. by values (Kluckhohn and Strodtbeck, 1961) and, in any case, it is possible to see the influence of culture as a "boundary to rationality" (Delavallee, 1996), a set of "invisible barriers" (Lorsch, 1986) on the mode of behavior.

In addition, according to Ueltschy et al. (2007), culture is an important construct that impacts values and lifestyles (Sun, Horn, and Merrit, 2004), perceptions of service quality and satisfaction (Ueltschy et al. 2004), negotiation (Adair and Brett, 2005), responses to advertising surveys (Grier and Brumbaugh, 1999), choice of entry mode (Brouthers, 2002), purchasing (Ueltschy et al, 2004), information-seeking behaviors (Doran, 2002), marketing practices (Taylor and Okazaki, 2006), as well as perceptions about ethical behaviors (Elahee et al., 2002). Thus, we find that culture also impacts the behaviors of actors who want to adopt the SCM approach.

As we have seen previously, the implementation of SCM aims to create value for all actors in the chains. The key to SCM is coordination

whose preferred mode is cooperation. The Transaction Cost Theory has its limits to explain and conceptualizing the SCM. A **socialized** analysis is therefore more appropriate for such a management approach. We can conclude that the very nature of SCM lies in cooperation inter-organizational cooperation to achieve the latter's final objectives. This inter-organizational cooperation has seven characteristics. In order to achieve these characteristics, four elements, at the behavioral level, are required.

In the following section, we will proceed to introduce another research object, namely culture based on Geert Hofstede and Minkov's (2010) model of national culture.

### **3 Moroccan national culture and supply chain cooperation: hypotheses and theoretical model**

#### **3.1 Analysis of Moroccan culture according to Geert Hofstede's model of national culture**

To study the determinants of national culture, we chose to use Geert Hofstede's model. Although other cultural models are available in the literature, Hofstede's model is particularly useful for work in management science because of its validity and ease of use (Merritt, 2000, Magnusson et al, 2008). Although Hofstede's model has received much criticism (Mc Sweeny, 2002), it remains widely used because of its ease of understanding and clear explanation of the determinants of national culture. Hofstede's model is also often used to compare national cultures (Magnusson et al, 2008, Merritt, 2000). According to Hofstede (2010), national culture can be defined as "mental programming" that begins in the family and develops in the school, neighborhood, workplace, and group life. Social anthropology shows that national culture is the sum of a group's ways of thinking, acting, and feeling that differentiates it from other groups.

Moreover, it is difficult to summarize Moroccan national culture according to Hofstede in a few sentences, because the culture of a country is complex and multifaceted. According to Hofstede, national culture can be measured along five dimensions: hierarchical distance, individualism/collectivism, masculinity/femininity, acceptance of uncertainty, and long-term/short-term orientation. However, without

In order to provide an accurate and comprehensive summary, it is not possible to access recent data on Moroccan culture.

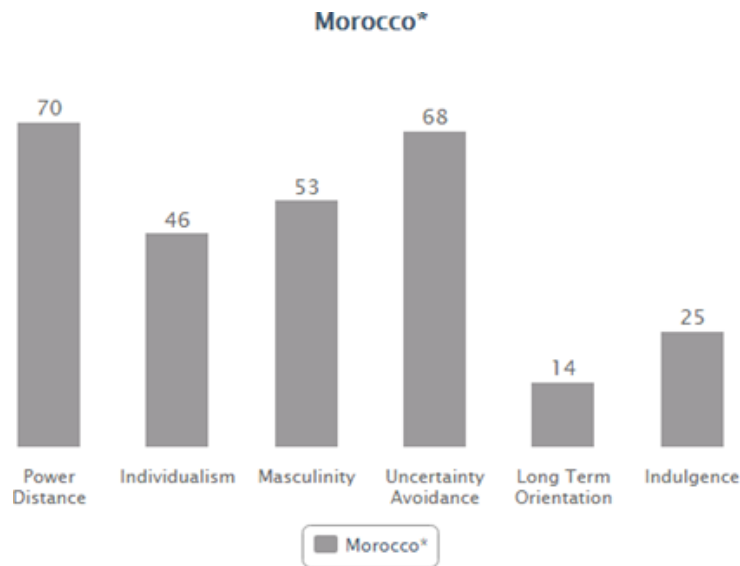
However, it is important to keep in mind that Hofstede's scores are only an approximation of a country's culture and cannot capture the full complexity and diversity of Moroccan culture. In addition, the scores may vary over time and may not necessarily reflect the current culture of Morocco. In sum, Hofstede's scores can be useful for gaining a general sense of a country's culture, but they should not be considered an absolute truth. It is also important to note that Hofstede measured these dimensions in the 1970s, and a country's culture may have changed since then. It would therefore be best to obtain more recent and comprehensive information to understand the culture of Morocco.

