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Edited by:

John Griffiths
Technology Innovation Centre
Fred Hewitt
Aston University
Paul Ireland
University of Birmingham

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THE GROWING IMPORTANCE OF LIGHT GOODS VEHICLES IN THE UK

Professor Michael Browne
Transport Studies Group
University of Westminster

Julian Allen
Transport Studies Group
University of Westminster

Stephen Anderson
Transport Studies Group
University of Westminster

Professor Marcus Wigan
Transport Research Institute
Napier University

Abstract

This paper examines the important but under-researched issue of light goods vehicles (LGVs – i.e. commercial vehicles up to 3.5 tonnes gross vehicle weight) and their use in the UK. The paper shows that LGVs are important for several reasons including: (i) the total size of the fleet (there are about five times as many LGVs, as there are HGVs currently licensed in Britain), (ii) the LGV fleet in Britain is growing at a faster rate than HGVs, (iii) the LGV fleet covers approximately 70% more vehicle kilometres each year in Britain than the total HGV fleet, and (iv) the growth in LGV traffic has been even more rapid than the growth in car traffic over the last decade. The paper illustrates that the activities for which LGVs are used is far broader than for HGVs. It also identifies the differences in policy treatment of LGVs and HGVs, and the factors causing growth in the LGV fleet and LGV activity in Britain. There is a need to investigate LGV aspects of service industries, as LGVs are used by this growing and under-researched area.

Keywords: Light goods vehicles, freight transport, goods, services

Introduction

This paper is concerned with light goods vehicles (i.e. commercial vehicles up to 3.5 tonnes gross vehicle weight). These vehicles have received relatively little attention in terms of either official data collection or detailed research into their activities. However, more attention is necessary given the large numbers of these vehicles and the distance that they travel, especially in urban areas. Light goods vehicles (LGVs) are used to perform similar goods delivery and collection tasks to heavy goods vehicles (HGVs – i.e. goods vehicles with a gross weight in excess of 3.5 tonnes). In addition LGVs are also used for a wide range of other commercial activities (especially in the service sector), and are also commonly used for private trip purposes (such as shopping and leisure trips) by people who have one available for work reasons, and increasingly are associated with service industry activities where freight and goods movement may be a small part of their travel objectives.

There are several different terms used by organisations to describe these vehicles (including vans, light vans, light goods vehicles, light commercial vehicles etc). The term light goods vehicles (LGVs) is used throughout this paper.

It is important to note that although colloquially “vans” are usually thought of as smaller vehicles, they can in fact be either up to 3.5 tonnes gross vehicle weight (gvw) or over 3.5 tonnes gvw. Therefore although the vast majority of vans in Britain are LGVs (i.e. up to 3.5 tonnes gvw), some vans are in fact HGVs (i.e. over 3.5 tonnes gvw).

The LGV Fleet in Britain

The LGV fleet has grown significantly, with a more than five-fold increase in Britain between 1950 and 2000 (DTLR, 2001a). In comparison, the total number of heavy goods vehicles licensed in Britain was lower in 2000 than in 1950. These changes in the total LGV and HGV fleets in Britain are shown in Figure 1. As can be seen, in 1950 there were a similar number of LGVs and HGVs.

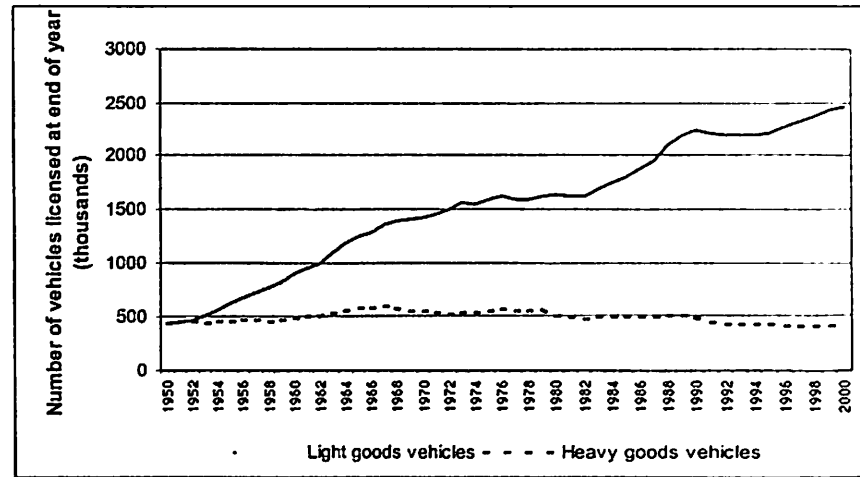


Figure 1: Vehicles licensed in Britain, 1950-2000 (DTLR, 2001a)

