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Freight transport in Brussels and its impact on road traffic?

Le transport de marchandises à Bruxelles : quels impacts sur la circulation automobile ?
Goederenvervoer in Brussel: welke impact op het autoverkeer?

Philippe Lebeau and Cathy Macharis

Translator: Jane Corrigan

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Freight transport in Brussels and its impact on road traffic

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Car traffic is one of the biggest problems faced by sustainable development in the Brussels Region. While the debate regarding the use of cars in the city is important, noise pollution caused by goods vehicles is mentioned much less often. They are responsible for 25% of CO_2 emissions, 33% of PM2.5 emissions and up to 32% of PM10 emissions caused by road transport in the capital. Given that a significant increase in freight transport is predicted, it is necessary to examine this lesser known aspect of mobility in Brussels. The aim of this article is therefore to establish a diagnosis of freight transport in Brussels. The different available sources are brought together in order to better understand the sector's dynamics. Some of the solutions implemented in the Region to improve the sustainability of delivery operations are also presented.

Philippe Lebeau *has a master's degree in management sciences from the Louvain School of Management and a complementary master's degree in transport management sciences from CIEM. As part of the MOBI research group at* Vrije Universiteit Brussel, *he is in charge of a Prospective Research for Brussels, which is aimed at evaluating the use of electric vehicles for the delivery of goods in Brussels. In the book* 'Mobilité et Logistique à Bruxelles' *[2013], he wrote the chapter entitled 'Etat des lieux et enjeux de la logistique bruxelloise' with C. Macharis.*

Cathy Macharis *has a doctorate in management and is a professor at* Vrije Universiteit Brussel *where she is in charge of the MOBI research group. Her main publications are focused on logistics and sustainable mobility, as well as on electric vehicles. As president of the* Commission Régionale de Mobilité, *she is well aware of the situation in Brussels. She edited the book* 'Mobilité et Logistique à Bruxelles' *[2013] with F. Dobruszkes and M. Hubert.*

Philippe Lebeau, plebeau@vub.ac.be
Cathy Macharis, cmacharis@vub.ac.be

Benjamin Wayens (Senior Editor), +32(0)2 211 78 22, bwayens@brusselsstudies.be

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RÉGION DE BRUXELLES-CAPITALE

Introduction

1. The mobility debate in Brussels is not new. The recent publication by Hubert, Lebrun, Huynen, & Dobruszkes [2013] has highlighted the key elements of this problem, essentially in the context of the mobility of people. But, this contribution hardly deals with the impact of freight transport. Earlier on, Hubert, Dobruszkes, & Macharis [2008] had, however, identified the logistics sector as one of the key elements of the transport policy in the Brussels-Capital Region. Freight transport also contributes to traffic and air quality problems in the capital. And this is likely to increase in the future: the Federal Planning Bureau [2012] foresees a 68% increase in tonne-kilometres for freight in Belgium between 2008 and 2030, while the increase in passenger-kilometres should not exceed 20%. The logistics sector therefore deserves greater attention in the mobility debate.[1] The aim of this paper is to provide an overview of the significance of freight transport in Brussels based on the different existing sources of information, and to present the different solutions developed by the Region to tackle these issues.

1. Goods transported by road in Brussels: data and observations

1.1. The volume of goods and modes of transport

2. Freight transport is essential to the economic vitality of cities [Allen *et al*., 2000]. It provides consumer goods to inhabitants and supports urban economic activity. Dablanc [2009] estimates that urban logistics generates approximately one delivery per job per week, and 30 to 50 tonnes of goods per inhabitant per year. These estimates were confirmed for Brussels by the study conducted by STRATEC [2002], which mentions volumes of just over 40 million tonnes for a population of just under one million inhabitants at the time [IBSA, 2014]. The resulting for Brussels is 41.5 tonnes of goods per inhabitant per year.

3. However, the existing data regarding freight transport in Brussels indicate much lower quantities. Figure 1 illustrates the evolution of freight flows (in tonnage) per mode of transport. Rail is represented only partially given the difficulty in obtaining data on this sector. The total volume of goods transported in 2002 in Brussels is about 18 million tonnes according to the available data, whereas the STRATEC [2002] report mentioned almost 40 million tonnes. In reality, the data presented in Figure 1 greatly underestimate road transport. The *Direction générale Statistique et Information économique* (DGSIE), which gathers these data each year, restricts its observations to vehicles whose load capacity equals one tonne or more. Though, it is estimated that in European cities, the volume transported by vans represents more than half of the total volume transported [PORTAL, 2003]. Given that 80% of vans have a load capacity of less than one tonne [*SPF Mobilité et Transports*, 2011], this flow is not included in the DGSIE data, thus explaining the low volume of goods recorded.

4. This widening gap in the observations illustrates the tendency towards a fragmentation of the flow of goods. The volume transported by vehicles with a load capacity of more than one tonne is decreasing while the population is increasing (and water and rail transport do not explain this drop), which is explained by the fact that an increasing proportion of these goods is transferred to vehicles whose load capacity is less than one tonne, i.e. vans. As they have a lower transport capacity, the number of freight vehicles has increased tenfold. Zunder [2011] notes that the quantity of deliveries per person in French cities is increasing, while the volume per person remains constant. This trend may be explained in part by the structural change in urban economies, which are evolving towards services to the detriment of industry. This trend is also seen in the Brussels-Capital Region. Service activities make use of more light goods vehicles than industry activities do.

5. Consequently, the Brussels-Capital Region should expect a rise in freight transport in its territory. On the one hand, the population boom expected in the Brussels Region should cause an increase in the vol-

[1] The transport of goods will be the focus of the fourth issue by *Observatoire bruxellois de la mobilité* (http://www.bruxellesmobilite.irisnet.be/articles/la-mobilite-de-demain/observatoire-mobilite).

ume of transported goods which is proportionate to the population, i.e. a 28% increase between 2010 and 2050 [Federal Planning Bureau, 2013]. On the other hand, the sector is likely to make more use of light goods vehicles. The combined effects of these two trends greatly increase the impact of logistics due to an increase in freight vehicle traffic. This is why, despite a 28% increase in volume between 2010 and 2050, the Region foresees an 80% increase in freight vehicle traffic by 2050 [*Bruxelles mobilité*, 2013].