Geert Hofstede's model, 2010 is composed of five main dimensions of national culture:

#### **Hierarchical distance:**

Hierarchical distance is a dimension of culture organized by Hofstede that measures individuals' tolerance of inequalities of power and authority in an organization or society.

Morocco is a hierarchical society, scoring 70 on the hierarchical distance scale. This means that inequalities are accepted and expected in Moroccan culture, and the hierarchical order is seen as reflecting these inequalities. According to Bourqia (2010), Moroccan culture is characterized

**Figure 3** – Morocco's score in the Hofstede model.

by a principle of pronounced hierarchy and authority. Other studies, such as Mezouar and Semeriva (1998), Al Maache (2002), Eddakir (2003), Nouiga (2003), and House et al. (2004), have also shown the high degree of hierarchy in Morocco. Hamri et al. (2016) also pointed out that inequalities are usually interpreted from a religious perspective, emphasizing the notions of "arzaq" and "aqdar."

In other words, inequalities are not attributed to policies or historical and ideological conditions, but rather to "mektoub", the idea that the conditions of life and the situation in which each person lives are determined before birth.

Some studies have shown that hierarchical distance can influence members' commitment to the Supply Chain. For example, according to Zhang and Hui (2014), high hierarchical distance can hinder members' commitment to the Supply Chain, as people in authority positions may be less likely to listen to the opinions of other members in the chain. Similarly, according to Wu et al. (2014), high hierarchical distance can also hinder cooperation in the Supply Chain by limiting communication and creating barriers to collaboration.

**Proposition 1.** *A culture with a strong hierarchical distance negatively influences the commitment between supply chain actors.*

**Proposition 2.** *A culture with a strong hierarchical distance negatively influences the sharing of information between supply chain actors.*

### Individualism vs Collectivism:

According to Geert Hofstede, the collectivism dimension concerns the level of interdependence between members of a society and how the self-image of individuals is defined with the group to which they belong. In individualistic societies, individuals are expected to take care of themselves and their direct family, whereas in collectivistic societies, individuals belong to groups that take care of them in exchange for their loyalty.

Morocco is considered a collectivist society with a score of 46, which means that members of this society are strongly connected to the groups to which they belong and are willing to sacrifice their interests for the benefit of the group. Loyalty is supreme in this culture and takes precedence over other social rules. Society encourages close relationships where group members are responsible for each other. In collectivist societies, offense results in shame and loss of face, and employer-employee relationships are seen in moral terms, which can mitigate opportunistic behavior.

Several studies have shown a link between collectivism and cooperation in the Supply Chain. For example, according to Kim et al. (2009), collectivist cultures tend to be more cooperative in business relationships, which can promote cooperation in the Supply Chain. Similarly, according to Hsu et al. (2010), collectivist cultures tend to have long-term relationships with business partners, which may also promote cooperation in the Supply Chain.

Christopher Bartlett and Sumantra Ghoshal, who wrote an article entitled "Cooperation and Competition Across Corporate Boundaries: The Importance of Collective Bonds" (1998), are another example. In this article, they highlight the importance of cooperation and information sharing in collectivist firms for successful supply chain management.

**Proposition 3.** *Proposition 3: A collectivist culture positively influences the cooperative norm between supply chain actors.*

**Proposition 4.** *Proposition 4: A collectivist culture positively influences information sharing between supply chain actors.*

**Proposition 5.** *Proposition 5: A collectivist culture helps mitigate opportunistic behavior among supply chain actors.*

### **Male or female orientation:**

This dimension of male or female orientation measures the dominant values in a society in terms of competition, achievement, and success (male) or love and quality of life (female). A society with a high score on this dimension will be characterized by competition and the desire to be the best, while a society with a low score will focus on love and quality of life. The fundamental question is what motivates people, the desire to succeed (male) or the love of what they do (female).

Morocco has an intermediate score of 53 on this dimension. The Moroccan culture is, according to the definition, characterized by a feminine orientation of values, that is, an emphasis on humanizing work, contact and cooperation, mutual aid, and collaboration in social relations. This is confirmed by Nouiga, 2003; Bourqia, 2010; Balambo, 2014.

According to Zhang and Hui (2014), female cultures tend to be less competitive and more relationship-oriented, which can also promote stakeholder engagement in the supply chain.