There was a total LGV fleet in the UK of 2.2 million vehicles in 2000. This compares with an HGV fleet of 425,400 vehicles which is made up of 311,000 rigid vehicles and 114,500 articulated vehicles (DTLR, 2001b). This does not mean that HGVs carried less tonnage, more that the mean sizes and loads increased. The growth in the LGV fleet far outstripped the growth in the HGV fleet during the last decade, as shown in Table 1. In fact, the growth in the LGV fleet was similar to the growth in cars over this period (the number of cars increased by approximately 17% between 1992 and 2000).

	1992	2000	% change 1992-2000
Light goods vehicles	1,951,000	2,204,000	+13.0%
Heavy goods vehicles	415,000	425,000	+2.4%

Table 1: Changes in LGV and HGV stock in Britain, 1992-2000 (DTLR, 2001b and c)

It should be noted that some vehicles described as "vans" in government fleet data fall into the HGV category as they have gross vehicle weights of 3.5 to 7.5 tonnes. There were 157,200 goods vehicles with gross weights between 3.5 and 7.5 tonnes in 2000, of which 87,500 were vans over 3.5 tonnes gvwt (DTLR, 2001d).

Light goods vehicles are manufactured with several different body types. The two most common body types for light goods vehicles are (i) car-derived vans (which from the outside are visually very similar to cars on which they are based but have no rear seats – these vehicles have gross weights of up to 3.5 tonnes) and (ii) panel vans (which are usually between 1.8 and 3.5 tonnes gross vehicle weight). Other body types include pick-ups, Luton vans and box vans.

LGV Activity

As the number of LGVs licensed in Britain has risen significantly in recent decades, so too has the total distance travelled. The growth in vehicle kilometres travelled by LGVs has been greater than that for HGVs. This is shown in Figure 2.

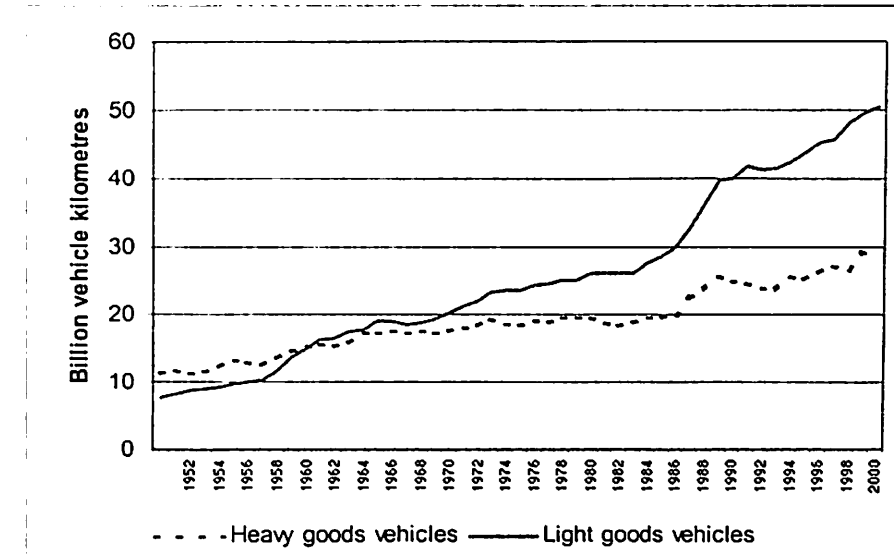


Figure 2: Road traffic in Britain: Light vans and goods vehicles 1950-2000 (DTLR, 2001a).

LGVs travelled 72% more vehicle kilometres than HGVs in Britain in 2000. In addition, growth in vehicle kilometres travelled by LGVs between 1990 and 2000 was greater than the growth in HGV vehicle kilometres (The growth in LGV vehicle kilometres was also greater than that for cars and taxis – see Table 2).

