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Chapter

# Road Haulier Competition: Implications for Supply Chain Integration

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## Abstract

Road freight competition is playing out in deregulated markets. The EU single market is a market with abundant responses in terms of haulier strategic actions. This chapter situates the crucial role of road haulier strategies in the logistics service supply chain and industrial supply chain to achieve sustainability. Competitive and sustainable transport depends on effective transport services, vehicles and transport infrastructure, and conditions that foster the development of transport and logistics services. By examining how four case firms develop competences and make use of available resources we develop insights into road haulier competition and its implications. The chapter contributes to understanding how road hauliers are part of logistics service chains as well as industrial supply chains and how the many links and relationships increase the magnitude and implications of hauliers' performances.

**Keywords:** supply chain management, transport services, road haulage, competition, supply chain integration

## 1. Introduction

In this chapter, we analyze how competitive road hauliers influence the industrial supply chain performance. Road transportation is by far the most important mode of inland transportation in Europe accounting for roughly 77% of ton-kilometers (Eurostat Statistics). Competition in the basic trucking or transport sector is increasingly fierce and international. The road hauliers themselves are challenged by this fierce competition and some respond by trying to cut costs equally fiercely. In this chapter, however we see that there are several other competitive responses which depend on the creative use of resources including connections to the industrial supply chains and specialist competence. We argue that changes in the road transport business influence users of transport services, such as industrial supply chains. However, very little is written about road hauliers' pivotal role in the flows and even less about their role in industrial supply chains. This is surprising since the demands for higher integration and transparency of supply chains due to sustainability should not exclude the physical flow and what is happening in the logistics chain. Integration is a process over time where parties provide significant inputs into the service production process thus co-creating value in the relationships [1].

Seeing the supply chain as a network of firms that coordinate their activities to deliver the final product according to customer demands means the logistics firms and network play a key role [2]. Including transport actors such as road hauliers in the understanding of inter-organizational networks, integrated chains and the process of integration is increasingly relevant as a supply chain management topic, since it influences not only financial performance, but also environmental and social outcomes. The basic prerequisites for the integration process are inter-organizational collaboration and coordination of the flows of the whole supply chain. The road hauliers' role in the supply chain might be critical and is little investigated. Despite that most definitions do not even see these as part of the supply chain, they will have large effects on both firms and flows [3]. Logistics firms in general are performing a large part of the whole physical flow as suppliers of services in the industrial supply chain and are a direct link between the firms in the industrial supply chains [4].

## **2. Literature**

### **2.1 Road hauliers for efficient, safe, secure and environmentally friendly transport in the industrial supply chain**

The EU is a single market in which competition, from an economics perspective, should create sustainable road transportation that is efficient, safe, secure and environmentally friendly. In the road transportation sector, the opportunity for effective competition is strongest in road freight transportation, i.e., trucking or road haulage [5]. Still, in different countries the enforcement of EU legislation differs, which creates different competitive conditions. Leading market actors argue the fragmentation of the transport industry and other inefficiencies hinder healthy competitiveness [6]. The fragmentation implies that conditions decided by the EU are used for "gray" advantages in transportation. There are legal and less legal ways of dealing with rules on access to the profession and the market, these involve standards for working time, driving time and resting periods, the use of vehicle taxes, tolls and costs related to using infrastructure [7]. The standard economics perspective does not apply well to understanding road haulier competition, because of the industry characteristics of heterogeneity and dynamics [8]. The complex web of different types of interfirm linkages, networks, and alliances determine to a large extent the competitive conditions. For that reason, we need to understand road haulier competition from the point of view of strategic development [9].

From a logistics and supply chain management perspective Christopher [2] develops the competitive understanding in three c: customers, company and competitors. Competition is how these actors create value sought by customers. The company and the competitor have different resources to utilize, which render cost differentials. Thus, a competitive advantage might be gained by service and costs in different customer segments.

