(INstruments and NEtworks for developing logistics towards Sustainable Territorial Objectives)

Contract n° EVG1-CT-2001-00054

District Logistics Analysis of

"The Northern Brabant case study"

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Project home page: www.districtlogistics.net

Status: DRAFT

Rijswijk, 2 May 2004

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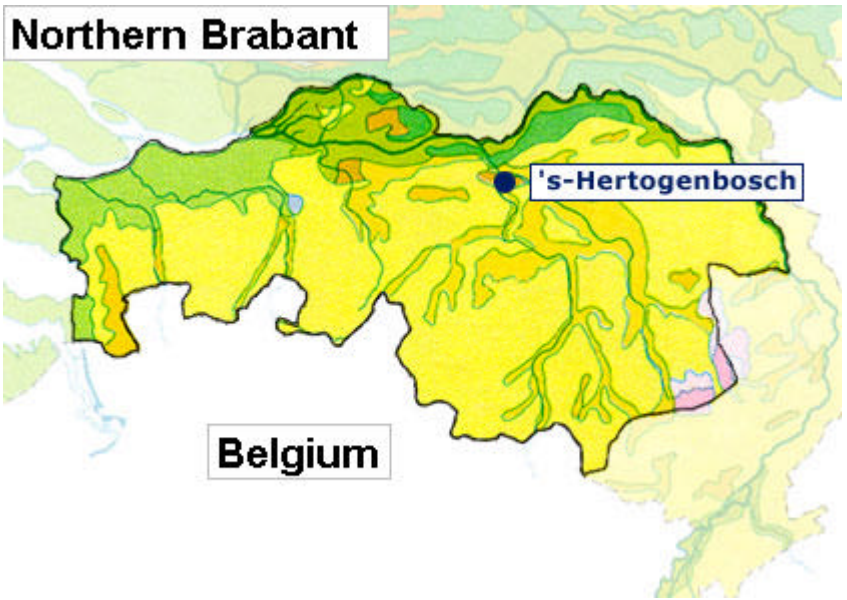
Northern Brabant versus the rest of the Netherlands.



1 EXECUTIVE SUMMARY

The purpose of the District Logistics Analysis (DLA) of the Brabant study case was to discover the main characteristics of the material flows and the business performances. By using data collection and questionnaires this DLA composed some correlations between the LCA hypotheses and DLA findings.

In chapter 2 these correlations are further explained. There can be concluded that from the perspective of the LCA some major improvements must be implemented to achieve sustainable developments in Northern Brabant. Education programmes and investments in databases and Internet options should be commenced.

Chapter 3 contains important information on the characteristics of the Northern Brabant area, for example the population and superficies, and the characteristics of the transport companies in Brabant, such as company size and geographical position.

In the next chapter, chapter 4, the logistic flows are further examined. The subjects for discussion are the commodity groups, the logistic flows within, to and from Northern Brabant. The logistic flows to and from Northern Brabant are divided in:

- Transportation to and from other provinces of the Netherlands;
- Origin of the goods;
- Destination of the goods;
- And transhipment in Northern Brabant of the goods.

These logistic flows are examined in relation to the provinces of the Netherlands or other countries the goods are coming from or going to and on the volume (in Tons) of the goods.

Chapter 5 provides information on the performances of the transport companies in Northern Brabant, such as capacity utilisation, costs and profitability.

The last chapter, chapter 6, covers the questionnaires used also provides some information on 'The NEA Cost Index, Performance Indicator'.

2 CORRELATION: LCA HYPOTHESES AND THE DLA FINDINGS

This chapter is about the correlation between the LCA innovative options and those obtained from the DLA-analyses. It describes the probable impacts of the DLA and the possible integrations and modifications, which will be introduced into the LCA.

Main hypothesis I of innovative action derived from the LCA

Short description

Developing a (virtual) network consisting of (independent) transport companies, transhipment providers, etc, will increase the transport efficiency and thus will decrease the financial and social costs of non-optimal transport performance. Exchanging freights, therefore, will be a strong support of the further sustainable development of the Brabant transport sector.

Expected results.

- Reduction of the number of trips will result in:
  - Reduction of traffic noise.
  - Reduction of emission of pollutants.
  - Reduction of congestion.
  - Reduction of traffic accidents and thus of traffic casualties.
  - Demands for additional (road) infrastructure.
- Reduction of (transport) costs because of higher utilization of the loading capacity of the transport unit.
- Development of a "Virtual transport company" (VTC), in which independent transport companies (including all modes of transport and including intermodal transshipment providers) virtually merge into a single multimodal transport company. In this way, amongst other, economies of scale can be reached and the mode of transport will be selected with the lowest (financial and, hopefully, environmental) cost.

  These economies of scale can be reached by the fact that, when fully loaded, the bigger (in loading capacity) the transport vehicle is, the better (= the more sustainable) the cargo will be transported. The result of this virtual company, therefore, will be that the transport sector of the province of North Brabant, has the potential of geting more sustainable.
- Further utilization of the central geographical position of the North Brabant area.
- Further strengthening of the competitive position in (sustainable, multimodal and intermodal) transport solutions with respect to the new members of the EU (Latvia, Estonia, Lithuania, Poland, etc.).

Financial and organisational measures.

- Setting up of a "Code of Conduct" of participants of the "Virtual Transport Company" (incl. statutory regulations).
- Investments in a supra-company logistic system by means of Internet between the participating independent transport companies and thus, in fact, creating the VTC.
- In relation with, and, after the first practical experiences of the VTC, investments in infrastructure to optimize the use and the accessibility of intermodal nodes and industrial areas in Northern Brabant.
- Co-ordinations of several initiatives, partly originating from local initiatives, to follow criteria of economic and environmental sustainable development (e.g. waste management plans, reports on transport and infrastructure development, environment plans).

Correlated findings derived from the DLA

- Stimulate transportation over water by mean of road-water transport chains.
- Stimulate establishment of companies near waterways or near 'Hubs'.
- Increase or further development of load and unload facilities in 'Hubs'.
- Setting up of a "Virtual Transport Company", which co-ordinates the transport flows of a large number of transport companies (including non-transport services providers) and thus optimize the utilization of transport capacity per trip.
- To further improve the efficiency of the local logistic structure the next options are open:
  - Optimize the use of the central geographical position of the Brabant area through the tendering of multimodal transport solutions.
  - Further extension of the facilities of existing 'Hubs'.
  - Improve or increase the capacity of existing water and road infrastructure.
  - Start or restart non road infra-structural initiatives like "The IJzeren Rijn" (a neglected railway corridor thru the Brabant area).

Main hypothesis II of innovative action derived from the LCA.

Short description

The growing percent elderly (working) people is believed to be a major problem in the whole Netherlands and especially in the province of Northern Brabant. Younger people are moving to or working in other provinces like the province of Zuid-Holland (with the city of Rotterdam, the harbor Europoort and the governmental head quarters in the city of the Hague as main attractors). In this province there is also more choice in education institutions and, concerning non-working time, in the cities there is much more going on for young people. To be a sustainable area this tendency must be stopped. The growing percent elderly people and the leaving of young people out of the Province will result in a shortage of the work force. This shortage will prevent the Brabant area to develop into a recognized Province in the transport sector in Europe or the whole world and will put a diminution into action. To

prevent this the position of Brabant as a 'young' province must be regained. In order of this, Northern-Brabant has to upgrade her position as a sustainable area where ample opportunities are available for young people to develop themselves.

Expected results

- Attraction of more business with opportunities that appeal to the interest of young people.
- Attraction of more high-educated young people by stimulating the settlement of companies with "cutting edge technology".
- Attraction of more specialized (transport) people.
- The extended use of public transport by young people
- Young people are important for the future. When the elderly people are going into retirement younger people are needed, amongst much others, as financial resource for old-age pensions and volunteer aid for their own families. When the majority of the young people leave Northern Brabant the elderly people may come in a position of social exclusion and isolation and, possibly even in a situation of financial distress. This conclusion may also hold with regard to immigrants from less developed countries and to handicapped people.
- Another important point of notice is the need to reduce the growing individualization, in fact: growing social isolation of a substantial part, of the inhabitants of Northern Brabant. The purpose of this element is to reduce (the danger of) social exclusion of minorities, especially in economically less fortunes times.
- Brabant has, in relation to the more western provinces, a large agriculture sector. Many agriculture companies face, apart from economically difficult times, the problem of succession. Sons and daughters of farmers don't want to take over the company, because they don't see much future in this business. Through a sustainable development programme staying in the agriculture sector should be stimulated, resulting in a more sustainable agriculture environment.