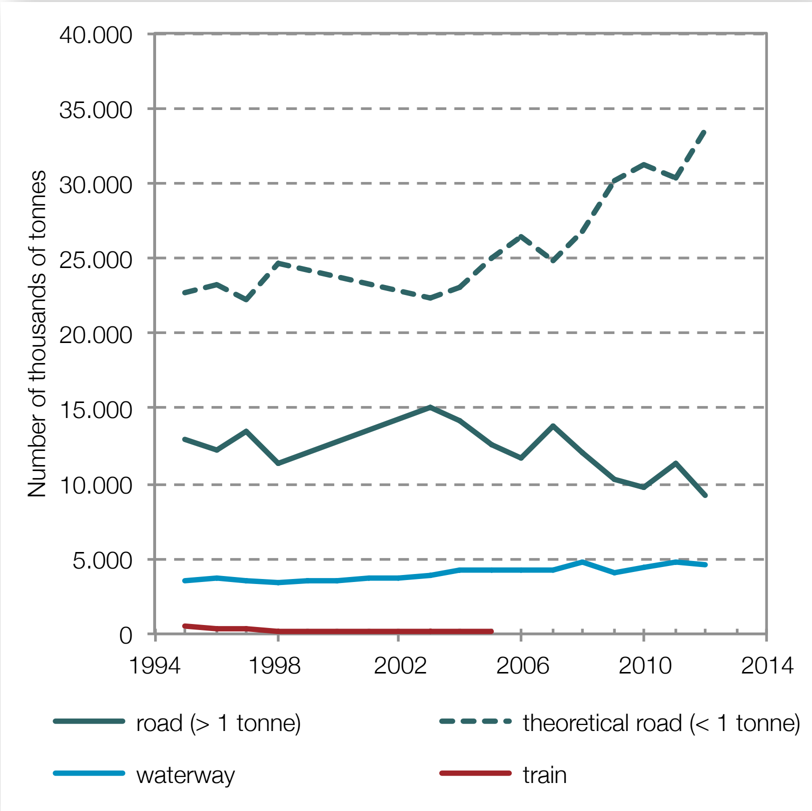

Figure 1. Evolution of freight transport in the Brussels-Capital Region. Source: VUB-MOBI calculations based on Dablanc [2009], DGSIE [2014] and Port of Brussels [2014].

1.2. The impact of freight vehicles on traffic congestion

6. The increase in the number of freight vehicles on the roads is problematic with respect to the traffic situation in Brussels. Several rankings have positioned Brussels among the most congested cities in the world [Inrix, 2014; Tomtom, 2012]. Network saturation has indeed increased. During working days outside the school holidays, *SPF Mobilité et Transports* [2011] has observed that the number of kilometres of motorways with more than 75% saturation (i.e. 1,500 vehicles per hour per lane) has risen from 178km in 1990 to 735km in 2009. This structural congestion is above all concentrated around Brussels, as shown in Figure 2.

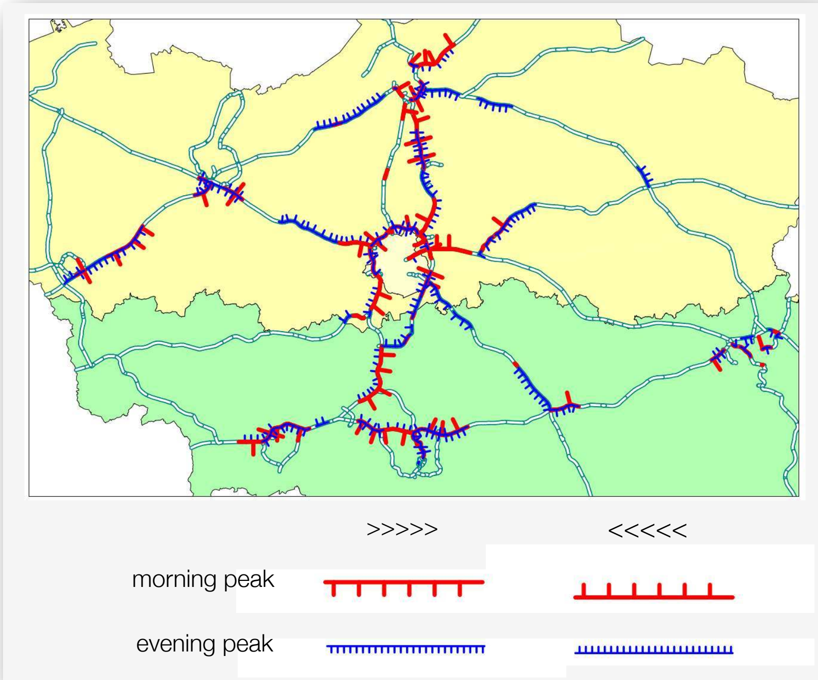

Figure 2. Sections of motorway with structural congestion in 2009. Source: SPF Mobilité et Transports *[2011].*