OECD [5] subdivided the road freight sector into truckload and less-than-truckload, and national and international trucking. Recent studies elaborate that road haulier competitiveness depends on its procedures in calculating costs and transport prices [10], and on the optimization of driving and rest periods of drivers and their routes [11]. Also, a survey of 300 customers of Hungarian transport services combined with five qualitative interviews explored competitive problems and opportunities [11]. Strengths of Hungarian hauliers are explained in terms of reliability,

customer-friendly attitude, punctuality, flexibility and speed. Customers indicated that they would only change haulier if their usual partner lacked capacity or if it was an intra-organizational decision of their centralized procurement to change hauliers. Important haulier resources are employees, such as drivers, dispatchers, clerks and customer service personnel who are often in contact with customers [1, 11].

Christopher [2] argues that supply chains compete with supply chains rather than company with company, which means that the value of offers is strongly dependent on the combined effect of an integrated supply chain. All types of road haulier business, truckload and less-than-truckload, and national and international trucking are normally part of the supply chain processes. The industrial supply chain depends on its logistics service processes for effectiveness.

## **2.2 Performance of poorly integrated links**

The industrial supply chain procurement function is driving supply network development by demands and control functions regarding costs, environment and social aspects. The supply chain coordination is of indisputable relevance in terms of low costs, responsiveness and sustainability. There seems to be a difference when it comes to the procurement of logistics services. Are the services procured customized services or generic transportation between two locations? The same logistics providers offer both types of services with similar resources, which creates doubts among the purchasers [12]. Most often the customer knows little about the logistics operations that are bought and the complex coordination that is needed for customized operations [12, 13]. Much literature investigates the competitive advantage of logistics providers (see e.g. [14]) rather than the sustainable advantage of the integrated relationship.

Wagner and Sutter [15] focus on the relationship and depict it in the degree of integration and degree of commitment. More specifically, relationships range from single transaction, repeated transaction, partnership agreement, third-party agreement and integrated logistics service agreements. Poor knowledge of the other's operations and a low degree of commitment imply a low degree of integration. A higher degree of commitment, obligations, mutual information exchange and customization involves higher integration. But such highly committed and integrated relationships are rare. Wolf and Seuring [13] argue that buying decisions are made on price, while environmental performance is seen as a basic requirement and cooperation is minimal (in line with Mortensen and Lemoine [16]).

Sustainable development is increasingly expected by society as is seen in regulations, economic policy instruments and media. Individual firms in the business network, production firms as well as logistics firms, relate to sustainability in their strategic visions. This is not necessarily because of competitive reasons, but because "of a corporate desire to do the right thing" ([17], p. 526). Transport and logistics firms are influenced by their organization, finances (savings), customer demand, government support and regulatory pressure, and technology in their decisions to develop sustainable performances [18]. Regularly, industrial supply chain firms audit their supply network, in order to enforce their supply chain codes of conduct [6, 19]. Outsourced logistics services are seen as the responsibility of the logistics providers, they have to do a trade-off between low costs and environmental and social performances. Opportunities related to higher commitment and integration are mostly unrealized [16]. Such opportunities are learning and innovation, improved logistics service quality and supply chain effectiveness and performance [15].

The links between the supply chain and the logistics providers have problems (Makelin and Vepsäläinen, 1990 in [12]). Regardless of whether the service offer is complex or simple the relationships with customers tend to be similar [20]. Customers think they have to pay too much for simple operations while they mistrust the complex services. The closer relationships in these links are important to logistics service providers that build competitive advantage by customer orientation [14].

On the one hand, logistics service providers need to understand customer's business in order to be competitive, e.g., by knowledge of supply chain and customers' operations, to offer shorter lead time, and to offer multiple integrated logistics services [14]. On the other hand, industrial actors outsource the responsibility of complex transport business [16]. But small independent actors are vulnerable to both long-term contracts and take-it-or-leave-it contracts, because of the price pressure. They have to take the risk of increased costs, despite minimal margins. To avoid losing money, they might increase speed or overload, which negatively influences safety, working conditions and environment ([5], p. 114).

In any industrial supply chain road hauliers' performances are a part of total economic, environmental and social performances. This is the case to an increasing degree, because of the trend of global production and marketing in which the role of logistics in industrial supply chains is intensified. Transporters' activities are both in upstream and downstream supply chain processes. They are involved in the supply chain processes so many times that their impact, economic, environmental and social most likely is underestimated. Despite this buyer demands are operational, rather than strategic. Further, third-party logistics (TPL) providers most important short-term sustainability challenge is in "balancing sustainability efforts with customer expectations for low-priced services" ([17], p. 529).