**Proposition 6.** *Proposition 6: A female-oriented culture positively influences the cooperative norm between supply chain actors.*

**Proposition 7.** *Proposition 7: A female-oriented culture positively influences the commitment between supply chain actors.*

### **Uncertainty avoidance:**

It is the ability of a person or culture to accept and manage uncertainty and ambiguity in everyday situations. This can include flexibility in thoughts and actions, openness, the ability to make decisions in uncertain situations, and acceptance of potentially negative consequences of choices made.

According to Geert Hofstede's work, Morocco scores 68 on the uncertainty avoidance scale, meaning that it has a very high preference for avoiding uncertainty. Balambo (2010) linked this dimension to the concept of "religiosity", referring to Hofstede's work on Confucianism in Chinese culture.

According to Chen et al.'s (2010) study, uncertainty-avoiding individuals tend to be more cautious and rule-oriented, and cooperative in mitigating future risks, which can make them more

engaging in situations where there is high uncertainty. Similarly, according to Korsgaard et al. (2008), uncertainty avoidance can also promote engagement by encouraging individuals to be more predictable and reliable in their actions. Also, information sharing can be an effective tool for managing uncertainty.

**Proposition 8.** *A strong uncertainty avoidance culture positively influences the commitment between supply chain actors.*

**Proposition 9.** *A strong uncertainty avoidance culture positively influences information sharing between supply chain actors.*

**Proposition 10.** *A strong uncertainty avoidance culture positively influences the cooperative norm between supply chain actors.*

### **Short-term/long-term orientation:**

This dimension describes how each society must maintain some links with its past while dealing with the challenges of the present and future and societies prioritize these two existential goals differently.

With a score of 14, Moroccan culture is clearly normative. In this society, there is a strong emphasis on establishing absolute truth and respecting tradition. There is also an emphasis on quick results and a relatively low propensity to project into the future.

According to Bourqia (2010), Moroccan culture is characterized by a short-term orientation, which is reflected in a strong attachment to traditions and social norms. Customs, traditions, and customary rights are considered the main sources of values and moral references that govern social relations and community relationships.

Despite the changes affecting Moroccan society, social norms, and traditions continue to play an important role in social relations and private and professional life (Hamri M.A, Zerouali O.O, Lechheb.H; 2016).

According to Hofstede (2010), short-term-oriented cultures often have strong ties to the past and place great importance on traditions and norms. This may explain why Moroccan culture is normative, as mentioned earlier.

Kim et al. (2009) argue that short-term oriented crops tend to be less cooperative in business relationships, which may hinder cooperation in the Supply Chain. Similarly, according to Hsu et al. (2010), short-term-oriented cultures tend to have short-term relationships with business partners, which may also hinder cooperation in the supply chain. Also, actors will be less inclined to share information.

**Proposition 11.** *A short-term-oriented culture negatively influences the cooperative norm between supply chain actors.*

**Proposition 12.** *A short-term-oriented culture negatively influences the sharing of information between supply chain actors.*

### **Indulgence:**

A major challenge that humanity has faced in the past and that remains present today is the degree of socialization of children. Socialization is essential for our evolution as human beings. This dimension can be measured in terms of the ability of individuals to control their desires and impulses, depending on how they were raised. A relatively weak control is called "indulgence", while a stronger control is called "constraint". As a result, cultures can be described as indulgent or restrained along this dimension.

