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»LESS-THAN-TRUCKLOAD« NETWORKS

THE EUROPEAN MARKET FOR NETWORK BASED CROSS BORDER
GOODS FLOWS



EXCERPT FROM
THE STUDY

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1 INVESTIGATING THE EUROPEAN MARKET OF CROSS-BORDER LTL SHIPMENTS

Most often, market overviews are based on domestic, inbound or outbound goods transportation from a country perspective, as these tonnage volumes represent the highest share of the total macroeconomic goods flows. Cross-border and transit tonnage are not equally considered to be of high relevance resp. interest. Transit tonnages that do not go in or out of the particular country are either not taken into account at all or are only considered as part of a total tonnage resulting in a small share. Additionally, market studies with a broader geographic scope are mostly less detailed. Specific insights on countries, types of goods or trade lanes are often not addressed at all. These two aspects have led to conduct this market analysis on international cross-border »less-than-truckload« (LTL) shipments differentiated by countries resp. regions, industries and trade lanes in Europe.

In this context, the following questions were aimed to be answered:

- What market potential in tonnes are moved by the »less-than-truckload« markets in Europe?
- Which international trade lanes have the largest potential LTL volumes?
- How can these potentials be subdivided according to industry sectors?
- How does the probability for back loads per trade lane in total and according to specific industry sectors look like?
- In which extent do European networks for LTL shipments exist?
- Which companies and locations really provide the backbone (location and assets) in this market?
- How does the competition for LTL services in Europe look like?
- Which trends drive this market?

In first place, a common understanding of »less-than-truckload« has to be defined. Along the market analysis in the context of the »Top 100« studies of the Fraunhofer SCS, which is the basis for this survey, it was obvious that there is a different understanding of LTL and groupage especially in Germany compared to the other main markets France, Italy and Spain (in the UK, the definition is quite similar to the German). This has led to continuous discussions on how to demarcate and compare this market segment.

With a clear definition and limitation of the market, it is as consequence possible to quantify the potentials on specific trade lanes and of industry clusters as well as to describe the competitive situation.

2 RESEARCH METHOD: DATA GATHERING, MODEL BUILDING AND ONLINE SURVEY COMBINATION

The conducted research aimed at collecting data and facts on »Less-than-truckload« (LTL) networks in Europe from a supply as well as from the demand side perspective. Data and observations were gathered using different qualitative and quantitative methods.

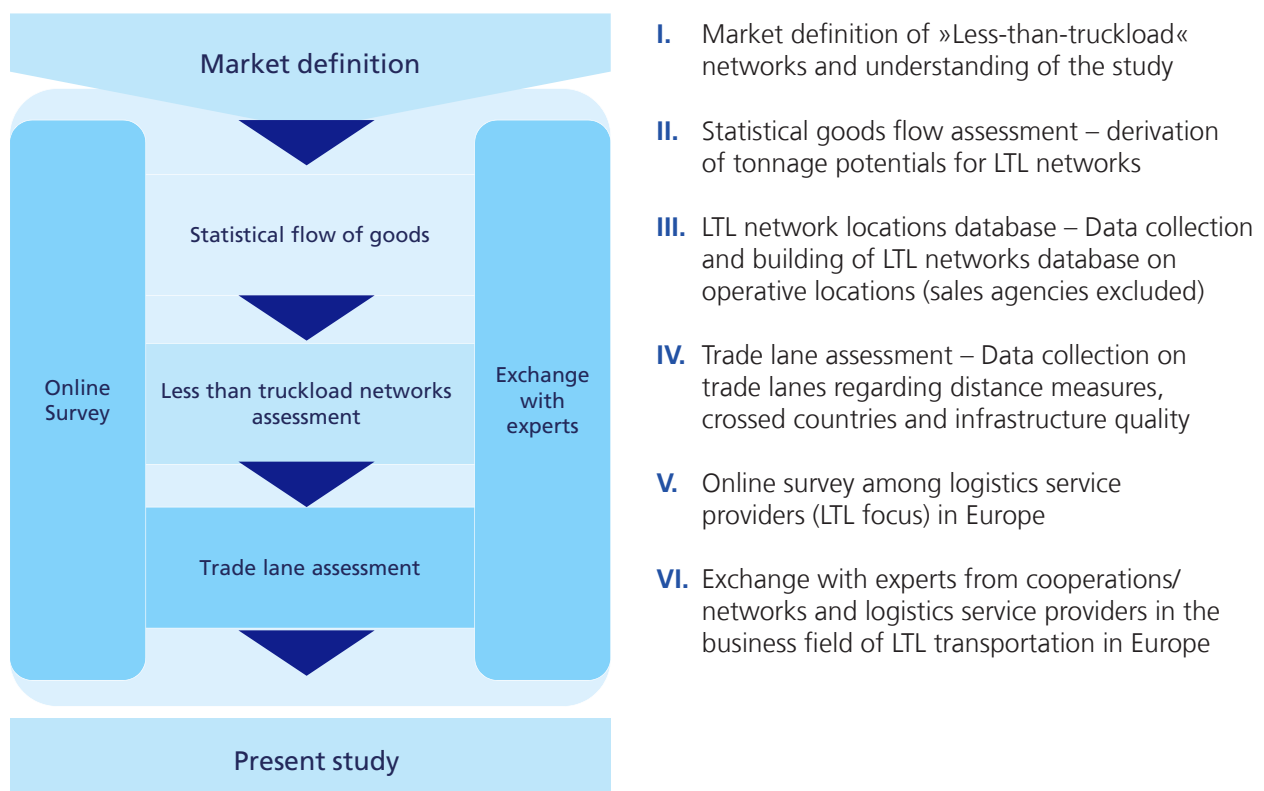


Figure 1: Research process of the present study

3 THE EUROPEAN LTL SERVICE PROVIDERS – RESULTS OF THE ONLINE SURVEY

The participants could be assigned to the four geographic clusters »Central«, »West«, »East« and »Nordic« with most of the respondents being from »East« of Europe (see pie chart). These regional clusters were not only built to describe the sample but to be able to differentiate these subsamples in regard to regional aspects.¹

Where possible, due to sample size and consideration as relevant, the responses are discussed according to these geographic clusters.