Financial and organizational measures

- Investments in education programs for the elderly and young people. For example reintegration programs and transition training.
- Investment in social welfare like pension funds.
- Investments in opportunities, such as entertainment, in cities and villages for the purpose of people who live there. These investments could help to persuade people to stay in the Brabant region and not move to other provinces.
- Programs and projects for positive action in favor of women, elderly, immigrants and disabled insertion in labor market, education ad decision-making.

Correlated findings derived from the DLA

- To create a better social cohesion between individuals, programmes with integration as driving force should be developed more and creating more interesting jobs in the region itself should repel forensic traffic to other provinces.

- To improve the inter–local equity between territories the next two actions can be undertaken:
  - Structure interregional cooperation at the area of multimodal transport solutions (for example: tuning railway bloc times).
  - Investing in or attracting of intermodal service providers.

3 CHARACTERISTICS OF NORTHERN BRABANT

Northern Brabant, with ‘s-Hertogenbosch as its capital, is one of the three provinces in the south of the Netherlands. With a surface area of 5100.24 km² (12,3% of the total of The Netherlands) and with 2.391.123 inhabitants (15% of the Netherlands), Brabant is one of the biggest provinces of the Netherlands. The cities of Eindhoven, Tilburg and Breda lie Adjacent to ’s-Hertogenbosch. The south of the Netherlands would appear to be very popular for transport enterprises. More than 38 percent is situated in the south. Of all the companies in the south 53 percent is situated in Northern Brabant. The exact number of companies can be seen in Annex C. These companies have different sizes. The same table in Annex C shows that 18 percent of total companies and 21 percent of the biggest companies are seated in Northern Brabant. The provinces of Zeeland, Zuid-Holland, Gelderland en Limburg and the country Belgium, surround Northern Brabant and are accessible by way of different kinds of infrastructure; For example via the rivers Maas, Waal and various other rivers and canals, the direct connection to the North sea through the Nieuwe Waterweg, the intensive road en motorway structure to the inland and foreign countries and last but not least the good railway network to different districts.

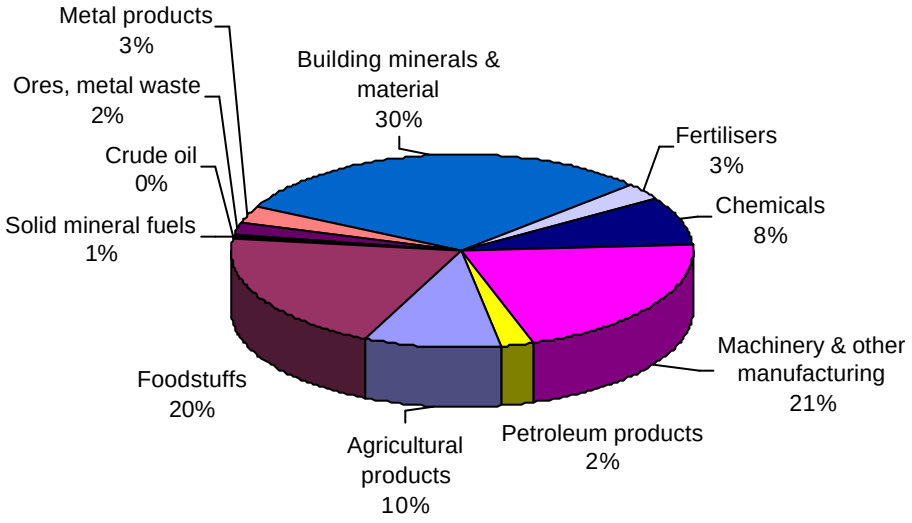
4 LOGISTIC FLOWS

The transport sector in Northern Brabant can be structured in different ways, for example commodity groups, transport in and outside the Netherlands and different modes of transport.

4.1 Commodity Groups.

In Figure 4.1 a division is made of the different commodity groups. In this chart the total transport modes are split into different commodity groups. As you can see, building minerals & material, Machinery & other manufacturing and Foodstuffs account for more than 70 percent of the total goods transported.

Figure 4.1 *Commodity Groups Northern Brabant*



4.2 Transportation within the Netherlands.

Goods are are transported from Northern Brabant to different provinces in the Netherlands and to different countries in Europe and further. In are given the carriage is coming.
Mind the ☆ !

Table 4.1 *Transport within the Netherlands with origin or destination in Northern Brabant.*

(in Ton)	Origin	Destination
Groningen	838055	716216
Friesland	504346	1005445
Drenthe	388774	864795
Overijssel	1142438	1898685
Gelderland	5831448	7572344
Flevoland	1014398	855702
Utrecht	1720460	2730845
Noord-Holland	4605117	4429252
Zuid-Holland	8086176	10494272
Zeeland	3131971	2101586
Noord-Brabant		
Limburg	9969794	5829135

Total transport in Northern Brabant (ton)	173726563
Total transport within Northern Brabant (ton)	53729036
Percent within Brabant/total Brabant	31%

As can be seen in Table 4.1 a large amount of the goods transported to Brabant from another province are coming from the provinces Zuid-Holland and Limburg. This is due to the Port of Rotterdam being situated in Zuid-Holland Limburg is situated next to Belgium and more importantly Germany. The majority of the goods transported from Brabant to another province have their destination in Zuid-Holland (also due to the Port of Rotterdam) and Gelderland.

A large amount (31 percent) of the total transport in Brabant stays in Brabant. Of this amount 34 percent consists of the transportation of Building minerals & Material and 23 percent consists of the transportation of Machinery & other Manufacturing equipment(see Table 4.2)

Table 4.2 *Commodity group of transport within Brabant*

Commodity group	Ton	Percent
Agricultural products	4327868	8%
Foodstuffs	10672733	20%
Crude oil	28321	0%
Ores, metal waste	302716	1%
Metal products	613325	1%
Building minerals & material	18369611	34%
Fertilisers	1338965	2%
Chemicals	4166426	8%
Machinery & other manufacturing	12475252	23%
Petroleum products	1433819	3%

But not all the goods transported to or from Northern-Brabant stays in the Netherlands. In fact, 25 percent of the total amount of goods transported within Northern Brabant will be going abroad. See Table 4.3.

Table 4.3 *Total transport divided in inland and foreign transportation.*

	Ton	Percent
Total transport to or from the other provinces	129460290	75%
Total transport to or from foreign countries	44266273	25%
Total transport in Northern Brabant (ton)	173726563	

4.3 Transportation within Northern Brabant

As can be seen in the paragraph above 53.729.036 tons of goods are transported within Northern Brabant. In Table 4.4 can be seen the distribution of the total transport within Northern Brabant. In northeast Brabant 35% of total transport is in this region and only 1,8% is transported in Moerdijk. All these goods do of course have a destination. Table 4.5 shows which region the goods are coming from and to which region they're going to.

Table 4.4 *Distribution of total transport within Northern Brabant*

Region	Percent
West Northern-Brabant	22,5%
Moerdijk	1,8%
Mid Northern-Brabant	18,2%
North-East Northern-Brabant	35,0%
South-East Northern-Brabant	22,5%

Source: TEM

Table 4.5 *Total transport within Northern Brabant divided in 5 regions.*

Destination	**West Northern-Brabant**	**Moerdijk**	**Mid Northern-Brabant**	**North-East Northern-Brabant**	**South-East Northern-Brabant**
West Northern-Brabant	72,5%	64,4%	13,7%	7,9%	7,7%
Moerdijk	1,7%	11,9%	0,9%	0,4%	0,2%
Mid Northern-Brabant	12,1%	9,4%	61,3%	6,6%	7,3%
North-East Northern-Brabant	7,5%	9,6%	14,2%	71,7%	14,9%
South-East Northern-Brabant	6,2%	4,7%	9,9%	13,4%	69,9%

Source: TEM

It's very interesting to note that the highest volumes of goods are transported within the regions, except in the Moerdijk area, where 64,4% is transported to the west of Northern Brabant.

4.4 Transportation to and from other countries

The total transport can be divided in three pieces:

- Origin
- Destination
- Transhipment

First there'll be an examination on the origin, then the destination followed by transhipment.

4.4.1 Origin

The different kinds of goods come from different places all over the world. Table 4.6 shows that most of the goods have thier origin in the Netherlands itself (83% of total transportation), Belgium & Luxembourg (44,5% of total foreign transportation), Germany (20,6%) and France (10,5%).

Table 4.6 *Origin goods in Northern Brabant*

	Ton (total Transported)	**Percent**
France	1957397	10,46%
Belgium & Luxembourg	8333590	44,51%
Germany	3854154	20,59%
Italy	664817	3,55%
United Kingdom	1099581	5,87%
Rest of Europe and the world	2921795	15,59%
Subtotal	**18721052**	**16,87%**
Netherlands	92227313	83,13%
Total	**110948365**	**100,00%**

4.4.2 Destination

The different kinds of goods that are transported to Northern Brabant all have diverse destinations. See Table 4.7 which, similar to Table 4.6 presents the origin of the transported goods, and shows that most goods have their destination in the Netherlands (80%). The three other important destinations are Belgium & Luxembourg, France and Germany and that those 4 countries are the most important trade partners of Northern Brabant.

