

Examining the freight transport purchasing process through companies involved in a voluntary governmental program in France: the FRET 21 initiative

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Abstract

Academic and corporate interest in sustainable freight transportation has risen considerably over the last two decades. This paper examines mindfully the transport purchasing process among French pro-active companies who desire to reduce their CO₂ transport emissions. The originality of this paper resides in its capacity to explore the transport buyer's behavior toward environmental initiatives, underlining which actors play a key role when choosing a carrier. Relatively limited empirical studies have been conducted to explore the impact of freight governmental policies. The French voluntary program, called FRET 21 represents therefore a real opportunity. Recently launched by the French Environmental Agency (ADEME), this program aims to reduce freight transport's impact on the environment, encouraging shippers to reduce their CO₂ transport emissions. Semi-structured interviews carried out with 10 transportation national purchasing managers have been conducted. These 10 shippers (Carrefour, Coca-Cola, Saint-Gobain, Renault, Fleury Michon, Air Products, Hénaff, SCA Hygiene Products, Ferrero, Orrion Chemicals Orgaform), signed the FRET 21 charter as a pilot project. This explorative research makes major academic contributions regarding the key role of the supply chain department to implement sustainable practices. This method allows to collect rich data bases on shipper's behaviours regarding their intra and inter-organizational networks as well as their motives to work on sustainable freight procurement. These elements are essential to valorize the FRET 21 initiative and its potential future deployment. Although to date in France, these 10 pro-active shippers previously cited are committed to this program, 1,000 signatory future companies should join the program by the end of 2020.

Keywords: Sustainable freight purchasing policies, freight transport purchasing process, green transport purchasing decisions, transportation CO₂ reduction policies

1. Introduction

Global warming is a major issue and became undoubtedly one of the major challenges of our time. Resulting from increasing concentrations of greenhouse gases (GHGs), this topic generates a lot of controversy, revealing transport activity as one of the most important contributors. As it is underlined by the EPA (United States Environmental Protection Agency)¹ and the work of Boden et al. (2017), the majority of greenhouse gas emissions from transportation are caused by CO₂ emissions. It is then alarming to see that worldwide transport CO₂ emissions grew by 45% between 1990 and 2007². Besides, within Europe, 72% of the GHG related to transportation are affiliated to the road-freight sector³. Miller

¹ Consulted on 10th October 2019: <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>

² OECD report: Reducing Transport Greenhouse Gas Emissions, 2010

³ Greenhouse gas emissions from transport by mode in 2014, European Environment Agency

and Facanha (2014) who examine national and international regulations to reduce energy use highlight that trucks represent the largest source of greenhouse gases from freight, accounting for over half of all trade-related carbon emissions. As a matter of fact, the 24th session of the Conference of the Parties (COP 24) which took place in Katowice in December 2018, highlighted the importance of the transport sector on climate change. Nearly all nations have now ratified the Kyoto Protocol and initiate solutions to decrease pollution generated by transport. As a consequence, some mandatory and voluntary programs are flourishing in various countries such as the USA through the Smartway program (Tan and Blanco, 2009, Bynum et al, 2018), China (Liu et al., 2019), or the Netherland (Pieters et al., 2012) in order to sensitize companies regarding their CO2 transport emissions. These public or private programs embolden technology providers, transporters (carriers) and client firms (shippers) to collaborate in order to reduce CO2 emissions from freight transport. However, as it was underlined by Nyabusore (2015), research to understand the motivations that lead shippers and carriers to collaborate and adopt environmental transportation practices is scarce. In this regard, this investigation aims to fill this gap by carrying out an impact assessment with companies that voluntarily commit themselves to a French policy model. The objective of this research is not to examine a governmental program but the behaviours of some pro-active companies which joined the program.

The French Government assisted by the ADEME (French Environmental Protection Agency) recently launched various initiatives toward shippers, who are "the owners of the goods" and toward "carriers" whom transport activities are entrusted. In this regard, carriers, who can voluntarily sign a charter of commitments (Charte Volontaire CO2), are however constrained to put into practice a legislation (decree n°2011-1336) that obliges them to calculate and inform their customers about their CO2 impacts.

