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### INTER-ORGANIZATIONAL ISSUES TOWARD A "GREENER" SUPPLY CHAIN

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# INTER-ORGANIZATIONAL ISSUES TOWARD A “GREENER” SUPPLY CHAIN

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**Abstract** —Recent changes in environmental legislation have focused company thinking on business practices, particularly concerning the importance of integrating environmental concerns like outsourcing and procurement in supply chain networks. Supply chain partners are becoming progressively more accountable not only for their internal practices, but also for their suppliers’ behavior because implementing a “greener” supply chain is far from an individual strategy.

The objective of this paper is to study the difficulties that may be encountered by a focal firm with its partners from the perspective of implementing environmental practice issues, or improving these practices if they already exist. In this paper we develop an integrative conceptual framework to show the role of relationship types, contract design and clauses to coordinate the relationship between a focal firm and its supplier in the implementation of a green supply chain.

**Keywords** — Supply chain, outsourcing relationships, environmental practices, contract design

## INTRODUCTION

For the past several years environmental legislation and governmental regulations have evolved in favor of environmental protection, demonstrating that integration of environmental practices is increasingly important [1]. As a result, companies place importance not only on their internal practices, but also on their suppliers’ practices [2]. Companies have thus started to integrate ecological issues into their global supply chains to preserve their market position, to gain competitive advantage and to improve their brand image.

Environmental performance standards have become commonplace in contract design and guidelines created by multinational companies to define their relations with local and international suppliers [3]-[4]. These constraints are relatively new for suppliers since they exceed traditional customer requirements, which were previously limited to reducing costs and improving product and service quality [5].

There is little researches that consider implications of buyer-supplier relationship type on the absorption of supply chain related inefficiency due to environmental initiatives. The presence of specific conditions influencing the customer relationship, such as power, the governance mechanism or collaboration, could moderate the impact of establishment of environmental practices and their critical requirements. Effective supplier management in substantial projects like Green Supply Chain (GSC) development is an important field, meriting attention and research.

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To better understand the context of our research, Figure 1 explains how implementation of green supply chain practices can be perceived, different supplier attitudes and scenarios that a focal company may consider. The buyer- supplier relationship types that we detail later in this article have a strong link with supplier attitudes in this diagram.