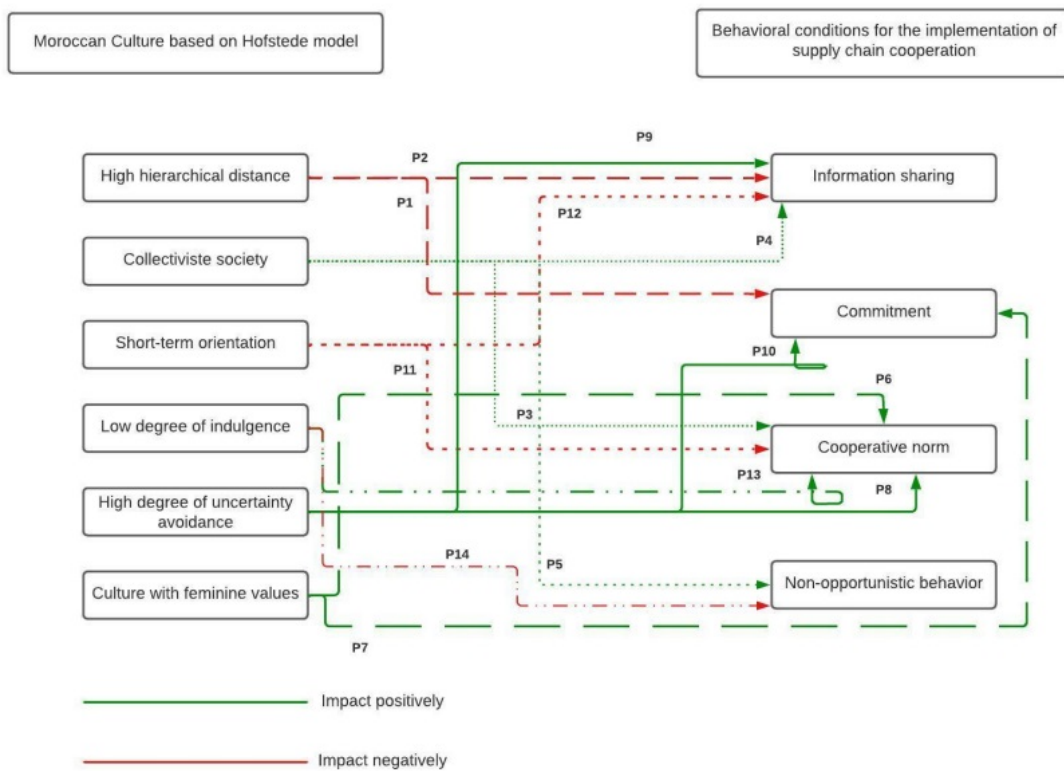
Morocco's low score on this dimension indicates that it is a culture of constraint. In restrained societies, there is often cynicism and pessimism. In addition, unlike indulgent societies, Restrained societies do not emphasize leisure, and control of desires is a priority. Individuals in these societies feel that their actions are limited by social norms and consider self-indulgence to be incorrect.

This could lead to greater cooperation between people, as they might be more willing to take risks and try new things. It could also lead to greater opportunism, as people might be willing to take advantage of situations and opportunities for personal gain.

**Proposition 13.** *A culture with a low degree of leniency positively influences the cooperative norm.*

**Proposition 14.** *A culture with a low degree of leniency induces opportunistic behaviors between supply chain actors.*

**Figure 4 – Our Research model.**



**Note:**

In a cultural context like the one we have described, it might be useful for actors in the same supply chain to establish cooperation based on emotional trust and mutual respect. Given the strong hierarchical distance and collectivism present in Moroccan culture, it could be important to create close and sustainable ties with other supply chain actors, taking into account social norms and collective values. It may also be more useful for firms to put in place mechanisms to manage uncertainty and risk while being flexible and open to short-term opportunities.

Finally, it might be important and relevant in an international supply chain to show empathy and understanding towards other actors in the supply chain, taking into account their culture and values.

## **Questionnaire:**

### **4 Data Collection Methodology**

The methodology used for this study consists of a survey of supply chain actors in Morocco. The target population for this study is supply chain managers working in different industries in Morocco. To sample this population, we used the LinkedIn platform to identify supply chain managers in Morocco. We then used an eligibility criterion to select participants who met the criteria for our study. The eligibility criteria were as follows: to be a supply chain manager working in Morocco and to have at least 3 years of professional experience in this field.

Once participants were selected, we used an online questionnaire to collect data. The questionnaire included questions on participants' demographic characteristics, supply chain cooperation practices, Moroccan national culture, and cross-cultural management. We used rating scales to measure the variables of interest.

To analyze the data, we used descriptive statistics to describe the demographic characteristics of the participants and supply chain cooperation practices. We also used statistical tests to verify the existence of relationships between the variables of interest. Specifically, we used the chi-square test to test for a relationship between Moroccan national culture and supply chain cooperation practices. Finally, we used the Pearson correlation test to test for the existence of a relationship between cross-cultural management and supply chain cooperation practices.

### **5 Results**

In conclusion, our study has allowed us to highlight the influence of different cultural factors on engagement and cooperation behaviors among supply chain actors. Using a rigorous methodology, we have selected a representative sample of managers from the chain procurement via LinkedIn and analyzed the results by using the chi-square statistical test.

We confirmed most of our hypotheses, including that the distance hierarchy negatively influences the commitment and sharing of information between supply chain actors. In addition, we also confirmed that the high uncertainty avoidance culture positively influences commitment, cooperation, and information sharing among supply chain actors.

However, contrary to our expectations, we rejected the hypothesis that collectivist culture mitigates opportunistic behavior among supply chain actors (Proposition 5). Similarly, we have also rejected the hypothesis that a degree of cultural indulgence mitigates opportunistic behavior among supply chain actors (Proposition 14).