In response to these measures, a new voluntary charter, called FRET 21, has been under experiment by 10 pro-active shippers since May 2015 in order to test it and open it to development so as to embed it in 1000 French companies by the end of 2020. We decide purposely to explore the transportation purchasing process among these 10 pro-active shippers, in order to identify by what means they wish to integrate sustainable practices.

Our contribution is twofold: Firstly, we will examine the features of transportation purchasing practices, highlighting the decision making process as well as potential intra and inter-organizational influences using the IMP network theoretical concepts. Secondly, we provide incentive levers assisting the French Government, and especially the ADEME to spread the FRET 21 charter gradually and permanently with many shippers in France.

The paper is organized as follows: Section 2 provides a specific literature review based on sustainable freight procurement. Section 3 presents some of the green freight programs set-up worldwide with a special focus on the FRET 21 initiative. The 4th section outlines the research design and the methodology used to conduct the case study analysis based on semi-structured interviews. The main findings of this investigation are presented in section 5.

2. Sustainable freight procurement : literature review

2.1 Motivating factors to implement sustainable freight practices

A growing amount of academic research reveals that sustainable purchasing policies can generate significant financial performance benefits (Thornton *et al.*, 2013; Li *et al.*, 2016), the acquisition of competitive advantages (Lash and Wellington, 2007; Markley and Davis, 2007), and better control of the company's image (Maignan *et al.*, 2002; Worthington, 2009). However, the levers that encourage shippers to take into account environmental sustainability issues when choosing a carrier have scarcely been explored in the literature. Thus, as it is underlined by Bask and Rajahonka, (2017), the choice of intermodal transport as a sustainable mode, as well as the transport mode selection criteria, tenders and transport contracts, represent a significant gap to better understand the freight transportation procurement. A report written by Wolmarans *et al.*, (2014) devotes a whole chapter on some leading companies that strongly integrate transportation sustainability principles into their overall corporate missions. Taking the example of Wal-Mart for instance, this report highlights the interest of shippers' top management being active in integrating sustainability issues within their organizations. Additional research clearly states that top management sensitivity toward environmental concerns (Björklund,

2011) as well as employees' values (Gelderman and Van Weele, 2002), have a genuine impact on the purchase of greener transportation services. None of these studies however precisely mention to shippers' strong commitment toward a precise voluntary freight program. In another vein, governmental legislation (Walker et al., 2008; Lin et Ho, 2008; Large et al., 2013), normative isomorphism (Björklund, 2011, Sholtens and Kleinsmann, 2011) and final customers (Walker et al., 2008; Touratier-Muller *et al.* 2017), also seem to exert a strong influence on green freight procurement. A previous study conducted on the French territory for example by Touratier-Muller *et al.* (2017) explored the consequences of the decree 2011-1336, obliging all carriers to calculate and inform their customers about their CO2 impacts. The results reveal that companies initiate green transportation when the process is promoted by legislation or on the basis of a customer request.

In a different register, we understand how these different actors can stimulate their carriers to integrate sustainability requirements thanks to a cascade effect (Wolmarans et al., 2014). However, we can wonder if this type of sustainable proactivity might refer to any shipper, whatever its size or sector. Recent research conducted by Rogerson (2016) and Bask et al., (2018) underline that large, globally-operating shippers are the most inclined to settle environmental issues for two main reasons: external pressures and an obvious interest to get a competitive advantage. Further investigations demonstrate that a better transportation management may lower costs over time (Giunipero *et al.*, (2012), preventing cascade subcontracting and the multiplication of distribution networks, which generate pollution and unnecessary expenses (Plambeck, 2012). A substantial research work remains, however, to better understand the levers that drive some companies setting up voluntary green freight programs. In that way, we address a first research question:

RQ1: What motivate proactive shippers to join the FRET 21 charter?