### **2.3 A complex web of customers**

Road hauliers might be seen as embedded in interfirm cooperative logistics networks [8] that take shape in a logistics service supply chain for a long-term or short-term contract. The industry has specific competitive dynamics compared to other mature industries. The Danish trucking industry did not end up in only big companies, as was expected, due to economies of scale [8]. In Denmark, the industry was involving some large hauliers, some smaller specialized and flexible hauliers relying on their network linkages, and many small hauliers and independent owner-operators serving the industrial supply chain customers as well as other hauliers [8]. This is in line with Cui & Hertz [4] outlining the logistics service supply chain to include hauliers, logistics intermediary and TPL firms.

Existing logistics literature mainly distinguishes logistics firms in terms of service offerings. Hauliers provide routine transport services, moving material from point A to point B [4, 12]. Logistics intermediary firms perform standard freight forwarding services and their major roles are consolidating flows [21]. TPL firms provide a bundle of customized services including warehousing, transportation and value-added activities for effectiveness and efficiency in industrial supply chains [9, 22–25].

However, the existing literature seldom focuses on the many complex interactions of the industrial supply chain and the logistics firm network. The many and simultaneous interactions imply huge effects of how transportation is executed [26]. The logistics firm network is in flux as different types of logistics firms invest their resources in different areas and develop their capabilities in various ways. Logistics firms mostly outsource part of the physical performance to other firms in

the network. For example, TPL firms normally outsource the performance of their transport and consolidation to different destinations to intermediaries like freight forwarders while the freight forwarder in turn normally outsource to road hauliers [4]. The many different types of inter-firm linkages, networks, and alliances create specific competitive dynamics based on the need for complex coordination [8]. Thus, the customer of the road haulier might be a freight forwarder, a TPL firm, or an actor of the industrial supply chain. Outsourcing logistics often implies better performance through specialization in the supply chain. However, worse performance that influences both the logistics supply chain and shippers in the industrial supply chain may occur.

The high-quality transport services are characterized with:

- a. Availability and completeness of services rather than damage from incomplete services [27].
- b. Customer information service level based on complete awareness of customers' and the properties of services [27].
- c. Reliability and uninterrupted operation of transport [27].
- d. Delivery speed and avoidance of excessive delivery time [27].
- e. Cargo safety during transportation [27].
- f. Observance of traffic safety requirements [27].
- g. Eco-friendliness of transportation avoiding environmental degradation [27].

In this way transport services in the logistics service supply chain and the industrial supply chain will impact the supply chain performance.

## **2.4 Road hauliers in the logistics service chain**

There is a recent interest in the value-creation of TPL firms' offers to the industrial supply chain [9, 25] and in the competitive advantages of road hauliers [10, 11, 27, 28]. A typical challenge for competitive high-quality transport services reported from Central Asia, such as Uzbekistan are the necessity of regional cooperation to manage border disputes, common infrastructure, trade and communications, and security concerns that are regulated in agreements. The agreements are however not complied with and involved actors are treated as instruments serving political interests of member states rather than the interest of businesses [27].

Outsourcing important resources such as vehicle fleets and drivers enables and influences Croatian road hauliers' differentiation strategies such as differentiation of services, price differentiation, image differentiation, technological differentiation, and staff differentiation [28]. Yarashova and Hoshimov argue that the effective competitive transport system depends on high-quality transport services, high-performance safe vehicles and transport infrastructure, and conditions that foster the development of transport services [27].

Different logistics firms are categorized based on capabilities in operating a logistics service system in the logistics service chain [4]. The road hauliers main capability

is seen as efficiency in moving products from one location to another in the physical flow. Their most important resources based on costs are often drivers, fuel and trucks.

Drivers are an important resource for the haulier [29]. They are meeting the customers or customers' customers and are ensuring both the timely delivery and the quality of the services. They also meet the authorities, such as customs and traffic police. Drivers' competence about how to drive influence fuel consumption, accidents, and environment [5, 30].

