

Freight & Logistics Issues	Relevant Factors/ Evidence	Some Implications
ROAD FREIGHT	<p>Road freight covers a wide spectrum from bulk haulage to goods deliveries. Most freight is transported by road and this share is increasing. Road transport offer the most flexible, rapid, cheapest, and in many cases most efficient service for inter-urban door-to-door deliveries.</p>	<p>There will continue to be an increase in demand for the movement of freight, particularly by road. This will contribute to further congestion, thereby increasing the cost of distribution and the likelihood of a shift to other modes.</p> <p>The lack of an UK-owned truck manufacturer means that new vehicles are not sufficiently tailored to UK road haulage requirements.</p>
Demand	<p>65% of total tonne km¹ and 80% of domestic freight tonnage goes by road². The number of trips has increased by 38% in the last decade³ and this trend is likely to continue with rising GDP. The 1997 NRTF⁴ foresee the number of Light Goods Vehicles doubling by 2031 and HGVs growing by 169%. This also assumes a further increase in the share of freight transported by road.</p>	<p>Review market forecasts of freight traffic by source, destination and route.</p> <p>Need to consider whether tax revenues for HGVs cover the total costs – pollution, need for infrastructure, congestion, noise, accidents etc.- so as not to favour road transport against rail or other modes.</p>
Just-in-Time	<p>Growth has occurred due to increases in the physical quantities of goods produced and consumed; increases in the number of links in the supply chain; and increases in the lengths of these links⁵. New patterns of freight transport have emerged, such as long-hauls serving the whole of Britain, and “just-in-time” (JIT) logistics which involve precise planning of deliveries to match production or sales needs. Continuous development in this area can be expected⁶.</p>	<p>The JIT approach leads to more frequent and smaller shipments and hence to more intensive (and in many cases more problematic) road transport. (White van syndrome.) How sustainable is JIT? Do road user charging policies have a place to play in the successful management of JIT?</p> <p>Uncertainty and unreliability in the performance of the inter-urban highway network will cause inefficiencies in the JIT supply chain. This may be compensated by more sophisticated supply chain logistics. A likely consequence is that the Network Operator will be under pressure to provide forecasts and near-casts about the level of service which can be expected.</p>
Trends	<p>Growth in tonne-kms does not translate directly into an increase in lorry traffic, since firms have been able to consolidate freight into heavier loads on larger trucks. Increasing costs, traffic congestion and environmental concerns have all led to pressures on haulage companies to maximise their use of vehicle capacity. The management of transport operations within a broader supply-chain and logistical network approach has also enabled companies to expand the range of rationalisation options using improved routeing and scheduling, better use of return loading, and more efficient order and delivery cycles.</p>	<p>Increasing environmental pressures to develop a more sustainable distribution system.</p> <p>Signing and ensuring reliable navigation of heavy lorry routes & provision for specialist freight vehicle movements, like hazardous waste, may continue to attract public concern.</p>
Weight and dimensions	<p>Overloading and standardisation are two important problems with regard to truck weights and dimensions. Overloading can damage handling equipment and infrastructure. The lack of standardisation and scale problems are particularly acute for container transport. Present “weigh-in-motion” technology identifies about 90% of overweight vehicles; new weighpads have the potential to widen enforcement coverage beyond the present network of fixed sites. Vehicle weights are not thought likely to increase much beyond present plans (perhaps 60 tons on 6 axles)⁷ although road trains comprising two articulated trailers coupled together, like those currently operated in Sweden, might be permitted by 2020. Vehicles will get taller though, particularly as a</p>	<p>Regulations and internationally agreed standards regarding the dimensions used in transport are necessary in order to guarantee intermodal interchange at terminals.</p> <p>With larger vehicles and overloading, road maintenance departments are being faced with rapidly deteriorating road structure – this also has a negative influence on road safety.</p> <p>Need stronger control and enforcement measures for signalling overweight vehicle situations.</p> <p>Bridge strength and the dimensions of structures (eg road tunnels, over bridges)</p>

