

Examining Collaborative Green Supply Chains Through the Lens of Proximity Economics

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Summary

The aim of this paper is to examine collaborative supply chain practices and their related ways of integrating an environmental dimension. Seven case studies were analysed relating to different stages of the supply chain (supply side, forward logistics, reverse logistics). We draw on “proximity economics”, a theoretical framework at the crossroads of spatial and industrial economics. Starting with a sample of (alleged) green collaborative initiatives taken from the specialised press in the SC field, and further studied through in-depth interviews, a typology of collaborative practices was developed and characterised in terms of forms of proximity. This typology enabled us to identify the preconditions for environmental collaborative practices in terms of the forms of proximity among the actors involved.

Keywords:

Collaborative practices, environment, proximity

Introduction

Integrating the environmental dimension into supply chain (SC) management can take different forms, beyond the traditional approach of a modal shift from highly polluting transport modes (road transport) to cleaner ones. Following Srivastava (2007), green supply-chain management has been defined as ‘integrating environmental thinking into supply chain management, including product design, material sourcing and selection, manufacturing processes, delivery of the final product to consumers, and end-of-life management of the product after its useful life’.

Increasingly, collaborative practices are evoked in the specialised press as promising avenues for integrating the environmental dimension in the supply chain. In the past few decades, scholars have acknowledged the role of inter-organisational initiatives for the greening of the supply chain (Walton et al., 1998). Their importance has further increased recently as “the company-internal view on corporate environmental issues is being challenged as customers and legislation alike broaden a company’s environmental responsibility to include organisations upstream as well as downstream in the supply chain” (Kovacs 2008). Several scholars have shown the possibility of effectively combining the introduction of collaborative practices and the pursuit of an environmentally friendly supply chain, in particular with regard to the following SC stages: procurement, distribution, and reverse logistics (Preuss, 2001; Bowen et al., 2006; Sarkis, 2006; De Brito et al., 2008).

Others have mainly emphasised the increasing number of green collaborative practices among actors belonging to the same SC segments, such as two manufacturers competing in the same marketplace or two logistics service providers sharing transport and logistics facilities and solutions (Cruijssen, 2006). In France, and particularly in the textile and clothing industry, the Durlog project findings (Blanquart and Carbone, 2008) confirm that companies initiate environmentally friendly supply chains as much in an individual way, through transport modal shift, as in a collaborative way, via voluntary sharing of logistics assets and transport modes. Other research (Roure and Simonot, 2007) highlights the short and long-term environmental advantages of collaborative practices, with emphasis placed on collaborative freight transport initiatives (Pan et al., 2009).

In reality, however, in many cases, companies proclaim their concern for the environment without actually implementing it at the supply chain level. Such an attitude opens the door to criticism. Many companies are accused of ‘greenwashing’, i.e. green communication rather than green action (Carbone and Moatti, 2011).

In the face of such rising concerns and scepticism of green collaborative SC practices, the aim of this paper is twofold: first, it aims to critically analyse alleged green collaborative practices, in order to establish whether some environmental action has actually followed the communication campaign about the initiative; second, it aims to examine the diverse forms of collaborative practices and their related ways of integrating an environmental dimension, in order to identify the different preconditions for greening the supply chain through collaborative initiatives.

The initial set of cases to study was selected by screening the specialised supply chain press. Articles mentioning collaborative initiatives both between actors at different stages of the SC (vertical collaboration) and between actors at the same stage in the chain (horizontal collaboration) were chosen. Face-to-face interviews were then conducted with the actors involved in the collaborations. We drew on “proximity economics”, a theoretical framework at the crossroads of spatial and industrial economics. First, a typology of the collaborative practices was developed and characterised in terms of forms of proximity. Then, using this typology, we identified the different preconditions for environmental collaborative practices, leading to a more *nuanced* comprehension of the link between collaborative practices and the environmental dimension.