2.2 The key role of shippers to make freight decisions and establish selection criteria for carriers

As it is underlined by Bynum et al., (2018), "to influence behavior in the freight sector, one needs to understand the roles of each participant, [...], the gaps and challenges that confound decision-making and implementation". Since shippers make major freight decisions covering which carrier to contract, timeliness on delivery and pickup, transport modes as well as the packaging of products, it is crucial to get a better grasp on carrier procurement operations. In this perspective, it would be particularly relevant to scrutinize the decision-making process to observe which department makes decisions regarding transport procurement, insufflating sustainable values.

From a theoretical point of view, the model of Webster and Wind (1972), inspired by the industrial purchasing theory suggests that the decision-making process for industrial purchases comes from individual characteristics, interprofessional relations between members (users, advisors, decision makers and buyers), organizational characteristics and environmental factors (economic, legal, technological ...). Our field of study is partly inspired by this model since the purchase of freight services within a company is at the intersection of various expectations and objectives. Within the shippers' premises, we can then wonder which department play a key role concerning the transport purchasing decision, prioritizing accordingly interests, methods and means when choosing the carriers.

Research conducted by Small and Winston (1999) and Rogerson (2014) underscore that managers working for the purchasing department are often the decision-makers, whereas other studies reveal that the supply chain department exert a stronger influence (Meinberg et Muller, 1995, Fahimnia *et al.*, 2015). Additional academic results underline that transport decisions are often shared between several departments (Gentry and Farris, 1992; Drewes Nielson *et al.*, 2013). This may include various people working in inventory management, or related to the purchasing, procurement or supply-chain departments.

Once this data is obtained, it is essential to understand how the selection criteria toward carriers is organized. Various research findings, involving field surveys from various companies and countries highlight that service and cost are the two most important issues when selecting the carrier (Pederson and Gray, 1998; Van Laarhoven et al., 2000; Marasco, 2008; Lammgard *et al.*, 2012). Other studies expose that quality, on-time delivery (Van Laarhoven *et al.*, 2000), supplier responsiveness, administrative papers to fulfill (Axelsson and Wynstra, 2002) are determinants. However, a carrier's

environmental performance is frequently cited but does not seem to be a selection criteria so far (Large *et al.*, 2012; Govindan *et al.*, 2013, Touratier-Muller *et al.*, 2019), except in the findings of Theißen and Spinler (2014). Several doubts are then raised to understand how some companies that freely adhere to a sustainable freight program organize their transportation procurement process. In that way, we formulate a second research question:

RQ2: Which department inside the shipper company chooses the carrier, and how is the criteria selection coordinated?

2.3 Impact of sustainable freight practices on the intra and inter-organizational networks

Commitments and actions toward sustainable practices can naturally transform relationships and agreements inside and outside the company. In order to spread a green freight program at a larger scale, it is relevant to identify different changes that may occur when a company chooses to commit itself to such a project.

Research studies inspired by the IMP approach concerning inter-organizational networks underscore that trade is not limited to simple transactions, but consists of established relationships as well as visible characteristics between the organizations (Ford and Haakansson 2005; Ford, 2011). The IMP network perspective is applied to sustainability by Ryan *et al.* (2012), who underline that specific organizational capabilities are required to note changes. This idea, specifically applied to a sustainable transport perspective shows that intra-organizational collaborations (Lin and Ho, 2008; Kayikci and Stix, 2012), as well as inter-organizational collaborations (Jayaram *et al.*, 2010; Kayikci and Zsifkovits, 2012) emerge as being a strategic environmental asset for both shippers and carriers.

From an intra-organizational perspective, Kayikci and Stix (2012) for instance underline that collaborations between employees and departments can largely contribute to maximize truck loading capacities, reducing costs and environmental impacts while improving the whole flexibility. In the same vein, in order to reduce CO2 emissions and fuel savings, UPS (United Parcel Service) clearly strengthened intra-organizational collaboration by providing all departments and branches the same software. This initiative greatly facilitated and optimized their logistics process (Lin and Ho, 2008).