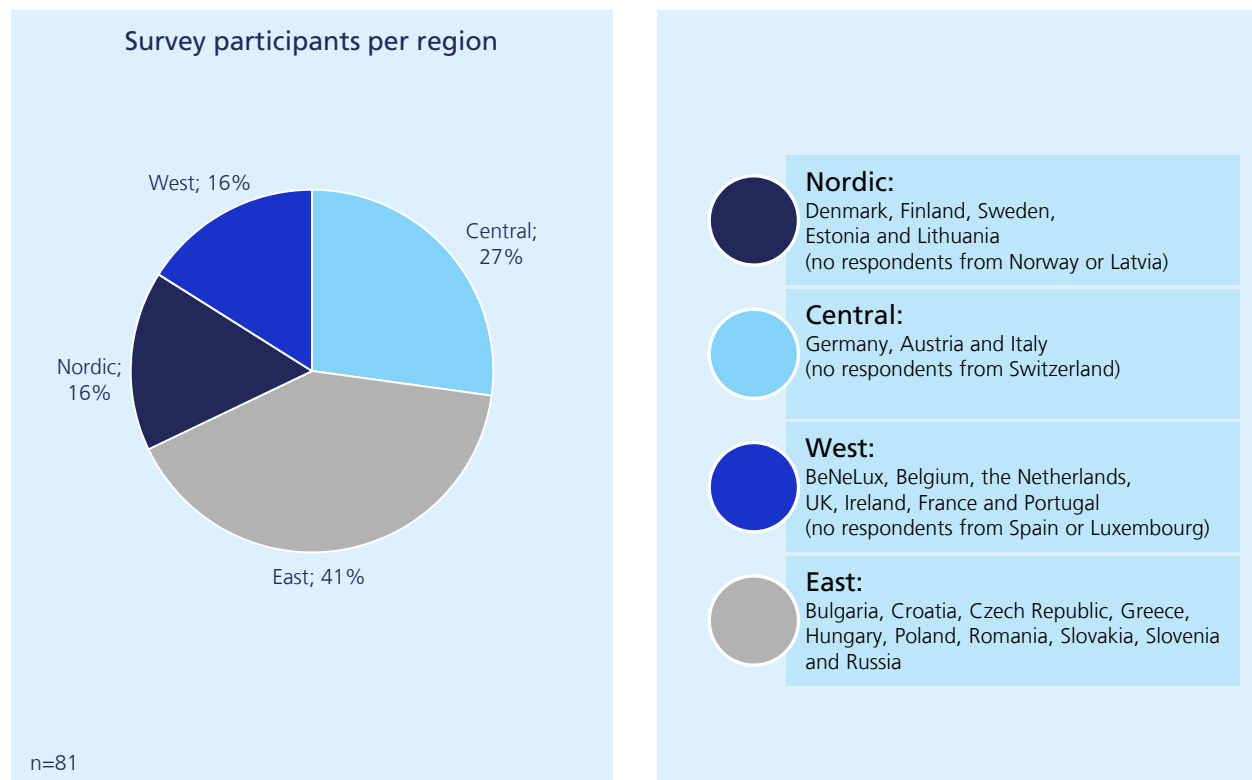


Figure 2: Geographical origin of respondents

¹ Note on the sample sizes: Unfortunately, the sample sizes for these clusters or subsamples are not in every question sufficient for meaningful interpretation.

The pie chart below shows the size of the companies in regard to the »number of employees«. Only 1% of the respondents represent the smallest company size from 1 to 9 employees. The biggest company category of more than 500 employees is represented with 13% of respondents. The major share of participating companies are of the size ranging from 50 to 199 employees.

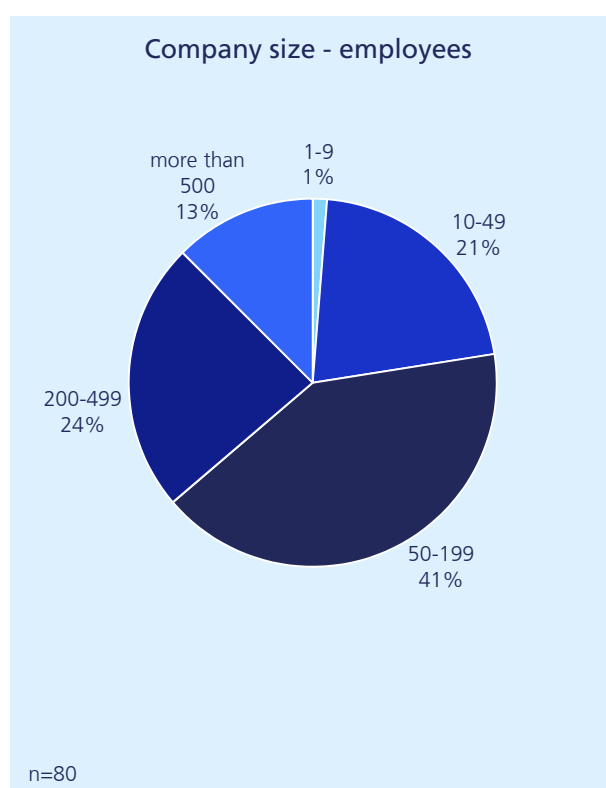


Figure 3: Employees per company

The average size of the participating companies regarding their revenues is 70.3 million € per year (n=67). For »Nordic« and »East«, the revenue figures turned out to be lower, with larger companies belonging to the »West« and »Central« clusters (see geographical clusters).

Conclusion on the type of LTL service providers described by the online survey data:

The LTL service providers are mainly road-based uni-modal service providers. It is not surprising that other transport modes do not turn out to be of similar relevance as road. Consequently, road is the backbone infrastructure for all LTL services.