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	result of double deck vehicles.	may continue to constrain HGV movement locally. Development of special lanes/structures for small vehicles and/or automatic freight vehicles needs to be self-enforcing. Bridge bashing must be eliminated.
Environmental concerns	<p>The main concerns of HGVs, and to a lesser extent LGVs, relate to air pollution (NOx, particulate emissions), greenhouse gas emissions (CO₂), noise, nuisance and visual intrusion. Fuel efficiency of lorries has increased by 60% over the last 25 years. Progressive tightening of emission standards, together with improvements in fuel quality is leading to a significant reduction in pollution from heavy diesels as the existing HGV fleet is renewed and this trend will continue – e.g. an 80% cut in particulate limits can be achieved by fitting particulate traps. The creation of European-wide Enhanced Environmental Vehicles (EEV) standards will encourage the development of alternatively fuelled vehicles, including electric, LPG and natural gas powered vehicles (see Vehicle Design and Technology issues Factsheet). Vans also have to meet stringent emission controls, in many cases those applying to passenger cars. The Cleaner Vehicles Taskforce is looking at ways of making new vehicles cleaner, quieter and more fuel efficient.</p> <p>Pollution is also a function of the way in which vehicles are driven and there is considerable scope for efficiency improvements in most companies – the best fleets achieve almost double the mpg of the worst! Improved driver training also reduces accidents. The “Well Driven” scheme is an initiative here.</p> <p>Existing UK legislation is expected to bring about reductions in the sound level of new heavy vehicles. However the scope for further improvements is limited and reductions in noise levels will therefore depend on traffic management, quieter surfacing materials and screening.</p>	<p>Despite measures to control them, HGV emissions are predicted to rise after 2020 in response to continued traffic growth.</p> <p>In urban areas initiatives such as low emission zones may be necessary deliver acceptable air quality.</p> <p>The response to pollution incidents may become critical and public concern may focus on HGVs disproportionately.</p> <p>Higher vehicle standards may lead to a restructuring of the Freight industry, with small-business own account operators being squeezed out and a greater proportion of fleet operations that can afford to invest in specialist vehicles.</p> <p>Although there will always be many distribution tasks for which road transport is the only alternative, more freight could be moved by rail, with less damage to the environment.</p>
Safety	<p>There has been a steady reduction in the number of people dying in road accidents involving lorries, despite an increase in HGV traffic. However, on average 10 people per week are killed in road traffic accidents involving lorries³. A random survey of HGVs carried out by the Vehicle Inspectorate in Jan 99, found that 25% had significant faults. Better enforcement will reduce deliberate law breaking (speed limits, vehicle maintenance, loading restrictions, driving hours etc). New technologies – weighpads, weigh-in-motion, speed cameras etc – will improve enforcement effectiveness. Better vehicle specifications, including intelligent vehicles, can also play their part.</p>	<p>Need joined-up thinking on HGV enforcement e.g. drivers’ hours rules mean that safe, secure rest areas are needed.</p> <p>Severe competition in the freight sector poses the threat of a deteriorating effect on safety levels.</p> <p>Need to make road freight transport at least as safe as rail freight.</p> <p>Need fair and consistent enforcement checks at main freight interchanges.</p> <p>Need to address the general public perception that HGVs present a major threat to public safety and cause great environmental nuisance.</p>
RAIL	<p>Freight distribution by rail accounts for 7% of total tonne km¹. A significant (80%) growth in rail freight is planned in the next ten years taking its market share to 10%.</p> <p>The fast rail infrastructure now being developed for passenger transport should</p>	<p>Need an “even” playing field for road and rail⁸ freight evaluation.</p> <p>Increasing rail freight will assist in alleviating congestion on the roads.</p> <p>There is scope for new high-speed corridor services using rail to transport goods between ports and airports, reducing congestion on roads and leading to better</p>