Collaborative practices: how to define and analyse them

We adopted a definition of "collaborative supply chain" with the following characteristics “Two or more independent companies working jointly to plan and execute SC operations with greater success than when acting in isolation” (Simatupang and Sridharan, 2002). There is agreement in the literature about the dynamic nature of collaborative practices which have been shown to evolve through time both in terms of scope and governance structures (Lambert et al., 1996; Fawcett et al., 2008). Simatupang and Sridharan (2002) show that collaborative practices are shaped over time in a life cycle running from engagement to (eventually) disengagement. Such a life cycle covers four main processes: (1) the engagement process aiming at identifying the rationales for a collaboration and finding the right partners; (2) contract deployment, i.e. forward-looking planning to manage the interdependencies of resources, tasks and capabilities; (3) the implementation process through daily operations; and

finally (4) the evaluation process to assess the collaborative practices and decide on the next steps of the agreement.

However, we assume that in addition to the “time” dimension there needs to be a “space” dimension to effectively characterise the relationships among the actors involved in the collaborative practice. Such an assumption is derived from the “proximity dynamics” literature stream, which deals with the coordination of economic and social activities by explicitly integrating their spatial dimension and emphasising the plural nature of the forms of proximity (Pecqueur and Zimmermann, 2004; Rallet, 1993; Torre, 2000), involving intellectual and cultural proximity between individuals, the use of tools to connect physically distant actors (telephone, internet, etc.), or actors having fairly close ties with each other through common networks.

Specifically, the plural notion of proximity comprises three different dimensions:

- ✓ Geographical proximity, which refers to the physical distance between the actors, due to their different locations and areas of activity;
- ✓ Organisational proximity, concerning economic interactions between actors with complementary resources and participating in a same finalised activity through an inter-organisational arrangement;
- ✓ Institutional proximity, which is based on adhering to a common system of values and beliefs (Dupuy and Burmeister, 2003), as a result of repeated interactions, either of a business or of a social nature.

Drawing on the proximity dynamics literature, we conducted a comprehensive study of seven cases to better characterise the interactions within (alleged green) collaborative practices. All together, ten different cases of collaborative initiatives in the SC showing a clear environmental orientation were identified in the specialised SC press. An effort to establish direct contact with the actors involved was done by email and telephone. We managed to make contact with seven of the initial cases, relating to different stages of the supply chain (supply side, forward logistics, reverse logistics) and analysed them in detail, extending the initial contact to other partners. Consequently, the distinctive feature of our approach is to have involved most of the players participating in the collaboration, thus going beyond the limitations of a dyadic analysis applied to multi-actor inter-organisational arrangements. We carried out 23 semi-structured interviews (total length of the interviews: 29 hours) as many as the number of actors involved in the collaborative initiatives (cf. Table1).

Case	Collaborative practice	Industry/Sector	Interviews	Interviewees and length of the interviews
1	Collaborative distribution of finished product	Fast Moving Consumer Goods	- 1 Logistics Service Provider - 1 Information System Provider - 2 Manufacturer	- Head of logistics (1 hour) - IT manager involved in the project (1 hour) - Production manager (1hour 30) - Head of Logistics (1hour)
2	Collaborative distribution of finished product	Fast Moving Consumer Goods	- 2 Manufacturers - 1 LSP - 1 Retailer	- SC Manager (1 hour) - SC Manager (2 hours) - Key account manager (1hour 30) - Logistics Director (1 hour)
3	Collaborative distribution of finished product	Fast Moving Consumer Goods	- 2 Manufacturers - 1 LSP	- Head of logistics (1 hour 30) - Operations manager (1hour) - IT manager involved in the project (1 hour) -
4	Collaborative	Fast Moving	- 2 Manufacturers	- Operations Director (2 hours)

	distribution of finished product	Consumer Goods		- SC Director (1 hour)
5	New product development, purchasing	Specialised distribution	- 1 Specialised retailer - 1 Supplier	- Purchasing Vice Director (1hour 30) - Key account manager (1 hour /telephone)
6	Collaborative provision of complementary industrial services, namely postponement, reverse logistics, refurbishing.	Logistics services	- 2 Industrial companies - 2 LSPs - 1 Scholar	- Operations manager (1 hour) - SC Director (1 hour 30) - Operations manager (1hour) - Head of IT (1 hour) - Professor (2 hours)
7	Collaborative reverse logistics, comprising collection, recycling, refurbishing of electrical and electronic products.	Reverse logistics	- 1 LSP - 2 Manufacturers	- Global Solutions Manager (2 hours) - Manufacturing Director (1hour 30) - Assistant to Manufacturing Director (1 hour)

Table 1: List of case studies and interviews

The interviews allowed us to compare different representations of the collaboration features and individual perceptions of the importance given to environmental issues, beyond what had been diffused through the press. All the interviewees belonging to the same initiative had direct contact with each other and had participated in the collaborative project since its engagement phase. The interview guidelines (available on request) contained two different sections: the first aiming at describing the collaborative practice (actors involved, resources, activities, length of the contractual arrangement, perception of the rationales and performance of the collaboration), and the second aiming at analysing the environmental dimension (role of the environmental issue, objectives, results and monitoring system specific to the environmental dimension).