LTL services naturally are the most relevant type of logistics service for the gathered sample and are mostly combined with FTL services. Where service providers are more diversified, they offer warehousing or contract logistics services, as well. Of minor importance are connections to specialised transports, bulk or CEP services. Surprisingly, LTL and CEP services are only rarely mixed, even though these business models compete in the low weight segment. As stated, this can be explained with the totally different processes of these two logistics segments.

The industry sectors that LTL service providers work for are very widely spread. »Food« turns out to be the industry sector with the highest concentration of specialised service providers. However, logistics companies also offer services for the segments »food« and »chemicals/pharmaceuticals« in combination with other segments. Consequently, they are in general well-diversified.

4 INDUSTRY SECTOR PROFILES

This chapter analyses five different industrial clusters, which are particularly relevant LTL transportation markets. The assessment encompasses insights in the structure of the economic sectors in Europe, the most important manufacturers demanding logistics services in the field of LTL network transportation, specific requirements of LTL services and particular challenges for logistics service providers. The quantitative section provides inbound and outbound tonnage volumes per cluster for eleven European countries / regions.

The regarded industrial clusters cover the Chemical and Pharmaceutical Industry, Electronic Devices, the Food Industry and the sector General Industrial Goods. The cluster Other Industries completes the market assessments with a summary of further relevant goods flows which can be processed by LTL transportation but are not attributable to the four other sectors.

The total import and export tonnages of the manufacturing industry traded between the 28 countries assessed in Europe in the survey comes to more than 1,125 million tons. The five selected industrial clusters combine almost 960 million tons (across all types of logistics market segments) of the total volume representing a share of around 85% of the total cross border volume. As not all products are equally manageable as LTL freight, only a part of the total volume is regarded as LTL potential. This corresponds to just above 9% of the volume generated by LTL related industries and comes to about 89 million tons in absolute terms.

As the different industry sectors implicate various product-specific **requirements** in terms of handling and know-how, the special characteristics and associated demands on the responsible logistics service provider are briefly explained in the respective industry sector profile. An overview of the sectors' requirements offers also the following table.

Industrial Cluster	Certificates & Standards	Need for independent LTL network	Tracking & Tracing	Theft protection	Temperature control / Frost protection	Hazardous goods	Highly sensitive goods handling necessary
Chemical and Pharmaceutical	•••	•	••	•	••	•••	••
Food	•••	•••	•••		•••		•
Electronic Devices	••		•••	•••	•		•••
Industrial Goods	•		•	•			•

- : high relevance
- : partly relevant
- : general relevance

Figure 4: Special handling or processual needs of goods categories

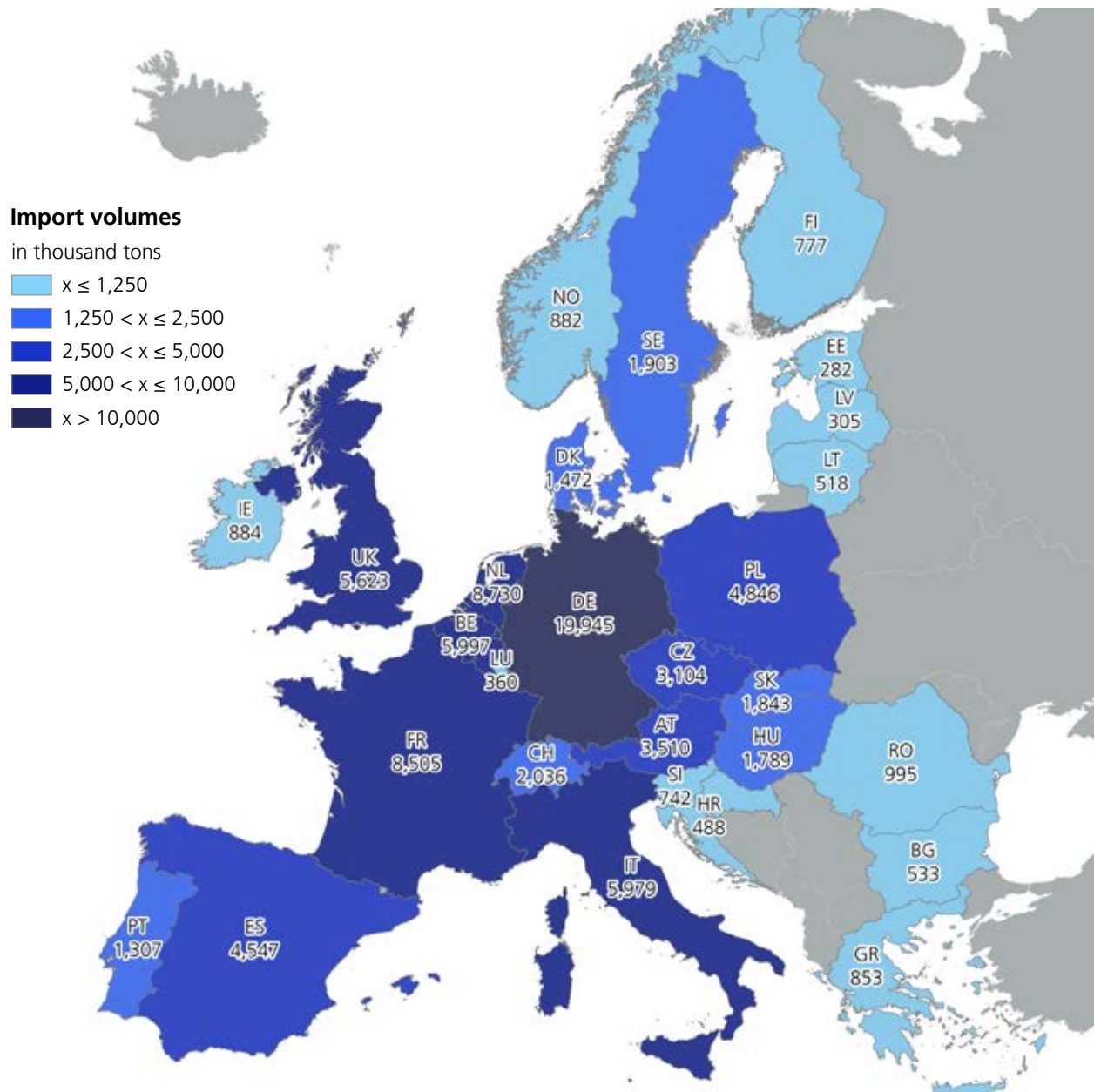


Figure 5: LTL potential in tonnes per year – imports
Source: Fraunhofer SCS (values from 2013)

The different **product groups** covered by the industry clusters also bear **challenges** for the operating logistics service providers. Besides some logistics service providers operating LTL networks for general goods, which are packaged and palletised in a conventional manner, also other market players can be relevant that do not originate from the classical LTL market and use specified networks for the various industrial segments. Moreover, it is analysed which products of the regarded cluster show specific handling requirements.