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	<p>be partly useable for freight as well. High speed combined transport trains are now being tested up to speeds of 240km/hr in Germany. High-speed freight trains also increase the capacity of the rail system, since these trains do not have to be shunted aside to make way for fast passenger trains.</p> <p>Novel rail freight concepts include tube freight transport, greater use of tunnels and Maglev options (see Emerging technologies and Concepts Factsheet). There are several prototype systems which use existing infrastructure or dedicated infrastructure. The key issue of all container based transport innovations is to use a container of standard size to make the switch between modes easy and efficient. There may be increased scope for using “microtunnels” for freight transport beyond traditional pipelines, particularly given advances in microtunnel technology.</p> <p>Research into the technology of Integrated Road-Rail transport continues to receive support (e.g. from the EU)</p>	<p>between ports and airports, reducing congestion on roads and leading to better integration of sustainable transport modes.</p> <p>Major freight modal interchanges will encourage rail use.</p> <p>The economic case for interchange from road to rail in congested corridors may grow e.g piggy-back shuttle services and other road-rail combinations.</p> <p>Current rail cargo service standards do not meet industry’s requirements for a high quality transport service- e.g. point-to-point service, automatic cargo tracking etc</p> <p>Need innovation in the area of cost-effective, environmentally friendly, road delivery and pick-up operations to service rail freight line haul.</p> <p>Regional Planning Guidance may need to consider the scope for promoting the carriage of freight by rail – e.g. encourage protection of sites and routes, which could be critical in developing freight infrastructure. Some parts of the rail network are already congested, with key bottlenecks restricting flows over wider areas.</p> <p>Explore the scope for combined passenger and freight trains.</p>
WATER	<p>Freight distribution by water accounts for 23% of total tonne km, and 95% of all export trade by tonnage is carried by sea¹. Inland waterways carry less than 1% of domestic freight moved, but there is potential to increase this on rivers and wide canals. Research has indicated that there may be potential to divert about 3% of the UK’s road freight to water split between ships re-routing to ports nearer to the origin and destination of their loads, and the potential for bulk and unit loads to shift to coastal traffic. There is also scope for introducing improved cargo-handling technologies, integrated distribution hubs, and enhancing basic intermodal transfer activities with storage, processing and manufacturing facilities on the same site.</p> <p>Shipping is gradually being brought within the ambit of supply-chain logistics. Short sea links from the British Isles to the continent are recognised as essential to the coherence of the EU internal market.</p>	<p>Efficient intermodal transfer facilities are critical to the success of waterborne freight.</p> <p>Reliable road access to ports, including inland ports, is likely to grow in strategic importance.</p> <p>‘Fast freight’ services, which have improved loading/unloading speeds, can be introduced on sea routes with most potential to attract new customers.</p> <p>Fast ships (powered by waterjets) can improve journey times by up to 50%, improving the suitability of sea transport for Just-In-Time systems.</p> <p>Regional Planning Guidance may need to consider the scope for promoting the carriage of freight by water.</p> <p>The environmental impact of shipping needs to be reduced and there is a need for increased safety measures against accidental spillage.</p>