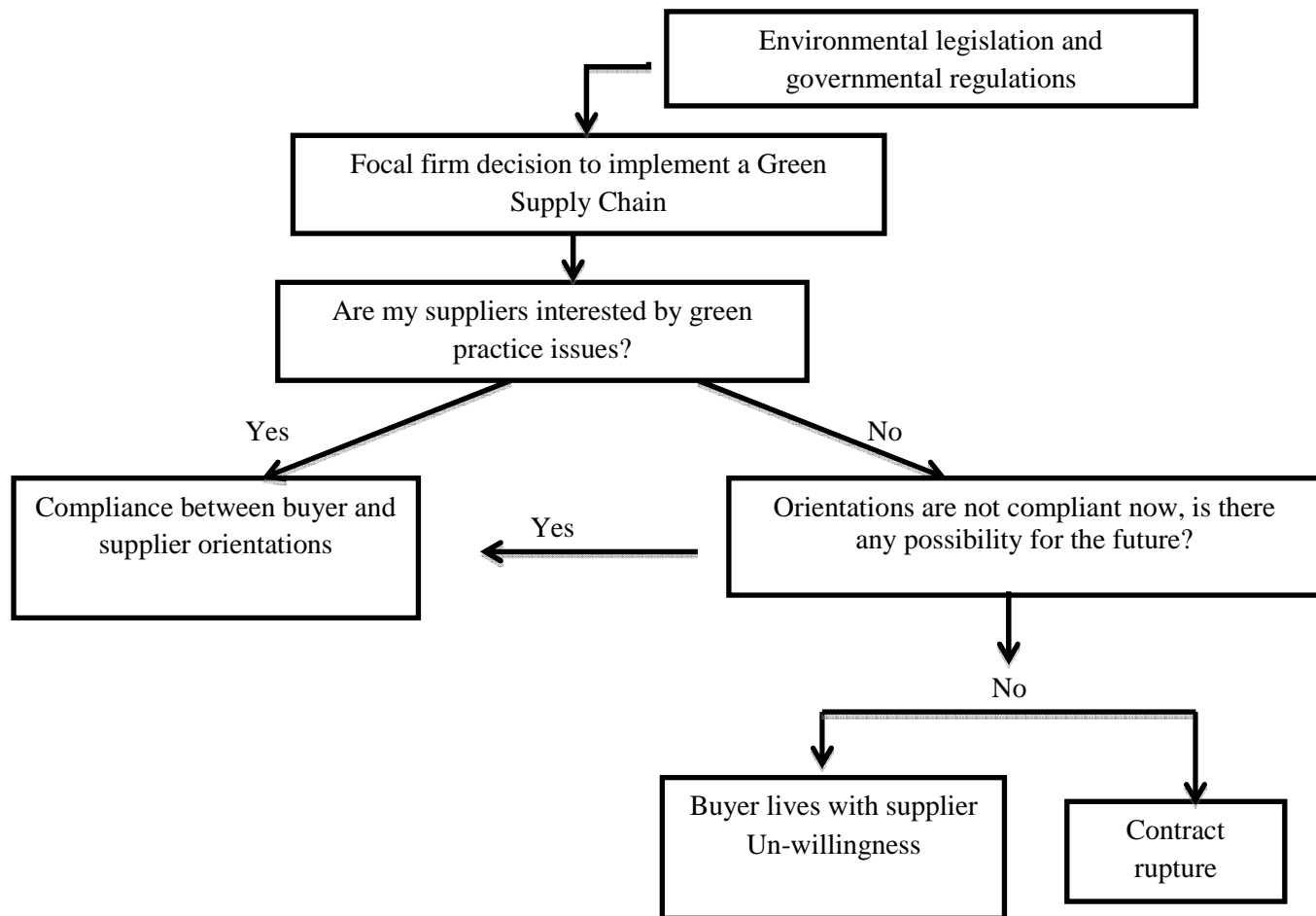


FIGURE. 1  
Study Context

### GREENING THE SUPPLY CHAIN

In recent times, a new challenge for companies has become making their supply chains as “green” as possible. GSC covers vast practice domains including product design, material selection and sourcing, manufacturing processes and delivery. It also implicates end-of-life cycle product management with reverse supply chain and involves management of supply chain participants from suppliers and manufacturers to customers [6]-[7]. Implementation of environmental practices seems to be a lengthy process from start to finish and implies mobilization of many actors and diverse resources.

Generally, big companies are the focal firm in their supply chain networks, and as such are considered major actors in the diffusion of “green” practices within a supply chain. Environmental regulation demands incite these companies to encourage their suppliers to implement green practices, which they then adopt according to national and international standards.

During this transition, these focal companies consider various constraints generated by their suppliers that are generally SME [8]. In this context, SMEs setting up green practices demanding strategy, production process and technical issue changes can face financial problems. To give an example, we cite the case of a product eco-design which requires review of existing strategies and adoption of a holistic approach since the product life cycle must be considered in its entirety. This process is costly.

Certification is another challenging area for suppliers. Indeed, spending on certification is considerable and sometimes difficult with respect to scheduling demands.

Another significant source of difficulty for focal companies is suppliers from developing countries where environmental legislation is not as developed. This point should be considered when studying inter organizational relationships, as it can explain supplier non-compliance with certain standards and informs the influence of cultural differences on perceptions of certain factors in various cultural contexts [9].

Embracing environmental issues can, however, be a key used by SMEs to enhance their relationships with customer companies and to ensure a favored position on the “best” suppliers list.

## **THE ROLE OF ENVIRONMENTAL LEGISLATION THE DEVELOPMENT OF A GREEN SUPPLY CHAIN**

Governmental regulation was the initial key driver for implementation of environmental practices in supply chains [10]. Environmental regulations continually fight against that which may harm the environment and governments encourage companies to be increasingly involved in such initiatives. Environmental certifications indicating compliance with common frames of reference can be viewed as effective communication tools that help buyer companies minimize uncertainty with suppliers. Several authors wonder, however, whether initiatives taken by governments have the same impact on business, broadly speaking, and on SMEs to promote implementation of practices that respect the environment and develop holistic GSC [8].

Evolution of environmental legislation is ongoing and places SMEs in a delicate situation, since direct and indirect nonconformity costs can be considerable (fines in the event of control, investment production process, etc). Companies do, none the less, draw benefit from certifications that effectively ensure their place in the market because of the competitive differentiation that certifications provide.

*Hypothesis 1:* Environmental legislation has an impact on the establishment of “green” practices in the supply chain.

## **BUYER –SUPPLIER RELATIONSHIPS IN A GREEN CONTEXT**

Even though the context of “green management” is relatively new, the buyer-supplier relationship has always been an important topic of research in supply chain management and has been the subject of many articles [11]-[12]-[13]. Indeed, management of inter-firm relationships is essential, the type of relationship linking contractors playing a central role in good supply chain coordination and improvement of supplier production and capacity performance [14] [15].

Much research has been done on classification of various inter-organizational relationships – especially the buyer-supplier relationship. In this article, the buyer-supplier relationship is studied in a specific context, i.e. implementation of “green” supply chain practices [16]-[17]. Establishment of environmental strategies and innovation within companies is strongly influenced by the financial resources and technical skills each supply chain partner brings to bear.