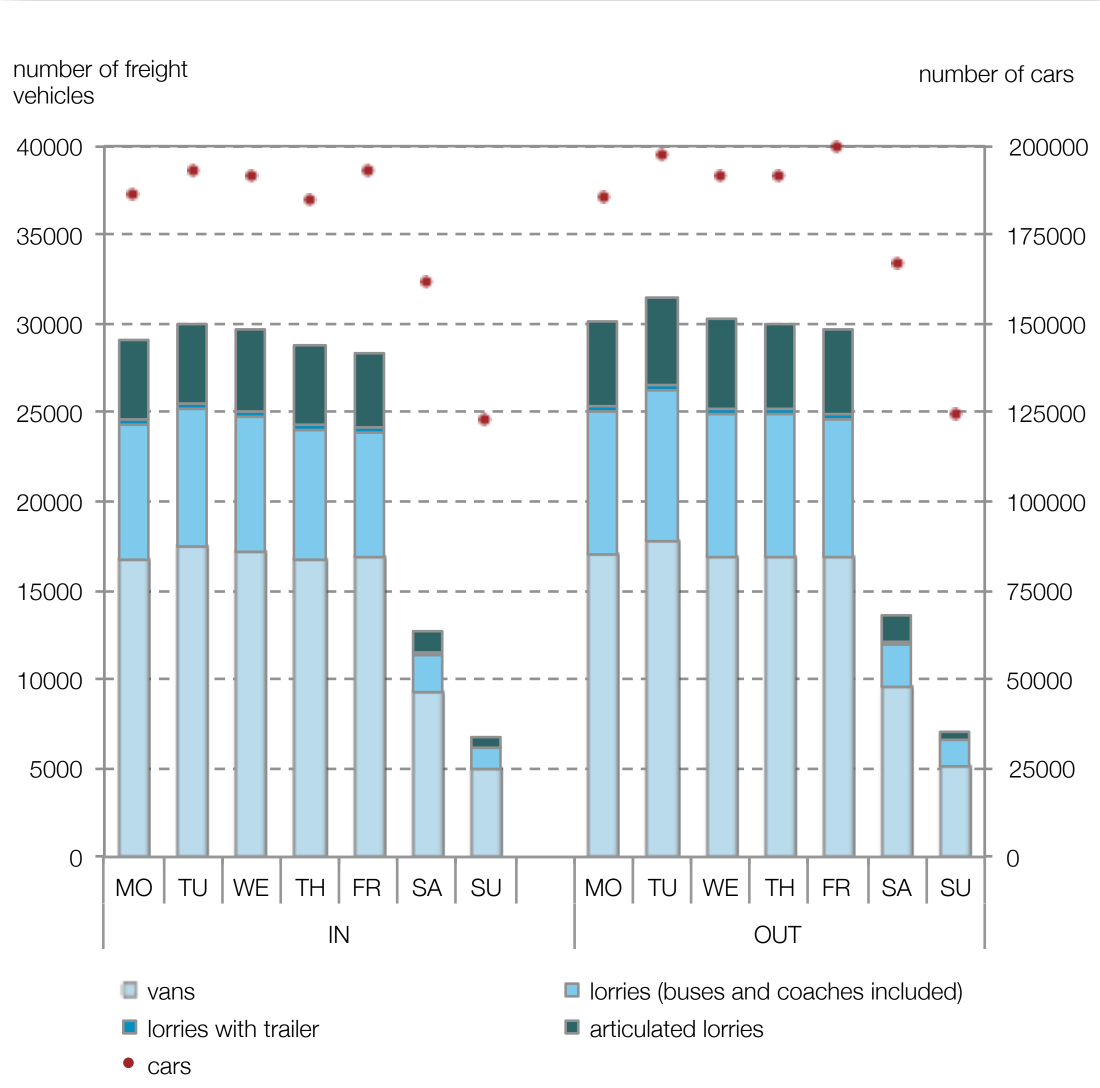

Figure 3. Number of freight vehicles entering and leaving Brussels according to the day of the week (excluding motorways). Source: VUB-MOBI calculations based on data from Bruxelles mobilité *[2012b].*

7. Counting efforts carried out at the borders of the Brussels-Capital Region in June 2012 have allowed an evaluation of the impact of freight transport on traffic [*Bruxelles mobilité*, 2012b]. Let us note that buses and coaches have been counted as lorries. According to the distribution of vehicles in Belgium, lorries actually represent 85% of this category [*SPF Mobilité et Transports*, 2014].

8. The intensity of freight traffic varies above all according to the day of the week. Figure 3 shows the evolution in the number of vehicles entering or leaving the Region during a week in June (excluding motorways). The difference in activity between weekday and weekend is clear: at weekends, vans represent only 4 to 5% of traffic, and heavy goods vehicles, 1 to 2%, whereas during the week, the share of vans reaches 8%, and that of heavy goods vehicles, 5 to 6%. Figure 3 also shows that Tuesday is the busiest day of the week in terms of traffic. It is often recognised as being the most critical day [Stern, 2004]. The counting analysis was therefore focused on this day of the week. By adding the countings achieved on the motorways the following Tuesday, we could observe a volume of approximately 45,000 freight vehicles entering and 45,000 leaving the capital on a Tuesday.

9. The share of freight vehicles in traffic also varies according to the time of day. Figure 4 summarises the distribution per hour of all vehicles entering and leaving the Region. Freight traffic differs from car traffic in that its distribution is less concentrated during peak hours. The highest peak for freight vehicles entering the Region is at 6am, when traffic reaches its busiest level immediately. Traffic then decreases gradually throughout the day. Traffic leaving the Region is more balanced and remains stable between 6am and 4pm (approximately 3,000-3,500 vehicles per hour). Figure 4 shows that overall, the logistics sector is not greatly affected by the level of car traffic. Thus, the greatest conflict between passenger transport and freight transport occurs during the morning peak. This is due to the fact that deliveries are prepared during the night and must be delivered in the morning, before the first customers arrive.

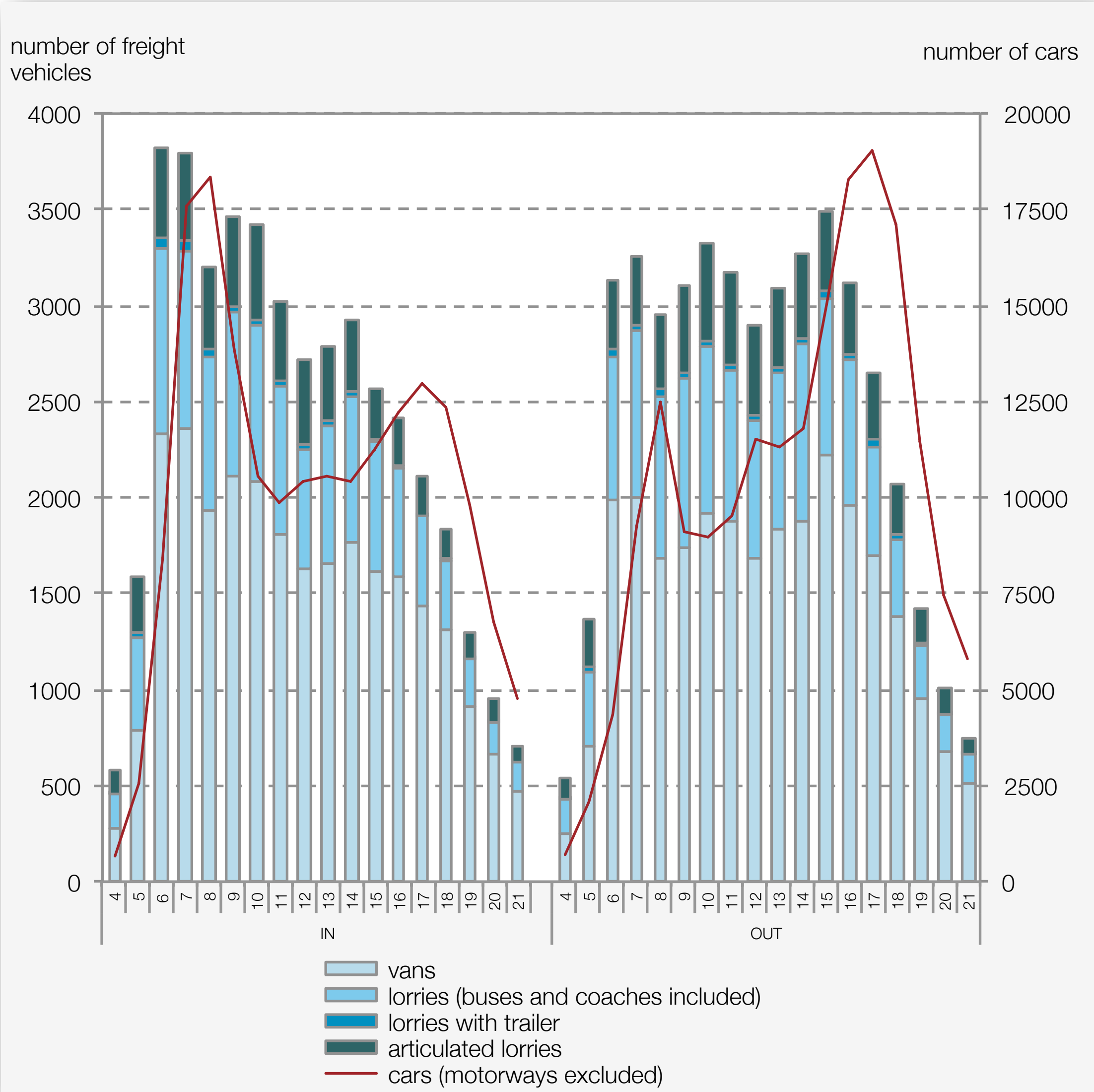

Figure 4. Number of freight vehicles entering and leaving Brussels according to the time of day (excluding motorways). Source: VUB-MOBI calculations based on data from Bruxelles mobilité *[2012b].*

10. Finally, the level of freight traffic varies according to the location. The counting efforts have shown that the Region's main entrances and exits for freight vehicles are *Boulevard Industriel* in the south of the Region, the A12 in the northeast and the A3 in the northwest. Figure 5 the importance of freight transport at different locations in Brussels on a Tuesday. Some of them, however, are used more by freight vehicles than by cars. For example, *Chaussée de Vilvorde* and *Avenue de Tyras* represent 48% and 32% of incoming freight traffic and 44% and 31% of outgoing freight traffic respectively. This particularly high proportion is explained firstly by the fact that these roads are less appealing to cars and, secondly, by the many heavy goods vehicles which use them (close to 20%).