We analysed the “time” (Simatupang and Sridharan, 2002) and “space” dimensions of the inter-organisational interactions within each case, defining a typology of collaborative practices. Using this typology, we were able to identify the specific preconditions for the inclusion of the environmental dimension within the collaborative initiative, in terms of different forms of interactions between actors.

In line with previous research (McKinnon et al., 2003), the different types of collaborative practices differ in terms of the following criteria: their belonging to the same or to different SC (*vertical collaboration* or *horizontal collaboration*) and the extent to which they are complementary or in competition for products and services. Four “types” of collaborative practices are described by our life-cycle analysis framework and characterised by different combinations of proximity types (geographical, organisational, and institutional).

A typology of SC collaborative practices

From our analysis of the cases we were able to identify different types of collaborative practices (Figure 1), which share similar “time” and “space” dimensions. These cases also reveal different ways of taking the environmental dimension into account in collaborative SC initiatives. This supports the idea that the answer to the environmental challenge is neither univocal, nor simplistic and is related to different forms of interaction between actors. It is

thus possible to illustrate different stories of green collaborative SC initiatives, each of them associated with one or more priority forms of proximity.

Our typology of SC collaborative practices, to which we will later add the time, space and green dimensions, comprises the following types:

- a) Type “A” includes two horizontal collaboration initiatives (i.e. among actors belonging to different supply chains) in which several producers of consumer goods, faced with increasing logistics constraints imposed by large retailers, switch from dedicated distribution networks to shared logistics solutions, and where the common physical parts of the supply chain are means of transport and warehouses. These two initiatives rely on flow consolidation for compatible finished products in terms of common departure and destination points for final delivery to retailers. A neutral logistics service provider coordinates the consolidation scheme, thus enabling them to overcome the operational constraints and challenges of the “co-opetition” arrangement set up by the producers (Bengtsson and Kock, 2000). Very limited sharing of information between producers is needed. A specific and detailed contract is put in place to handle governance issues.
- b) The common feature in type “B”, in which there are also still two *horizontal collaborative initiatives* as well as a *vertical collaborative initiative*, is the proactive strategy of the actors, aiming either at taking advantage of the increasing retailing constraints, or at meeting the constant innovation requirements of some markets. The vertical collaboration concerns the co-design of new products by a specialised brand-retailer and its supplier, whereas in the horizontal collaboration the shared logistics solution (cf. type A) is associated with a Vendor Managed Inventory approach (the retailer entrusts the management of its store inventories to the suppliers who had decided to consolidate their deliveries). In type “B”, partners belong to a single chain or distribution channel. However, unlike previous cases, their products or services are complementary, allowing them to extend the scope of the collaboration. Accordingly, the essential difference with the first type is the greater degree of information sharing between partners.
- c) Types “C” and “D” only have one case each. Type “C” refers to the creation of an eco-organisation in order to cope with the logistics complexity brought on by an update of Waste Electrical and Electronic Equipment Directive (WEEE), which came into force in January 2007. In this case, an inter-organisational arrangement between the main actors of the industry entrusts a logistics service provider with the management of return flows on a Europe-wide basis.
- d) Finally, type “D” refers to a flexible associative structure, with variable scope, including companies, academic and local institutions belonging to different domains and with complementary competencies. This inter-organisational arrangement stands as an innovative model for the provision of new services in a specific territory. The involvement of institutional partners contributes to the project with the aim of promoting local development