	1990	2000	% change 1990-2000
Cars and taxis	335.9	378.7	+13%
LGVs	39.9	50.5	+27%
HGVs	24.9	29.3	+18%

Table 2: Billion Vehicle Kilometres Travelled in Britain (DTLR, 2001e)

Using this data it is possible to calculate the average distance travelled per year for LGVs and HGVs. The average for LGVs was approximately 20,000 kilometres during 2000, compared with an average of approximately 69,000 kilometres for HGVs. (It should however be noted that there are significant variations in average annual distance travelled among HGVs with for example, 3.5-7.5 tonnes gvwt rigid vehicle covering 31,000 kilometres per year in 2000 and articulated vehicles over 33 tonnes gvwt covering 99,000 covering kilometres (DTLR, 2001f)). Differences in the average annual distance travelled by LGVs and HGVs are related to the type of activities that they are used for. LGVs are typically used for local delivery work and service activities, while the larger HGVs are predominantly used for moving goods over long distances.

Figure 3 shows the growth in the total vehicle kilometres performed by all LGVs (referred to in the figure as light vans), HGVs and cars/taxis in Britain between 1990 and 2000.

Because of the types of activities that LGVs are used for, they perform a far greater proportion of their vehicle kilometres in urban areas than HGVs. In 2000, LGVs performed 16% of their total distance travelled on built-up major roads and 36% of their total distance travelled on minor roads. This compared with 10% on built-up major roads and 14% on minor roads for HGVs (DTLR, 2001h).

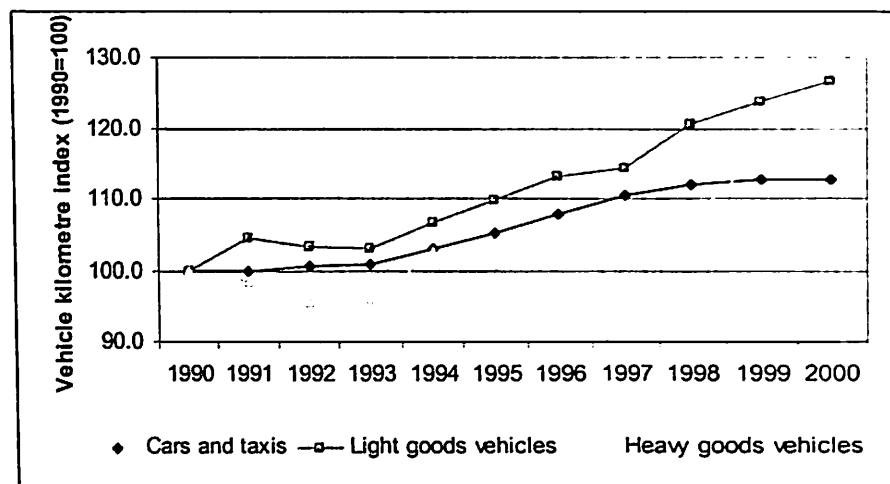


Figure 3: Vehicle Kilometres Travelled in Britain (DTLR, 2001g)

The example of LGV trips into and out of London help to indicate the scale of LGV activity in an urban area. Figure 4 shows the changes in commercial vehicle traffic volumes crossing the central cordon² in London in both directions over a 24-hour period on a typical weekday between 1983 and 1999. These figures show that LGVs are by far the most common form of commercial vehicle crossing each cordon, followed by medium goods vehicles (rigid vehicles over 3.5 tonnes gw), and heavy goods vehicles (articulated vehicles over 3.5 tonne gw) (TfL, 2002).