11. Figure 3, Figure 4 and Figure 5 allow us to identify the organisation of freight transport traffic in Brussels. Yet in order to evaluate its impact on road traffic, it is necessary to consider this traffic in its context, with the available road infrastructure and car traffic. The method used by *SPF Mobilité et Transports* [2011][2] allows this information to be integrated in a traffic index. By comparing the proportion of freight traffic with the level of congestion in Figure 6, it is possible to identify the roads where freight traffic has the most impact on traffic jams during peak hours. For example, Figure 6 shows that traffic entering via *Chaussée de Vilvorde* is made up of a significant share of freight vehicles, but their impact on congestion is limited given the low score on the traffic index. Conversely, *Boulevard Industriel* as an entrance into the capital has the highest score on the traffic index for the morning peak, partly because of the limited number of lanes compared to the flow of vehicles. Given that freight vehicles represent 17% of traffic, *Boulevard Industriel* may be considered as the road where freight transport contributes most to the congestion of incoming traffic in the morning.

[2] The traffic index is defined as the relationship between the number of vehicles observed and the conventional limit of 2000 vehicles per hour and per lane.

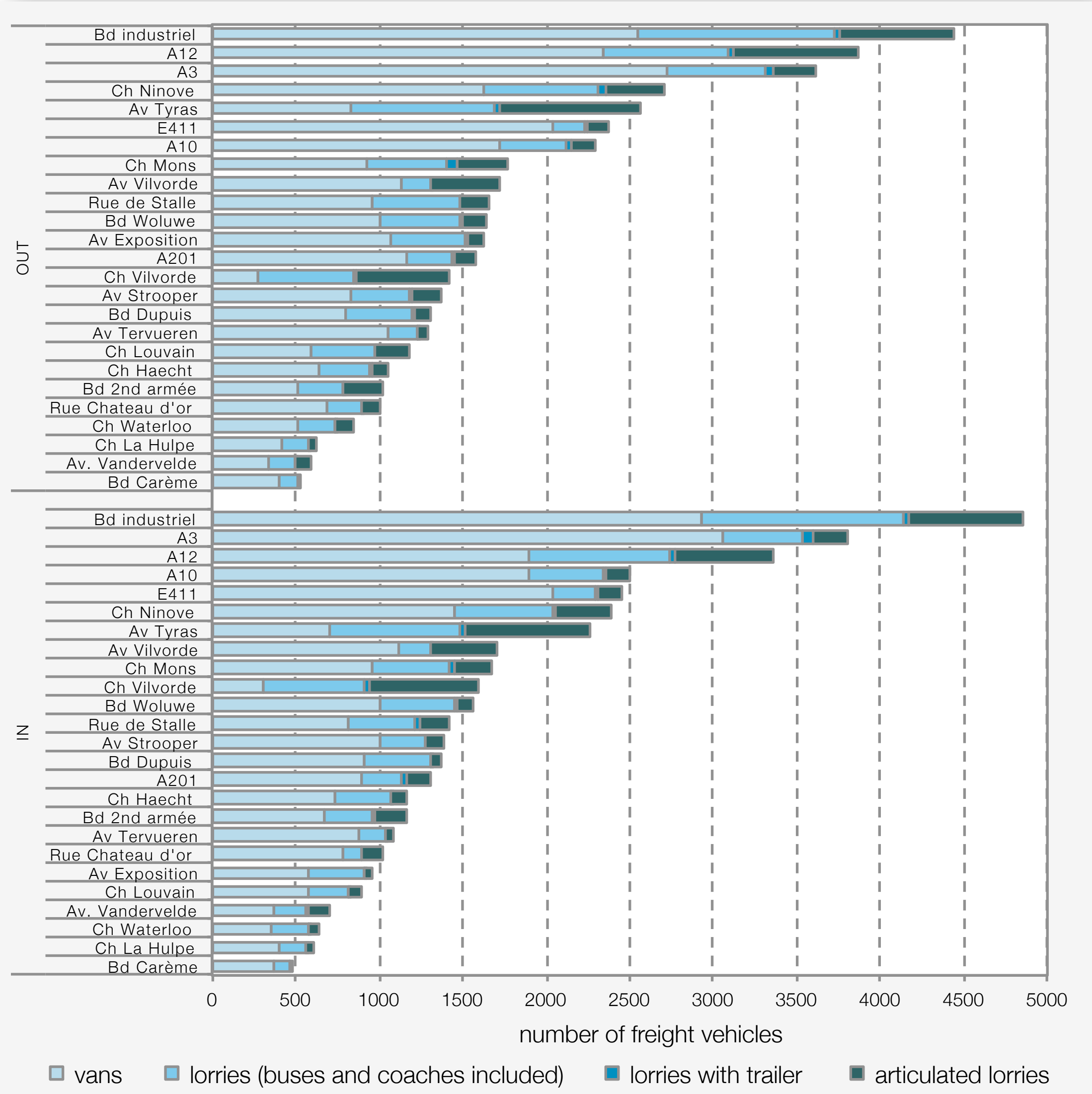

Figure 5. Ranking of main entrances and exits in the Brussels-Capital Region for freight vehicles (motorways included). Source: VUB-MOBI calculations based on data from Bruxelles mobilité *[2012b].*

12. Let us note an alternative approach to this graph, which allows us to identify the roads where freight vehicles are affected most by congestion due to cars. For example, the traffic index for Avenue de Tervuren in the morning ranks fourth, with the proportion of cars reaching 94%. In this case, congestion due to cars has an impact on transport companies in particular. The time and fuel wasted are therefore reflected in transport costs.

13. Unfortunately, the counting efforts were not able to integrate motorways in the analysis, given that cars were not included. Yet these roads are probably the most problematic, as seen in Figure 2.