Several variables can encourage good behavior in establishing green supply chain practices (in the buyer-supplier relationship context). These variables are not always influenced by trust, but depend on other factors like power sharing and dependence [18].

Reference [19] notes that supply chain relationships are characterized by several dependency levels involving varying degrees of cooperation. We will try to detail this through examination of buyer capacity to impose supplier implementation of “green” practices in differing buyer-supplier relationships.

### **A Simple Transaction Relationship**

In this relationship, the only criterion retained is the lowest price and the relationship is generally a short term one [20]. The low cost approach adopted in this relationship can justify the suppliers’ reject to innovation or the establishment of new initiatives such as environmental practices.

The nature of this relation, which is initially market based [21], can, however, present blockades (on the supplier’s side) to implementing environmental practices due to the weight of investment necessary. This is especially true in countries where environmental legislation is not very developed.

### **The Buyer is one of the Most Important Customers for his Supplier**

In this case, the customer leads the relationship and therefore fixes the game rules. In the context of implementing green practices, the supplier is the dependent party and is thus obliged to cooperate with its major customer to survive and to avoid sanctions. This type of relationship is regarded as cooperation under-constraint [22].

The supplier’s situation is very delicate. The customer may suggest knowledge skills and financial help to encourage adoption of green initiatives, or, on the other hand they may not be able to provide any support for the desired changes. Regardless of the position taken by the customer/buyer, they can continue to put pressure on the supplier to keep purchase prices low. Given this variety of interdependence, and resulting from the ensuing pressure, suppliers often have a tendency to cheat on product quality.

Implementing “green” practices represents a new constraint for the supplier, and the customer must therefore be vigilant, using follow-up and monitoring procedures to assure ecological conformity of the supplier’s products and practices.

### **The Supplier Leads the Relationship**

In this relationship the supplier leads because of particular technical skills or a specific asset [21] and lack of competition in the field enables them to call the shots.

Generally speaking, the integration of environmental practices in the supply chain depends on the supplier willingness. If they accept to adopt environmental practices they may require to increase the purchase price, the buyer is then obliged to accept.

### **Interdependences and Mutual Interests shared by the Buyer and his Supplier**

This relationship is completely different from previous ones, and strong interdependence between the buyer and its supplier allows them to carry out joint projects due to the long-term nature of their relationship [23]. According to these authors, this is a cooperative relationship characterized by a high degree of information sharing and based on a high level of trust. The two partners are ready to share knowledge (technical and organizational) [24] and aim at achieving common goals with profit and loss sharing. Consequently, a “green” practices implementation initiative is not likely to create friction between the buyer and their supplier.

*Hypothesis 2:* Integration of “green” practices in the supply chain depends on the type of buyer-supplier relationship.

Using the above noted classifications of different buyer-supplier relationships, one can observe that these relationships are also influenced by other variables than simply type of dependence. These additional factors include trust and power, which can be described as either coercive or non-coercive.

“Trust” is a critical element in successful relationships in the supply chain and so can facilitate joint action and share knowledge, but it can be exploited for an opportunist behavior and asymmetry of information [25].

If obligation dominates a “GSC” initiative, that gives the customer/buyer partner real coercive power, including the ability to threaten and retaliate in the form of financial penalties or termination of contract with suppliers for non compliance. On the other hand, exercising non-coercive power may have a positive influence on the overall initiative [26]

*Hypothesis 3:* Several control variables can impact (positively /negatively) implementing green practices.

## **COORDINATION VIA CONTRACT DESIGN**

Contracts appear to be important coordination mechanisms to control and manage inter-firm relationships between the buyer company and its partners [27]- [28] -[29]. Indeed, in the context of integration of environmental issues, the buyer has to review the existing game rules with its partners and negotiate new points to be integrated. That’s why we propose contract design as a relevant governing tool and guide for good conduct

between contractors. Contracts can also attempt to foresee risks likely to appear in the future [30].

In a supply chain, there exist various types of contractual clauses (flexibility, price, quality, incentives) that use contractors as a means to guarantee better performance levels and to protect buyers against risks and uncertainties. In this study we are interested in incentive and control clauses.

In deed, Incentive strategies open up exciting prospects to manage coordination between actors in conflict situations; the success of the GSC implementation is very related to the power factor and incentive control that interferes within relationships between supply chain partners [31].

Our research is concerned with supplier development processes since in our case study, customer companies are not looking for new partners but are trying to work with their existing partners. The decision to focus on contract renegotiation centers on reviewing existing clauses [32] or defining new clauses, which integrate new constraints. This process depends on the level of supplier willingness to participate in a “green” initiative and ultimately on their intention to maintain a relation with their customer.