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AIR	<p>Global markets for high value products and perishable items shipped by air are developing rapidly. The introduction of fuel-efficient super-jumbo aircraft may accelerate the trend.</p> <p>In the last decade, air freight tonnage doubled and is expected to increase similarly in future³. The single market for air transport will contribute to this and increasing pressure will be put on nearby infrastructure. Policies to limit noise and emissions through the international Civil Aviation Authority have achieved substantial environmental improvements.</p> <p>The increase in air freight has stimulated interest in other modes, and new airships are being designed (e.g. Zeppelin NT) to transport goods.</p>	<p>Reliability of ground access to international and regional airports will be a major competitive factor. There will be increased pressure on the highways which service commercial airport hubs.</p> <p>More specific consideration needs to be given to air cargo issues, which historically have been largely determined by air passenger transport issues.</p> <p>Issues of development and intensification of use at or around existing airports.</p> <p>Better linkages to heavy rail (in preference to road) will be created to support air freight growth.</p> <p>Air transport is the most fuel-intensive form of distribution.</p> <p>Data collection/freight monitoring exercises will be required to give a better database.</p>
LOGISTICS	<p>Increasingly “logistics” are being applied to the whole supply chain in order to improve efficiency across all modes. Logistics can be defined as the management of information, material and money flows that connect raw materials, production and consumption. Freight distribution is just one element of logistics. The general trend has been from manufacturer-led to retailer-led supply chains – from push to pull supply chain economics.</p>	<p>Logistics help to increase the service level of freight transport.</p> <p>Efficient logistics extends market reach, by giving manufacturers access to a wider range of raw materials and supplies, and customers access to a wider range of manufactured goods.</p> <p>As well as logistics, the system architecture needs to take account of institutional/organisational and information/communications architectures.</p>
Logistics trends	<p>Most important recent trends are⁹:</p> <ul style="list-style-type: none"> • shorter order cycles; smaller, more frequent, more reliable deliveries; • more varied delivery patterns related to product shelf life, product customisation, production/retailing strategy, and reliability of short-term forecasting; • closer relationships with fewer suppliers; • greater use of IT; • outsourcing of logistics to 3rd party logistics managers (TPLMs); • more use of recycling which has resulted in additional back-haul cargoes (“reverse logistics”). 	<p>Developments in logistics – smaller, more frequent deliveries, multiple drops, narrow time windows for delivery – have so far favoured the use of road transport.</p> <p>Level of professionalism of road transport sector is hampered through the large number of very small companies.</p> <p>Different institutional frameworks among countries are likely to hamper establishing international frameworks and standards to enhance advanced logistics.</p>
Reducing transport costs	<p>Freight traffic has not increased as quickly as expected as the industry has taken steps to keep transport costs under control. These include:</p> <ul style="list-style-type: none"> • development of vehicle routing optimisation software • increased use of cross-docking to maintain vehicle load factors • use of smaller vehicles in the final stage of distribution • trip spreading throughout the day • more vehicle sharing - TPLMs consolidate the flows of various clients • improvements in vehicle design to use the space within the vehicle more effectively 	<p>As the economy becomes more global, greater use of logistics will reduce overall distribution costs in an increasingly competitive market.</p> <p>Need to seek more efficient use of the present transport, terminal and infrastructure capacity.</p> <p>Transport congestion costs are underestimated because statistics do not take into account the unseen costs of the remedial measures used to maintain supply chain reliability – more dense depot networks, longer scheduled journey times, investment in reserve vehicles etc.</p>

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<p>FREIGHT INTERMODALITY</p>	<p>In order to cope with growing transport flows, environmental concerns and for reasons of overall efficiency, intermodal freight operations are being advocated throughout Europe and the USA. In the USA, the joint effect of deregulation and technological improvements such as unit trains, roadrailer concepts and double stack trains have led to a substantial increase for long distance intermodal transport volumes. Freight transport must be considered as a door-to-door transport operation based on a range of viable transport alternatives – roads, railways, inland waterways, seaports and major airports - with the nodes and links interconnecting them.</p>	<p>Much has to change to reach the point where intermodal transport is a realistic alternative for long-distance continental freight flows in Europe.</p> <p>The management of pre and end-haulage (first and last legs) is a major bottleneck in using intermodal transport particularly for SMEs. Efficient freight interchanges are therefore an essential component of any intermodal concept.</p> <p>The performance of “hubs” in our distribution networks is vital to promoting greater use of intermodal freight.</p> <p>Intermodal aspects need to be brought in at all phases of transport policy and planning. Ensure that there will be sufficient rail freight facilities connected to the network in the future.</p> <p>Review property holdings to identify those elements that may be relevant to the freight industry’s future requirements. Look for opportunities to invest in additional sites currently outside the rail industry.</p> <p>Need a good understanding of network’s current capability in terms of low bridges or overly restrictive tunnels.</p> <p>Investigate opportunities for loading freight vehicles directly from the track-side without the need to construct expensive terminals.</p> <p>Financing issues dominate the tend to dominate the development of intermodal networks and facilities- there is a need for institutional innovation in increasing collaboration between the private and public sectors.</p> <p>Intermodality may not necessarily be an environmentally friendly solution – the different modes of transport offer different solutions for different problems.</p>
<p>Information technology</p>	<p>IT tools applied to the freight logistics chain aim to improve the flow of information and organisation of freight movements e.g. intra-company resource management systems, freight related on-line information systems for cargo terminals, integrated route planning with mobile communications, centralised route planning and freight capacity exchange systems. Terminal and port information systems aim to strengthen the bottleneck of the door-to-door chain¹⁰ – the places where change of mode takes place and friction costs are added. The main applications under development include¹¹ cargo pre-notification systems to speed up gate procedures, container identification and location systems, logistics information and communication systems for intermodal cargo terminals, container positioning and management, data exchange between intermodal transport centres, and automatic identification technologies for port authorities. Finally applications which relate to freight and vehicle tracking and tracing address the need to monitor, control and regulate the status (position, security,</p>	<p>ICT systems and international standards are prerequisites for achieving intermodal transport – however not all partners share the same interests.</p>