Completing the industry sector profiles, the **top trade lanes** are illustrated including the potential LTL tonnage as well as the corresponding back load probability and volume. For each cluster, the total number of cross-border trade lanes within the regional scope Europe amounts to 756 (28 exporting multiplied by 27

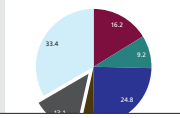
importing countries) and the datasets enable multiple analyses that are not exhausted by the present study. The top trade lanes represent 20 of this each, which makes up a small share of about 2.6%. In contrast to this, however, the share of the potential LTL tonnage transported on these 20 trade lanes reaches values of 46.3% for the Food Industry, 46.6% for the cluster Chemical and Pharmaceutical Industry, 44.2% for the cluster General Industrial Goods, 37.7% for the cluster Electronic Devices and 39.2% for the segment Other Industries. These numbers underline the high importance of the most important trade lanes in each industrial cluster regarding cross-border LTL flows in Europe. Moreover, this section also shows data on distances, the necessary travel time and the evaluation of the infrastructure conditions based on results of World Banks' Logistics Performance Index 2014.

CLUSTER: OTHER INDUSTRIES

OVERVIEW



SECTOR-SPECIFIC RE
The cluster Other Industrie
covered by the four prev
sectors. Nevertheless, fut
LTL potentials are include
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Regarding the generated revenues in 2013, Bosch is the largest manufacturer of this segment in the European market with 14.5% of the total. The company covers the business areas mobility solutions, consumer goods, industrial technology and energy & building technology. Continental is ranked in second position with revenues of 12.5%, followed by Magna International, which is mainly divided into the automotive and rubber segment whereas the automotive sub-sea generates around 60% of the revenues. Inditex is one of the largest fashion retailers in Europe with 10.5% of the total revenues, followed by Indesit, with 9.5% of the total in 2013. Two thirds of the Spanish company's revenues are generated on the European market. As this cluster is a mixture of different economic sectors, various companies with different origins are covered by this top list. Most of the listed companies are of German origin, followed by Italy, by the packaging and paper industry. Moreover, the cluster is dominated by European companies. With five out of eleven German companies have the strongest presence including the automotive and rubber segment, the food and consumer goods and adidas. With Magna International, Johnson Controls and TRW Automotive also Canadian and US-American companies belong to important market players in this cluster. The Irish company Smiths Group is a member of the automotive and packaging cluster. Storea Eno and UPM-Kymmene and the Finnish companies Stora Enso and UPM-Kymmene and the Finnish Smurfit Kappa Group.

Rank	Company	Q4	Revenue 2013 in Europe in €m	Employees 2013 in Europe	Annotations	Product portfolio (i.a.)
1	ROBERT BOSCH	---	25,251	176,394	---	Power & Gardening Tools, Sensor Systems, Water Construction, Safety Systems
2	CONTRONICAL	---	17,899	104,680	---	Automotive Safety - Chassis & Gear Systems, Driveline, Brake & Steering, Vehicle Control
3	INDOTEC	---	11,038	n/a	---	Toolbox, Fastener
4	ICI CHEMISTRIE	---	10,833	87,360	200%	Agricultural & Consumer Equipment, Industrial Automation
5	MANITEX INTERNATIONAL	---	10,482	46,675	---	Automotive Safety - Chassis & Gear / Drive Systems, Interior Design, Electronics, Seals
6	JOHNSON CONTROLS	---	10,040	---	---	Automotive Safety - Seating Systems, Vehicle Systems, Battery Technology

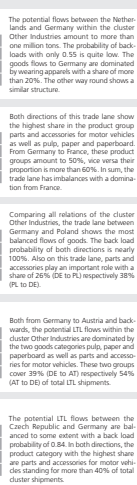
CLUSTER: OTHER INDUSTRIES



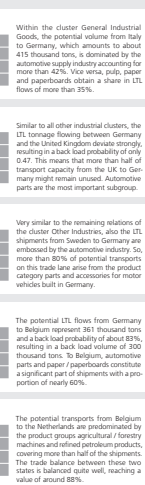
CLUSTER: OTHER INDUSTRIES

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CLUSTER: OTHER INDUSTRIES



Source: Fraunhofer SCS Research (values from 2013)