Table 4.7 *Destination goods in Northern Brabant*

	Ton (totaal vervoerd)	Percent
France	2880589	13,00%
Belgium&Luxembourg	7386098	33,35%
Germany	7286796	32,90%
Italy	382703	1,73%
United Kingdom	814172	3,68%
Rest of Europe and the world	3400159	15,33%
Subtotal	**22150517**	**19,58%**
Netherlands	90962013	80,42%
Total	**113112530**	**100,00%**

4.4.3 Transhipment

All goods have their origin and destination. Sometimes the goods are transported to Brabant only as a transhipment place. So not only their origin is from somewhere outside Northern Brabant but the destination also. In Table 4.8 you can see how many tonnes are transported through and to a transhipment place in Brabant from a defined origin to a defined destination.
The goods to be transhipped in Northern Brabant have for the largest part their origin in the United Kingdom (20% of total foreign origin), Norway (19%) and the Middle & South of America (13%). 52% of the total of goods for transhipment has it's origin in the Netherlands itself, including Brabant, which transhipped 153194 tons of product of it's own origin which was 8 percent of total transhipment in the Netherlands.
The goods that will be transhipped in Northern Brabant have for the largest part their destination in Spain (19% of total foreign destination) and Turkey (also 19%). Of total transhipment 38% has got a destination in the Netherlands, including Brabant, which transhipped 488570 tons to a destination in Brabant itself, which comes to 35 percent of total transhipment in the Netherlands.

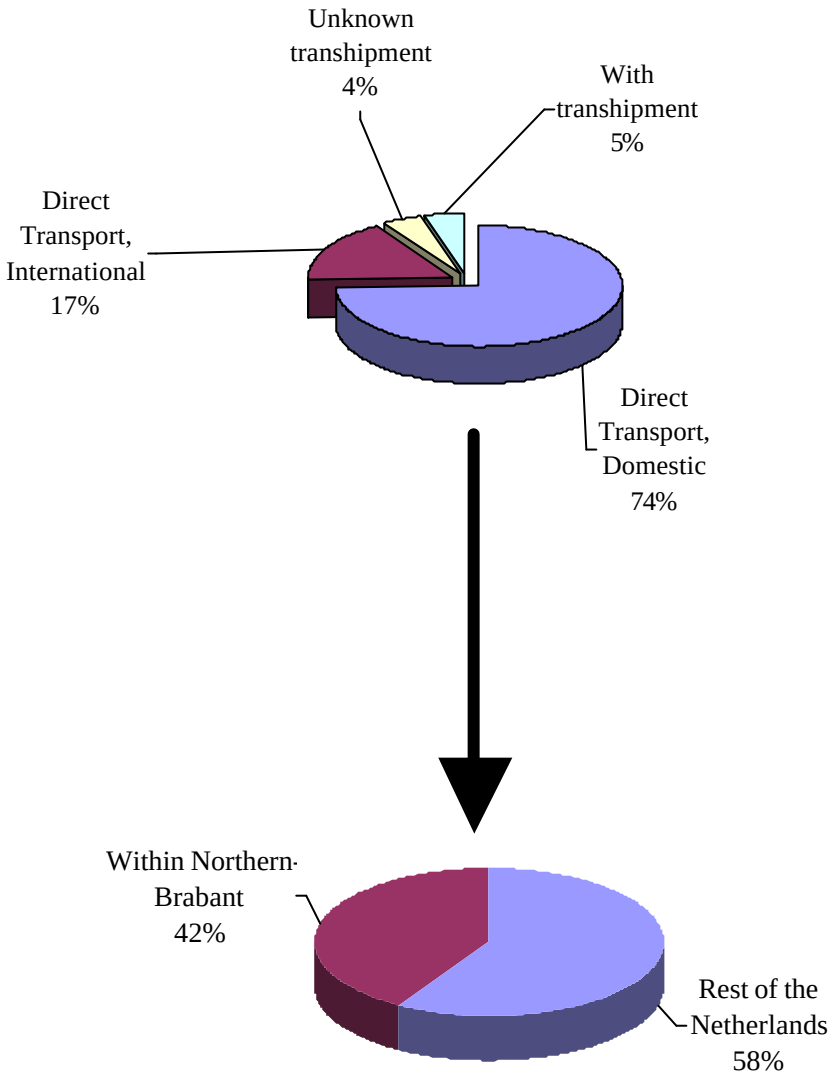
Table 4.8 *Origin and destination at transhipment in Brabant*

In tons	Origin	Percent	Destination	Percent
France	76940	4%	106999	4%
Italy	78011	4%	25920	1%
United Kingdom	365251	20%	124603	5%
Spain	22546	1%	461668	19%
Norway	355894	19%	163183	7%
Russia	107544	6%	9107	0%
Estonia	127486	7%	1517	0%
Latvia	91058	5%	295	0%
Turkey	17615	1%	466457	19%
USA	20145	1%	208649	8%
Middle & South America	242344	13%	163938	7%
Japan	1151	0%	93896	4%
Middle Asia (Iraq, Iran, ….)	89712	5%	11402	0%
Rest of Asia (India, China, Taiwan…)	40899	2%	103658	4%
Rest of Europe and the world	232005	9%	515726	19%
Subtotal	**1870016**	**48%**	**2472652**	**64%**
Netherlands	2013745	52%	1411111	36%
Total	**3883761**	**100%**	**3883763**	**100%**

4.5 Total transport

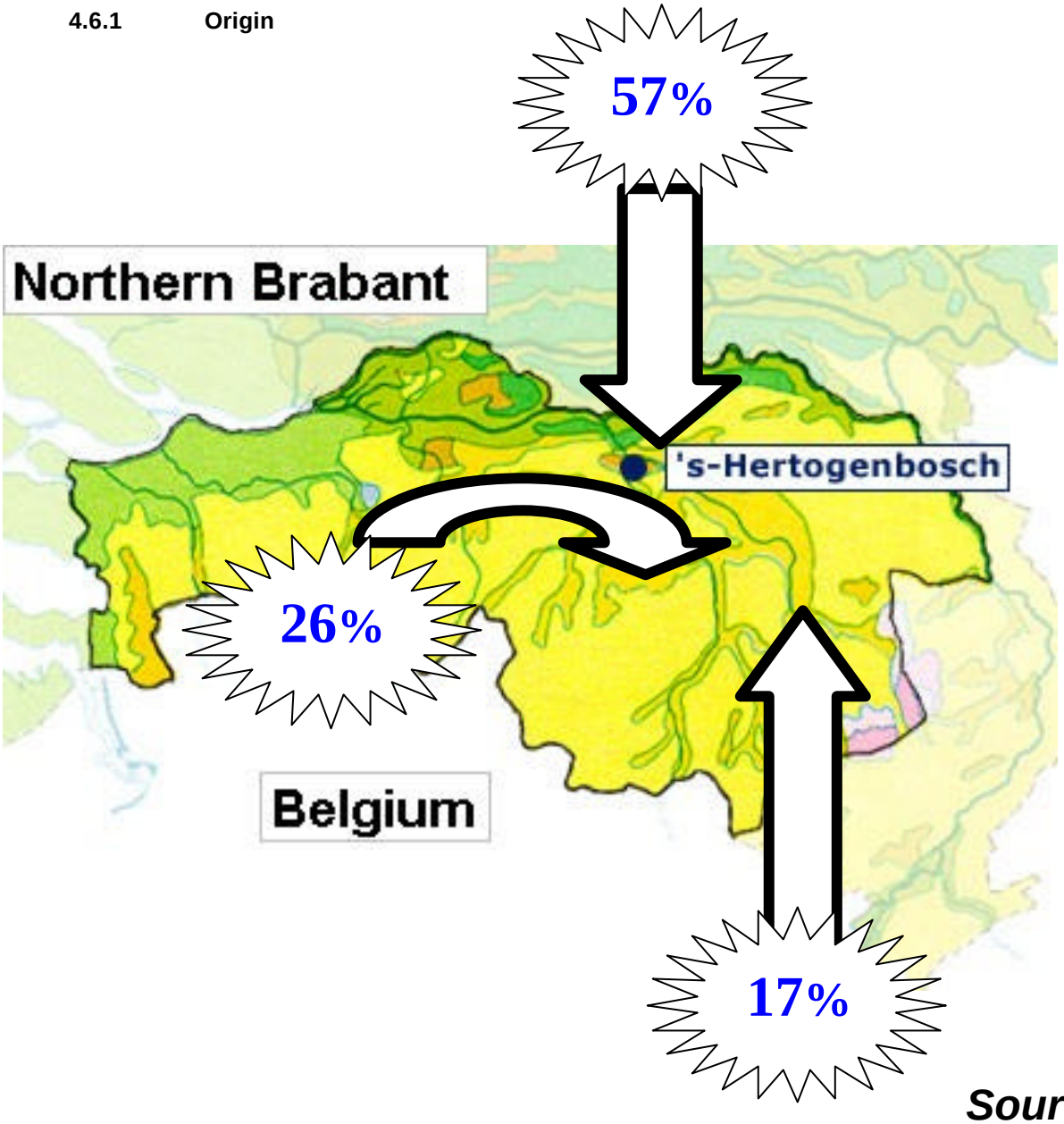
What's stated in paragraph 4.4 can be summed up to total transport to and from Northern Brabant. As seen in Figure 4.2, 74 percent of the total transportation in Northern Brabant is domestic, without any transhipment in Brabant. This domestic transportation consists of 42 percent inter-provincial moving within Brabant. The other 58 percent is domestic transportation to other provinces. 17 percent of total transportation is direct going to foreign countries and 4% has transhipment in Brabant. The remaining transportations have an unknown transhipment point.