Haulier firm competence is to a large extent in coordinating drivers, trucks and service activities. They strive to improve driver retention, cost structure, and profitability [23]. They cooperate with each other and other logistics providers horizontally and vertically [8, 31, 32]. Logistics firms' efficiency is related to their use of trucks and other logistics resources, and effectiveness is related to their belonging in a transportation network, in a supply chain and in the wider business network.

Freight forwarders and TPL firms coordinate, such as consolidating several physical flows for a full truck to a destination and back home from that destination [4]. Freight forwarders and TPL firms' most important resources include relationships, warehouses, information and competence required to integrate resources, in order to integrate an efficient logistics service system [14]. A strategic perspective of TPL providers is defining TPL providers as value-cocreating relationships that can help manage the complexities of logistics services [1, 25].

Road hauliers might be differentiated in terms of their competences [33]. From low abilities in general and in problem-solving, a type of transaction-orientated relationships for low-cost objectives to a high general ability and problem-solving competence, which is needed in customer solutions. Innovative services towards fewer customers in intense working customer relationships are paid higher rates per mile [34]. The more innovative services are about developing complementary services for customers, adapting to specific customers and insourcing their logistics activities, and developing customer logistics operations.

## 2.5 Research questions

**Figure 1** illustrates the complex web of interconnections between the industrial supply chain and the different layers of the logistics network that are of importance in an analysis of how competitive road hauliers influence the industrial supply chain performance. There are two different networks of firms, one is the industrial supply chain and the other is the network of logistics service firms performing the services needed for the industrial supply chain to operate effectively. Road haulier customers are partly from the supply chain and partly from the logistics service network. The transport markets are regulated in multiple dimensions such as working hours, safety and technical standards. Changes in conditions, rules and regulations influence the competition between the different logistics firms. Based on road hauliers, their conditions, and their direct and indirect business relationships, we might now elaborate the purpose how competitive road hauliers influence the industrial supply chain performance in three research questions:

- *RQ 1 How do competitive actors in road transportation affect integration and competence in the logistics services chains?*

Based on the theoretical framework, less integration is likely in low-committed relationships where the parties have little knowledge of the others'

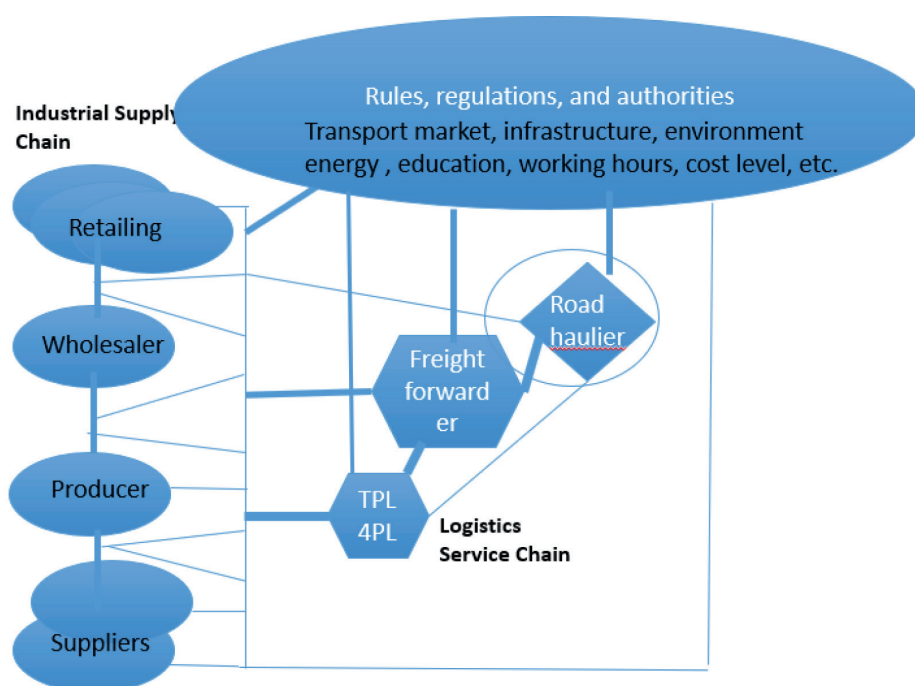
operations [15]. Then also the ability of problem solving and competence to adapt to customers and develop customer solution will decrease and services offered are routine and standard services [12, 29]. Rules involve access to the profession and the market, standards for working time, driving time and resting periods, vehicle taxes, tolls and costs related to using the infrastructure.