	Competing products/services	Complementary products/services
Belonging to the same SC	<p><u>Type A:</u> <u>A contract-based collaboration in response to retailing constraints</u> 2 cases</p> <ul style="list-style-type: none"> ○ A reactive approach ○ A shared logistics solution for transport means and warehouse infrastructure ○ A logistics service provider as a neutral intermediary ○ Low level of information sharing ○ A very detailed contract <p><i>Geographical and organisational proximity</i></p>	<p><u>Type B:</u> <u>Takes advantage of the specific characteristics of the distribution channel</u> 3 cases</p> <ul style="list-style-type: none"> ○ A proactive approach ○ An innovative way to cope with flexibility needs ○ Shared logistics solution and Vendor Managed Inventory, or co-design of new products ○ A logistics service provider as a neutral intermediary ○ High level of information sharing ○ Detailed operational rules <p><i>Geographical, organisational and institutional proximity</i></p>
Belonging to a different SC	<p><u>Type C:</u> <u>Optimised reverse logistics management</u> 1 case</p> <ul style="list-style-type: none"> ○ To cope with logistics complexity brought on by regulations ○ Set up of a dedicated collaborative organisation ○ The leading actor: a logistics service provider ○ Broad spatial coverage <p><i>Organisational proximity</i></p>	<p><u>Type D:</u> <u>A network organization to provide complementary industrial logistics services</u> 1 case</p> <ul style="list-style-type: none"> ○ An associative structure, multiple competencies and skills, including institutional partners ○ A flexible structure with variable scope ○ Very high information sharing among partners <p><i>Geographical, organisational and institutional proximity</i></p>

Figure 1: A typology of SC collaborative practices

The “time” and the “green” dimensions in the collaborative practices

Each type of collaborative initiative can be analysed in relation to its life cycle (cf. Table 2), which spans from engagement to disengagement and, as previously stated, covers four main processes: engagement, management of interdependencies, implementation and finally evaluation (Simatupang and Sridharan, 2002). During the interviews, our analysis of the different steps of the collaboration life cycle was conducted without explicitly mentioning the environmental dimension, so that the interviewees were free to mention (or not) such a dimension in any of the life cycle steps.

This was done with the aim of seeing whether there is any validity to the claim made in the press that an environmental dimension is present within collaborative practices. As is evident in the following table summarising the different life cycle steps within each type of collaborative practice, the environmental dimension was not a key element in each case. In type A initiatives, started as a defensive approach to a market or channel constraint, the environment seems to be taken into account only as a “by-product” of the optimisation objective aimed at reducing costs and optimising flows (lean-green natural convergence).

Type B initiatives can be considered to have built their *raison d'être* on the environmental concern, proactively, from the beginning of the relationship and with a clear long-term objective.

Type of practice	Engagement	Contract deployment/ Management of interdependencies	Implementation	Evaluation process /	Environmental dimension
Type A	<ul style="list-style-type: none"> - Defensive, in reaction to an initial constraint - Choice of compatible products/volume/origins and destinations 	<ul style="list-style-type: none"> - Pooling logistics resources “horizontally” - Limited information sharing - Key role of an LSP 	<ul style="list-style-type: none"> - Pre-allocation of “space” in shared logistics and transport resources - Shared deliveries 	<ul style="list-style-type: none"> - Mainly cost reduction - Flow Optimisation - Improvement of customer service 	<ul style="list-style-type: none"> - Late introduction in the collaboration - The lean-green convergence
Type B	<ul style="list-style-type: none"> - Proactive, for Mkt expansion - Personal and long-lasting relationships 	<ul style="list-style-type: none"> - Pooling logistics resources “horizontally” - Vendor Management of Inventory - High information sharing 	<ul style="list-style-type: none"> - Sharing of information about inventory and allotted space in the shared log. & transp. resources - Joint inventory mgmt and deliveries - Co-development of new products 	<ul style="list-style-type: none"> - Long-term market development - Improvement of customer service - Improvement of the innovation process - Flow Optimisation 	<ul style="list-style-type: none"> - At the core of the agreement - Distinctive motivation for starting the collaboration
Type C	<ul style="list-style-type: none"> - Proactive to anticipate regulations 	<ul style="list-style-type: none"> - Set-up of an eco-organisation among the actors - Key role of an LSP 	<ul style="list-style-type: none"> - Sharing of information to plan collection, sorting and treatment of waste - LSP executes all the operations 	<ul style="list-style-type: none"> - Reduction of the overall logistics costs for the mandatory reverse SC 	<ul style="list-style-type: none"> - The purpose of the collaboration is a green practice (recycling) - Lack of a green strategic view of the process
Type D	<ul style="list-style-type: none"> - Proactive for business diversification - Local actors within the same business ecosystem 	<ul style="list-style-type: none"> - Flexible associative structure 	<ul style="list-style-type: none"> - Internal call for projects for each order - Leadership role played alternately by different actors 	<ul style="list-style-type: none"> - New market development - Revision of the internal functioning process 	<ul style="list-style-type: none"> - Too early to consistently address the green dimension - A political will