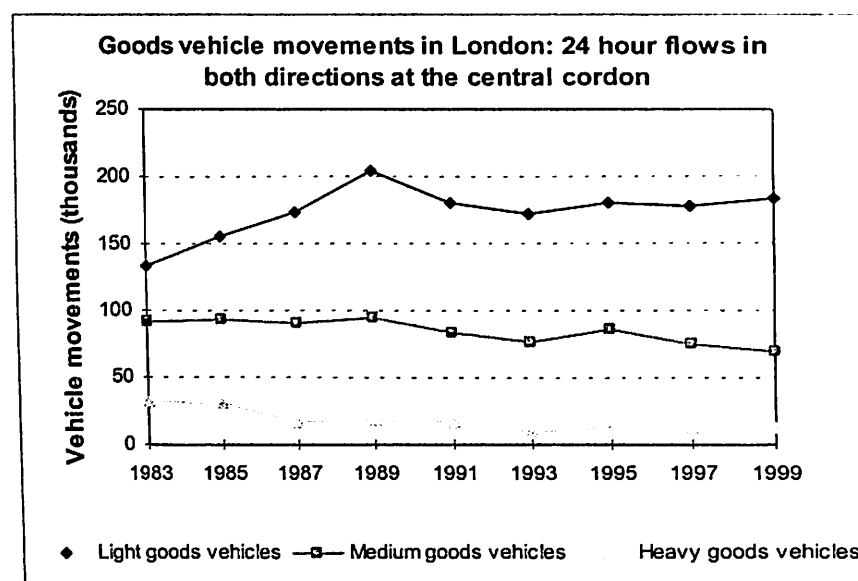


Figure 4: Goods vehicle movement at London central cordon, 1983-1999 (TfL, 2002)

Tasks Performed by LGVs

LGVs are used for both goods trips and service trips. Examples of each of these types of trip are shown in Table 3. It should be noted that service trips can include the transportation of goods as part of the trip.

Goods trips	Service trips
<ul style="list-style-type: none"> • Parcels deliveries to businesses and private addresses • Grocery home deliveries • Shop restocking at cash and carry • Florist delivering flowers (e.g. Interflora) 	<ul style="list-style-type: none"> • Plumber travelling to job • Computer field engineer travelling between customers • Builder travelling to provide quotation for potential work

Table 3: Examples of goods and service trips where LGVs are used

There has been little research into the types of trip performed by LGVs in the UK, so it is not possible to estimate the relative importance of different types of goods trips and service trips as a proportion of total trips made by LGVs. Some recent evidence from Australia suggests that for household visits, where LGVs dominate, more than half of all visits are for services rather than goods collection or delivery (Maunsell Macintyre, 1999).

In addition LGVs, unlike HGVs, are also regularly used for private trip purposes such as personal shopping trips, visiting friends and relatives and leisure trips. The data for these types of activity appear in personal travel surveys rather than freight studies and the two types of survey have not been brought together to give a coherent perspective on LGV activities and significance.

The Light Goods Vehicle Survey that will be carried out on an on-going basis by the Department for Transport will prove a valuable source of information into the trip purpose and activity patterns of LGVs.

The use of LGVs for service and goods trips is discussed in more detail in the following two sections.

Service Trips

Urban freight research conducted by the University of Westminster (Allen et al, 2000) has identified the list of service activities shown in Table 4 taking place in LGVs at urban land uses. This list is by no means exhaustive and there are likely to be many more service tasks that make use of LGVs. However it is helpful in indicating the breadth of service sectors that make use of LGVs.

<ul style="list-style-type: none"> • Computer equipment servicing • Photocopier servicing • Cash registers and tills servicing • Security and fire alarms servicing • Lift/escalator servicing • Air conditioning servicing • Warm air hand drier servicing • Other equipment servicing (such as refrigeration equipment, cooking equipment, heating equipment) • Drain cleaning 	<ul style="list-style-type: none"> • Public utilities (i.e. services connected with telephones, gas, electricity, water) Window cleaning • Pest control services • Plant care (of the floral kind) • Laundry/dry cleaning services • Towels/linen supplies • Industrial cleaning (floor, carpets etc.) • Vending machine supplies and servicing • Ready-prepared food catering
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Table 4: Service trips to urban land uses using LGVs

From interviews with service companies and businesses receiving service-related trips, we have identified four categories of service vehicle trips made to premises:

- quotation - trips to customers' premises and potential customers' premises to assess their equipment and servicing requirements and to then produce a quotation for this work;
- installation - this refers to when equipment (such as computers, photocopiers, cash tills, air conditioning systems, security systems, roller towels, warm air hand driers etc.) are first installed by the service company at the premises;

² The central cordon encloses an area within a radius of 1½-2 miles of Aldwych.

- planned servicing - this refers to trips to the premises to either check and service equipment, or to replenish/renew equipment (such as roller towels, or linen) at a predetermined frequency (e.g. once per week, or once per month);
- unplanned/emergency servicing - when equipment develops a fault and the service company have to make an unplanned trip to the premises, usually at relatively short notice. The speed with which the service company has to make a trip to the premises to rectify the problem depends upon the importance of the equipment in question. More than one trip can be necessary to rectify equipment failures of this type if the engineer has difficulties diagnosing the problem or does not have the necessary spare part(s) in their vehicle.