- *RQ2 What are the implications of competitive actors in road transportation on effectiveness and efficiency in the logistics services chain in terms of sustainability?*

The effectiveness and efficiency of a logistics service supply chain require specific competence in customer's operations [8, 14] and an orientation towards sustainability including ways to balance environment and social concerns with low costs service deliveries [15, 17, 23]. Integration implies that involved actors have organizational ambitions to develop sustainability (economic, environmental and social performance) [6, 10, 11, 17–19].

- *RQ3 What are the implications of competitive actors in road transportation on integration and sustainability in industrial supply chains?*

The industrial supply chain actors' supply chain codes of conduct take responsibility for also the logistics service chain [6, 19]. Integration in between these different chains is a process over time where parties provide significant inputs into the service production process thus co-creating value in the relationships [1]. Road haulier performance can be expected to influence not only financial performance, but also environmental and social outcomes.



**Figure 1.**  
*The industrial supply chain and the logistics service chain.*



### 3. Method

The connection between competition in the logistics network and the final performance of the industrial supply chain is necessarily complex, difficult to trace and subject to numerous other influences. This is not a subject that has been studied extensively placing us in a context of discovery.

The empirical material in this paper is based on a large collaborative project with a heavy vehicle manufacturer giving access and opening doors to logistics supply chain actors' business. This is a fit with the purpose since we are in an explorative setting and aim for useful interpretation rather than testing, ending with suggestions and proposals rather than final conclusions. The project ran from 2012 until the end of 2016, however we have continued researching logistics service firms.

Primary data is from two different markets, Sweden and Poland; focusing on the operations of the logistics firms and is the basis for Firms 1–4 (**Table 1**). In total 39 semi-structured interviews have been carried out with managers from the vehicle manufacturer, dealers, freight forwarders and buyers of the trucks. The majority of the interviews have been recorded and then transcribed. Where this was not possible notes were taken during and directly after the interviews and completed by other researchers present for the interviews. Interpretations and initial findings have been presented back to a workshop of industry participants for discussion and re-interpretation.

We introduce four illustrative case firms from the empirical material, in order to analyze how competitive road hauliers influence the industrial supply chain performance. All four firms represent a stable and growing business and they have been chosen because of their different strategic actions.

The strength of the study is the width of empirical data and different sources enabling us to cover substantial ground of the complex phenomenon, further discussed in Näslund et al. [35] on the basis of quality criteria from Lincoln and Guba [36]. The number of cases has had to be balanced to give some variation but cannot reasonably cover all the different varieties of road hauliers. However, a crucial point for the present chapter is that we do not claim strong connections or conclusions but rather

Cases: Differentiation by the firm	Firm 1: Customization	Firm 2: Customization and sustainability	Firm 3: Customization and low costs	Firm 4: Service development
Ownership/size	Private, 2 employees	Large multinational, 500 trucks and 750 drivers	Family firm, 105 drivers	Family firm, 170 drivers, 60 semitrailer, 60 lorries.
Customers	Drive full trucks for one customer	Many customers, some very large	Connected to a large freight forwarder	Many big customers in Western Europe
Industry	Water/ sanitation	Construction, pharmaceutical and others	Bulk transports, petrochemical, construction as second market	Automotive parts, various special transports to Russia

**Table 1.**  
*Case studies.*

open up for proposals and observations that must be explored further in subsequent research.

## **4. Case firms**

### **4.1 Firm 1—Customization**

This Swedish family business with long experience in road haulage concentrates on distribution for one single customer in Sweden. The customization is to a water and sanitary wholesaler and retailer with special demands on time for deliveries, transparency and a crane as special equipment. There is a close relationship to the final customer. The customer has high demands on delivery precision as they deliver to the construction industry. Much of what is delivered is bulky. The customer demands are that the firm should be environmentally friendly but is not willing to pay extra for it. They have an index clause to safeguard them against large increases in costs.