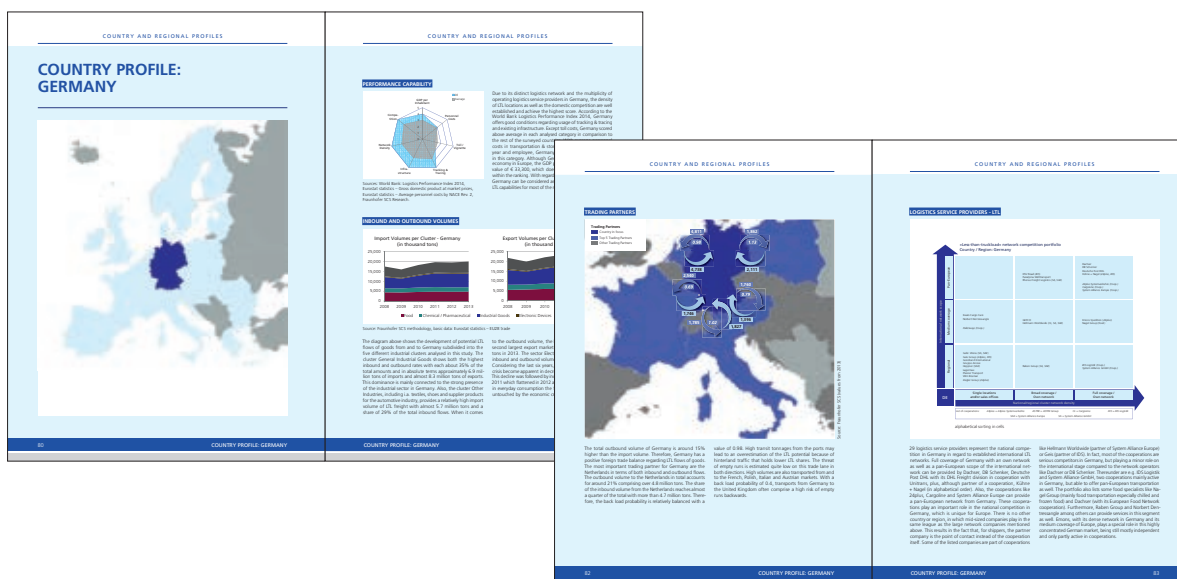
Source: Fraunhofer SCS Research (values from 2013)

5 COUNTRY AND REGIONAL PROFILES

In total, eleven regional profiles were compiled for:

- Germany
- France
- Poland
- Italy
- Spain plus Portugal
- United Kingdom plus Ireland
- Nordic: Denmark, Finland, Norway, Sweden
- Benelux: Belgium, Netherlands, Luxembourg
- Baltic: Estonia, Latvia, Lithuania
- Central: Austria, Czech Republic, Switzerland
- Southeast: Bulgaria, Croatia, Greece, Hungary, Romania, Slovenia, Slovakia

In the geographic profiles the logistics service providers being active in the relevant country/ies are analysed regarding both their international network scope and their national or regional cluster network density in order to systemize the competition in the various regions. Moreover, the most important trading partners for the respective countries or clusters are considered regarding both the potential LTL flows and the back load probabilities. The performance capability of the respective regions is evaluated in consideration of supply-related, economic and infrastructural criteria. This comparison represents the framework conditions provided by the regarded countries.