Table 2: The time and green dimensions in the green collaborative practices

In type C, we are faced with a kind of paradoxical situation: on the one hand the substance of the initiative concerns reverse flows for recycling (green economy), thus emphasizing the environmental dimension, but on the other hand, this is done exclusively to reduce the overall costs of the regulatory obligation introduced by new legislation. None of the interviewees foresees any green strategic orientation for the initiative in the long term as far as process management is concerned.

Finally, type D does not seem to cover a sufficiently developed environmental dimension, probably due to its young age. The interviewees even seemed surprised that the press article mentioned such a dimension. Accordingly, we decided to drop this case in the following effort to identify the preconditions for an effective inclusion of the environmental dimension.

We are then confronted with four different shades of (alleged) green practices: from a lack of green (type D) to increasing levels of environmental engagement, going from type C to type A and finally type B, which represents the most substantial type of environmentally friendly collaborative practice. We find sufficient evidence to place under scrutiny the very optimistic message emerging from the specialised press on green collaborative practices. Some of these articles show that the aim of certain companies is pure window dressing, lending credence to scepticism about such initiatives.

The “space” and the “green” dimensions in the collaborative practices

Each type of collaborative practice is based on different forms of proximity (cf. Figure 1).

For type A, the interactions between the actors rest on various forms of geographical and organizational proximity, which in turn generate indirect positive environmental impacts. On the one hand, interdependencies between partners are made possible by their spatial proximity. The three initial partners had warehouses located close to each other, which initially made it possible to use the "multipick" system, and the choice of the last partner depended on the very close location of its warehouse to the one jointly selected by the initial partners. On the other hand, in terms of organisational proximity, all the partners had to meet a certain number of conditions: common points of delivery, compatible frequencies, compatible sizes of batches, as well as a common logistics service provider. The interviewees in type A cases mentioned the importance of geographical proximity for setting up horizontal collaboration, which requires traditional competitors to share warehouses, distribution centres and transport means for freight consolidation. Geographical proximity is needed to avoid detours that will weaken the consolidation scale effect (Ballot et al., 2010). Freight consolidation is also able to produce positive environmental impacts. Environmental concern is not one of the triggers of the collaborative initiative, but it is one of its indirect effects, in particular in terms of the reduction of CO² emissions. Although the initial aim of the partners is to reduce their economic and financial costs, they declare: “We assume that if savings are realised, then it will also generate a positive environmental impact”. Increasingly, manufacturers and logistics service providers acknowledge the benefit of integrating an environmental dimension in their freight organisation, both to reduce emissions and improve the “green” image of their business. The natural convergence between transport optimisation and green orientation is one of the most promising triggering factors for the enlargement of horizontal collaboration in the SC. As for the environmental impact, one of the collaborative freight consolidation projects made it possible to halve the number of trucks on the road compared to the former situation, (292 000 km and 241 tons of CO² saved). However these results are to be nuanced. One of the partners declared that “the environmental impact of freight consolidation is however a very meagre result... in relation to the 4.6 million km/year for all our flows”.

In the case of type B, the collaboration seeks to take advantage of the constraints and specificities of the distribution channel and is built on a combination of the three forms of proximity: geographical, organisational, and also institutional. An “optimum” shared warehouse had to be defined. One of the partners was already storing its goods at the selected

site and the other actors were able to transfer their stock to the new warehouse. As for organisational proximity, the same compatibility criteria as found in type A were present. Moreover, the partners either share a common history or common values: in one case, two companies were taken over by the same group; in another case, two logistics managers from two different companies had worked for the same former employer; in the third case, the founders of the two partner companies were both oriented toward environmental values, both in their private and business lives.