Other studies exploring inter-organizational collaborations, underline that collaborative tools and mechanisms with external actors allow to get a greener the transport management by facilitating the exchange of data between shippers and carriers (Kayikci and Stix, 2014). It also stimulates the involvement of managers, helping the company to reduce transportation costs as well as CO2 footprint. As a consequence, the shipper obtains much better service levels and data standardization. In some cases, collaborative tools make it possible to compare transport efficiency, resources and costs. The researchers highlight however that this type of transparency is possible only if the level of trust is high. Regarding these findings, we may wonder if a green freight program would affect intra and inter-organizational networks. As a consequence, we address this third research question:

RQ3: How does a voluntary freight program impact intra and inter-organizational networks?

3 Green Freight programs are raising to tackle the challenge of climate change

3.3 An overview of green freight programs set-up worldwide

Various initiatives, more specifically sustainable freight programs have been initiated in a lot of countries so as to reduce CO2 emanations related to the transportation of goods. While regulations, especially freight trucks standards are settled mandatorily, complementary policy instruments emerge to encourage freight sustainability. Established voluntarily, these programs have the mission of raising awareness among businesses and citizens (Goetz *et al.*, 2019, Touratier-Muller *et al.*, 2019). We decide to present in this section various initiatives that are operational on several continents.

In America, the well-known SmartWay program is gaining attention of North-American and Canadian businesses. Launched in 2004 thanks to the Environmental Protection Agency (EPA), this voluntary

public-private project is conceived to support freight companies to integrate sustainability through their supply chains (Bynum et al., 2018; Goetz et al., 2019). By measuring and benchmarking freight transport efficiency and atmospheric emissions, the SmartWay program encourages partnerships between technology providers, shippers and carriers. Technically, a collaborative platform allows them to calculate, communicate and improve the CO₂ emissions of their freight operations. All the companies that take part in the SmartWay program are then recognized and recorded in a promotional magazine. Recent studies, published by the EPA in 2017 revealed that the SmartWay program allowed to decrease oil consumption by more than 196 million barrels, helping its subscribers to release over 94 million tons of air pollutants (oxides of nitrogen, carbon dioxide)⁴. These estimates provide a useful overview of the SmartWay's effectiveness.

In Asia, mention can be made on the China Green Freight Initiative (CGFI) which has replicated many key elements from the SmartWay partnership model. Launched in 2012, this public-private partnership aims to enhance carriers' fleet operational performance through better loading practices.

The CGFI is based on an action plan divided in 3 main principles: improving the fleets as well as the management through better loading practices, promoting the adoption of green technologies and establishing eco-driving practices (Bynum et al., 2018). Furthermore, two standards known as "the Green Freight Enterprise Standard" and the "Green Freight Vehicle Standard" have been developed to reinforce companies' behaviour with pride and recognition. Besides this Chinese program, the Green Freight Asia (GFA) network, which is a nonprofit organization at a broader level, commits several companies to decrease their fuel consumption and their road freight movements across the Asia-Pacific Region. Initiated by DHL and UPS in March 2015, this program is aimed to encourage shippers making a conscious, 'green' sourcing decision when selecting a carrier based on its GFA Label rankings. Although GFA does not have a proper method to calculate CO₂ emissions, this network provides solutions to carriers and shippers in order to reduce the CO₂ emissions through the entire supply chain. Therefore, small, medium and large companies can be rewarded with the GFA Label.

In Europe, several voluntary policies encourage behavior change as well as shippers and carriers' interactions in order to improve the freight environmental performance. The Lean and Green program for instance offers significant possibilities to cut down freight CO₂ emissions. Involving nowadays more than 300 companies across Europe, the Lean and Green program came up with just 10 partners in 2008. After having identified three sources that are mainly responsible for transportation CO₂ emissions (1.international transit (ports and airports), 2.delivery (urban logistics), and 3.small vans and work vehicles), they encouraged signing companies to come up with an action plan. In the end, subscribers can work on routes optimization, empty miles reduction, rail and barge utilization as well as the use of alternative fuels. Like other initiatives previously mentioned, companies can obtain a Lean and Green Award if they reduce their transportation CO₂ emissions by 20 percent within five years.