Figure 4.2 *Distribution with regard to transhipment.*



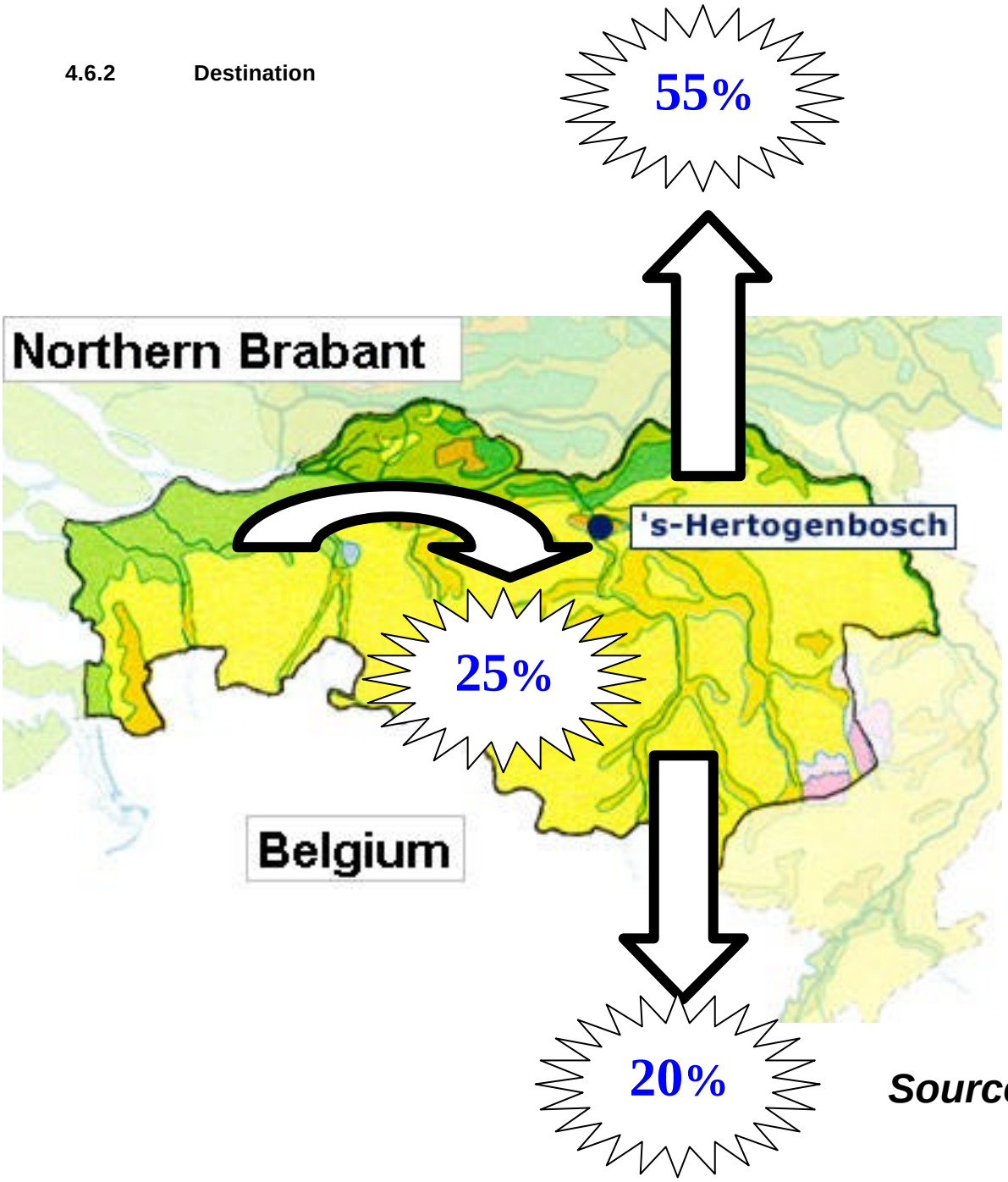
4.6 Conclusion

4.6.1 Origin



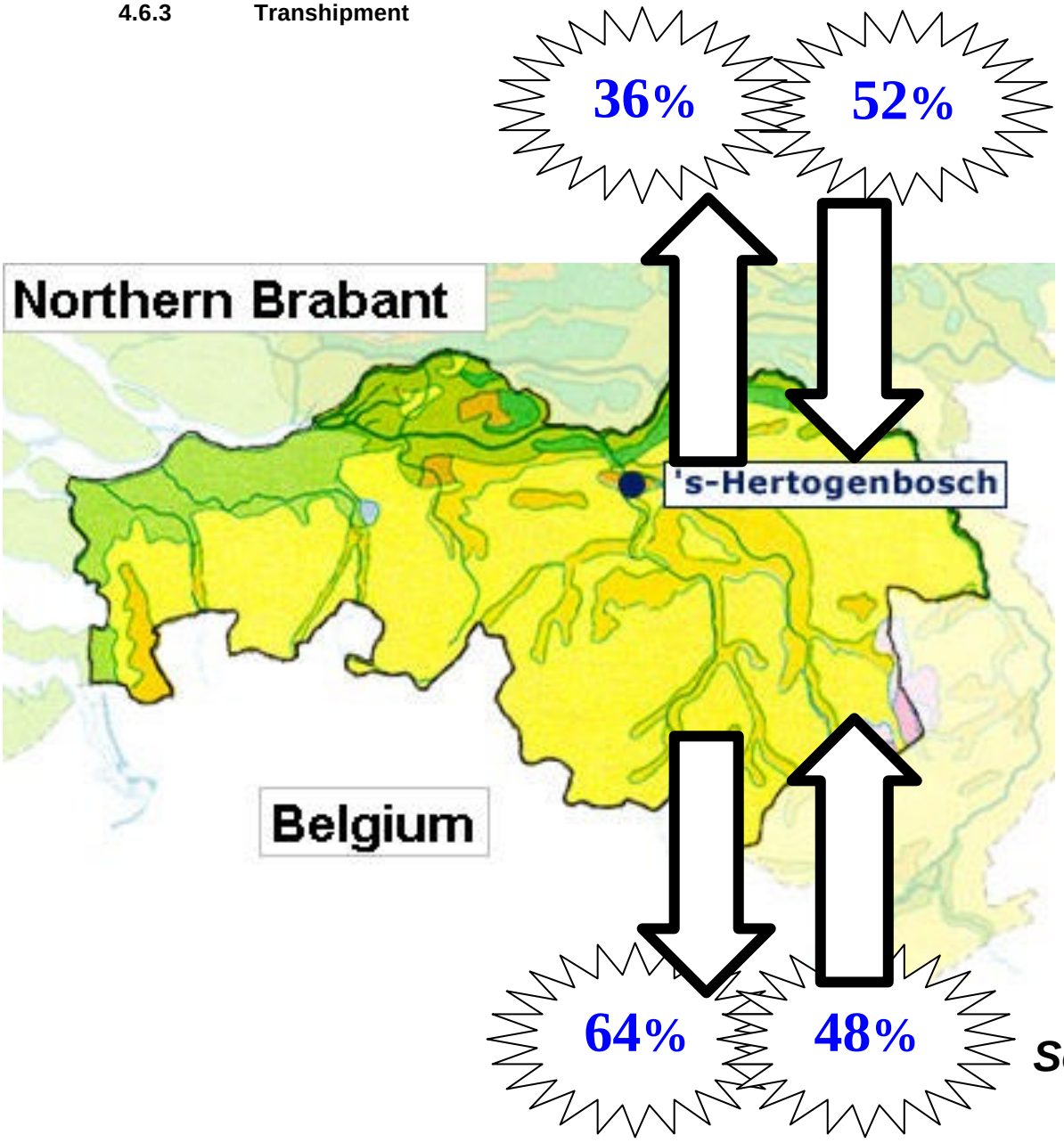
Source NEA

4.6.2 Destination



Source NEA

4.6.3 Transhipment



Source NEA

5 PERFORMANCE

The performance of the transport companies in Northern Brabant in relation to the other 12 provinces can be measured in different ways. Firstly the capacity utilisation will be monitored, secondly the costs and to conclude, the profitability