1.3. The rise in the number of vans

14. As there have not been any counting efforts using the same methodology as those in June 2012, it is impossible to see how freight traffic has evolved over time. But in the first section we have identified an increase in the use of vans. This trend may also be observed through the evolution in the number of freight vehicles in Belgium. Figure 7 shows that there has been a higher increase in the use of vans than heavy goods vehicles or even cars: between 1997 and 2011, the number of vans rose by 6.5% per year on average, while the number of lorries and articulated lorries remained stable. The growth of cars was limited to 1.5%. Hence, the number of freight vehicles is rising more quickly than the number of cars. It is, however, necessary to remain cautious when analysing the numbers of vehicles, given that cars are also used for freight transport and conversely, vans are used for purposes other than freight transport. Nevertheless, these observations are in line with the conclusions of the Federal Planning Bureau, which forecasts a greater increase of freight traffic than for passenger traffic [Federal Planning Bureau, 2012]. This also confirms that an increasingly significant proportion of freight vehicles are not included in the observations of the DGSIE national survey.

15. Among the motorised freight transport vehicles in Belgium, in 2013, Brussels represented 9.5% of vehicles, compared to 62.2% in Flanders and 28.3% in Wallonia [*SPF Mobilité et Transports*, 2014]. For Brussels, this represents a total of 74,562 motorised vehicles. Figure 8 presents a comparison of these vehicles in Brussels and those in Flanders and Wallonia. As the

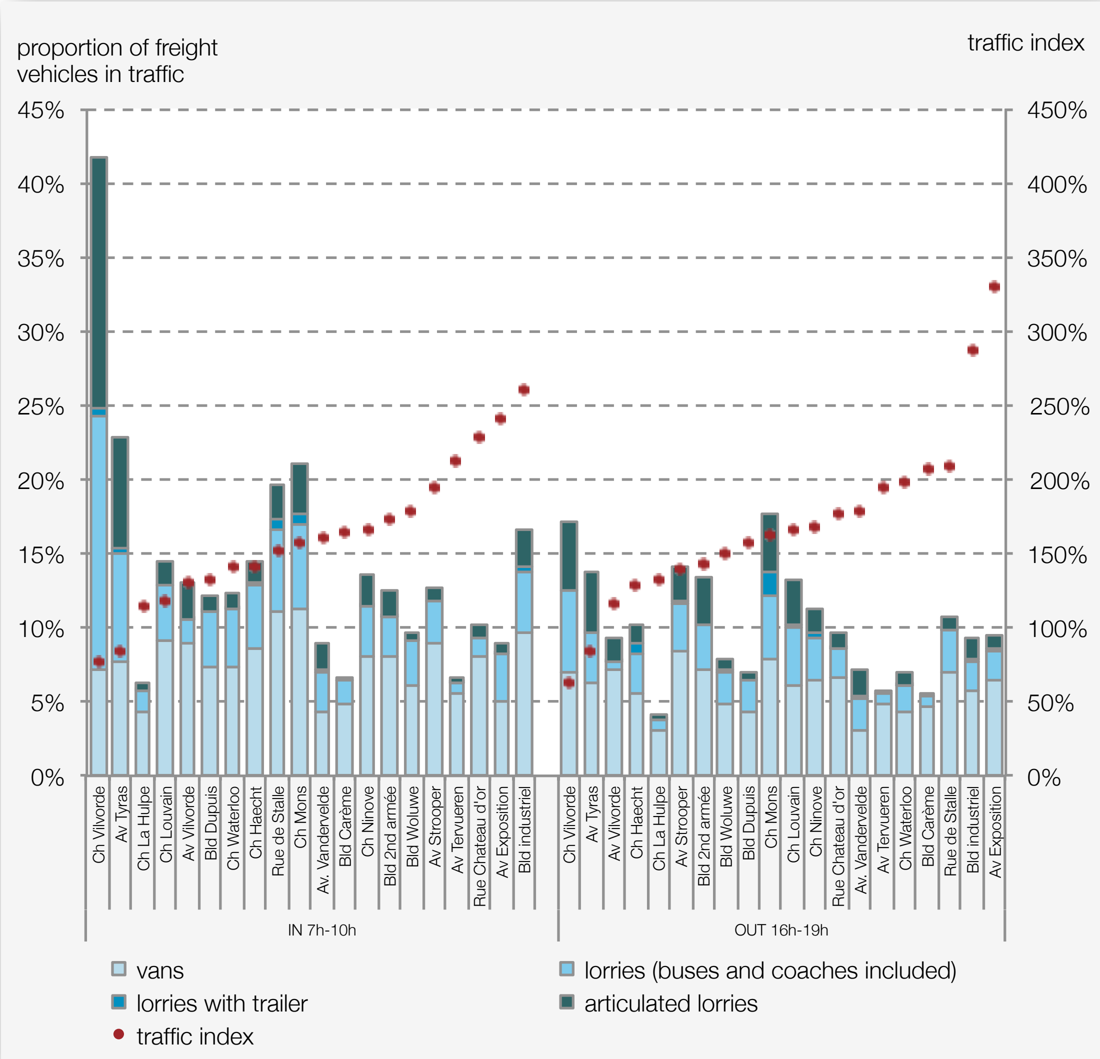

Figure 6. Impact of freight vehicles on traffic during weekday peak hours (excluding motorways). Source: VUB-MOBI calculations based on Bruxelles mobilité, *[2012b].*

category of vans represents 81% of all motorised freight transport vehicles in the country, it has been divided into sub-categories. The distribution is similar in the Regions, although the Brussels-Capital Region does have a smaller share of articulated lorries, and instead, more vans. This profile may be explained by the purely urban aspect of the Region and more distribution activities. Regulations also encourage the use of light goods vehicles, such as the ban on tunnel access for heavy goods vehicles due to fire safety reasons.

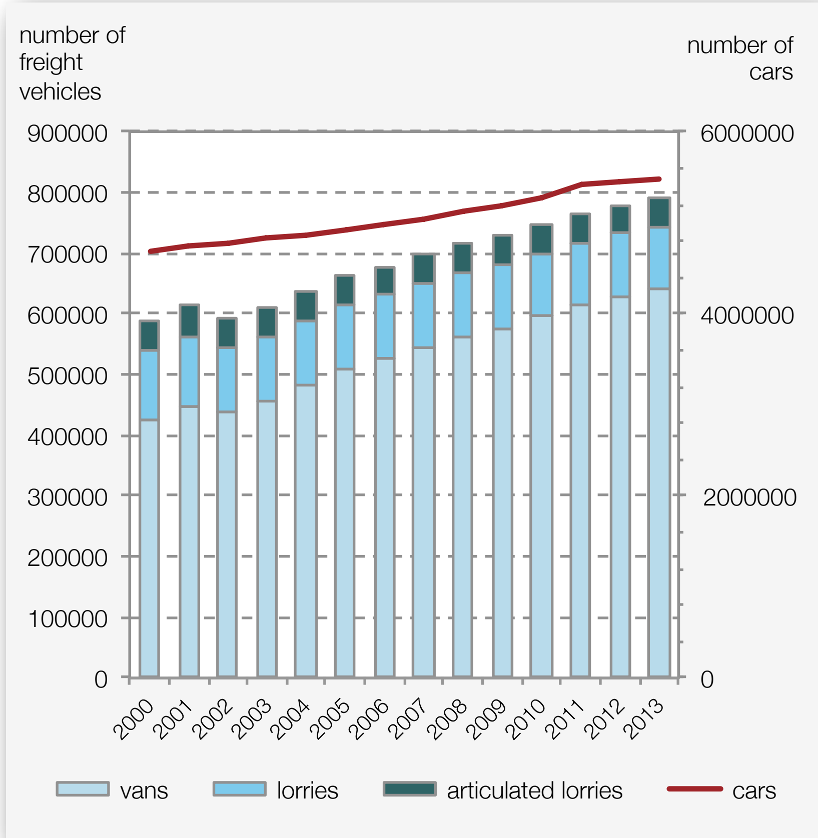

Figure 7. Evolution in the number of freight vehicles in Belgium. Source: VUB-MOBI calculations based on SPF Mobilité et Transports *[2014]*