Concerning this third type B case, we observe that a high level of institutional proximity is the main precondition for a strong environmental orientation. In this case, of the three forms of proximity, the collaboration mainly concerns institutional proximity, in the sense that partners have shared a whole set of common values and beliefs for a long time, which facilitates their collaborative initiative as supplier and customer involved in the co-design of new products. An environmental orientation is indeed one of the core values of these two companies. Consequently, their customer-supplier relationship is nourished by the same orientation, also because its objective is to design products that comply with stringent environmental criteria concerning the production process, the type of raw materials to be used (biological agriculture and fair trade), and the quality and traceability of the products. The supplier's benefits derive from the visibility gained over the year on orders from its customer; this enables the supplier to optimise its own production and supply scheduling. Other advantages are as follows: its customer provides support for the purchase of environmentally friendly raw materials as well as a guarantee of favourable payment conditions. Thanks to this collaboration, the supplier has developed a carbon footprint assessment project, relying on the customer's expertise in this field. The supplier has actively contributed to the development of a software application that makes it possible to obtain an overall assessment of the ecological footprint of a product following a lifecycle approach, simplified in five stages (raw materials, manufacture, distribution, use and end of life). The customer is progressively extending the use of this software to other privileged suppliers to assess the ecological footprint of existing products and, in two years, it aims to apply this screening tool as a preliminary step for the introduction of any new product. The application provides a detailed picture of each supplier (structure, environmental and social dimensions, assets, certifications, etc.) and of each product, through an evaluation of its social and environmental performance. It consists of a multiple-choice questionnaire adapted to each family of products (games/toys, wellbeing, art of living, garden, excursion, stationery products, jewellery), and is centred around five impact indicators: the consumption of non-renewable resources, energy consumption, environmental pollution and health impact, degree of recyclability, and social risks related to the products' country of manufacture. In this manner, the specialised retailer is anticipating the forthcoming obligation concerning environmental labelling. Each product evaluation is summarised in a score for each stage of product life cycle, which will make it possible to identify the main possibilities for improvement (reduction of packaging, replacement of plastic with renewable materials, etc.). The customer promises to assist suppliers in this improvement phase (obtaining certifications, carrying out the carbon footprint assessment, etc.). The tool will also enable the retailer to select the more innovative suppliers for new product development in order to emphasise the environmental orientation of its catalogue.

Organisational proximity supports collaboration in type C. Companies are European or global actors, without any particular geographical proximity. They voluntarily set up the conditions for their collaboration by creating an eco-organisation and involving a leading logistics service provider able to optimise reverse flow management on a European scale. The shared desire to anticipate new regulations that the collaboration is founded upon is not sufficient to be described as institutional proximity, given that the collaboration henceforth suffers from a

strategic lack of vision in the long run. Instead, we would speak of organisational proximity, in search of optimisation, faced with a regulatory constraint. In the collaborative reverse logistics case, the environmental dimension was suggested by the promulgation of the European WEEE Directive. The WEEE Directive aims to reduce the amount of electrical and electronic equipment being produced and to encourage everyone to reuse, recycle and recover it. The WEEE Directive also aims to improve the environmental performance of businesses that manufacture, supply, use, recycle and recover electrical and electronic equipment. The environmental impact is thus implicit in such an arrangement since the collaboration is developed to ensure the European management of waste electronic and electrical components! Nevertheless, the creation of an eco-organisation for the management of return flows aimed to optimise the recycling process on a global scale. This organisational proximity was created voluntarily by competitors who decided to anticipate the regulation in progress. They also decided to work with a leading logistics provider on a European scale, although that decision has been recently questioned by the eco-organisation. While it is the reduction of the economic and financial costs that is sought by partners, the environmental vocation of the regulation inevitably leads to some environmental effects. The logistics provider had to sign the sustainability charter provided by each partner of the eco-organisation and has to make sure that waste is properly recycled. Ninety percent of the collected waste products are thus either refurbished, dismantled or partially or totally recycled. Although the WEEE Directive imposes a minimal collection rate, the logistics provider has an incentive to improve its collection performance through the chosen reward system (proportional to the tonnage of waste collected). However, there is no specific objective for the environmental impact, beyond the accidental convergence between transport optimisation and a positive environmental impact. On an initiative of the French Ministry of Ecology, Sustainable Development and Energy, with the support of ADEME (French Environment and Energy Management Agency), a specific charter on voluntary reductions of CO² emissions was drawn up in 2010 to raise awareness of these issues among road freight companies. The logistics provider working for the eco-organisation wanted to demonstrate its commitment by signing this charter alongside other major transport and logistics players. Specific measures were adopted: updating the fleet with Euro 5 standard models, limiting vehicles' top speed, training drivers in rational driving techniques with or without on-board IT systems, modal transfer and optimisation of transport plans. This case can be interpreted as a confirmation of the Porter and Van der Linde thesis (1995) – quite controversial in the literature – defending the idea that regulation is a potential source for environmental innovation, when companies manage to transform a regulatory constraint (which usually elicits a low compliance attitude from companies) into an opportunity for both business innovation and environmental protection.