5.1 Capacity utilisation

Capacity utilisation is an important aspect in the transport sector, where efficiency plays an essential role. The higher the capacity utilisation, the lower the costs and as a result a higher profit. Capacity utilisation can be measured in different ways. In this report the capacity utilisation will be measured by:

- Capacity utilisation distance = load kms/total kms
- Capacity utilisation contents = carried weight/set-in carrying-capacity
- Capacity utilisation carrying-capacity = used carrying-capacity (cc)/available cc

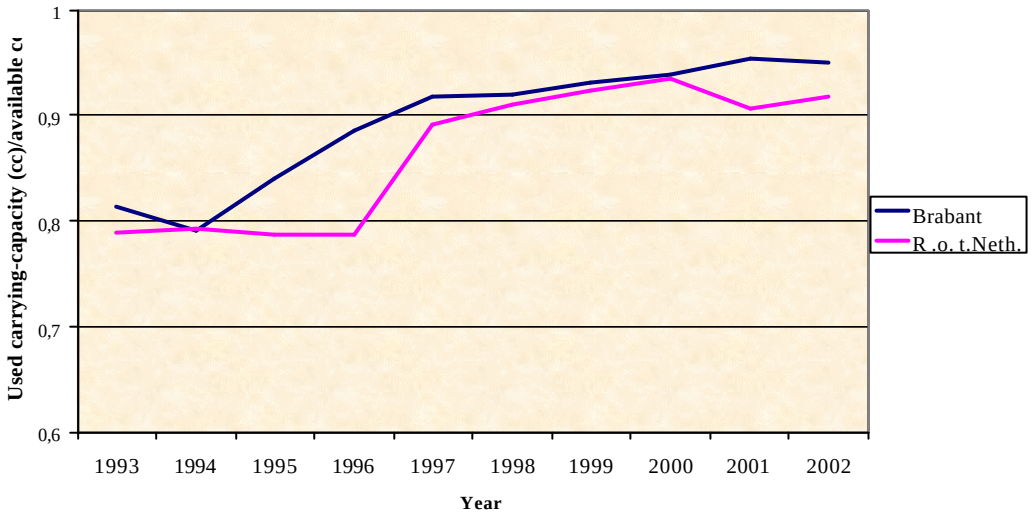
On capacity utilisation distance Brabant is performing better than the other 11 provinces. Table 5.1 shows that Brabant has a capacity utilisation distance on total transport of 82,14 percent whereas the other provinces have a capacity utilisation distance of 80,2 percent. Despite this higher capacity utilisation on distance, the capacity utilisation of contents is lower in Brabant, namely 54,67 percent for Brabant and 56,42 percent for the other provinces. The figures on which these percents are based can be found in ANNEX D. Although the difference seems to be minimal, the approximate 2 percent difference can be crucial for the competition position in relation to total costs. It is interesting to note that in all provinces in the Netherlands the capacity utilisations on distance as well as on contents are lower for inland transport than for international transport.

Table 5.1 *Capacity utilisation distance and contents*

Companies in Northern-Brabant	Inland Transport	International Transport	Total Transport
Capacity utilisation distance	77,32%	85,88%	82,14%
Capacity utilisation contents	44,78%	60,04%	54,67%
Companies in other provinces	**Inland Transport**	**International Transport**	**Total Transport**
Capacity utilisation distance	75,93%	83,97%	80,20%
Capacity utilisation contents	48,86%	61,04%	56,42%

We can conclude from this, that the transport companies in Brabant are using their trucks on distance better than the other 11 provinces in the Netherlands. On contents Brabant is performing slightly less in relation to the rest of the Netherlands. Brabant transport companies are loading their trucks less efficiently resulting in less freight being carried per kilometre. Capacity utilisation carrying capacity is an important indicator with regard to efficiency. The more the total carrying capacity is used, the better the costs can be spread among the carriage. This lowers the cost price and is good for the competition position and profit. In Figure 5.1 the development of the carrying capacity is explained. As seen in this figure the capacity utilisation has improved over the last ten years. The most desirable is to have a capacity utilisation of 1, but this very difficult to achieve.

Figure 5.1 *Development of capacity utilisation carrying-capacity*



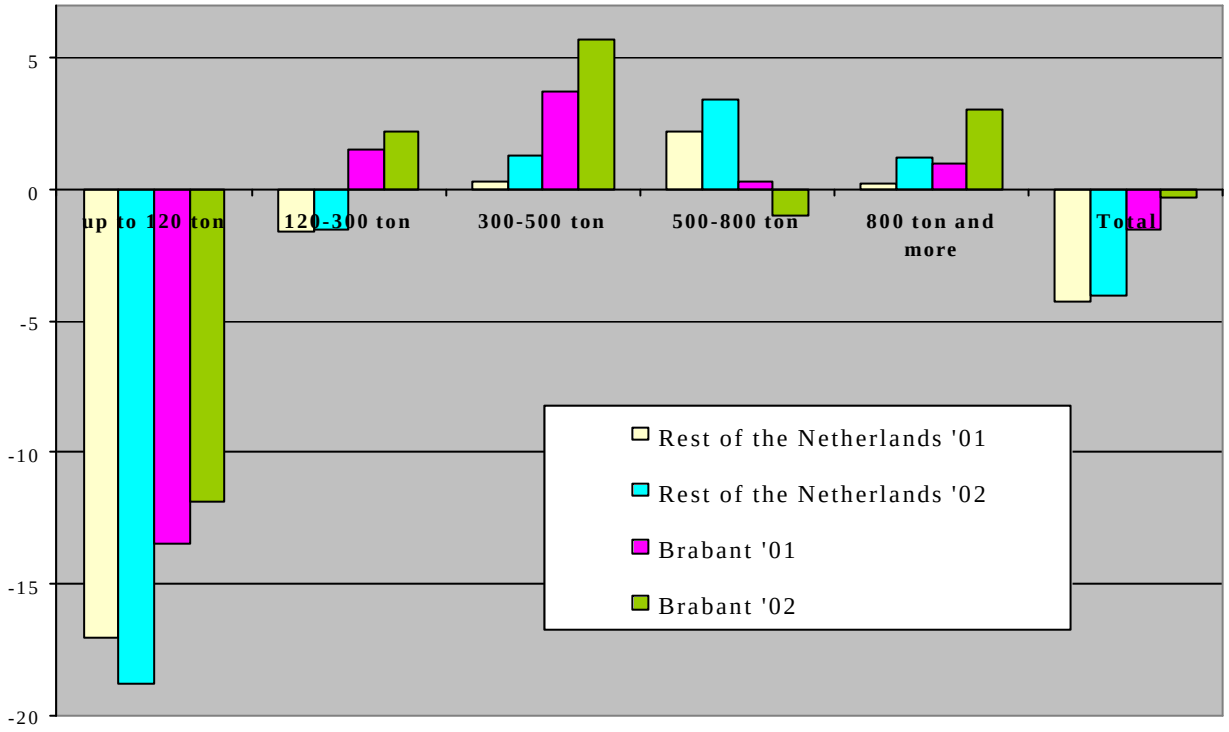
5.2 Costs

As in every company costs in the transport companies play an important role and also because the transport sector is a sector with many fixed material assets, like trucks and sheds, and employees the costs contain mainly wages, deprecation and fuel costs, (See ANNEX E). There is a slight difference between Brabant and the rest of the Netherlands. The figure in ANNEX F shows the development of the total costs divided by total revenues a year for Brabant and the rest of the Netherlands and as you can see, the transport companies in Brabant are performing better with regard to companies in the other provinces, although the trend is the same.

5.3 Profitability

Profitability is an indicator on the performance of all companies. In the transport sector, the profitability differs between the company sizes. In Figure 5.2 can be seen that the profitability for small companies is very negative. The middle-sized companies are performing the best and the big sized companies are doing well. The pink and green bars represent Northern Brabant. The totals give an interpretation of the profitability difference between 2001 and 2002. It can be seen that over the whole the profitability in 2002 was higher.