Other independent collaborative programs such as the Logistics Emissions Reduction Scheme (LERS) or the Carbon trust organization set up in United Kingdom assist companies as well as public entities to identify, measure and manage emission hotspots. It provides them tools to achieve year-on-year reductions as well as an independent certification. Besides various private initiatives, some European rules appear locally this last decade to regulate freight CO₂ emissions, in particular through "Low Emission Zones", where access by some polluting vehicles is restricted. A report published by the ADEME in December 2018 reported no less than 231 low emission zones among 13 European Union countries⁵. However, in light with the climate emergency, we can wonder why governments do not strive to implement collaborative programs on a national scale. In the Eurozone however, France endeavours to promote a series of voluntary and mandatory measures in order to decrease pollution generated by freight transportation.

⁴ "SmartWay," US Environmental Protection Agency, updated December 12, 2018, <https://www.epa.gov/smartway>

⁵ consulted on September 14th : ADEME report (2019) Rincent Air, Pouponneau M., Forestier B., Cape F. 2019. Les zones à faibles émissions (Low Emission Zones) à travers l'Europe : déploiement, retours d'expériences, évaluation d'impacts et efficacité du système.

On the one hand, the “Objectif CO2” introduced in 2008 and developed by the French Ministry of Ecology, hand in hand with the ADEME (Agency for the Environment and Energy Management) and other freight transport professional organizations, is directed to all carriers (transport companies) that voluntarily want to reduce their CO2 emissions. Signing companies have to determine specific actions thanks to a guideline document and measure their actions among these four areas: vehicle, fuel consumption, driver behavior, and logistic measures (organization of transport flows). An independent audit report that attests a high performance level in terms of CO2 emissions for 3 consecutive years, enables them to receive a label: “The label Objectif CO2”. In parallel, a French legislation (decree n°2011-1336) sets up since October 2013, obliges all carriers to calculate their CO2 impacts according to four levels of accuracy. Level 1 refers to default values related to the means of transport; Level 2 corresponds to average data calculated by the carrier for all of its activities; Level 3 corresponds to average values calculated by the carrier based on a complete apportionment of its activity (per type of route, customer, means of transport, etc); Level 4 involves data collection from the real operating conditions of the service (energy consumption, load, occupancy, etc.). These two voluntary and mandatory French schemes concern essentially carriers and generate several limits notably in the information asymmetry pointed out by Touratier-Muller et al., (2018).

The French Ministry of Environment decided as a second step to sensitize shippers regarding the CO2 emissions generated by their freight operations. As a consequence, the FRET 21 project grew out of the need to raise this environmental awareness.

3.2 Focus on the FRET 21 initiative, set-up in France

The French freight programs previously explained are focused exclusively on carriers, leaving aside shipper’s proactive environmental initiatives. To address this deadlock, the French Shippers’ Council launched a program called “FRET21”, a specific “shipper program” that aims to support them in reducing their freight transport’s impact on the environment. In this perspective, the ADEME (Agency for the Environment and Energy Management) with the support of Ségolène Royal, ex-French Minister of Ecology, launched this project with a small sample of companies. It has been decided to initiate this voluntary sustainable program with 10 companies only, in order to submit it for improvement before its extension to 1000 companies by the end of 2020.

The signatory company can implement different types of actions, divided into four axes


	Four action lines:	Features
	Loading ratio	Optimization of palletized loads, delivery conditions, reduction in empty runs, pooled supply management,
	Distance	Traveled optimization between the production site and the customers
	Means of transport	Selection and optimization of road vehicles, use of alternative routes;
	The purchasing services	Taking into account environmental performance as well as CO2 data when selecting a carrier.

Figure 1: The FRET 21 charter is based on 4 main strategic thrusts

Although these 4 axes includes all actions of the FRET 21 project, no concrete tools have been proposed to develop the “purchasing services” function. Therefore, we need to scrutinize the actual transportation process of the shippers. Essentially, the better one understands the behaviour of companies including their motivations and aspirations to develop internally and externally sustainable transportation, the more likely one is able to adapt freight programs at greater efficiency.