Finally, type D presents a double ambition: to offer complementary services in order to find new markets and, in so doing, to generate a dynamic of local development. This case combines two forms of proximity: on one hand there is a high level of geographical proximity between the actors, all located in the same area (industrial actors, institutional actors and a competitiveness cluster¹) and on the other hand, organisational proximity, as actors deliberately set up the arrangement for their collaboration, i.e. creation of the associative structure, definition of the rules of operation, and financial support from an industrial and innovation cluster. Although the majority of the companies had already collaborated or formed interpersonal relations before joining the associative structure, institutional proximity

¹ In France, a competitiveness cluster is an initiative that brings together companies, research centres and educational institutions in order to develop synergies and cooperative efforts. (<http://www.industrie.gouv.fr/poles-competitivite/brochure-en.html>)

nevertheless remains to be built around the project, which only started less than two years ago. As already mentioned, this case lacked any type of concrete environmental consideration.

Conclusion

This paper contributes to highlighting the diversity of forms that collaborative practices take in the supply chain, both in terms of life cycle development (time dimension) and types of proximity among the actors (space dimension). It shows how these forms lead to different degrees and forms of environmental integration within the collaborative initiative, and provides a preliminary analysis of the preconditions for environmental collaborative practices in terms of the forms of proximity between the actors involved. Accordingly, a more *nuanced* understanding of the link between the environment and collaborative practices has been achieved. Not all the recent SC collaborative practices include a green dimension, and when they do, it can reflect very different attitudes (from defensive to a very engaged attitude; from early to late introduction in the collaborative initiative), and pursue diverse objectives (optimisation, new market development, innovation and creativity orientation).

This study has been carried out drawing on “proximity economics”, a theoretical framework which seems particularly suitable for analysing collaborative issues, especially in the SC field, as it builds upon the three founding dimensions of Supply Chain Management: geographical, organisational and institutional. The first dimension takes into account the specific spatial and operational activities linking the different nodes of the chain. Through the second we scrutinise the inter-organisational interfaces between the different actors. And the third allows us to introduce norms and values that are shared by the SC actors.

A typology of collaborative practices has been developed and characterised in terms of forms of proximity. On the one hand, geographical proximity alone is not a sufficient condition to foster collaborative practices integrating an environmental dimension, except for the natural convergence between transport optimisation and a positive environmental impact. On the other hand, organisational and institutional forms of proximity appear to be preconditions for effective collaborative environmental practices to a wider extent, each with peculiar characteristics. Within the organisational form of proximity, we have examined the peculiar role of logistics service providers as “intermediation” actors and the importance of dedicated tools to implement the co-opetition arrangements.

Overall, the environmental dimension does not seem to be naturally integrated in voluntary collaborative practices in SC, on a broad basis. Environmental collaborative practices have been put in place principally with the objective of reducing costs (*lean-green attitude*). Only one case (type B) definitely recognises the environmental dimension as one of the core elements of the collaboration, allowing collaborative green value creation. Finally, it is worth observing that most of the actors declare that they are aware of the positive impact of environmentally friendly initiatives on their own image in the marketplace. Accordingly, they have now adopted a “green attitude”, i.e. proclaiming their concern for the environment. Green-washing or green supply chain? Our research started with the same question that we have used to end this paper...