Figure 5.2 *Profitability per company size*



5.4 Conclusion

On the whole Northern Brabant is performing very well, especially on the financial aspects. With relation to capacity utilisation some improvements can be made.

6 QUESTIONNAIRES

By developing the LCA and DLA for the INNESTO project we also developed our own questionnaires. The first questionnaire (see ANNEX G) is about the transport modes and the total tonnes transported. The second questionnaire is about the difference between road transport and intermodal transport and can be found in ANNEX H. The third questionnaire (ANNEX I) was developed to identify the potential for modal shift to intermodal transport.

In addition to the questionnaires developed, we also used our own information, available from the NEA COST INDEX more information can be found below.

The NEA Cost Index, Performance Indicator.

The NEA Transport Research and Training Institute (NL)[1] has developed a system (the NEA Cost Index), which allows for cost comparisons between road transport operators from various European countries. Operators' costs are monitored/reported on their main routes/countries of destination. The system distinguishes between the following cost categories: fuel costs, including lubricants; wage costs, including wages and social security payments and expenses of drivers; capital costs, which include depreciation of vehicle and interest costs of vehicle; other costs, such as insurance, repair and maintenance costs, costs of tyres, general expenses, etc.; and total costs.
This makes it possible to compare the cost performances of operators from various countries. The system produces periodic index-based outcomes, whereby values for each monitored period are expressed as a fluctuation of a base year. The system also allows for monitoring cost trends (bi-annual samples of data are available), as well as for a dynamic comparison of cost trends between operators of various nationalities.
The NEA Cost Index has three levels. The first is a general cost index divided into domestic and international transport. At the second level, the NEA Cost Index is refined to cover a specific transport activity or market segment (e.g. cost index for household waste transport or a cost index for tanker transport). At the most detailed level, the system can calculate the cost index for an individual company on the basis of its detailed costs and cost ratios.
The NEA Performance Indicator was developed (in 2000) to measure individual company performances. It also allows for benchmarking and, thus, for comparing individual company's performances with relevant reference data (intervals), which are considered typical for comparable companies in the industry. The calculation of reference data is based on data that is available from the NEA benchmark. Every year, NEA benchmarks a large number of companies. Through this benchmark, NEA has developed a large database on company characteristics and company performances. For the NEA Performance Indicator, NEA has developed a model that relates company characteristics to company performances.
The following company characteristics are considered: percentage of revenues in different sectors, number of lorries, capacity, number of kilometres per lorry, average age of fleet, percentage of outbound (international) transport, percentage of outsourced transport.

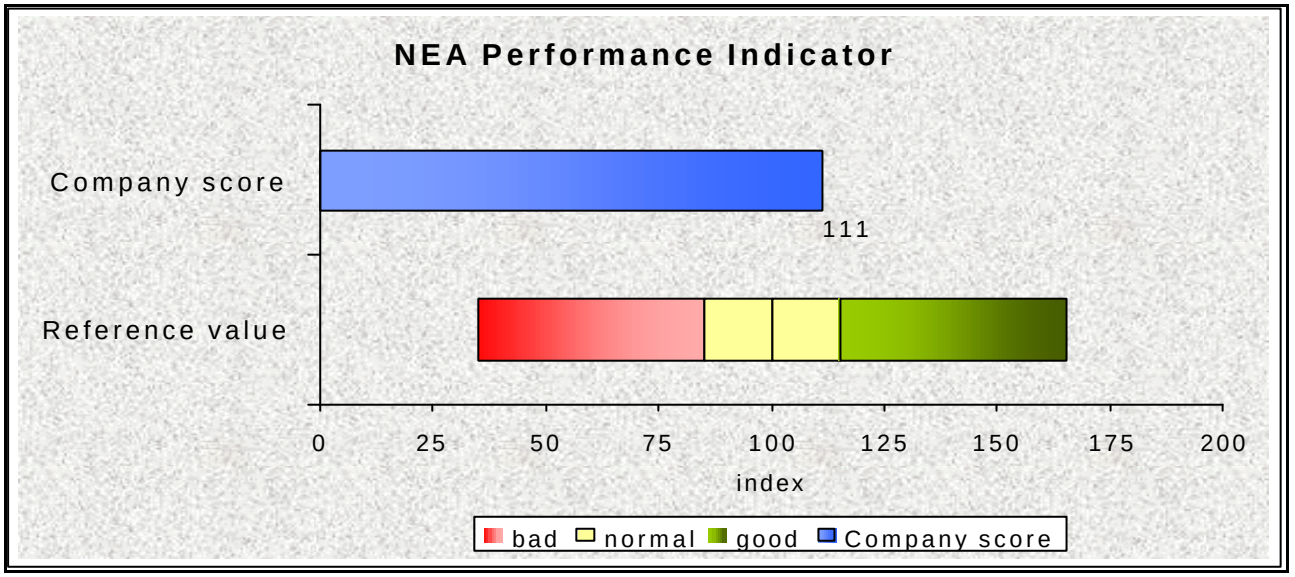
[1] More information on NEA activities can be found at http://www.nea.nl/english/defaultuk.html.

The following company performances are measured: net profit, revenues per hour, revenues per km, fuel cost per km, repair and maintenance cost per km, driver's wages per hour, depreciation cost per lorry, average speed, percentage of indirect cost.

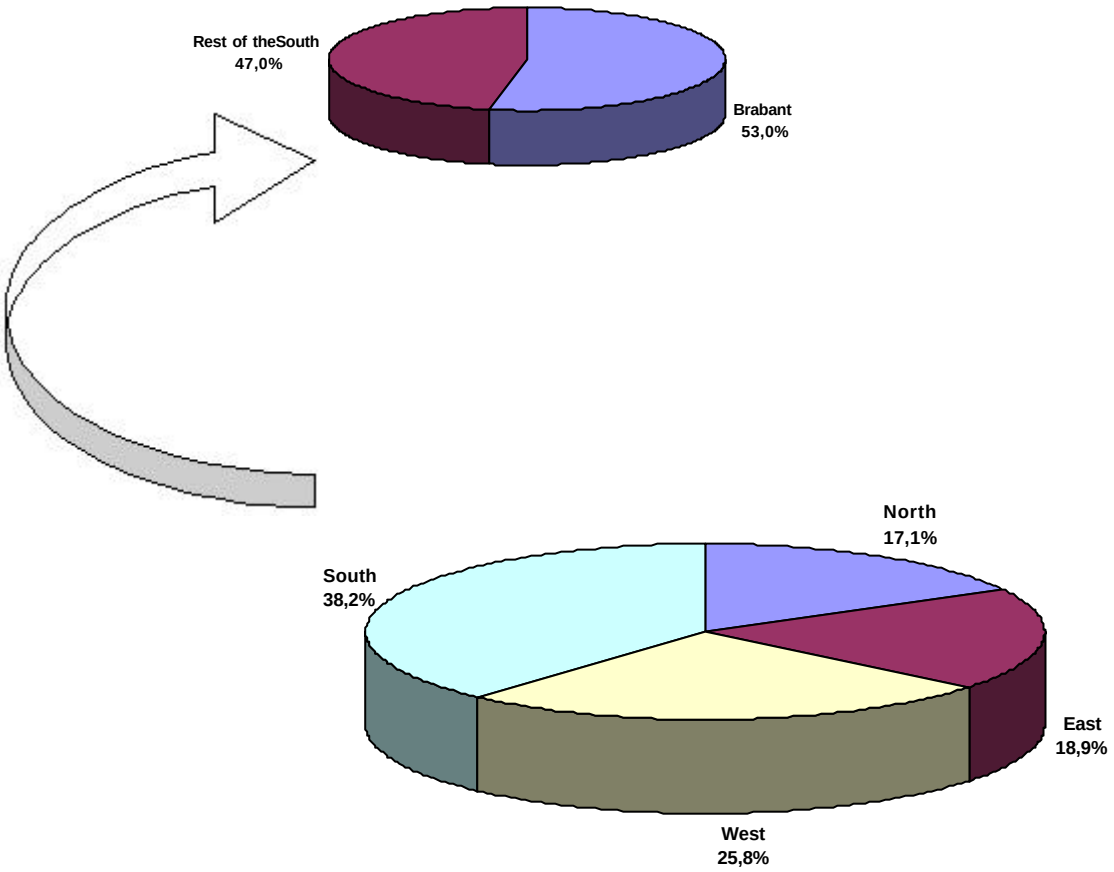
Given the set of company characteristics, the system calculates reference values for the performance characteristics of the individual company, which are unique to this company. In a second step, these unique company values are compared with the reference interval values (norm) for comparable companies. Thus, depending on the position of the company performances within the reference interval, they are evaluated as "normal", "above average", or "warning". The reference values are updated every year, based on the NEA cost index. Once every two or three years, the model is updated.