4. Research design

In order to respond to the three research questions previously cited, it is relevant to share and explain the methodology deployed for this paper. An explanatory research design (Mc Cutcheon and Meridith, 1993; Yin, 1994) based on a limited number of cases studies seemed appropriate to observe consideration of environmental factors during transportation tender process. According to Yin (2009), case studies are especially relevant for 'how' or 'why' questions and when an in-depth description is needed. In addition, Miles *et al.*, (1994) asserts that the use of multiple cases allows the researchers to obtain a deeper understanding of the phenomenon, through more sophisticated descriptions and definitive explanations (Miles and Huberman, 1994, p. 172).. We present here therefore the whole our methodological work.

4.1 Case selection

The FRET 21 charter, which has been elaborated since May 2015 is relevant to explore the purchasing process as well as the impact on intra and inter-organizational networks. The 10 companies that signed this pilot project were selected, providing an ideal field study group, in terms of their diversity by geographical location, size, and industrial sector (Table 1). Furthermore, according to Symon and Cassell, (1998), case diversity seems to be a crucial criterion for this type of qualitative investigation. Each of these companies yields a different insight depending on its strengths and weaknesses. The richness of the case study evidence leads indeed largely from this multi-faceted perspective.

Company	Industrial Sector	Size	Country of origin	Person interviewed
Air products	Petrochemical	Large Company	American	Supply Chain Manager
Carrefour	Mass distribution	Large Company	French	Sustainable Supply Chain and Transportation Manager
Coca-Cola	Food industry	Large Company	American	Sustainable Supply Chain Manager
Ferrero	Food industry	Large Company	French	Transportation Purchasing Manager
Fleury Michon	Food industry	Large Company	French	Transportation Purchasing Manager
Hénaff	Food industry	Medium-size	French	Transportation Purchasing Manager
Orriion Chemicals Orgaform	Chemical	Small Company	French	Transportation Purchasing Manager
SCA Hygiene Products	Hygiene	Large Company	Swedish	Supply Chain Director (SCA Incontinence Care South Division)
Saing-Gobain (Placoplatre)	Building materials	Large Company	French	Supply Chain Director, and 2 Transportation Buyers
Renault	Automotive	Large Company	French	Environment Supply Chain Director

Table 1: The 10 companies who signed the FRET 21 charter in France

4.2. Data collection

We used the in-depth interviewing method to get the respondents to talk freely about their experiences, feelings, opinions and knowledge (Patton, 2002, p. 354). The person interviewed was selected according to 3 criteria: Being steadily in relation with the carriers, participating in the decisional transportation purchasing process and having expertise on the environmental strategy of the company. Then, face-to-face semi-structured interviews were conducted, fully recorded (lasting between one and two hours), transcribed, and coded by the researchers in according with the classic recommendations described by Dumez (2012). This method of “*typing and organizing handwritten field notes offers another opportunity to immerse in the data in the transition between fieldwork and full analysis, a chance to get a feel for the cumulative data a whole*” (Patton M.Q., 2002). Furthermore this technique enables to obtain verbatim transcriptions.

4.3. Data analysis and validation

The coding process which consists of reading, analyzing and underlining key sentences and keywords, was organized question by question, so that responses from these 10 companies to one same question were grouped together. This cross-case analysis offers a way to group together answers from different

respondents to common questions, analyzing different perspective on central issues (Patton M. Q., 2002). When then obtained a coding frame highlighting the main theme and sub-theme elements. Finally, to describe the results and synthesize this cross-case analysis, the challenge was to “*retain the uniqueness and holism of accounts*” (Noblit and Hare, 1988), identifying and extrapolating lessons learned from these 10 cases. The main goal of this work was indeed to centralize and synthesize key answers to our research questions.

5 Analysis and findings

The literature review conducted above allowed to raise three main research questions that we decide to answer in order. From a theoretical standpoint, the literature concerning the green freight programs is nascent in the area of green freight transportation. We however mobilize the IMP network concept as well as the model of Webster and Wind (1972) to outline a summary of our findings.