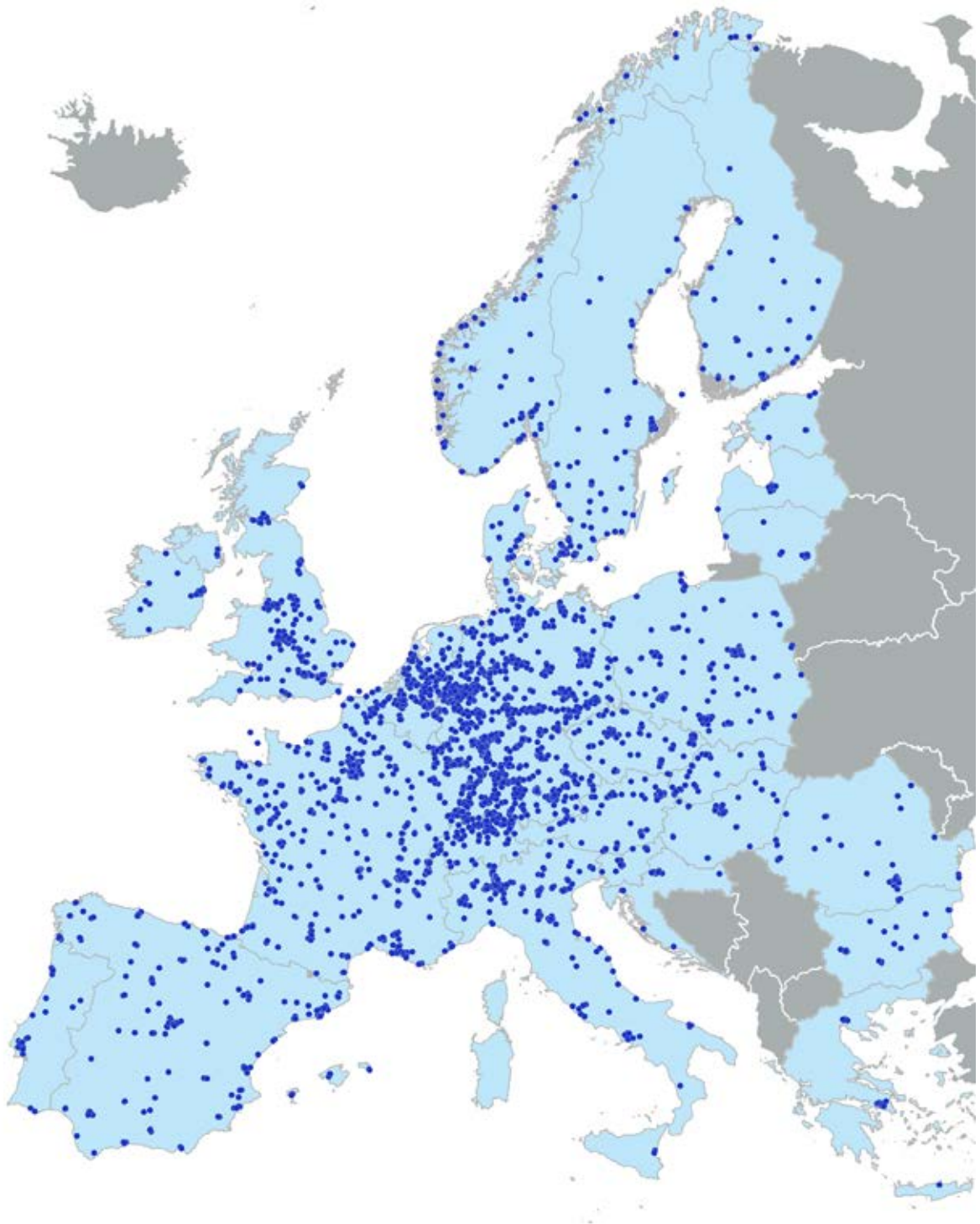
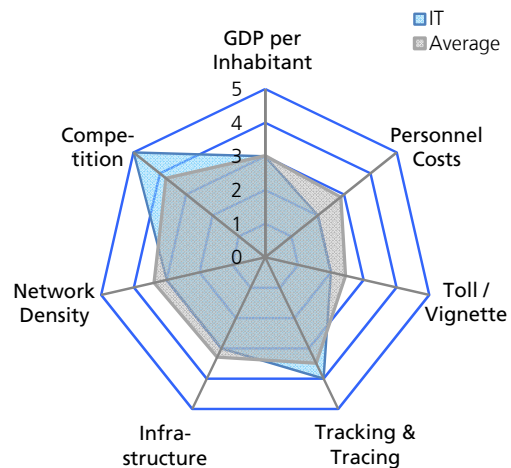
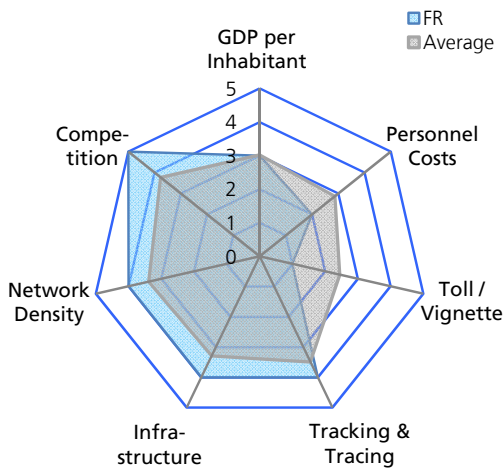
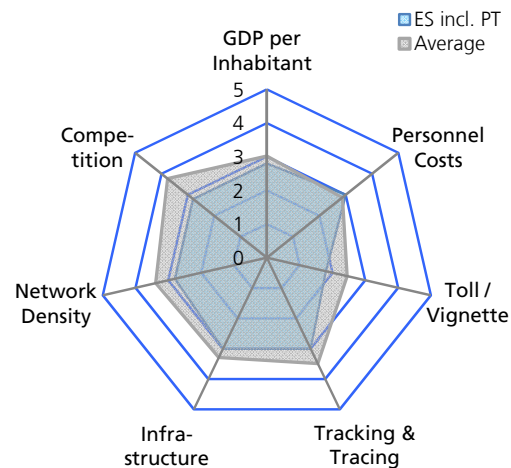
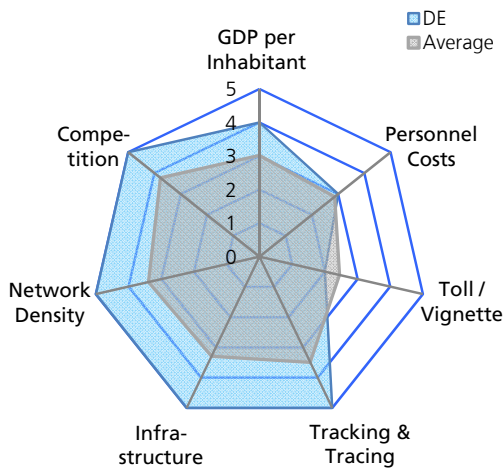
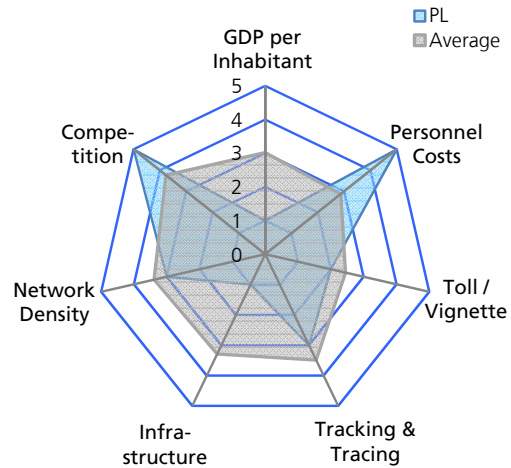


Figure 6: Map of European LTL hubs and depots
(Source: Fraunhofer SCS database)

The evaluation of the performance capability concerning LTL transportation is illustrated as an overview in the following diagrams for all regarded countries and clusters and is also included in the respective profiles.