In this way, the system is able to benchmark both the individual company performances and the total score of the company. In the latter case, the system calculates a weighted company index, depending on the importance of the various performances (e.g. profit more important than speed).

Here is an example of a company score, where the individual result of the company is within the "normal" reference interval (100 being the mean value).



ANNEX A TRANSPORT COMPANIES IN THE NETHERLANDS



ANNEX B COMPANY SIZE

Figure 6.1 *Northern Brabant*

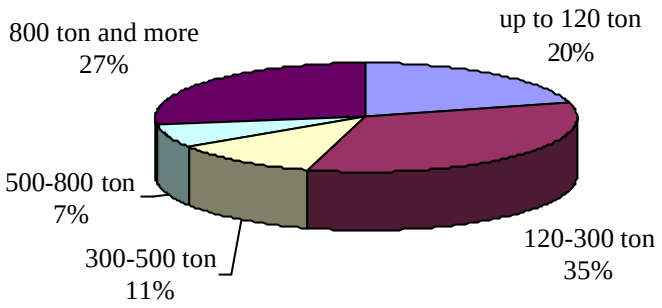
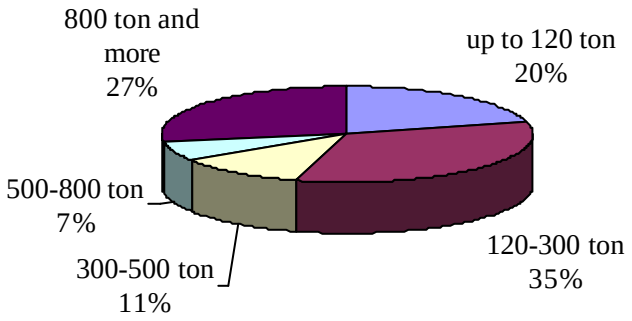


Figure 6.2 *Rest of the Netherlands*



ANNEX C LICENCES

Number of companies in:	Northern-Brabant	%	Other Provinces	%	**Total Netherlands**
Firmsize:					
< 5 Inland licences	1.353	18%	6.099	82%	**7.452**
5 t/m 10	448	19%	1.875	81%	**2.323**
11 t/m 20	227	19%	979	81%	**1.206**
21 t/m 50	141	18%	653	82%	**794**
51 t/m 100	44	21%	168	79%	**212**
> 100	18	21%	67	79%	**85**
Total	**2.231**	**18%**	**9.841**	**82%**	**12.072**

Source: NIWO/CBS 2002

Number of Inland licences in:	Northern-Brabant	%	Other Provinces	%	**Total Netherlands**
Firmsize					
< 5 Inland licences	2.362	18%	10.536	82%	**12.898**
5 t/m 10	3.098	19%	13.076	81%	**16.174**
11 t/m 20	3.325	19%	14.147	81%	**17.472**
21 t/m 50	4.384	18%	20.353	82%	**24.737**
51 t/m 100	2.937	20%	11.776	80%	**14.713**
> 100	3.969	21%	15.219	79%	**19.188**
Total	**20.075**	**19%**	**85.107**	**81%**	**105.182**

Source: NIWO/CBS 2002

ANNEX D CAPACITY

Companies in Northern Brabant	Inland Transport	International Transport	**Total Transport**	Inland Transport	International Transport	**Total Transport**
				Percent of total companies		
Loaded rides x 1.000	3.768	1.394	**5.162**	17%	21%	**18%**
Transported weight x 1.000 ton	51.945	24.177	**76.122**	17%	21%	**18%**
Tonkilometre x 1.000	3.996.041	9.185.093	**13.181.134**	17%	20%	**19%**
Loaded km x 1.000	414.885	593.394	**1.008.279**	19%	21%	**20%**
Total km x 1.000	536.603	690.950	**1.227.553**	19%	21%	**20%**
Carrying-capacity x 1.000	11.542.701	17.812.205	**29.354.906**	18%	20%	**19%**

source: NIWO/CBS 2002

Companies in other provinces	Inland Transport	International Transport	**Total Transport**	Inland Transport	International Transport	**Total Transport**
				Percent of total companies		
Loaded rides x 1.000	18.298	5.166	**23.464**	83%	79%	**82%**
Transported weight x 1.000 ton	257.857	90.646	**348.503**	83%	79%	**82%**
Tonkilometre x 1.000	19.235.412	36.000.596	**55.236.008**	83%	80%	**81%**
Loaded km x 1.000	1.793.076	2.243.825	**4.036.901**	81%	79%	**80%**
Total km x 1.000	2.361.613	2.672.059	**5.033.672**	81%	79%	**80%**
Carrying-capacity x 1.000	51.849.618	70.233.135	**122.082.753**	82%	80%	**81%**

source: NIWO/CBS 2002

ANNEX E COSTS

Figure 6.3 *Costs in Northern Brabant*

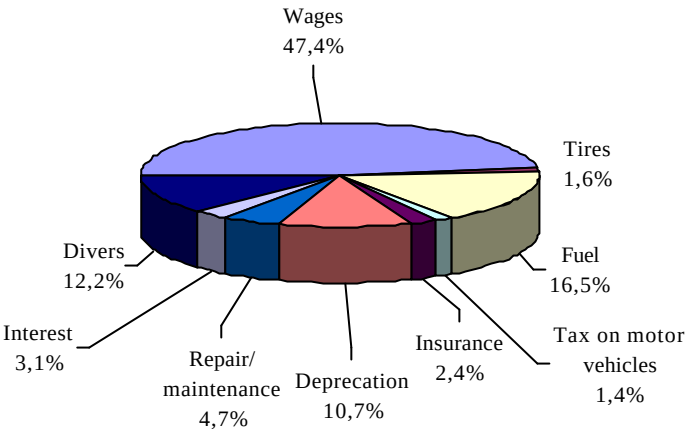
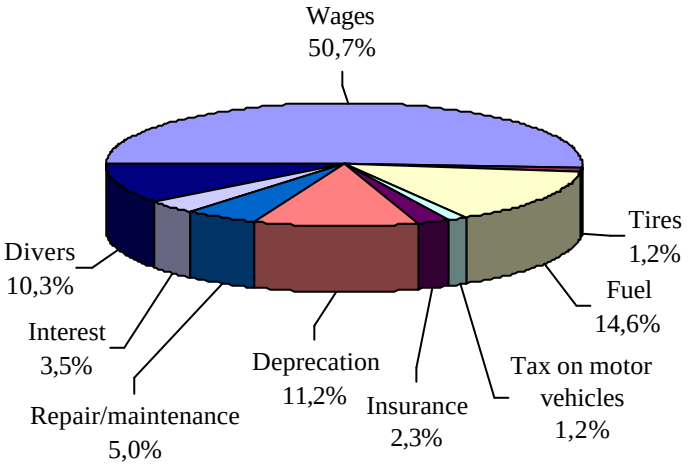
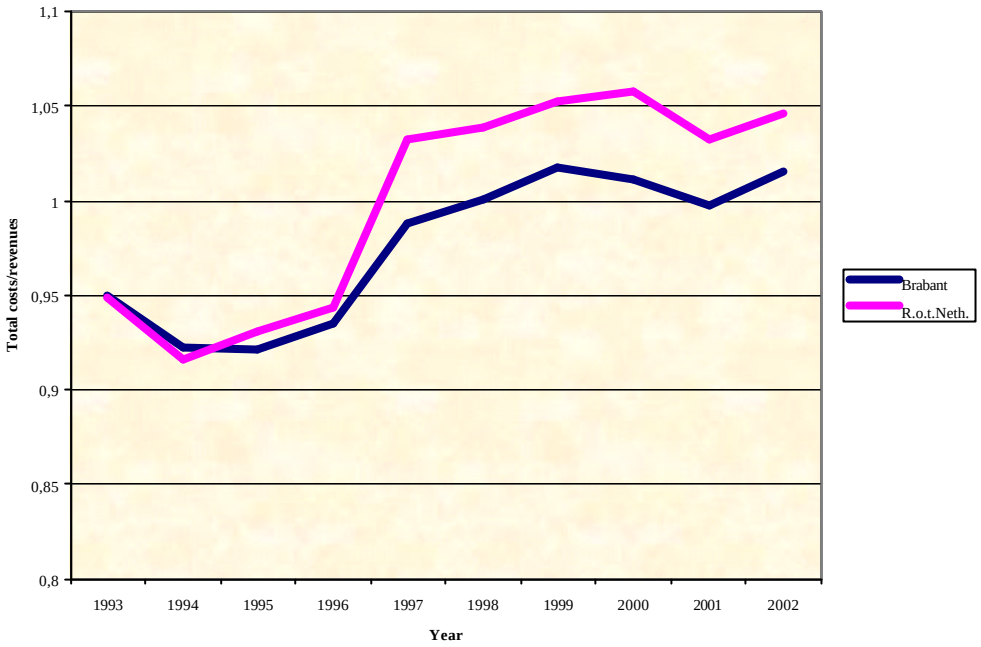