Managers at Firm 1 schedule the deliveries following Swedish rules on working hours. They are aware of the importance of driver's competence. The drivers are trained in how to drive and behave. Management has regular check-ups with the drivers. The firm is facilitated in its customization by a relatively close contact with the truck supplier and use premium brand trucks only. The contact is even closer to the serviceman in the workshop of the truck supplier.

### **4.2 Firm 2—Customization and sustainability**

This large multinational firm does TPL, freight forwarding and trucking services, but the three services are separated organizationally. All services are discussed in terms of sustainability. The domestic trucking organization in Sweden has a close relationship with a few dominating customers. One is a big wholesaler for the construction industry and the other is a drug wholesaler distributing to pharmacies. There is a need not only for fixed routes and specific handling. There are higher demands for quality and precision in deliveries. The drivers for the new trucks are trained both in how to handle the different types of goods such as drugs with specific demands on temperature-controlled transports, safety and the condition of the trucks. There are specific rules and regulations for the transport that the customer, trucking organization and drivers have to follow.

The differentiation in terms of customization and sustainability is facilitated by a good relationship with the supplier of trucks. The majority of maintenance and repair is done by the brand workshop. The latest trucks are of high brands, more eco-friendly and sustainable new models. They have also bought special training programs for their trucks and drivers to be sustainable. The company is ISO 14001 certified.

### **4.3 Firm 3—Customization and low costs**

The firm is a Polish road haulier which is growing fast and is ISO certified. The firm specializes in bulk transport. The majority i.e., 75% of their customers are national within the construction industry and 25% are international transports for a petrochemical producer, who delivers to the west coast of Sweden. The petrochemical customer requires that the Polish firm is certified for transporting (both truck and

equipment) their goods i.e., understanding the necessary conditions for the goods and the truck. This gives the trucking firm a closer relationship to the petrochemical producer but also their two partners in Sweden and Norway since the whole chain has to be certified for handling this type of goods. As for the domestic construction industry customers demand lower costs but settle for older trucks and specialized bulk equipment.

Through the certification the driver has to have competence about the process and the certification including cleaning, control, etc. The Polish haulier has fleet management programs which enables management of how the transports are performed. Furthermore, to get the driver to perform in a better way they go through programs learning how to drive, in order to reduce fuel. Most of the drivers have worked for over 10 years in the firm.

The firm has a close relationship with a premium brand supplier of trucks from which they lease the trucks on a five-year basis. The new trucks are used for the petrochemical industry. When the trucks are paid off they are used for the construction industry at a much lower cost. Thus, the firm combines customization to one segment and low costs to another. Special discounts through the freight forwarders give them a reduction on costs for fuel on the European market. The customer of petrochemicals specifically has high demands on the environment and safety specifically since the effects of accidents or loss of control can be costly and serious.

#### **4.4 Firm 4—Service development**

The Polish firm has developed from a trucking firm to include also a freight forwarder part. In the last three years they have started to outsource several services to other firms. For example, they use six different small trucking firms, which has the advantage that these use less workshop capacity. They have their own workshop with 25 mechanics. Most of the employees have worked for the firm a long time.

Their main market is transports to Russia in which risks and uncertainties are seen as high. Many of their Western European customers including freight forwarding firms are using them specifically for their quality and knowledge about the Russian market. The firm has ISO qualifications (such as 9001 and 14001). They also have 24-hour supervisory staff and are monitored by a security agency to guarantee safekeeping of goods. Due to the risks insurance is a big problem. The firm offers certain guarantees to their customers (up to 300.000 dollars). It has recently set up a new subsidiary in Germany to facilitate the transports to Russia in order to continue to develop the Russian service. The specialization of transports to Russia was studied before the war of 2022.

The drivers are very important, 30% are from Belarus or Ukraine and the remainder are Polish. They have special demands on the drivers that drive to Russia. They have to be able to handle both money, communication in Russian and to negotiate. It takes time to train a new driver for this type of assignment. Not only do they have to know about customers' demands, handle security but also to learn about customs, different types of border crossing problems. Experienced drivers do not need the services of dispatchers. The drivers get awarded with IRU certificate of merit if they have driven over a million km and 10 years without accidents.