In our framework incentive clauses define the environmental requirements in which the buyer is interested; if suppliers do not respect these clauses, penalties can be considered and control clauses make mitigating risks possible.

**Hypothesis 4:** designing contractual clauses in the context of implementing a “GSC” depends on the type of buyer-supplier relationship.

**Hypothesis 5:** the contractual clauses depend on the level of supplier willingness to establish new “Green” practices.

Using this conceptual model (based on our analysis and previously performed literature review) we have tried to present various potential interactions between elements involved in implementing “green” practices in a supply chain. This can help supply chain members better understand the diverse elements that must act together to successfully manage a holistic GSC project implementation.

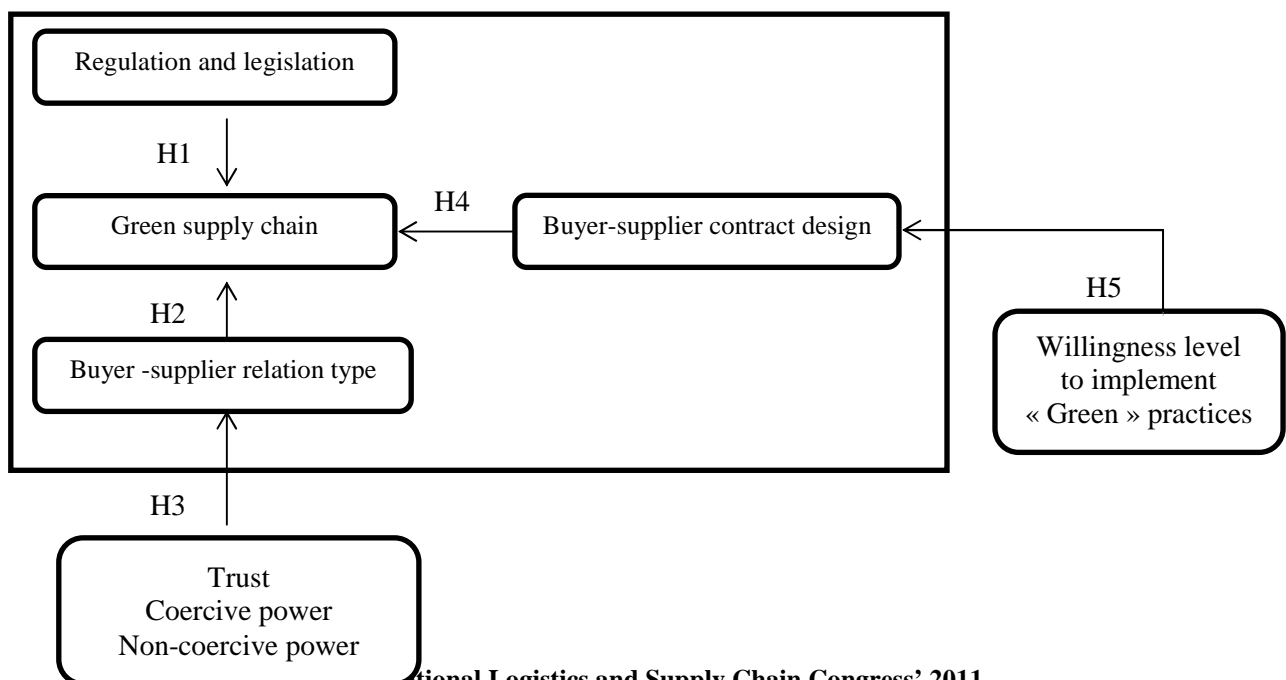




FIGURE. 2

The Implementation of a Green Supply Chain Framework

**DISCUSSION AND CONCLUSION**

Much attention has been paid to the importance of addressing and implementing responses to green issues within supply chains, including inter organizational initiatives to improve execution of environmental practices and economic efficiency in the context of global supply chain management. The wide-ranging nature of such initiatives makes implementation difficult and complex, and success is influenced by several factors. The conceptual model in this article treats the impact of relational aspects on the establishment of a GSC.

Nevertheless, like all research studies, our framework presents a number of limitations. We can cite two principal ones. The first relates to the fact that this study is undertaken from the buyer company point of view, both in terms of conceptualization of different relationship types and also in terms of contract design as a mechanism to coordinate these relationships in the context of establishing a GSC.

The second limit is related to the absence of empirical validation of the proposed framework; this step is in progress and will be the subject of a later research paper.

Future research should lead to interesting insights, not only concerning the role of contracts as coordination mechanisms in implementation of GSC, but also the importance of contract renegotiation to improve GSC performance.

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