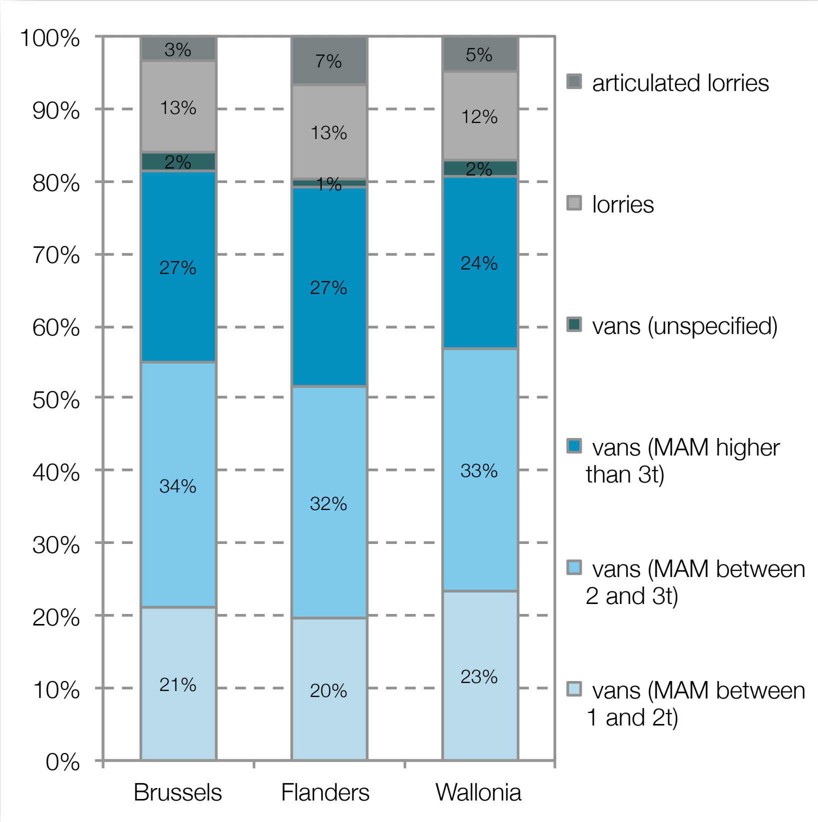

Figure 8. Distribution of freight vehicles in each Region according to category. Source: VUB-MOBI calculations based on SPF Mobilité et Transports *[2014]*

1.4. A particularly polluting sector

16. The data on air quality in Brussels are gathered by *Bruxelles Environnement*. The pollution caused by freight traffic in the Brussels-Capital Region is presented proportionately with respect to road traffic in general (Figure 9). Freight vehicles (vans and heavy goods vehicles together) are responsible for 25% of CO_2 emissions, 31% of NOx emissions, 33% of PM 2.5 emissions and 32% PM 10 emissions. When considering these figures, one must bear in mind that freight vehicles represent an average of 14% of road traffic. This parallel makes it clear that vehicles used in logistics cause much more pollution that those used for personal transport. Heavy goods vehicles cause a particularly

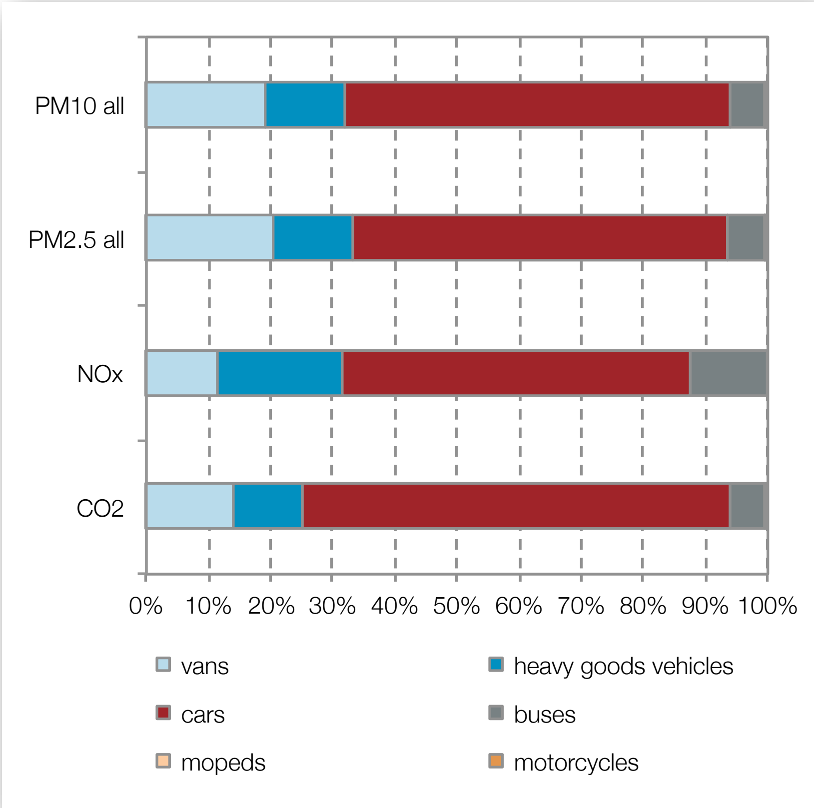

Figure 9. Pollution caused by freight traffic in the Brussels-Capital Region with respect to road traffic in general. Source: VUB-MOBI calculations based on Bruxelles environnement *[2014].*

high pollution level in terms of NOx emissions, and vans, in terms of particle and fine particle emissions (PM10 and PM2.5).

17. The fuel used by freight vehicles explains these findings. Diesel represents a 93% market share of freight vehicles registered in 2013 in the Brussels-Capital Region. As a comparison, the use of diesel for cars in Belgium as a whole reached a historical high with 62.3%. Petrol is much less common, being used by 4% of freight vehicles in the Region. As seen in Figure 10, it is chosen mainly for vans whose maximum authorised mass (the MAM is the sum of the weight of the empty vehicle, the driver and the vehicle's load capacity) is between 1 and 2 tonnes. LPG is the most commonly used alternative fuel in the Brussels Region, representing 0.5% of the market share. This is followed by electricity, with a market share of 0.1%: 51 electric vehicles are registered in the MAM category of 2 to 3 tonnes, and 20 in the MAM category of under 1 tonne. Finally, there are 17 vehicles which run on natural gas, i.e. a market share of 0.02%. These are mainly lorries, as seen in Figure 10.