An advantage of driving in Russia is the lower cost of fuel (about 50% of the Polish costs). They have a relatively close relationship with the suppliers of trucks. They have a KPI on fuel consumption. They are now upgrading their fleet of trucks, which gives higher sustainability.

#### 4.5 Road hauliers as competitive actors

Case firms show costs and service differences, i.e., value differences in their service offerings by making use of resources and competences. The market is heterogeneous with standardized or customized services on domestic or international routes. Dynamics are an important characteristic in that logistics and transport cannot fully be controlled, because of weather and congestion. The complexity is another important characteristic of the services offered, not only because of the heterogeneity and dynamics but because the cost of a trip depends not only on miles but on how the trip fits with other jobs.

The EU market is competitive in that many firms offer their services at an extremely low cost. Differences in salaries, working conditions and fuel between the Western and Eastern EU countries can be more than 50%. Therefore, these firms can compete with lower costs, skilled drivers and high competence of the firm.

Low costs can also be achieved by violating rules, tax crimes, theft of fuel, etc. Even though buyers of transport services demand high-quality services their control and insight are limited.

**Table 2** summarizes the differences of the cases of differentiation strategies. The competitive variables we use are high, medium, and low. High implies they are pro-active in that variable, medium implies they are re-active in that variable, and low implies adverse. Firms 2, 3, and 4 are interesting in that they combine customization with precise specializations.

Customer-specific demand relieves price pressure. We found that smaller hauliers in Europe adapt to the customer in terms of equipment, delivery times, behavior, competence demands and service level. The road haulier can be successful in spite of fierce competition, because of drivers, competence and specific advantages. The customer is prepared to pay for differentiated services. The most common situation is when customers have special requirements and cannot use the standard selection of trucks. Customer investment is increasing integration in the value co-creating relationships. This also implies that the road haulier takes on part of the freight-forwarder or TPL role.

Common characteristics of the four differentiation examples firms are coping with the problematic competition and are stable or growing. They all have loyal personnel

	<b>Firm 1: Customized</b>	<b>Firm 2: Customized/ sustainability</b>	<b>Firm 3: Customized/ low cost</b>	<b>Firm 4: Service developer</b>
Customer relationship	high	high	high/low	medium
Supplier relationship (equipment)	medium	high	high/low	medium
Driver competence	high	high	high/low	high
Sustainability	med	high/medium	high/medium	high
Domestic/ International	Dom	Dom	Int/dom	Int

**Table 2.**  
*Competitive actors' differentiated customer solutions.*

and have been in business for a relatively long time. Knowledge seems to be important both for management and drivers. They take good care of their vehicles and have close relationships with their customers. Sustainability is important especially as a cost saving of fuel consumption or if the customer so demands. However, it seems that customers and drivers are of key importance for customer satisfaction.

## **5. Analysis and discussion**

### **5.1 Competitive road hauliers affecting the integration and competence in the logistics services supply chains**

It seems that rather than move towards higher integration there is a continual adaptation of integration to fit prevailing conditions. There are small hauliers in Europe that combine offerings of e.g. standardized services at low costs, adaptive or developing innovating solutions. Integration is low and especially in the short-term market relationships seem to be more transactional. To a large extent these relationships seem to be connected to other logistics firms buying their services. The integration is low between them and the industrial supply chain.

For competence in the logistics supply chain, we can make use of the differentiation of standardized and developing solution offerings of road hauliers [29]. In the cases we follow it seems to be more of a combination of the standardized offering based on low cost and efficiency and a more developed innovative approach. They seem to use part of their business for adaptive or innovative services. Hauliers make use of the advanced new trucks in the first years in an adaptive or even innovative way. Then they use the older trucks already paid for standardized low costs assignments. Competence is also increasing for chosen differentiation strategies such as particularly demanding customers, specific markets or new services such as freight forwarding or even TPL. The logistics service chain has more fluid roles than the industrial supply chain.

### **5.2 Implications of competitive actors in road transportation on effectiveness and efficiency in the logistics services chain in terms of sustainability**

Logistics supply chain actors that act as service developer and customer developer, i.e., Firm 4 and Firm 2 are pro-active to develop services and relationships. These are important actors for industrial supply chain effectiveness. In order to be sustainable, the industry has to make sure all suppliers in their supply chain work in a sustainable way, which is problematic for anonymous transport providers from far away. Logistics firms outsource to a large extent to each other in what can be described as a complex web [3, 8]. Low commitment among industrial actors and low degree of competence of different logistics competences hinder effective solutions. Even if demands on environmental and social standards are included in contracts it is the logistics providers that need to operationalize and balance these demands in relation to costs (in line with [17]).