In some cases these service trips do not involve the movement of goods while in other instances goods movement may be included

Goods Trips

Although the Department for Transport has collected annual data about the tonnes lifted and tonne-kilometres performed by goods vehicles over 3.5 tonnes for many years, comparable data has not been collected annually for LGVs.

In 1992/3 the Department of Transport conducted a survey of small commercial vehicles and estimated that vehicles taxed as Private and Light Goods vehicles accounted for 5.9% of total tonnes lifted and 4.6% of total tonne-kilometres performed by road in Britain³ (DoT, 1994). These survey results also indicated that LGVs were responsible for considerably higher rates of empty running than HGVs.

As mentioned above, a new LGV survey that is planned to commence later this year will be able to provide a new source of on-going data about LGV activity in Britain. Freight transport sectors making significant use of LGVs include:

- parcels operators (which often makes use of LGVs for the final delivery or collection leg of the supply chain to business and residential addresses)
- courier companies moving time-sensitive small packages
- grocery home delivery operations
- small deliveries to high street shops and offices (such as chemists, newsagents, banks, travel agents etc.)

To these freight sectors may be added those service activities identified above where goods are carried such as moving services and maintenance tasks that will add little tonnage but may lead to substantial LGV movements.

LGVs and Transport Policy

Existing policy measures for LGVs and HGVs differ in several ways. These differences are shown in Table 5.

³ PLG HGV: vehicles in the Private and Light Goods Tax Class with body types that are considered appropriate for Heavy Goods Vehicles (HGVs). Some vehicles in this category had gross weights in excess of 3.5 tonnes.

Policy area	Difference in treatment between LGVs and HGVs
Driving licence requirements	LGVs up to 3.5 tonnes can be driven on a standard car driving licence (Category B vehicle licence). Rules differ for driving vehicles over 3.5 tonnes gvw depending on when the category B driving licence was acquired.
Drivers' hours legislation	Drivers of LGVs are not subject to EU Drivers' Hours Regulations. As part of British Domestic legislation in the Transport Act 1968 the driver of an LGV when engaged in most professional activities should not drive for more than 10 hours per day and should not be on duty for more than 11 hours on driving days. Tachographs are not fitted in LGVs, thereby making the legislation difficult to enforce.
Operator licences	No requirement for an operators' licence (O-licence) for LGV (and therefore no need to demonstrate good repute, appropriate financial standing or professionally competent)
Speed limits	There are different speed limits for car derived vans up to 2 tonnes gvw, other LGVs and vehicles up to 7.5 tonnes gvw, and goods vehicles over 7.5 tonnes gvw
Operating restrictions (especially in urban areas)	LGVs not always subject to the same time and access restrictions as imposed on HGVs.

Table 5: Differences in policy measures for LGVs and HGVs

Concluding Remarks

This paper has shown that LGVs are important in Britain for several reasons including:

- The total size of the LGV fleet (there are about five times as many LGVs as there are HGVs currently licensed in Britain);
- The LGV fleet in Britain is growing at a faster rate than HGVs;
- The total LGV fleet covers approximately 70% more vehicle kilometres each year in Britain than the total HGV fleet;
- There has been significant growth in LGV traffic in Britain over the last decade (LGV traffic growth has been even more rapid than the growth in car traffic over this period);
- LGVs are heavily used in urban areas which are subject to increasing traffic congestion problems;
- LGVs are used for a wide range of important goods transport and service tasks. In terms of goods transport, LGVs are used for the transportation of high value products to final customers, and are widely used in the growth of home deliveries. In terms of service activities, LGVs are used to provide rapid response services to a range of industries, and are closely linked to the growth in high tech equipment and telecommunications.