5.1 Presentation of the motivating factors to implement the FRET21 charter

Our results confirm that the global environmental policy approach communicated by the top management (Björklund, 2011, Wolmarans et al., (2014) as well as employees values (Van Weele, 2002), have great influence on purchasing greener transportation services. This logic justifies the commitment and the signature of the FRET 21 charter. In our case, and to deepen the work of Van Weele (2002), employees working in the supply chain department exert a strong driving force, wishing to initiate a pioneering work in their respective duties. The global shippers' enthusiasm and motivation was naturally driven to obtain a competitive edge (Lash and Wellington, 2007; Markley and Davis, 2007) in front of other shippers and gather financial advantages as well as was perceived by the work of Thornton et al., (2013) and Li et al., (2016). In our study precisely, external pressures such as the government legislation, normative isomorphism as well as final customers did not play any role in the FRET 21 deployment project.

The respondents also mentioned that signing the FRET 21 charter represented a real environmental challenge to promote a team spirit. In furtherance of Maignan et al. (2002), the 10 French shippers interviewed also wish to work on the company's image, taking into account public opinion.

In another vein, our results underline that the size and the industry do not serve as a lever for motivating and mobilizing shippers signing this voluntary freight program. Large companies as well as small and medium-sized companies interviewed in our sample desire to participate freely to the FRET 21 charter, incorporating sustainability in their transportation purchasing process. A firm with 40 employees for instance showed great proactivity and a strong desire to change its transport purchasing method at its scale. Whereas Rogerson (2016) and Bask et al., (2018) research underline that larger shippers are more disposed to implement green transport practices than small companies, our results indicate that small and medium sized companies may be highly involved.

5.2 The key role of the Supply Chain department to join the Fret 21 charter as well as settling decision criteria when choosing a carrier

Our first findings previously cited indicated that employees working in the supply chain department exert a particular driving force to sign the Fret 21 charter. We identified in a second stage that the supply chain department had a strong influence towards the top management, thereby impacting different departments to participate in this program. These results are reflected through the following verbatims : « *This is our department which has been the engine on this subject* », « *The Supply Chain management did a presentation to the headquarters expressing his wish to sign the FRET 21 charter; This has been accepted by the Top management* ».

Accepting concrete goals to decrease their transport CO2 emissions, their attractiveness towards this voluntary freight program comes from various reasons. Firstly, they wish to respond to the mandatory

(Decree 2011-1336) and voluntary (Charter CO2) initiatives settled for the French carriers. Secondly, it comes from a strong desire to value the Supply Chain Department initiatives, since most of the respondents felt excluded when global environmental actions were initiated by the company.

In another vein, our study underlines that the supply chain department participates more in the choice of the carrier than the Purchasing Department. However, the decision-making is often made between both departments. Our results follow the work of Meinberg and Muller (1995) and Fahimnia *et al.* (2015), showing that the supply chain department is more involved in the transportation organizational and decisional processes. These findings, however, must be interpreted with caution since the purchasing department plays a participatory role in half of the interviews conducted. These results confirm Webster and Wind's model (1972) stating that industrial purchasing happens through a "decision process where needs are specified as well as brands and suppliers assessed and selected". Developing this statement, various commentaries attest an operational and collaborative purchasing process between both departments such as "The *purchasing department and the supply chain department are the only ones, and we always work in tandem*" or "The *supply chain defines its requirements to the purchasers*". However, the final decision mainly comes from the Supply Chain headquarters, as described by the following verbatims: "In any case, the *purchasing department and the supply chain department have the same boss, and this is the Supply Chain manager*", "The *drafting of the contract is up to the purchasing department, however the final decision comes from the supply chain*".

Scrutinizing the criteria prioritized when selecting a carrier, our findings indicate that price is the first selection criteria in carrier choice. For other shippers, service quality (punctuality; reactivity, truck availability) referring to or safety (especially for transportation of dangerous materials) remains the first criteria of selection. The environment is an "incentive criteria" for half of the interviewed companies, in particular by favouring carriers equipped with a Euro 5-Euro 6 fleet. Nonetheless, most of these shippers interviewed do not yet create competition between carriers based on environmental criteria (six companies from ten). The four pro-active companies who integrate a carrier's environmental performance award points to their carriers regarding their fleet of vehicles, fuel consumption, truck standards, truck consumption, or their engagement to sign the voluntary carriers' charter of commitment (Charte Volontaire CO2). They also valorize environmental proposals from carriers that use lighter trucks and to those who set up benefit sharing, as well as fronthauling/ backhauling practices. However these proposals do not constitute a decisive criterion to select a carrier, although a solution "at the same price, but less polluting" will be favoured. As a consequence, contrary to Theißen and Spinler's work (2014), our study shows that environmental concerns such as CO2 transport information are not yet integrated into carriers's selection criteria.