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	operational conditions and integrity) of the goods transported, of loading units and of vehicles. Vehicle tracking, load tracking and consignment tracking could all become ubiquitous.	
LAND USE PLANNING	Land use planning can have a significant impact on distribution, not only through the provision of major transport infrastructure, but also more widely through policies and decisions on the pattern of development, e.g. the location and design of housing, shops, offices and industry.	Development plans will need to consider opportunities for rail connections to existing manufacturing and warehousing sites adjacent or close to the rail network, and to allocate sites suitable for new developments which can be served by rail or waterways as well as by road. Planning guidance needs to encourage stronger protection of sites and routes which could be critical in developing freight infrastructure.
primary activities	Transport and logistics have relatively little effect on the global location of primary activities – the manufacture and sale of final products.	Transport and logistics influence regional and local location decisions where site accessibility is a significant factor.
secondary activities	Transport and logistics play a more important role in the location of secondary activities such as components manufacture, wholesaling, distribution, and service sector industries. Their importance varies with product bulkiness, premium attached to quality/technological leadership, level of competition and the location of the activity within the supply chain.	
Locate in the UK	In a recent survey of companies which had recently established a plant or office at a new European location, the advantages of the UK were seen as its large domestic market, cost and quality of the labour force and language. Disadvantages included poor industrial relations, high land costs in SE England, and preferences to locate in mainland Europe.	UK needs an increasingly efficient goods distribution system in order to compete within Europe and globally. Bottlenecks and missing links will result in less efficiency for the whole system. Given that the UK is an island, interchange facilities at ports and airports are particularly crucial.
Increasing globalisation/ geographical barriers	The logistics shift towards global sourcing and centralised inventories demand larger geographical coverage and smooth international transport without any counter-productive delays in the network and at border crossings. Customs plays a key role in international trade, every international transaction involves at least two Customs interventions – at export and import. The overall goal of Finnish Customs is “smooth Customs logistics for traders” ¹² . Part of the KETJU programme is developing electronic Customs procedures, particularly the transmission of Customs clearance information using EDI (Electronic Data Interchange).	Increasingly the decision making process needs to take place across wide geographic areas at all levels – local, national and international. Customs has a new role in international trade.
Strategic routes	In Europe, the EU has identified Strategic Trans-European Networks connecting key road and rail links across the Member States. The UK has secured funding for some work on the Channel Tunnel Rail Link and the upgrading of the West Coast main Line. The US Intermodal Surface Transport Efficiency Act mandates that cities and States incorporate freight movements activities in to their congestion management activities as a matter of national	Examine the scope for regional air freight centres – to optimise regional regeneration and competitiveness. Need to ensure that the UK’s road and rail networks are well connected to the Trans-European Networks.