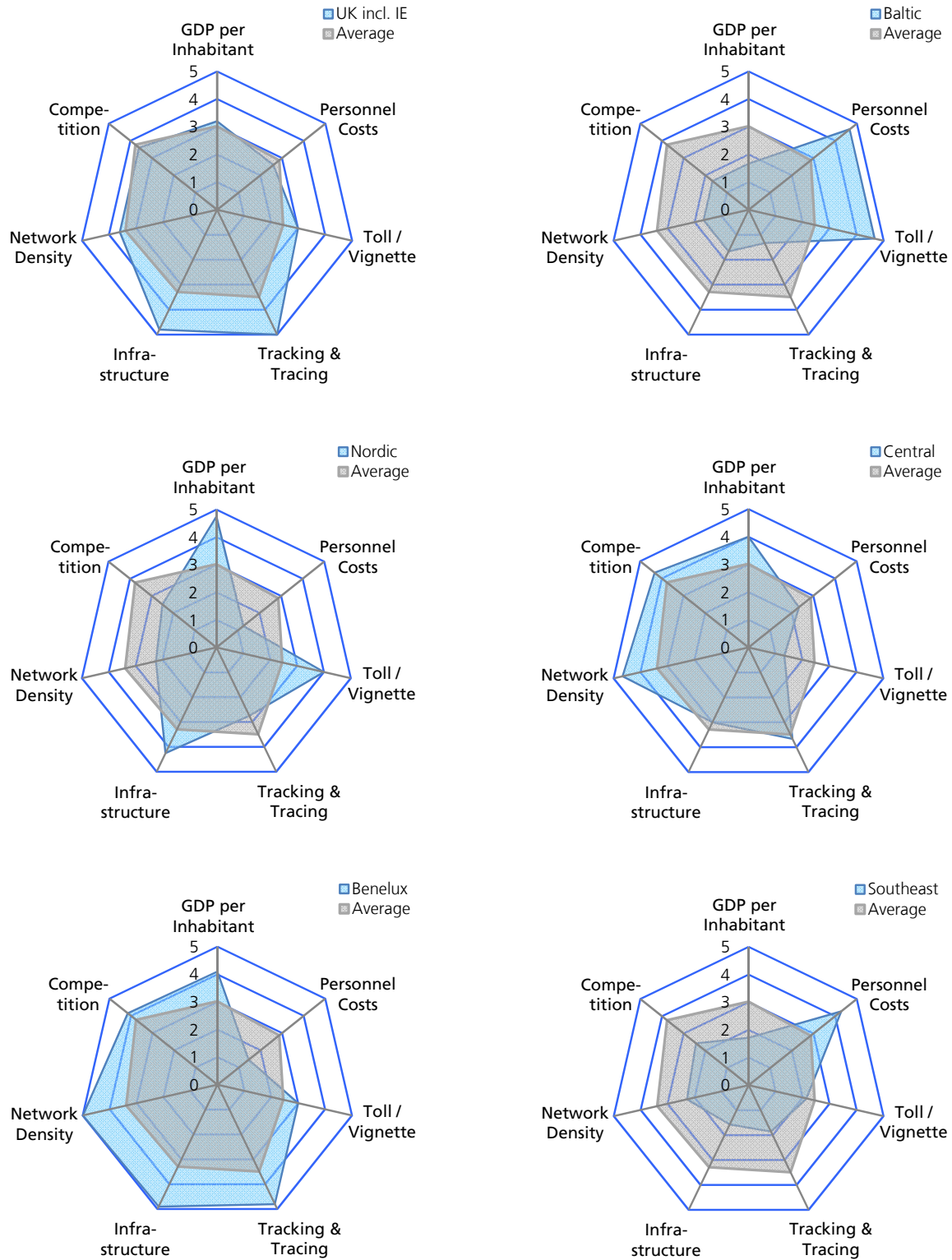


Figure 7: Overview of the performance capabilities for LTL transportation of the regarded countries and clusters

6 »LESS-THAN-TRUCKLOAD'S« ELEVEN – TRENDS IN THE LTL NETWORKS LOGISTICS MARKET

There are various trends on the market for LTL services. To have an adequate structure for the following discussion, the relevant trends are combined with the influencing areas of society, policy, economy and innovation. These four areas reflect the main forces, which are changing logistics in general, but especially the focussed market segment.

- **Society:** Mainly demographic changes, including age, gender, culture, nationality, values etc.
- **Policy:** Mainly regulation and legislation, including EU, federal state and communal law and regulation resp. trade, consumer and environment protection etc.
- **Economy:** Mainly competitive influences, including competition within the industry, new market entries, substitution etc.
- **Innovation:** Mainly new technologies and services, including vehicle technologies, warehouse automation, information and telecommunication, process design, value-added services etc.

Each trend has various influences, with each of them arising from different changes in the four areas. To understand the trends themselves and their impact on the LTL market, the following discussion is structured according to the four areas mentioned.

But first, the trends LTL service providers are mainly influenced by, are listed:

1. Natural catastrophes
2. Globalisation of logistics
3. Theft / other criminal aspects
4. International trade barriers (customs, border check)
5. State interventions like tolls or driving restrictions
6. Terrorism
7. Sustainability and green logistics
8. Lack of skilled workers
9. IT / new technologies
10. Price pressure
11. Increasing competition

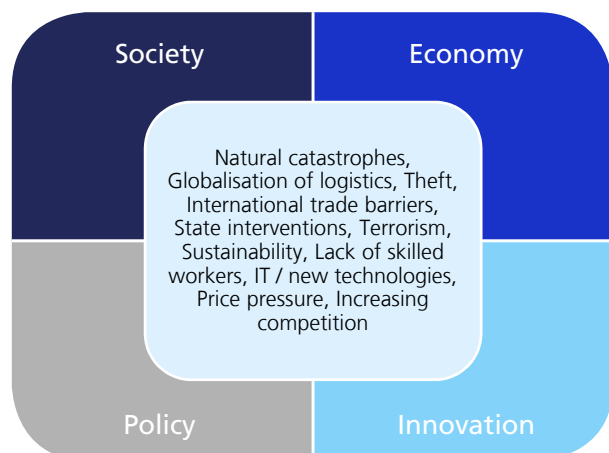


Figure 8: Four areas driving eleven trends

PRICE PRESSURE

COMPETING WITH LOW-COST COUNTRIES AND BEING TRAPPED IN »TRANSPORTATION ONLY«



It is obvious, that logistics companies feel a strong negative impact from the price pressure as the survey shows. The following aspects are driving this trend towards an actual higher pressure: To begin with, there seems to always be a new competitor with even lower prices than before. Of course, the truck is licenced in the country with the lowest taxes and insurance costs and the driver comes from countries with high unemployment and low wages (especially from Romania and Bulgaria) – sometimes also from different countries than where the logistics company is registered. Mostly, the shippers contact the national forwarder who is organising the transport and deploying the truckers with the best prize-performance-ratio. Truckers from high-income states can hardly compete in this environment.

This is driven by the shippers themselves, who are trying to reduce costs continuously, especially those of the cost centre logistics and in the commodity transportation. The price pressure is therefore influenced by the supply side, which always finds ways to decrease their costs, and the demand side, which forces the supply side to find these ways.

SURVEY RESULTS AND GEOGRAPHIC DIFFERENCES

A strong negative impact is mainly seen in high-income countries with high minimum wages as in central Europe. As transportation is a cross-border business, foreign companies can compete with lower prices because of advantages in the cost structure. Especially in Germany with neighbouring countries such as the Czech Republic and Poland, logistics companies are utilising personnel and trucks from low-cost countries as they are nearby. It is interesting that the price pressure seems to have a lower negative impact in the Nordic region than in the rest of Europe.