References

- Ballot, E., Fontane, F., 2010. Reducing greenhouse gas emissions through the collaboration of supply chains: lessons from French retail chains, *Production, Planning & Control*, 21, 640-650.
- Bengtsson, M., Kock, S., 2000. Coopetition in Business Networks - to Cooperate and Compete Simultaneously, *Industrial Marketing Management*, 29, 411-426.
- Blanquart C., Carbone V., 2008. La place du transport dans les organisations logistiques durables, *Cahiers Scientifiques du Transport*, 54, 11-24.
- Bowen F.E., Cousins P.D., Lamming R.C., Faruk A.C., 2006. Horses for courses: explaining the gap between the theory and practice of green supply, in Joseph Sarkis, *Greening the Supply Chain*, Springer-Verlag, London,.
- Carbone, V., Moatti, V., 2011. Towards greener supply chains: an institutional perspective. *International Journal of Logistics Research and Applications*, 14 (3), 179-197.
- Carter, C.R., 2000. Ethical issues in international buyer-supplier relationships: a dyadic examination, *Journal of Operations Management*, 18 (2), 191-208.
- Crujssen, F., 2006. Horizontal cooperation in transport and logistics. PhD thesis. Tilburg, Netherlands.
- De Brito M. , Carbone V., Meunier C., 2008. Towards a sustainable fashion retail supply chain in Europe: organisation and performance, *International Journal of Production Economics*, 114, 534-553.
- Dupuy C., Burmeister A., 2003. Entreprises et territoires; Les nouveaux enjeux de la proximité, *Documentation française*, March.
- Fawcett, Stanley E., Magnan, Gregory M., McCarter, Mathew G., 2008. A three stage implementation model for supply chain collaboration, *Journal of Business Logistics*, January, 1-14.
- Kovacs, G., 2008. Corporate environmental responsibility in the supply chain, *Journal of Cleaner Production*, 16, 1571-1578.
- Lambert, D.M., Emmelhainz, M.A., Gardner, J.T., 1996. Developing and Implementing Supply Chain Partnerships, *International Journal of Logistics Management*, 7 (2), 1-18.
- McKinnon, A., Ge, Y., Leuchars, D., 2003. Analysis of Transport Efficiency in the UK Food Supply Chain. Herriot-Watt University, Edinburgh.
- Pan, S., Ballot, E., 2009. The reduction of greenhouse gas emissions from freight transport by merging supply chains, *International Conference on Industrial Engineering and Systems Management IESM' 2009*, Montreal, Canada.
- Pecqueur, B., J.B., Zimmermann J.B., 2004. *L'économie de proximités*, Hermes-Lavoisier, Paris.
- Preuss, L., 2001. In dirty chains? Purchasing and greener manufacturing, *Journal of Business Ethics*, 34 (3-4), 345-359.
- Rallet, A., 1993. Choix de proximité et processus d'innovation technologique, *Revue d'Economie Régionale et Urbaine*, 3, 26-50.
- Roure, J., Simonot, P.Y., 2007. *Logistique collaborative: une question d'avenir*, Economica, Ministère de l'Ecologie du Développement et de l'Aménagement Durable, Paris.
- Sarkis, J., 2006. *Greening the supply chain*, Springer-Verlag, London.
- Simatupang, T.M., Sridharan, R., 2002. The Collaborative Supply Chain, *The International Journal of Logistics Management*, 13, (1), 15-30.
- Srivastava, S.K., 2007. Green supply-chain management: a state-of-the-art literature review. *International Journal of Management Reviews*, 9 (1), 53-80.
- Stefansson, G., 2008. Supply chain interfaces: defining attributes and attribute values for collaborative logistics management, *Journal of Business Logistics*, January, 20-31.

- Torre, A., 2000. Economie de la Proximité et Activités Agricoles et Agroalimentaires, *Revue d'Economie Régionale et Urbaine*, 3, 407-426.
- Vachon, S., Klassen, R.D., 2008. Environmental management and manufacturing performance: The role of collaboration in the supply chain. *International Journal of Production Economics*, 111 (2), 299-315.
- Walton, S.V., Handfield, R.B., 1998. The Green Supply Chain: Integrating Suppliers into Environmental Management Processes, *International Journal of Purchasing & Materials Management* 34 (2), 2-11.
- Whipple, J.M., Russell D., 2007. Building supply chain collaboration: a typology of collaborative approaches, *The International Journal of Logistics Management*, 18 (2), 174-196.
- Zhu, Q., Sarkis, J., 2007. The moderating effect of institutional pressures on emergent green supply chain and performance, *International Journal of Production Research*, 45 (18/19), 4333-4355.