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	and local policies.	
INFRASTRUCTURE OPTIONS	Options for tackling road congestion include making better use of the existing infrastructure, managing demand, and building new infrastructure.	Large gap between industry's requirements for a high quality transport service and the standards provided by non-road modes.
Better use of existing roads	Current techniques include crawler lanes on hills for lorries and priority routes and/or measures for goods traffic. It is not likely to be practical to construct all roads to HGV standards – instead, certain roads could be designated as those suitable for freight traffic, and then subsequently developed in to a freight route network e.g. the Freight Routeing Strategy ¹³ in Scotland	Need to investigate alternative ways of allocating more road space to freight.
Dedicated freight lanes/ Freight Villages	In the longer term, freight traffic could be given priority over cars on the trunk and motorway network by developing dedicated long-distance freight lanes ¹⁴ with access through Freight Villages for inter-regional freight movements. Freight Villages would allow HGVs to be fed onto the Dedicated Freight Lanes in a controlled manner and to refuel, would provide facilities for drivers whilst they waited for a booked path, and would provide facilities for safety and fitness checks on vehicles. Freight Villages would be located adjacent to strategic freight transport and transfer facilities which are convenient to major centres of economic activity in areas suitable for the development of warehousing, freight distribution centres, regional hubs etc.	Developing a freight routeing strategy or network is likely to be more sustainable in the longer term than constructing all roads to HGV standards.
Transfer to rail	There is scope for promoting the greater use of alternative modes for freight traffic by integrating the road network with major transport interchanges such as rail intermodal terminals. HA and Railtrack are jointly identifying traffic flows large enough to support the development of new intermodal freight facilities with the aim of diverting freight from road to rail.	Identify opportunities for new intermodal freight facilities.
E-COMMERCE	The growth of e-commerce is a fundamental challenge to traditional retailing and distribution. The success of the e-commerce revolution depends critically on the issue of fulfilment – the ability of suppliers to deliver successfully the goods and services they have purchased. From the consumer's perspective, the critical issues are timeliness, cost and convenience of the delivery and the quality of the products when they arrive. Despite the recent demise of the dot.coms, e-business is seen in terms of a transformation of business models through the supply chain in every business sector ¹⁵ . It seems likely that e-commerce will continue to spread at an ever accelerating pace ¹⁶ – telecom deregulation and technology improvements will drive costs down and increase accessibility.	<p>Logistics is becoming more important – so location patterns will become increasingly determined by supply chain cost considerations, and linkages between specific customers and suppliers.</p> <p>High service levels are an essential element for satisfying the demands of e-commerce customers.</p> <p>There is considerable uncertainty about the future of e-commerce and the impact this will have on logistics.</p> <p>More varied delivery patterns will result in a mixture of different stock-holding strategies.</p> <p>Move towards longer-term partnership arrangements should regularise freight movements, encourage investment in more efficient vehicles, and make it easier to consolidate flows.</p>
UK online users	Around 30% of UK adults now claim to have internet access at home ¹⁷ ,	Digital divide - increased competition and the use of new technologies could

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	<p>although not all are e-consumers. The main areas of current dissatisfaction concern poor customer service and worries about internet security and confidentiality. The growth of home shopping via the Internet, third generation mobile phones and interactive digital TV (iDTV) will reduce the need for large-scale distribution, as fewer goods need to be moved to retail outlets and are distributed instead from main depots¹⁸.</p>	<p>increase social exclusion, due to lack of access to the appropriate technology and the skills to use it. The most pressing issue for many businesses is the lack of technical skills and Internet culture.</p> <p>Internet shopping offers the opportunity to purchase from a global marketplace. This could result in transport over longer distances.</p>
<p>@ Your service – grocery market</p>	<p>Grocery retailers expect that e-commerce will take between 2.5 and 10% of total UK grocery sales by 2005, and up to 15% by 2010¹⁹. However current explicit delivery charges do not cover the actual costs. One estimate is that picking costs alone are roughly £13 per order, against a typical delivery charge of £5. The shortfall must be made up by profit gained from the purchased goods. High service levels are an essential element for satisfying the demand of e-commerce customers. Two logistics models for grocery e-commerce are in current use in the UK. One involves picking goods from within existing stores and the other uses picking centres (e-fulfilment centres) specifically designed for and dedicated to e-commerce orders. New technologies will help to develop cost-effective and sustainable e-tail logistics models – e.g. vehicle design, communications technologies, automated picking technology, unattended goods reception devices, materials development and design and utilisation of buildings.</p> <p>The use of collective delivery points (CDPs) could offer a promising option to increase delivery density. Examples of possible CDP locations include workplaces, local stores or petrol stations, park and ride sites, out-of-town shopping centres, local urban delivery centres, leisure facilities, schools and railway stations etc.</p> <p>Retailers are already prepared to carry goods for their competitors as part of the upstream logistics chain. A willingness to share the use of a common delivery fleet would allow similar consolidation of home deliveries and would reduce congestion and other environmental impacts.</p>	<p>Travel substitution – a critical factor is the extent to which home deliveries can replace personal travel to the shops. If instead consumers make other trips, home deliveries will supplement rather than replace personal travel, resulting in a net increase in traffic levels.</p> <p>Little is currently known about the level of delivery and freight traffic from existing shopping centres.</p> <p>Grocery retailers have moved into e-commerce because they believe it will form a substantial part of the future market.</p> <p>There may be scope for consolidating e-commerce deliveries. Otherwise, extra veh-kms may result.</p> <p>The potential for collaboration between non-competing manufacturers to offer a complementary selection of goods through a single site could revolutionise the logistics function.</p> <p>With any form of home delivery, there is a risk that the supply chain is left incomplete if the customer is not available to receive the goods.</p> <p>Collective Delivery points could help revitalise local communities, particularly in rural areas.</p>
<p>URBAN FREIGHT TRANSPORT</p>	<p>In many European cities urban freight transport has become a major problem in the last decade. The road haulage industry is becoming severely hampered by traffic congestion, nuisance of loading and unloading of trucks, problems with parking and problems with time windows (fixed times during which freight is allowed in to the city). Given the needs of town centres for urban freight transportation, the question is to what extent it is possible to design and operate urban freight transport within both commercial and social constraints such as flexible operation of supply chains and sustainability.</p> <p>Organising effective urban freight transport is complex, on account of the many actors involved – transport operators aim for cost-effectiveness; shippers want</p>	<p>Public authorities need to set out a clear vision, define the constraints and introduce standards to achieve a sufficient scale for solutions in each city.</p> <p>Retail and public sectors need to work together to plan the changes necessary to create world-class city centres – where all the benefits of new technology are deployed to make the city a safe, clean and enjoyable place for families to visit and access public services.</p> <p>Local authorities cannot simply exclude freight from town centres, given the overall objectives of an urban policy.</p>