EFFECTS ON THE OPERATIONAL LEVEL

The trend towards internationalisation takes place also regarding the employed resources. Trucks and drivers are from different countries. Like in other industries (e.g. facility management, home care, gastronomy and hotel business), jobs in transportation are continuously done by foreign workers, which are satisfied with lower wages (except in countries with minimum wages). This leads directly to the lack of skilled workers in the more developed and wealthier countries, as income and image are both low. The **deployment of foreign workers**, also of those with lack of language skills, will be the only way out to face both trends (price pressure and lack of skilled workers). As a consequence, the communication is more complicated. Additional support from technologies and applications in the truck and for preparation and post-processing of shipments is one possibility to meet this challenge.



EFFECTS ON THE STRATEGIC LEVEL

Most of the forwarders are running their business with sub-contractors. Firstly, they want to be more flexible, secondly they want to deal with the price pressure. Discussions regarding precarious employment and dependence without security are forcing logistics companies to **adjust and rethink their business model** – also against the background of the price pressure, as personnel costs represent in general the largest share in their cost structure. In many European countries, especially today during times of economic crisis, the margin of logistics companies in general and of LTL companies especially are very low. These companies are trapped between low margins and the fear of losing their customers. It can be assumed, that a further consolidation will take place, which will adjust this heterogeneous market by reducing the number of remaining companies.



RECOMMENDATIONS FOR LOGISTICS COMPANIES

To stop the pressure on the prices especially from the shippers, LTL companies have to rethink their business model. »Transportation only« will be only one remaining possibility to succeed in this logistics segment. Low cost carriers from low cost countries will dominate this business field. There are still many shippers, which only demand pure transportation without any special requirements. The rest of the logistics providers have to enhance their business model with higher priced additional services to get the margin to survive against the low cost competitors as »transportation plus« companies. See referring chapter on the structure of the goods flows in LTL networks. Another possibility is to offer a pan-European high-quality network for LTL shipments (also by joining a suitable cooperation). Here, economies of scale and reliability might convince shippers to pay higher prices to be on the safe side.

7 CONCLUSIONS: FAQ'S ON THE MARKET FOR EUROPEAN LTL NETWORKS

To conclude in an informative way, the study is summarised as FAQs for:

1. Shipping companies (industry or trade) which might need a logistical partner in the area of »less-than-truckload« networks or who want to gain an overview over networks and international performance criteria (see full report)
 2. Logistics service providers who run »less-than-truckload« networks or are partners of such networks (see full report)
 3. All other interested readers
-

3. QUESTIONS, WHICH MIGHT BE ASKED BY ANY INTERESTED READER OR MARKET OBSERVER

Q: Which country / region has the largest potential regarding growth of LTL shipments?

A: Between 2008 and 2013, the largest growth rates regarding potential LTL outbound shipments can be found in Poland with 32 %, Benelux with 27 % and the Baltic states with a rate of plus 37 %. Referring to inbound transports, the fastest-growing markets are the Benelux countries (36 %), the Baltic region (19 %), Germany (14 %) and Italy (14 %). As the timeline for measuring this development begins before the economic crisis, the growth does not represent a recovery process from the crisis, but real growth. A veritable collapse can be noted in Iberian imports showing a decline of more than 27 % during this period of time.

Q: The study surveys five different industrial clusters. Are there any regional differences in the potential LTL tonnage per cluster?

A: The 20 top trade lanes per economic segment often differ from each other. Regarding for example the cluster Electronic Devices, some smaller Eastern European countries like Poland, Hungary, Czech Republic or Slovakia show comparatively high shares in export shipments.

Q: Which industrial cluster is the most important for the European LTL logistics market?

A: General Industrial Goods show the highest potential volume with more than 28 mil. tons in 2013. The segment is followed by the Food Industry representing a potential for cross-border intra-European shipments of approximately 25 million tons. The lowest share in total LTL flows in Europe can be found in the cluster Electronic Devices with only 1.6 million tons estimated.



Q: How do network operators handle low probability in back load?

A: Several possibilities exist, which differ from company, market, industry etc. If it is quite obvious that only small volumes are dedicated for the way back, logistics companies are able to bill both directions. If the market with the low probability of back load is high-priced, some try to underbid the common price up to below own costs, as it is better to get volumes in the end than driving back empty. Others have the possibility to acquire volumes in other industries or neighbouring markets. Mostly, all of these alternatives are incorporated by this time.

Q: Have there been surprising developments in the competition?

A: To some extent, some new companies like Bring (subsidiary of PostNorge) have been identified. The liquidation of French Mory is a negative effect of the high competition. A positive development is shown by e.g. Rhenus or Raben regarding the expansion of their network within Europe. But in total, the well-known players are leading the company list.

Q: How can the competition be described?

A: In general, there is still a tough price competition on the international level. Especially on the »highways« e.g. between the industrial hot spots in Germany, Poland, France and Italy, the service is available and reliable for low prices, also driven by low cost carriers. On specific routes and for some industry clusters, the requirements prevent a sole price competition as higher quality, specific knowhow etc. are needed.

Q: Which are the main trends, the market for international LTL services have to face?

A: Currently and midterm, sustainability, IT and innovations, price competition and state interventions as well as already the lack of skilled workers are mainly driving the market and its players.

Q: Will there be more information on this market segment?

A: We hope this study will turn out to be a starting point for further detailed assessments with partners.

Of course, this list of questions should not be considered complete. There are many more questions like these, which could help describe the market and we look forward to discuss some more of these in forthcoming discussions on that topic with our readers.

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The study »**Less-than-truckload networks – The European market for network based cross border goods flows**« offers an objective view of the transnational European LTL goods flows based on scientifically established analyses and assessments. The study primarily addresses the players, who are involved in the international LTL transportation market in Europe:

- Industry and commerce: The overview of the industries and the performance capacity of the service providers can help identify a suitable service provider. Country analyses and the most important transport integrations complete the observations.
- Logistics service providers: The debate on tonnage potentials, back load probabilities as well as the demands of various customer industries and of the operative trends belong to the day-to-day business for all service providers.
- Consultants, market observers or interested readers.

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