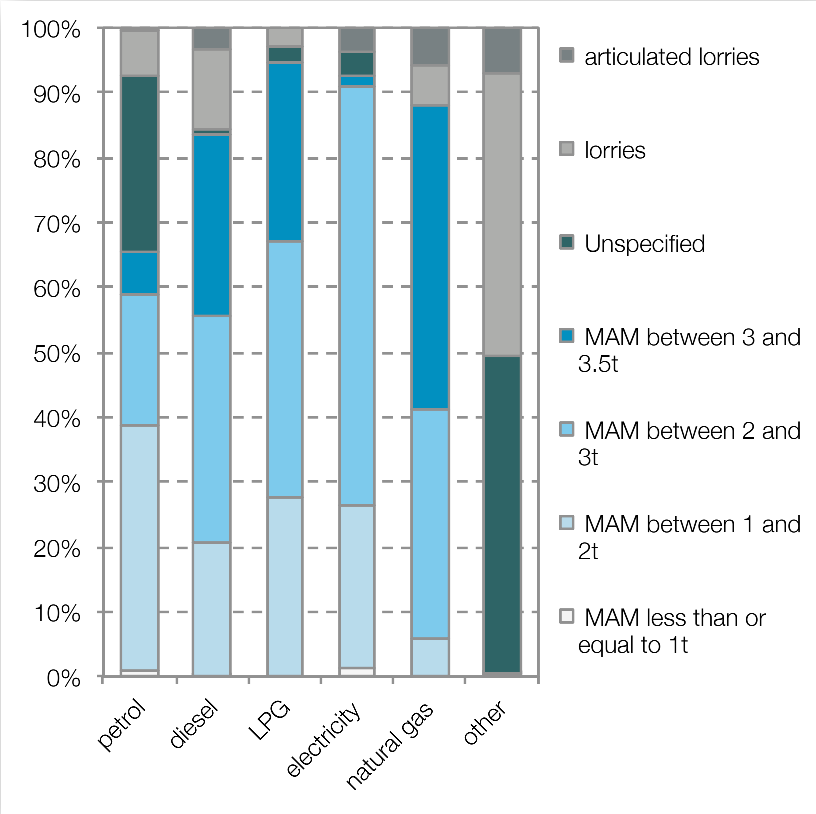

Figure 10. Distribution of freight vehicles registered in Brussels according to different types of technology. Source: VUB-MOBI based on data from SPF Mobilité et Transports *[2014].*

1.5. A logistics area beyond the regional borders

18. The data from the national survey on goods transported by road [DGSIE, 2011] show that the logistics areas which the Brussels economy depends on is spread beyond its borders. Of the goods loaded in the Brussels-Capital Region, 26% remain in the Region whereas 44% are sent to Flanders, 29% to Wallonia and 2% to another country. The geographic distribution of the origins of deliveries to the Brussels-Capital Region is similar: 23% originate in the Region, 47% in Flanders, 28% in Wallonia and 2% in another country. Besides, we can stress that Brabant and the Brussels-Capital Region together receive 61% of goods loaded in the Region and send 61% of goods delivered to the Brussels Region.

19. This economic integration of the Brussels-Capital Region with its outskirts should continue to strengthen. Strale [2013] has shown that there is a trend in the relocation of urban logistics activities to the outskirts of Brussels. This phenomenon is also observed in Paris. Dablanc & Rakotonarivo [2010] have presented their consequences. This trend has the effect of increasing the distances travelled, increasing freight traffic in the road network and therefore increasing the emissions caused by road transport. But this growing dependency of the Brussels Region on its outskirts stresses especially the need for cooperation between the three Regions in the country. The problems discussed in this section of the paper cannot be resolved effectively by the unilateral decisions made by the different Regions.

2. Solutions for Brussels

20. The various issues involved with goods transported by road converge and lead to an increase in freight traffic: population growth in Brussels increases the volumes to be delivered, the fragmentation of these volumes increases the number of vehicles per delivery and the relocation of logistics activities to the outskirts increases the distances to be covered. The imbalance between supply and demand in road infrastructure risks therefore to become more and more problematic. The current excessive demand causes congestion and damages the air quality in Brussels. There is, however, a range of solutions. The objective of this section is to present some of the solutions to the problems identified in the first part of this article. They are aimed at decreasing this excessive demand through more efficient transport of goods. The possibility of increasing the road infrastructure is not considered a priority in this section, as public space must also serve purposes other than traffic [Hubert *et al.*, 2013].

2.1. Modal shift

21. Given the increasing relocation of logistics activities to the outskirts, a first solution would consist in sending goods to the Brussels-Capital Region via train or waterway. Brussels has indeed the advantage of benefiting from highly developed multimodal accessibility.

22. Railway is a possible alternative to roads. The Region has 163 kilometres of railways, thus making Brussels one of the regions with the densest network in Europe [BECI, 2010]. Furthermore, the star configuration of the national network centred round Brussels offers access to many different destinations. However, Figure 1 shows the gradual disappearance of this mode in Brussels. Earlier in 2014, when the grain transporter CERES stopped using the railway, the Audi factory was the only remaining company to use it. Poor service is responsible for this: the trains are often late and are not always available [STRATEC, 2002]. The network is dedicated as a priority to passenger transport. Hence, freight transport via rail is indeed difficult given the current saturation of the railway network in Brussels. The future of railway transport lies in the project at Schaerbeek Formation, where a trimodal platform is planned.

23. Currently, the modal shift to barge transport is the most interesting one in the Brussels-Capital Region, thanks to the canal which links the Port of Brussels to Antwerp in five hours. Van Lier & Macharis [2011] have estimated that the use of the waterway in 2007 decreased the number of lorries in the city by 255,000, thus making the port an essential stakeholder in sustainable development in Brussels. For the moment, the logistics activity in the port is quite specialised. It involves above all the import of construction materials, petroleum products and agricultural products in the north section of the Brussels canal. In particular, the port plans to reinforce its position in the transport of construction materials via a 'construction village'. This platform will allow bigger quantities to be brought together, which is necessary in order to justify the cost of transport via waterway.

24. But the port is also diversifying its activities. A container terminal has allowed a new type of traffic in the port since 2003. The port's new master plan includes further diversification of activities [Port of Brussels, 2014]. A first project is aimed at organising ro-ro traffic (roll-on/roll-off) via waterway in 2017. There is a considerable second hand vehicle market in Brussels (100,000 cars per year). These vehicles are gathered here from across Europe before they are sent to Africa from Antwerp [Rosenfeld, 2009]. The project plans to gather the different stakeholders in the outer port in order to avoid lorry traffic, which has a particular impact on the neighbourhood around Delacroix underground station. A second project in the master plan consists in creating a network of transshipment points for urban distribution. In this way, the port will provide a transport solution for most urban goods, namely parcels and pallets.