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	<p>the shortest possible time to market while minimising storage levels; inhabitants demand ease of access to and within the town and quality of life. Local authorities have the overall goals to balance market forces with other social objectives. Elements of transport policies are likely to focus on managing transport demand; the supply and control of infrastructure (managing traffic) and the types of vehicles used (reducing external effects of vehicle use).</p>	
City logistics systems	<p>City logistics systems are where goods destined for city centres are diverted into common transshipment facilities with local distribution being carried out by specialised vehicles which tend to be smaller, quieter and less polluting.</p>	<p>Should city logistics be implemented on a city or regional scale? The high degree of differentiation in the nature of goods means that it is difficult to develop city logistics which would meet all requirements – could fresh and dirty products be transported through the same urban freight platforms? If so, what kind of loading units would be required – pallets, containers, boxes etc?</p>
Quality partnerships	<p>Quality partnerships for freight between the road haulage industry, local authorities and business aim to develop understanding of distribution issues and problems at the local level and to promote constructive solutions which reconcile the need for access for goods and services with local environmental and social concerns.</p> <p>Improving the quality of scarce space is an important characteristic of policies in cities. Several cities are developing electronic access control systems to restrict vehicle access to city centres - in Barcelona the system has been extended to include loading and delivery operations.</p> <p>There may be scope for integrating urban passenger and freight transport, using only one vehicle instead of two, and making use of dedicated public transport corridors or dedicated lanes in the cities.</p>	<p>There is potential for freight consolidation systems to improve urban distribution. There is scope for more out-of-hours running in urban areas.</p>
Novel infrastructure	<p>In the long run innovations in infrastructure may be feasible, such as underground freight transport. In the Dutch program for sustainable mobility, much research is being carried out in this area. Pre-requisites for such novel infrastructure are technologies for nodes or terminals, i.e. efficient transshipment facilities such as automatic warehouses and automatic guided vehicles.</p> <p>In Japan, global logistics and freight transport operations have underscored the need to attenuate critical congestion problems in urban networks for the delivery of goods at the intended time, raising the issue as to whether a more efficient usage of transport capacity could be achieved. The creation of an underground network in Tokyo for the transport of freight containers is being investigated.</p>	

OTHER RELEVANT FACTSHEETS

Environmental Issues

Vehicle Design and Technology

Emerging technologies and Concepts

Travel substitution

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