These findings highlight the importance of taking these cultural factors into account when managing relationships between supply chain actors. Further research in this area is important to better understand the mechanisms underlying these findings and to develop effective strategies for managing supply chain relationships.

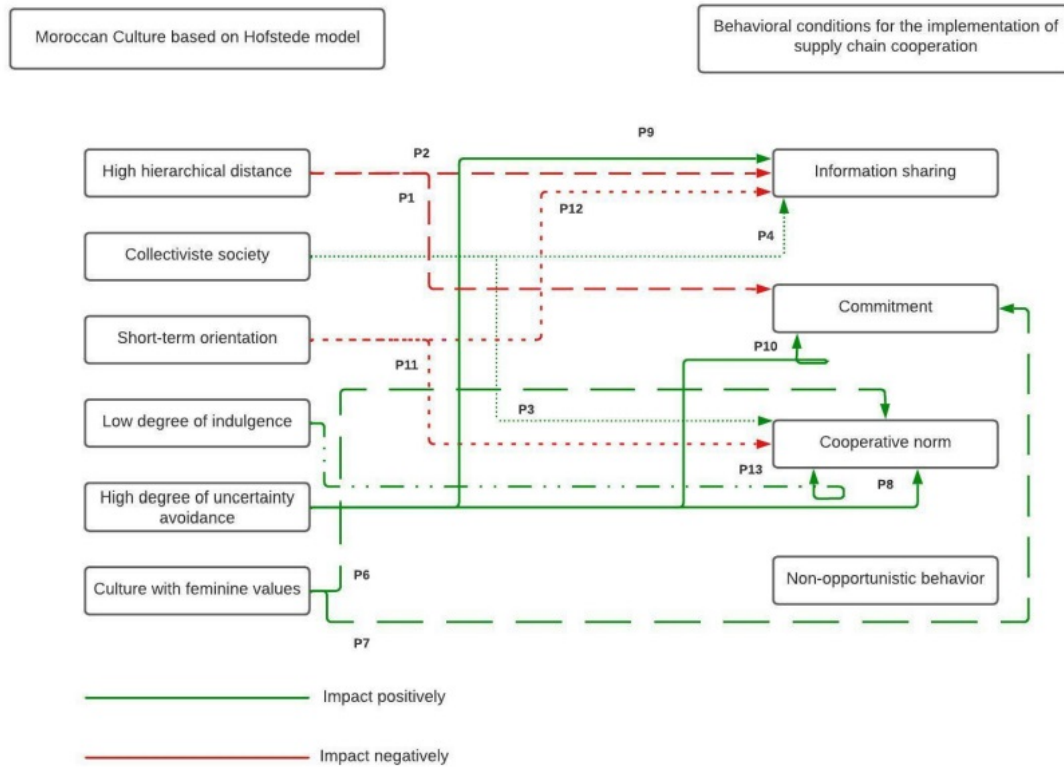
In sum, these results show that the Moroccan culture is favorable to the deployment of supply chain cooperation practices.

### **6 Refined model**

We have developed an initial model with several cultural dimensions and their impact on opportunistic behavior in supply chain relationships. However, following statistical analysis of the results obtained from a sample of supply chain managers in Morocco, we had to remove two of our initial hypotheses regarding the impact of collectivist culture and indulgence on opportunist-

tic behavior. Thus, we refined our model accordingly to retain only those cultural dimensions that showed a significant correlation with opportunistic behavior.

Figure 5 – Refined model.



## 7 Conclusion and limitations of the research

In conclusion, this study revealed the influence of culture on opportunistic behavior in supply chain relationships in Morocco. We confirmed the positive impact of the trust dimension on reducing opportunistic behavior while revealing the lack of influence of the collectivism and indulgence dimensions. However, the limitations of this research should be noted. First, the sample size is relatively small, which could have an impact on the generalizability of the results.

In addition, this study is based on a single culture; it would be interesting to compare it to other cultures to better understand the differences and similarities. Finally, this study does not take into account other factors that may influence opportunistic behavior, such as individual characteristics or organizational aspects. Despite these limitations, this study makes an important contribution to the understanding of supply chain relationships in Morocco and paves the way for future research to explore other cultural dimensions and factors that may influence opportunistic behavior.

## References

- Jawad, J., Hawari, A. H., & Zaidi, S. J. (2021, September). Artificial neural network modeling of wastewater treatment and desalination using membrane processes: A review. *Chemical Engineering Journal*, 419, 129540. Retrieved from <https://doi.org/10.1016/j.cej.2021.129540> doi: 10.1016/j.cej.2021.129540