The following factors (which refer to both goods transport and service transport) and likely to increase the size of the LGV fleet and the total vehicle kilometres it travels in Britain:

- Reduction in stockholding levels/move to JIT distribution systems;
- Spatial concentration in production and warehousing facilities;
- Shortage of HGV drivers/changes in driving licences;
- Increase in operating restrictions on HGVs in urban areas;
- LGVs may be operated where cars could perform the same role due to the tax advantage of LGVs;
- Increase in same day and time-critical deliveries;
- Increase in rapid response servicing (e.g. computer repairs etc.);
- Outsourcing of service functions to specialist companies during the last decade. This has tended to result in a wide range of services provided to buildings and to homes requiring vehicle trips;
- Development and use of more technological and communications equipment that requires installation, planned servicing and emergency repairs;
- The installation and maintenance of new telecommunication networks (e.g. cable networks);
- Growth of home delivery sales;

- Growth in number of households leads to greater total deliveries and servicing for households;
- Growth in home improvements;
- Increase in value density, especially of consumer goods, will emphasise small vehicles at the ends of the supply chain.

Some developments may reduce the size of the LGV fleet and its activity levels. For example, some hi-tech equipment can be serviced remotely removing the need for vehicle trips. Also some tasks that previously required vehicle trips (e.g. data transfer) can now take place over computer networks. However, the factors encouraging growth in the LGV fleet and its activity are likely to outweigh factors leading to reductions.

The mixed activity patterns of LGVs, where perhaps half may be service activities rather than freight and goods movements alone, indicate that it is necessary to address this area of commercial vehicle activity and secure a better understanding of the travel aspects of service industries.

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INBOUND LOGISTICS IN A PULP & PAPER INDUSTRY: QUESTIONS AND (HYPOTHETICAL) SOLUTIONS

José Crespo de Carvalho

ISCTE – Av. Forças Armadas, Cacifo 32, 1600 Lisboa

Management Department

University of Lisbon

Email: jose.carvalho@iscte.pt

Abstract

The paper describes and documents an entrepreneurial case study, following a coaching methodology. A group of companies in the wood, pulp and paper industry was looking for an optimal solution for an operational problem. While looking for the desired solution to what was mentioned to be an operational problem the group of companies has been faced with the strategic nature of logistics. This led the group to a wide-open discussion in this subject area that, until then, was out of its sight.

Logistics thoughts and principles were, therefore, the necessary incentive to setting up a logistics service provider within the group, to implement a planned fulfilment order system and to redistribute tasks, activities and redesign processes within the group, in order to assure its sustainability. The case study is a real one and was carried out by the author of this paper between 2001 and 2002. It refers to the Portucel/Soporcel group, one of the largest Portuguese pulp and paper group, also one of the major players in Iberia and at the European level.

Objectives and Methodology

The Portucel/Soporcel holding, still not legally incorporated, has set up an inter-company team including board representatives from Aliança Florestal, S.A., Património Florestal, S.A., Portucel Industrial, S.A., Soporcel Industrial, S.A. and a sourcing unit from the Portucel/Soporcel holding.

This mentioned inter-company team was accompanied, monitored and led by the author of this paper, while appraising the current status of the inbound logistic system and later, when determining and validating possible solutions, namely to achieve the following items and specific deliverables:

- Analyse the entire wood supplies including entry deposit parks, factory parks and the whole system upstream to the own woods of the group (belonging to Património Florestal, S.A. and operated by Aliança Florestal, S.A.) to the external woods and deliveries stage;
- Calculate the optimal flow of quantities per year assigned to each one of the points of the inbound logistics system, identifying bottlenecks, restraints and corresponding solutions;
- Motivate and promote organizational integration, presenting solutions for implementation and decision support elements in terms of sourcing; and,
- Assure the future organization that the proposed solutions would reduce costs, contribute to eliminate redundant movements as well as creating excellence in processes.

In order to achieve the proposed objectives the holding Soporcel/Portucel decided to suggest a coaching methodology that had to follow a set of themes. These themes ended up being dynamic and were systematically enriched during the time of the project. Initially, the problem and the prospected solution were only positioned to be in an operational research environment. Thus, the initial themes have been completely transformed and methodologically added, when needed, to obtain the deliverables alone. It was stated by the author as important to solve the initial problem with a sustained perspective:

- To study and analyse the transportation, handling, storage, information systems and infrastructures allocated to the whole wood inbound system (see Bowersox, 1978, Williamson, Spitzer and Bloomberg, 1988; Carvalho, 1996, 1999; Bowersox and Closs, 1996);
- To lead and to achieve goals with different individuals and sensibilities in a cross-functional, cross-cultural and cross-company management environment, trying to obtain a common logic, agreements and functional rules amongst them (Schary and Skjott-Larsen, 2001);