2.2. Deliveries with staggered hours

25. An alternative type of modal shift involves a change in timing. This solution has received much attention but is still barely used. By authorising deliveries before 6am, freight vehicles may handle their morning distribution earlier when the road network is quieter. Freight vehicles would no longer be in traffic jams and would therefore not waste time and fuel, and would create less emissions. But the concept is difficult to implement [Holguin-veras and Polimeni, 2006]. The main obstacle is in the Brussels-Capital Region government decree of 21 November 2002

regarding the fight against noise and vibrations caused by classified installations. To allow these types of delivery, transporters must adapt their delivery operations in order to limit noise pollution for local residents. On the other hand, authorities must adapt the current regulations.

26. In order for the different stakeholders to be able to evaluate the feasibility of this concept, a pilot test was conducted in Brussels with the distributors Colruyt and Delhaize to test deliveries with staggered hours. The results are not available yet, but they will be published in the report by the European Straightsol project around the end of 2014.

2.3. An optimisation of road traffic

27. The analysis of freight transport in Brussels has shown that there is an increase in the use of light goods vehicles. They mainly have the advantage of providing a higher level of service thanks to more regular deliveries. This phenomenon is probably more common in an urban environment given the cost of real estate: as the space reserved for stock must be minimised, the need for frequency is greater in order to ensure the availability of goods. However, it is possible to ensure the same frequency while reducing the number of vehicles required for transport thanks to the consolidation of goods. Transport may be optimised by grouping the loads for several vans into a single vehicle with greater capacity.

28. There are many different types of consolidation, as explained by Verlinde, Macharis and Witlox [2011]. TNT tested the use of a Mobile Depot in Brussels: an articulated lorry was sent from the depot in the outskirts to a parking area in the city, with the remaining kilometres covered by cargo bicycles. Thus, a constant flow of vans between the city and the outskirts was avoided. The test allowed a 24% decrease in CO_2 emissions and up to a 78% decrease in NOx emissions, while maintaining a comparable level of service [Verlinde *et al.*, 2014]. The costs are higher, however, but may still be optimised. A second way to consolidate goods is to set up an urban consolidation centre, i.e. a logistics platform located in the city, allowing the deliveries of different transporters to be grouped. The new Regional Sustainable Development Plan (PRDD) for Brussels plans to establish several of these centres throughout Brussels, but the most likely site would be Schaerbeek Formation. In the meantime, an urban consolidation centre pilot test will be implemented in 2014 at the TIR centre along the Vergote dock ['LaMiLo' 2014]. Finally, other measures will encourage transporters to consolidate better and even to collaborate. The introduction of a toll is an example: given that the price per kilometre is higher, the grouping of goods becomes more worthwhile financially. This type of measure is planned for 2016 in Brussels but it will only cover vehicles over 3.5 tonnes. As long as this toll for heavy goods vehicles is not accompanied by a toll for light commercial vehicles, the opposite effect may occur, namely that there may be a rise in the use of vans because lorries will become more expensive.

2.4. The electrification of urban logistics

29. New technologies may also provide an answer to the problem of freight transport, in particular regarding air quality and CO_2 objectives.. Urban logistics must be entirely 'decarbonised' by 2030 in major urban centres [EC, 2011]. The electric solution seems particularly interesting in this respect as it does not cause any emissions in an urban environment. Besides, electric vehicles are often appreciated in the context of distribution operations due to their performance with respect to acceleration, comfortable driving and silent engines [Dasburg and Schoemaker, 2006; SUGAR, 2011]. Finally, certain people value the greater availability of these vehicles because they require less maintenance and their batteries may be charged at the depot.

30. However, several obstacles restrain the development of electric vehicles. The high purchase cost is the main obstacle [Van Amburg and Pitkanen, 2012]. But this is offset by lower operational costs: electric energy is cheaper, less maintenance is required and insurance premiums are lower. Furthermore, the Brussels-Capital Region and the federal government offer incentives for the use of electric vehicles in logistics operations [Fisconetplus, 2012; Moniteur Belge, 2009]. Hence, electric vehicles which have a maximum weight of 2.3 tonnes may be more competitive than diesel vehicles [Lebeau *et al.*, 2013]. Certain express transporters are therefore developing green distribution solutions. In Brussels, for example, Ecopostale delivers parcels using electric vehicles and cargo bicycles.

2.5. Delivery areas

31. Transporters are confronted regularly with a lack of delivery areas, which force them to double park [AVCB, 2003]. The increase in delivery frequencies may worsen this phenomenon, which disrupts the flow of traffic. STRATEC [1998] estimated that by reinforcing the repressive measures against illegal parking in Brussels (in particular at major crossroads in the regional network), the average speed of vehicles would increase by 30%, and the distances covered as well as fuel consumption would decrease by 2% and 12% respectively. Ensuring enough space for loading and unloading operations is therefore a priority in order to improve freight transport in Brussels.

32. Certain municipalities have already taken the initiative by implementing a new category of parking space for deliveries [AVCB, 2010]: yellow areas. One must pay to use these parking spaces, except for delivery operations. They are clearly marked and and kept under strict control by specific agents. They have been integrated into the regional parking policy, ensuring the future development of this solution in other municipalities of Brussels [*Bruxelles mobilité*, 2013]. Furthermore, the Brussels-Capital Region has published a guide to help municipalities with the development of areas for street deliveries [*Bruxelles mobilité*, 2012a].

Conclusion

33. Traffic jams and mediocre air quality are well-known problems in Brussels. But the contribution of freight transport to these problems is less known. This paper has placed logistics in Brussels at the heart of the road traffic issue. We have underlined the fact that today, freight vehicles represent 14% of traffic entering and leaving the Region, a majority of which are vans, whose share is increasing while the one of lorries and articulated lorries is decreasing. Although heavy goods vehicles may create more problems in traffic, the preference for vans means more freight vehicles on the roads. Combined with a growing demand for goods and an increase in distances covered, the evolution in the freight vehicles used will contribute more and more to road congestion.

34. Freight transport is now becoming an issue integrated in the mobility debate. Data are still lacking, however, in order to have a better influence on this sector. The problem of freight transport using vans must be better understood in particular.

35. *Bruxelles mobilité* is aware of the challenges of urban logistics. A freight transport plan was adopted by the Region in 2013 to answer those challenges. Several projects to consolidate flows are planned and a modal shift as well as the use of cleaner vehicles are encouraged. New parking areas are also being tested to solve the crucial problem of delivery operations. However, other solutions still face regulatory obstacles, such as off-peak deliveries, while tests undergoing evaluation will allow the compatibility of this logistics system with the Brussels environment to be determined.

36. The development of these different types of solution – none of which, however, focus on the demand, strictly speaking – witnesses the positive dynamics in the Brussels-Capital Region. But there are many steps to take before a global implementation is possible, starting with inter-regional cooperation on the subject.

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