5.3 The FRET21 program seems to reinforce intra as well as inter-organizational network

Our results underscore that shippers that signed the FRET 21 program stimulate and reinforce their intra and inter-organizational networks. From an intra-organizational perspective, the majority of the shippers involved in the FRET 21 program organize meeting about this subject once a week or once a month with different departments. This approach allows to set up action plans, federating all the employees from various fields around a same goal. It also promotes the transfer of knowledge. With reference to the IMP group theoretical concept, and especially the work conducted by Ford (2001), we understand how individuals within a company have different motivations which, when combined with previous experiences and expectations, alter their actions. When Håkansson and Snehota, (1995: p.192) state: "It is individuals who endow business networks with life", this quotation recognizes that the interactions between companies are first affected by the employees' intentions. In our specific context, the commitment to the FRET 21 program allows employees working in the supply chain department to communicate and raise sustainable transport awareness to other departments. As a consequence, our results converge to Kayikci and Stix (2012)'s findings.

From an inter-organizational perspective carriers are the first stakeholders mentioned to value these 10 shippers environmental implication. As shown by these verbatim comments: "With the FRET 21 charter, our carriers became strategic partners", "this reinforces the collaboration with the carrier X",

“this really empowers collaborations with our carriers”, this voluntary program united various businesses around the same problem, reaffirming or reinforcing their organizational practices. Therefore, our findings, in line with Kayikci and Zsifkovits, (2012)’s findings, suggest that inter-organizational collaborations around a voluntary environmental program are reinforced, representing a real asset. However, the absence of a common tool to measure and communicate automatically the environmental impact of the distance travelled is still lacking.

Furthermore, in line with research focused on the IMP network perspective, our results establish visible characteristics of the relationships due to the positive influence of this FRET 21 charter. Besides, Ryan *et al.*, (2012), who also use the IMP network perspective precisely in the field of sustainable development, underline that specific organizational capabilities are required to note changes, therefore allowing companies to perceive the “other” as a partner within specific market realities. In line with these findings, we notice that this voluntary program does indeed help shippers to consider carriers as real partners, hence strengthening collaborations.

Lastly, another inter-organizational network has been demonstrated between these 10 shippers and the ADEME, which provides them with methods to calculate CO₂ emissions as well as new management practices to reduce and optimize freight transport demand.

6. Conclusion

As the world’s nations increasingly seek solutions to global warming, there is a growing need to understand how freight transport can reduce its negative impact on the environment. Various freight programs are emerging to achieve environmental sustainability. It is then crucial to examine the efficiency of these policies such as the Fret 21 program as well as the transport buyer’s behavior toward environmental initiatives. Exploring the purchasing process indeed is acknowledged as one way to contribute to cut CO₂ emissions from transport. Although environmental has an incentive impact during the tender process, our findings highlight that it does not constitute a decisive criterion to select a carrier yet. In another vein, our results underline that these 10 pro-active shippers have the ability to boost their carriers’ environmental enhancement. However, a simple and accurate standardized method is still lacking. In this way, a common legislation using simple tools through trucks’ telematics system would help to measure and compare more precisely carriers’ environmental performance.

The FRET 21 charter, is based on four main strategic thrusts: loading ratio, distance optimization, alternative transport and the purchasing service. Although the ADEME provided tools to work on the three first strategic thrusts, the purchasing procurement axis still needs to be supported. One possibility would be to create sustainable indicators helping the buyer to follow carrier’s environmental performance. Another assistance from the French government would be to equip all carriers with mandatory environmental standards tools integrated in their trucks’ telematics system.

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