In the differentiation examples the hauliers have close customer relationships and loyal drivers, much in line with what Voss et al. [30] explain to be survival techniques. The integration of the firm in the logistics service supply chain is high. The final customer knows them and their drivers. The integration is high between the logistics chain and the industrial supply chain. Summarizing differentiated

solutions, drivers are not allowed to sacrifice road safety, and their own working conditions, in order to deliver goods on time. Regardless of legal responsibility, the moral concerns of big industrial actors (transport buyers) are written in codes of conduct but supplier development programs that are common in their network of product suppliers are not implemented towards logistics providers. Professional and ethical transport service suppliers attract equally professional and ethical buyers which in turn leads to a more sustainable logistics service chain because demands from customers, legal authorities and even employees are more likely to be fulfilled [1, 6, 19].

### **5.3 Implications for integration and sustainability on industrial supply chains**

Supply chain interdependencies connect the industrial and the logistics supply chains. The chain is not stronger than its weakest link. The degree of integration and supply chain orientation determines supply chain effectiveness. Yet supply chain management scholars have not elaborated on the lack of integration in between the supply chain network and the logistics chain network (in line with [3]). Supply chain management practitioners are hesitant to engage in strategic relationships with logistics service providers. The logistics service providers collaborate with other logistics providers and governmental agencies because the customers want to avoid close relationships [17].

Several of our cases improve environmental performance by agreeing with customers that the fleet shall be eco-efficient. The hauliers have better opportunities to keep and attract good drivers because of investments in modern vehicles. The hauliers' customization activities foster sustainability in the service production process [1]. Hauliers service development for example developing freight forwarder services foster social sustainability in the network of the logistics service chain.

A basis for developing value creation of transport services is the relationship. The consequential benefits of the relationship are in the recognition of the importance of logistics and transport and its role in supply chain sustainability. **Figure 1** illustrates the magnitude of links and relationships in the total industrial supply chain where the logistics service chain is connected. Customer demands are more deeply understood when there is direct contact with the industrial customers, this might be in terms of vehicles, schedules or ways of operating. In this way integration increases the sustainability of the industrial supply chain. The competence of transport buyers is a vehicle to leverage sustainability. Competence needed is in challenges and opportunities related to e.g., performance of vehicle fleets, recycling, energy conservation, and reduction of carbon footprint [17].

## **6. Conclusion and further research**

Successful and growing road hauliers contribute to improved sustainability in the logistics supply chain as well as the industrial supply chain. In the present study, we see how four road hauliers differentiate their service offers. The differentiation influences industrial supply chain performance directly in terms of price, cost, and service, as seen in the relationship's links in **Figure 1**. The impact of the services adds up because they are offered in different steps of the industrial supply chain. Where sustainability audits are carried out consistently, performance also improves through better engines, driver training and EU working hour regulations.

**Figure 1** shows the main connections between the industrial supply chain and the logistics chain. The findings of this study illustrate some of the possible strategic moves for hauliers, but also the complexity and flexibility of some of the roles especially in the logistics chain.

Future research about road hauliers can depart from their role in the logistics service supply chain and also their role in the industrial supply chain. One future research question could be how road hauliers increase competitiveness and grow by combining their existing services through adding services of a freight forwarder or a TPL. They are making use of their existing knowledge as a road haulier of a specific market. It would be of interest to study how could this influence the other roles of the logistics service supply chain. In turn, what are the consequences of such dynamics in the logistics service chain for the industrial supply chain?

Another topic of interest for future studies is how a road haulier can successfully offer both low-cost standardized services and at the same time offer highly advanced services demanding high competence of drivers and personnel and close customer contacts? One of the firms studied met the competition by offering both advanced bulk services and highly competent drivers and offering low-cost standardized services by making use of their older equipment. What are the effects of such a combined strategy on differentiation, for example in terms of image?

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