Figure 6.4 *Costs in Rest of the Netherlands*



ANNEX F DEVELOPMENT OF REVENUE AND COSTS

Figure 6.5 *Development of Total cost/revenues*



ANNEX G DLA QUESTIONNAIRE 1

1	Ride no.				
2	Date				
2a	Kind of transportation				
3	Registration number of trailer				
4	Kind of ride				
5	Ride distance in km.				
6	Number of equal rides				
7	Loading degree in %		Volume		
8			Surface		
9	Is it international transportation?		Yes	> Dutch border passing (Venlo, Rotterdam, Hazeldonk)	
			No	> Go to next question	
10	If yes, what are the transit countries?		In order of course of ride		
11	Is combined transportation used?		Yes	> Fill in form below	
			No	> Go to next question	
16	Rides	Begin*	Place of loading / starting point empty ride		
17			Postal code		
18			Country		
19			Location type		
20		End**	Discharging-place / ending point empty ride		
21			Postal code		
22			Country		
23			Location type		
24	Distance of shipment in km.				
25	Commodity group				
26	Gross weight of shipment in tons				
27	Kind of appearance				
	Transportation of sea containers?		Yes	> Number of transported sea containers	
28				Empty 20 Ft	
29				30ft.or 40ft. and more	
30				Loaded 20 Ft	
31				30ft.or 40ft. and more	
			No	> Go to next question	
32	Hazardous materials transported?		Yes	"Oranje bord"	
33				VN-number	
34				From Transport document ADR class	
35				From Transport document figure	
			No	> Go to next question	
36	Freight-revenues***				

* For ride with 1 to 4 shipments. If ride counts 5 or more shipments, name starting point of ride

** For ride with 1 to 4 shipments. If ride counts 5 or more shipments, name farthest point of ride

*** Freight-revenues or invoice value of goods in euros excl. Taxes

Combined transportation

1	Ride no.		
11	Which other transport modes used? (train, ship)		
12	Where is the vehicle or vehicle-combination loaded on another transport mode?	Place	
13		Country	
14	Where is the vehicle or vehicle-combination unloaded from another transport mode?	Place	
15		Country	

Explanation

Question:

2a	**Kind of transportation:**	-Professional transport -Own transport
4	**Kind of trip:**	-0 = empty -1 = trip with 1 shipment -2 = trip with 2, 3 or 4 shipments -3 = trip with 5 or more shipments
19+23	**Location type:**	-1 = production/obtain place -2 = consumption/processing/retail business -3 = seaport -4 = inland port -5 = railway terminal -6 = airport -7 = bonded warehouse -8 = distribution/wholesale trade -9 = other
27	**Kind of appearance:**	-1 = liquid bulk -2 = fixed bulk -3 = sea containers (20ft or more) -4 = other containers -5 = goods on pallets -6 = hanging goods -7 = goods in grummets

-8 = mobile units with own drive

-9 = other mobile units

-10= other

ANNEX H DLA QUESTIONNAIRE 2

Innesto, documentation form

Company Name:	
Company Contact:	
Street, No:	
Postal code:	
City (country):	
Phone:	
Fax:	
E-mail:	

Innesto questions

1 Please specify your transport corridor

- ❑ Hinterland (general cargo) >>> **Go to question 2**
- ❑ Hinterland (maritime containers) >>> **Go to question 2**
- ❑ Continental >>> **Go to question 3**

2 Specify hinterland region (country):

……

2.1 Please specify seaport region:

- ❑ Baltic Sea
- ❑ Hamburg – Le Havre
- ❑ Other North sea
- ❑ Other UK/ Ireland
- ❑ Atlantic Coast
- ❑ West-Mediterranean

- East-Mediterranean
- Not specified

3 Specify your transport corridor

Countries:

Origin:……

Destination:……

3.1 Estimate of distance in case of domestic or border crossing traffic:

- Less than 200 km
- Between 200-400km
- Between 400-1000km
- More than 1000 km

3.2 Type of Distribution

- Supply
- Distribution
- Inter-plant

4. What type of commodities is forwarded on this relation?

(More than one characteristic is possible)

- Dry bulk cargo
- Liquid bulk cargo
- General cargo, full truck loads
- General cargo, less than full truck loads
- Refrigerated cargo or non-refrigerated perishable goods
- Dangerous goods
- Waste products

- Any goods in maritime containers or empty containers
-

5. What is the frequency and volume of this transport? (Trucks/Tons)

Number of trucks:

- Regular demand, 1 or 2 full truck loads per week
- Regular demand, 3 to 5 full truck loads per week
- Regular demand, 6 to 10 full truck loads per week
- Regular demand, more than 10 full truck loads per week
- Incidental demand, 5 or less trucks
- Incidental demand, 6 to 10 trucks
- Incidental demand, more than 10 trucks

6. Number of tonnes:

- Regular demand, less than 40 tons per week
- Regular demand, 40 to 100 tons per week
- Regular demand, 100 to 200 tons per week
- Regular demand, more than 200 tons per week
- Incidental demand, less than 100 tons
- Incidental demand, 100 to 200 tons
- Incidental demand, more than 200 tons

7. Are there specific quality characteristics required?

A modal shift to intermodal transport often implies some changes in logistic planning. Can you indicate which of the statements you agree upon?

(*Only **one answer** is possible!)*

- A shift to intermodal transport is only acceptable if there is no negative effect on neither costs nor quality
- I accept longer lead times in the transport chain, because I can adapt my logistic planning without major negative consequences. However, reliability should be guaranteed
- I accept longer lead times in the transport chain, however only if prices are lower
- The possibility for tracking and tracing is very important to me

8. System Advantages

Intermodal transport has specific advantages above road transport. Can you indicate which of the advantages appeal to you?

(*More answers are possible!)*

- Intermodal transport offers a high capacity. It can carry large volumes in one transport movement.
- Intermodal transport offers scale advantages through the bundling of flows
- Load units, which are used in intermodal transport, can serve for (intermediate) storage in supply or distribution chains.
- In contrast to road transport, intermodal cargo can move on Saturdays and Sundays as well
- Intermodal transport uses large scale transport modes and therefore is more friendly for the environment than road transport

9. Please feel free to add remarks or requests:

We thank you very much for your corporation!

ANNEX I DLA QUESTIONNAIRE 3

Questionnaire Innesto

Questionaire Innesto

This questionnaire is developed for identifying the potential for modal shift to intermodal transport and is to be applied on **business** level. The questionaire identifies transport demand for which intermodal transport can be a realistic alternative.

This purpose of this questionnaire is to evaluate this Innesto tool on its usability, interface, functionality, contents and the results, or advice it gives.

1. Interface (usability);
2. Functionality (correct functioning of the tool);
3. Contents;
4. Results, the advice;
5. Test results (settings, results and comments on actual tests of the tool).

Interface

	Answers:
How would you value the interface of the tool (lay-out, design, logic, etc.)?	
Did you have any problems using the tool?	Yes / no:
Is the interface practical?	Yes / no:
Is the tool fast enough?	Yes / no:
Do you have any suggestions to improve the interface?	Yes / no:

Technical Functionality

	Answers:

How would you value the general functionality of the tool?	
Did you encounter any problems in the functionality?	Yes / no:
Are the questions clear and understandable?	Yes / no:
Does the tool provide all relevant output that can be expected from a software tool?	Yes / no:

Contents

	Answers:
Do you think it's possible to determine the potential for modal shift with a limited number of questions?	Yes / no:
Do you think the questions in the tool are the right ones? If not, please give some suggestions.	Yes / no:
Can the user provide enough relevant input? / Is the input sufficiently detailed?	Yes / no:
Can you use the tool for all freight flows you consider relevant?	Yes / no:

Results, the advice

	Answers:
Are the results plausible? *If not, please enter some test input and output in paragraph 5 (Test results).*	Yes / no:
Are the results sufficiently detailed?	Yes / no:
Are there any additional results you would like to see?	Yes / no:

TEST RESULTS

(Please enter as many tests as you consider necessary!)

	Answers:
Which tests did you perform and what are the results?	Do you agree with the results? Yes / no:
Test 1 Input:	What is the advice given by the tool? Do you agree with the results? Yes / no:
Test 2 Input:	What is the advice given by the tool? Do you agree with the results? Yes / no:
Test 3 Input:	What is the advice given by the tool? Do you agree with the results? Yes / no: