Government Office for Science

Foresight

Governance of UK Transport Infrastructures: Technical Annex

Future of Mobility: Evidence Review

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Governance of UK Transport Infrastructures: Technical Annex

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Method Statement

The scope of the work was to examine all modes but to limit consideration to the governance of transport within the United Kingdom. Hence for modes with significant international components the focus is around points of interchange and on conventions which also affect travel within the United Kingdom. The work was to look at important differences across the four countries of the UK and to differences within countries where significant. Whilst we recognise the potential interest in international comparators of governance, this was out of scope for the study.

The approach adopted for this research was desktop review combined with expert workshop to validate and discuss the findings. Expert reviews were commissioned for each of the topics set out in this Technical Annex. A short summary of key actors and their roles was developed by each expert, evidenced from academic reports, Government Reports, Parliamentary Acts, Parliamentary Library briefing notes, industry body reports and regulatory statements and rulings. Experts were asked to avoid speculation and the use of highly contested findings outside of these sources. At the end of each expert piece there are three key governance issues which the experts were asked to identify as issues facing the sector or geography concerned. Those issues were developed from the evidence base but were the views of the expert. Governance research has to describe complex structures and processes that unfold over time and so there are no conclusive right and wrong answers. The views of the experts were used to look for critical points of debate, commonalities across modes or jurisdictions or important contrasts to inform the main report. They should not be taken as being conclusions of the main report or, indeed, the Foresight Future of Mobility Study.

The draft findings from the first 11 topics were set out in an expert workshop held at the National Railway Museum in York on 27th November 2017. This workshop served as a validation check of the findings and as an opportunity to debate the key pain points and what works. This was the first point of validation of the findings. The funding review was also subject to an expert panel discussion at KPMG in Canary Wharf on 7th December 2017. The work consists of a shorter main report which draws material from this longer technical annex The project report and technical annex was also then subject to peer review by three subject experts. Again, this does not mean that there will not be arguments which can be mounted to counter the findings. However, it does mean that the evidence presented is deemed to be robust and defensible. Minor editorial amendments were made by Greg Marsden and Iain Docherty to sections of the Annex where context required updating between the expert review and the final report being agreed by HMG.

Scope and Boundaries

In reviewing and debating the governance of transport, one of the common problems is that vehicles, people and goods move long distances and are often involved in transboundary and multi-modal trips. Spatial governance is however defined by boundaries which are typically very slow to change and transport modes are mostly regulated as separate industries reflecting their different histories, technological and market characteristics. When talking about airport regulation, for example, there is a set of industries and regulators involved. However, it makes little sense to think of an airport without thinking about the surface access to it. This draws in national rail, motorway and local road infrastructures and rail, road, bus, taxi and coach services. However, the reasons those modes and infrastructures are governed as they are is not because of airport access. Therefore, to make the presentation of the institutions and challenges tractable this Annex deals with the modes separately, so access to ports is considered under road and rail rather than in maritime for example. This mirrors the structuring of the various Ministries which develop transport and the way funding is reported in national accounts. We address integration in the main report and discuss the extent to which the siloes

of modes continue to matter. We address where spatial scale matters and how differences in arrangements in different places work throughout the Annex and in the main report.

1. MODES

1.1 Domestic aviation

Dr Lucy Budd, Reader in Air Transport, School of Architecture, Building and Civil Engineering, Loughborough University

1.1.1 Scope

This chapter reviews domestic air services within the UK. For the purposes of this report, the UK is defined as the United Kingdom of Great Britain and Northern Ireland and 'air services' as a flight (or a series of flights) which transports passengers, cargo and/or mail for remuneration. Domestic services are defined as flights which originate and terminate at airports within the territorial limits of the UK and remain wholly within UK sovereign airspace for their entire journey.[1] Air services between the UK and the geographically proximate British Crown Dependencies of the Channel Islands[2] and Isle of Man and between the UK and the 14 British Overseas Territories (BOTs),[3] as well as flights within and between these BOTs, are not considered. Domestic business and corporate aviation services, which are generally not available for public use, are also excluded, as are general aviation and military transport flights.

1.1.2 Method

This report has been prepared using publicly available information retrieved from the UK Civil Aviation Authority, the UK House of Commons Library, the Official Journal of the European Union, official publications of the European Commission and the International Civil Aviation Organization and academic papers on aviation governance and regulation identified using Scopus, Science Direct and Google Scholar.

1.1.3 Institutional structure

Aviation is an inherently international mode of transport and, for reasons of public safety, national security and global geopolitics, has been subject to formalised international organisation, agreement and regulation since the mid-1940s. The core governance structure and regulatory regime for air transport, which includes UK domestic operations, is international. The actors who influence and regulate domestic UK air services operate at the international, supra-national (European), national, regional (in the case of the Devolved Administrations) and local level. A scaled-down institutional map is shown in Figure 1 in section 1.6.

1.1.3.1 International (non-governmental) actors

The International Civil Aviation Organization (ICAO) is a United Nations Specialized Agency which was established in 1947 within the framework of the 1944 Chicago Convention. ICAO is concerned with ensuring the safe, orderly and sustainable development of international air transport. ICAO works with the Convention's 191 member states to develop and reach consensus on Standards and Recommended Practices (SARPs) concerning aviation safety, security, environmental protection, economic efficiency and regulatory compliance that are used by individual member states to ensure their aviation operations conform to global norms (ICAO.int, 2017). The UK is an active member of ICAO. A UK representative sits on the 36-member elected Council and the UK supports ICAO's Global Aviation Safety Plan (GASP).

[1] National sovereignty over airspace was affirmed by the 1911 British Aerial Navigation Act and the 1944 Chicago Convention.

[2] Comprising the Bailiwick of Jersey and the Bailiwick of Guernsey.

[3] Which include Gibraltar, the British Virgin Islands, St Helena, Ascension and Tristan da Cunha and the Turks and Caicos Islands (Source: UK Overseas Territories, Gov.uk, 2017).

The International Air Transport Association (IATA) is a trade association, established in 1945, that formulates policy on matters concerning civil aviation. It represents the interests of 275 airlines and works closely with ICAO on matters of global aviation policy.

1.1.3.2 Supranational (European) actors

Within the European Union, the European Commission develops policies of pan-European standardisation and harmonisation in the areas of commercial air transport safety, operations and regulatory compliance. European Regulations and Directives address (see also European Commission, n.d.):

- Common rules for the operation of air services within the single European market (Regulation EC 1008/2008).
- Safety, including accident investigation, airworthiness, and the European Aviation Safety Agency (EASA).
- Aviation security.
- Environmental protection and safeguarding (including the Emissions Trading System).
- Airport slot allocation and ground handling.
- Air traffic management (ATM), including the creation of a Single European Sky (SES).
- Competition rules, including anti-trust protection and state aid.
- Regulation 1008/2008 established the common rules for the operation of air services within the Community and provides the current regulatory framework for air transport within the UK, and provides a level playing field for air services within the internal market.

Other actors include:

European Civil Aviation Conference (ECAC): an intergovernmental organisation with 44 member states, established in 1955. It aims to harmonise aviation policies and practices across Europe, working in partnership with ICAO and the EU (ECAC, 2016).

Eurocontrol: an intergovernmental organisation established in 1960 as the European Organisation for the Safety of Air Navigation. It is responsible for formulating pan-European policy on air navigation, airspace, innovation in ATM and environmental performance for its 41 Member and 2 Comprehensive Agreement States. Its Central Route Charges Office (CRCO) in Brussels administers the payments that are due to National Aviation Agencies (which includes the UK Civil Aviation Authority) in respect of en-route airspace charges. Eurocontrol also provides the network manager function for the Single European Sky on behalf of the EU.

The European Aviation Safety Agency (EASA): established in 2002 as an agency of the European Commission. EASA is the legislative body responsible for the harmonisation of EU aviation safety standards (EASA, n.d.). Its rules are legally binding. Member states cannot opt out. It has assumed many of the responsibilities formally held by the Joint Aviation Authorities (JAA).

European Common Aviation Area (ECAA): created in 2006 as an extension of the European Single Aviation Market. Its legislation is enforced by the European Court of Justice (ECJ). As an EU Member, the UK has full 9th freedom access to countries in the ECAA. The EU has also

negotiated horizontal agreements with 17 additional non-ECAA countries, meaning that the EU controls the UK's flight access to over 40 separate countries.

1.1.3.3. National government actors

The UK Government *Department for Transport* (DfT) leads UK negotiations on aviation matters at European and international forums, develops UK aviation legislation and formulates policy. DfT contains the *Air Accident Investigations Branch (AAIB)*, it sponsors the UK's National Aviation Authority and the *Civil Aviation Authority (CAA)*. As the sponsoring department of the CAA, DfT establishes the CAA's remit, legal framework and strategic objectives.

The *Civil Aviation Authority (CAA)*, which commenced work in 1972, is the UK's independent regulator responsible for all civil aviation regulatory functions under UK and EU law and international directives. It is the UK's 'competent authority' and a public corporation. The CAA publishes UK aviation legislation (which incorporates international and European directives) as CAPs (Civil Aeronautical Publications). The CAA's work is split into the following activities (see CAA, 2010):

- Corporate functions – including legislation, governance, procurement, aircraft registration, charges and statistical returns.
- Safety Regulation Group (SRG) – responsible for areas including safety standards, personnel licensing, medical, airworthiness and safety management systems.
- Consumer Protection Group – responsible for the Air Travel Organiser Licence (ATOL) scheme, airline licensing and air passenger rights.
- Directorate of Airspace Policy – responsibilities include the Single European Sky, Instrument Flight Rules, environmental research and radio licences.
- Economic Regulation Group – responsible for airport slots, NATS and economic policy.
- Consumer Panel (formerly the Air Transport Users Council) – offers an independent advisory role and represents the interests of air transport consumers. It has no decision-making responsibilities or accountability role.
- Subsidiaries – including Air Safety Support International (ASSI) and CAA International Ltd. As these subsidiaries do not concern domestic UK air services they are outside the scope of this review.

Most of the CAA's income comes directly from the aviation community it regulates and some of its costs are recovered through the Eurocontrol route charges scheme.

NATS (formerly National Air Traffic Services) is the UK's Air Navigation Service Provider (ANSP) responsible for providing en-route air traffic services within UK and North Atlantic airspace as well as aerodrome and tower services at 14 UK airports, and has a public-private ownership structure. It is responsible for the safe and efficient coordination and control of air traffic within UK airspace and works closely with geographically proximate European ANSPs and NavCanada to manage air traffic flows safely and expediently. NATS also has business interests and operations overseas. The CAA licenses NATS en-route services and licenses the air traffic controllers it employs. The CAA is also responsible for the economic regulation of NATS' en-route and oceanic airspace charges.

HM Border Force (responsible for law enforcement command within the Home Office), *HM Police and Security Services, and UK Port Health Authorities* are collectively responsible for immigration and customs control of people and goods at the UK border and for safeguarding the UK from security threats ranging from immigration offences, terrorism and smuggling to the importation of infectious disease and bio-security threats.

HM Treasury sets the rates for *Air Passenger Duty (APD)* that are levied on all passenger flights from UK airports. APD rates vary according to the class of travel and distance of the destination airport (in miles) from the UK (see Seely, 2016). In May 2015 it was announced that APD would be fully devolved to Scotland (Ibid, 2016).

Current and future rates for APD are shown in Table 1.

Table 1: APD rates 2017 and 2018 (source HMRC, 2017)

APD rates from 1 April 2018

Destination Bands and distance from London (miles)	Reduced rate: (for travel in the lowest class of travel available on the aircraft)	Standard rate: (for travel in any other class of travel)	Higher rate: (for travel in aircraft of 20 tonnes or more equipped to carry fewer than 19 passengers)
Band A (0 to 2,000 miles)	£13	£26	£78
Band B (over 2,000 miles)	£78	£156	£468

APD rates from 1 April 2017

Destination Bands and distance from London (miles)	Reduced rate: (for travel in the lowest class of travel available on the aircraft)	Standard rate: (for travel in any other class of travel)	Higher rate: (for travel in aircraft of 20 tonnes or more equipped to carry fewer than 19 passengers)
Band A (0 to 2,000 miles)	£13	£26	£78
Band B (over 2,000 miles)	£75	£150	£450

Airport Coordination Limited (ACL) is the independent national coordinator for UK airport slots at 'coordinated airports' (currently Heathrow, Gatwick, Stansted, Manchester, Luton and London City). Slot Regulation at UK airports is governed by the 1993 EU Airport Slot Regulation, which retains the principles of IATA's slot allocation process. The CAA and DfT operate an 'arms-length' relationship with ACL and are not directly involved in the slot allocation process (see Haylen and Butcher, 2017).

Airport operators – the Airports Act of 1986 established the legal basis for the privatisation and commercialisation of UK airports. The former British Airports Authority (BAA) was privatised in 1987 and it, along with a mix of other private investors, has developed commercial interests in UK airports. The UK airports with the largest public sector stake are: Birmingham (49% owned by seven West Midlands Councils), Manchester Airports Group who own Manchester, East Midlands, Bournemouth and London Stansted (35.5% Manchester City Council and 29% nine Greater Manchester Councils), Cardiff (100% Welsh Assembly Government), Prestwick airport and Highlands and Islands Airport Ltd which operate 11 Scottish airports including Inverness (100% Scottish Ministers), and Newcastle (51% owned by seven local authorities in North East England) (Butcher, 2016).

UK registered airlines provide services for passengers and freight and may seek to influence government policy regarding airport charges, future airport capacity, passenger rights and environmental safeguards. UK airlines pay licence fees in respect of airframe licensing and their Air Operators Certificates (AoCs) which help fund the CAA. The cost of these operating certificates is derived from the weight of the heaviest aircraft in the fleet and the total number of aircraft operated under that AoC. The most expensive annual AoC target charge is currently £296,133 (CAA, 2017).

1.1.3.4 Devolved government

The operational need for consistent provision across the UK means most air transport matters are reserved to Westminster with the exception of:

Scotland – some aspects of the 1982 Civil Aviation Act pertaining to aerodromes and some parts of the 1986 Airports Act relating to airport byelaws and the transfer of airport undertakings of local authorities, PSO routes and APD are devolved (see Butcher, 2017).

The *Air Discount Scheme (ADS)* is a Scottish Government initiative operating under the EU's General Block Exemption Regulation (Articles 107 and 108, EC 651/2014), which aims to make air services more affordable for remote communities in the Scottish Highlands and Islands by providing a 50% discount on the core airfare on eligible routes (see Scottish Government, n.d.).

Wales – The Welsh Assembly is not permitted to legislate on aviation matters except: financial assistance to providers of transport services or facilities; strategies by Welsh Ministers or local authorities about the provision of air services; and the regulation of the use of aircraft carrying animals for the purposes of protecting human, animal and plant health, animal welfare or the environment (see Butcher, 2017).

Northern Ireland – Responsibility for aviation remains reserved to Westminster although there have been calls for a separate air transport strategy for Northern Ireland owing to its unique position in the UK and reliance on air transport (Butcher, 2017).

1.1.3.5 Local government

Local authorities (which may own the airports within their boundaries in whole or part) are responsible for local planning applications, noise regulations and voluntary agreements.

1.1.3.6 Other actors

Independent Airport Consultative Committees (ICCs) comprise local stakeholders who meet with local airport operators to discuss matters of mutual interest. These may include noise, environmental safeguards and expansion proposals. There are also special interest groups and local airport opposition/ anti-expansion groups which provide input into consultation exercises and seek to influence decision-making concerning UK aviation infrastructure.

1.1.4 Funding and financing

Domestic aviation in the UK receives very little direct funding from central Government. The EU has produced guidelines on state aid to airports and airlines (EC 2014/C 99/03). The only routes to receive direct subsidy are PSO services and services within the remit of the Scottish ADS. The CAA's income comes from the aviation community it regulates through charges that are levied on operators. NATS receives income from en-route charges, providing aerodrome services and consultancy activities. Individual airport operators obtain revenue from aeronautical and non-aeronautical sources (the former includes landing fees and passenger charges, whereas the latter includes retail, car parking and property). Airlines obtain revenue from the carriage of passengers and goods and the sale of ancillary products. Financing for new aircraft is controlled by EU Directives.

1.1.5 Major scheme example: Airport capacity in SE England

The controversy surrounding the need for, and proposed location and design of, additional airport infrastructure for London illustrates the complexity of the governance challenges facing UK aviation. Despite the independent Davies Commission recommending the construction of a third runway at Heathrow, political and legal challenges remain and a new runway has not opened in the capital since London City airport commenced operations in 1987.

1.1.6 Critical governance challenges

The key strength of the current governance structure is evidenced by the safety and integrity of UK air services and the international reputation of the CAA as the 'best aviation regulator in the world' (DfT, 2008, p. 11).

The three most significant 'governance issues' faced by the sector are:

- The future UK aviation regulatory regime and market access once the UK leaves the EU, EASA and the ECAA.[4] The UK will have to decide the regulatory approach it will take, and hence what implications of this are for passengers and airlines, both UK and international.

- The regulation of new technology (particularly drones and UAVs). This regulatory gap is evidenced by the fact that CAP 722: *Unmanned Aircraft System Operations in UK Airspace – Guidance* has been revised six times since 2002 (CAA, 2015) to reflect advancing drone technology, the proliferation of private unregulated users, the increased use of drones for freight delivery and the growing incidents of airspace incursion and airborne conflict between drones and commercial aircraft, which rose from 0 in 2013 to 81 in the year to 17 November 2017 (UK Airprox Board, 2017).

- Enhancing the decision-making process and cost-benefit analyses surrounding major infrastructure projects, including expanded airports (as evidenced by the ongoing debate about future airport capacity in the South East).

[4] Secretary of State for Exiting the European Union, David Davies, in oral evidence in March 2017 said that the UK would leave the EU–US Open Skies agreement (see: http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/exiting-the-european-union-committee/the-uks-negotiating-objectives-for-its-withdrawal-from-the-eu/oral/48859.html)

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I.1.8 Annex

The governance structure for the aviation industry is not a top-down model which cascades from the international to the national level – feedback loops occur at various stages as the UK currently influences both European and international policy through its representation at the EU and ICAO.

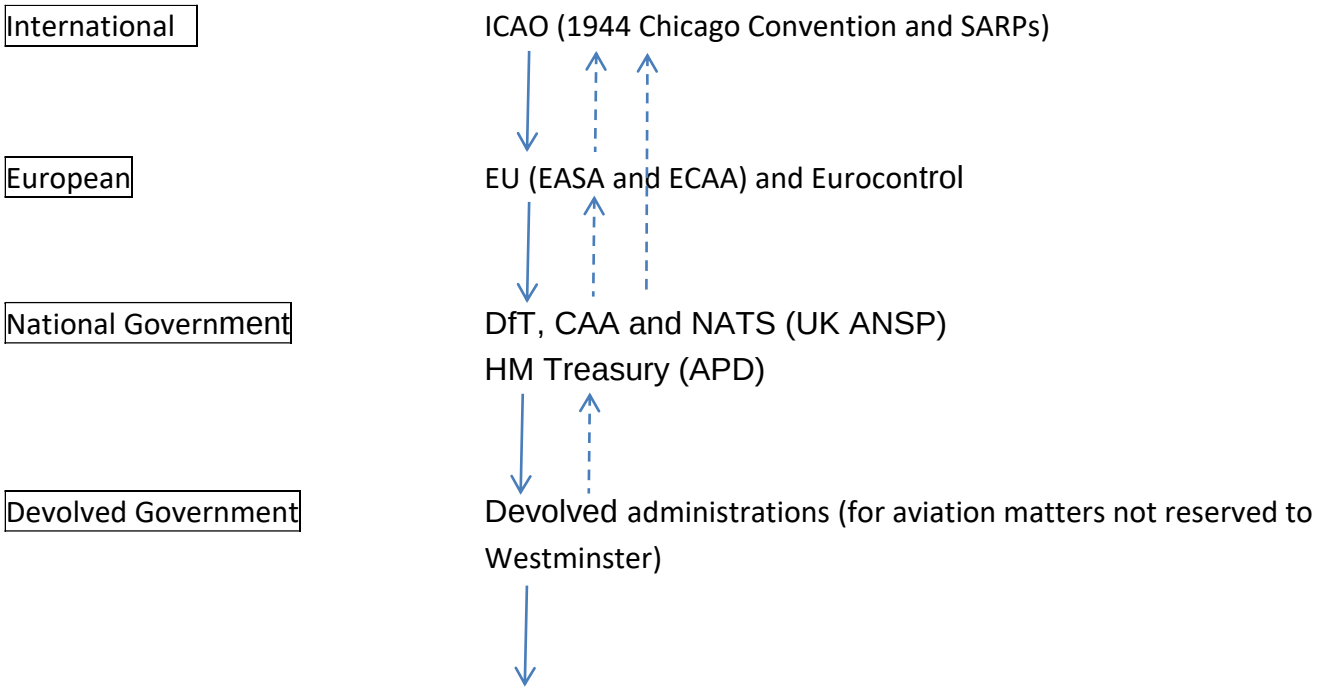

Figure 1: Institutional map of UK domestic aviation governance

(note: only actors with a regulatory function relating to domestic UK aviation operations are included)

1.2 Bus and Coach

Peter White, Emeritus Professor, University of Westminster

1.2.1 Scope

This chapter examines the current governance of the industry, with an emphasis on scheduled local bus services – on which central and local government policies have the greatest impact. The primary emphasis is on England, for which comprehensive data are available. Reference is also made to Wales, and to the very different situation in Northern Ireland. Scotland is covered in a separate chapter (2.1), to which cross-reference is made. Institutions covered include the operating industry as such, central and local government, regulatory bodies, and the voluntary sector.

1.2.2 Method

This chapter provides a relatively straightforward description of the current position in Britain, drawn from the author's direct knowledge, with appropriate reference to statistical data and the technical press. There is relatively little academic research as such on bus industry governance, but work on related topics such as safety is duly referenced.

1.2.3 Institutional structure

1.2.3.1 Functions of the bus and coach operating industry

The bus and coach industry serves a wide range of functions, notably:

- Provision of 'local' bus services, i.e. those corresponding to the general concept of 'buses', calling at closely spaced kerbside stops, handling mostly short-distance passenger movement. Each passenger pays a separate fare (although not necessarily in cash; could be by smartcard or display of a pass). About 5,000 million trips per year are made on such services (see Annex A). Such services must be registered with the regional Traffic Commissioners. Most services outside London and Northern Ireland (about 84% of bus-km in 2015–16 (DfT, 2017a) are registered 'commercially' (see below), the balance being on contracted services.

- Operation of contract services, where the entire vehicle is hired out to an individual or organisation, and separate fares are not collected from passengers. The principal example is school travel, in which local authorities meet their statutory obligations to provide free travel above specified distances by hiring in vehicles from licensed operators. In the past services paid for by employers were also important, but are now rare. Private hire also falls in this category (e.g. a sports club outing).

- Excursions and tours. Services, whose frequency may vary according to demand, for day trips (excursions) or longer periods with overnight accommodation (tours). Separate fares paid by each passenger.

- Express services. Where all passengers are carried a distance of at least 15 miles measured in a straight line, no service registration is required, but a fixed timetable is usually operated. Separate fares are charged for each passenger.

- International services. These operate subject to EU regulations, and comprise both 'regular' scheduled express services (registered with the Driver and Vehicle Services Agency, DVSA) and 'occasional' services, including private hire.

No ridership or service output data are published for the 'non-local' services. However, an estimate of total industry activity was available in earlier years. For example, in 1989/90, 1,401 million vehicle-kilometres were run on 'non-local' services (DfT, 1991), compared with 2,475 million on local services (DfT, 2017b).

In addition, public local bus services may be provided by non-profit-making organisations under sections 19 and 22 of the Transport Act 1985, discussed further below.

1.2.3.2 The European Union

The EU provides a number of common regulations, in particular those affecting environmental standards for new vehicles (currently Euro VI), rules affecting drivers' hours of work (for services whose length exceeds 50 km), and the operator licensing system (see section 3.3.1), notably in respect of financial resources per vehicle. It also provides a framework for international services, and competitive tendering. However, member states vary greatly in the degree of quantity and price regulation for local buses, and whether they permit scheduled express coach services.

1.2.3.3 The UK Government

The Westminster government provides most of the statutory framework for the industry and other tiers of government. In the absence of a separate English administration, it also exercises power directly in that case. Given the limited ability of local government to raise finance directly, its financial resources are also determined to a large extent through grants made from the UK central government revenues. This has even applied historically to the devolved national governments, although they now have wider tax-raising powers. The UK Government also sets taxes applicable to bus and coach operations (fuel duty, vehicle excise duty).

The legislative framework for the bus and coach sector is set by central governments, principally that in Westminster, but also those in Cardiff and Edinburgh. Education legislation is of particular importance, requiring local education authorities to provide free transport above specified distances between home and school (two miles up to age eight, three miles above this). This forms a large part of the transport-related expenditure for rural authorities, and of income to operators in such areas. Central legislation also requires local authorities to provide free concessionary travel for disabled users, and to those in older age groups – initially from age 60, but since 2010 in England rising with the female retirement age (and in future, the common retirement age, reaching 66 in 2021). Within Scotland, London and Wales the eligibility age currently remains at 60. This likewise forms a large budget item, and in turn represents about 30% of all bus travel outside London. Within England, the level of concessionary fares compensation is set at local government level (usually counties), resulting in some variation, but within Wales and Scotland a common system is operated at government level.

1.2.3.4 Devolved government

At present, the framework within Wales and Scotland is similar to that in England, but more variation is likely to emerge, as the Bus Services Act 2017 is largely applicable only within England. Differences in concessionary fares and bus operator grants are described in section 2.4.

At present, the main exceptions to the broad patterns described are London and Northern Ireland. Within London, while the operator licensing system applies (see below), Transport for London (TfL) procures the great majority of services through contracts with operators, and also acts as regulatory authority for the others, through the issue of London Service Permits (LSPs). In Northern Ireland a very different structure to the rest of the UK applies, with a more restrictive licensing system (even for express services), and most scheduled services are provided by

publicly owned near-monopolies, discussed further below. Scotland is the subject of another section.

1.2.3.5 Sub-national bodies

Within England, bodies such as Transport for the North (TfN) have a very limited role in the bus and coach sector. A more important function is that of the Local Enterprise Partnerships (LEPs), consortia typically covering adjacent local authority areas, in which representatives from business play a major role. They have a role in the allocation of resources for transport investment, which to date has been mainly in roads, but also includes cases of public transport projects.

1.2.3.6 Local government

Within England, the principal bus roles are the county level in two-tier authorities, but where unitaries exist they have these responsibilities, which can create some coordination issues. Within the six metropolitan areas outside London (such as the West Midlands, focused on Birmingham), wider powers were given by the Local Transport Act 2008, the Passenger Transport Authorities (PTAs) being renamed Integrated Transport Authorities (ITAs). A rather complex structure now exists, with some authorities having wider scope (such as Transport for Greater Manchester, TfGM), albeit much less than TfL in the London case. The creation of Combined Authorities (CAs) has further widened scope, especially where elected mayors are now in power.

In England, decisions regarding concessionary fares and school travel are made at the county level. While the obligation to fund these is a statutory requirement, there is discretion in the extent to which additional provision may be made – for example, whether to offer a concession before 0930 Mondays–Fridays, or to carry schoolchildren free of charge for distances below the statutory level. Given pressures on local authority budgets, the extent of both such aspects has generally reduced. However, a complication arises in respects of concessionary fares in that the compensation payable to operators (typically expressed as a percentage of the equivalent adult fare) is determined at county level. Hence, an operator running a cross-boundary service may receive different compensation levels for journeys on different parts of the same route. Conversely, in Wales and Scotland a common level is set. Both upper-tier and lower-tier authorities have powers to provide tendered services

In addition to the direct powers and responsibilities related to bus services described above, local authorities also have considerable influence on other issues likely to affect bus performance, in particular in their role as highway and traffic management bodies, and in relation to parking policy and provision of bus priorities. The volume of taxis/private hire vehicles licensed by local authorities may also affect bus use.

Discretionary powers exist for support of non-commercial local bus services through tendering, but there is no particular service level stipulated. In practice, given the pressures of mandatory spending on school travel and concessionary fares, some authorities have eliminated such spending altogether (e.g. Cumbria, Oxfordshire, Southend). Overall tendered bus-km in Britain outside London fell from a peak of 514 million in 2009/10, to 310 million in 2015/16 (i.e. by 40%). ‘Commercial’ bus-km rose from 1,627 to 1,650 million over the same period. (Department for Transport, 2017a) This may indicate that some operators have been willing to continue commercially some services previously tendered, of which examples are known to exist (e.g. to continue an evening service on a commercial basis), but this effect is clearly very small in relation to the overall decline.

1.2.3.7 Regulatory bodies

Quality regulation is regulation that controls the quality (especially safety) of services, as distinct from 'quantity' regulation (limiting the total scale of operation, usually by route licensing) and price regulation – these last two aspects were largely abolished outside London and Northern Ireland under the Transport Act 1985.

Each Public Service Vehicle (PSV) operator, i.e. that of bus and coach service vehicles, is required to hold an 'Operator Licence' (or 'O-licence'). This is awarded to an operator deemed fit to run a specified number of vehicles by the regional Traffic Commissioner. For this purpose, Wales[5] and Scotland each have their own Commissioner, while England is divided into several regions. The licence specifies the number of vehicles permitted to be operated at any one time (by issue of discs), determined primarily by the operator's ability to safely maintain their fleet. There are also financial requirements (working capital per vehicle) imposed by EU regulations. The Commissioner may vary the number of discs, or cancel a licence entirely where operation is unsatisfactory. The main emphasis has been on safety, and it is noteworthy that despite the removal of quantity and price controls under the 1985 Act, overall safety levels did not worsen, and indeed they have continued to improve for many years (Annex C).

Some disparities do arise for small vehicles operated by non-profit-making bodies for which vehicle permits may be issued by a variety of organisations, rather than the Traffic Commissioners.

In recent years, the Commissioners have also placed increased emphasis on operators running according to their service registrations, as reliability is a very important consideration from the passenger's viewpoint. The expected standard is generally set that at least 95% of journeys should run not more than 1 minute earlier or 5 minutes late, although discretion may be exercised in applying this (Forster, 2015, p. 8). A Commissioner may impose a penalty per vehicle operated (i.e. number of discs) in such cases – for example in 2012 First in Manchester was fined £225 per vehicle after observations indicated that 4% of journeys had run more than 1 minute early, and 17% more than 5 minutes late.

The Competition and Markets Authority (C&MA), which replaced the former Competition Commission and the Office of Fair Trading, applies competition policy to the bus and coach industry within Britain. It has a particular role in determining whether agreements relating to fares and ticketing might be deemed anti-competitive, and also has powers to investigate mergers and other forms of anti-competitive behaviour. In general, it has been less active in the industry than its predecessor bodies, and the Bus Services Act 2017 can be seen as a shift to an emphasis on greater partnership working within the industry rather than competition per se.

1.2.3.8 Operating industry ownership and structure

The great majority of the industry in mainland Britain is in private ownership. This has always been the case for the contract and private hire market, but public sector operators dominated in the scheduled local and express services prior to 1985. Ten local authority-owned urban operations continue in business as 'arm's length' companies. Creation of further such operations in England is specifically prohibited under the Bus Services Act 2017. There are also some small local authority-owned operations for specialised school and/or rural services.

Within the private sector, five groups dominate the market (Stagecoach, First, Go Ahead, National Express, Arriva), comprising about 70% of local bus turnover. The first four of these are PLCs on the UK stock market. There are some other substantial regional companies, two of

[5] A useful illustration of the role of a Commissioner may be found in the commentary from Nick Jones, the Traffic Commissioner for Wales, in Bus Users Cymru 2016–17, pp. 34–36

which may be traced back to management buyouts of National Bus Company subsidiaries, but most of the 'independent' private sector operators are relatively small, with a large number running under ten vehicles (see Annex B). The term 'private' should be qualified, however, in that Arriva is a subsidiary of Deutsche Bahn (DB) of Germany, and other substantial operations are also local subsidiaries of publicly owned businesses based in other countries (such as RATP Dev). This is particularly noticeable in the London contract bus market.

1.2.3.9 Consumer representation

The most comprehensive statutory representation within England is that provided by London TravelWatch, covering all modes of public transport within the Greater London area, also including taxis. Transport Focus provides a body for representing bus user interests outside London, and has a particularly important role in carrying out regular large-scale surveys of user satisfaction with bus in many areas (now also extended to Scotland). These may have influenced operators' policies, for example in respect of fare levels (White, 2017). At a local level, many issues are dealt with directly by operators themselves, with Bus Users UK (BUUK) acting as a non-statutory body in representing their interests. A Bus Appeals Board (BAB) acts as a point of appeal where users are not satisfied with responses by operators to complaints. Unlike rail users, bus users tend to be less vocal and articulate in defending their rights (note the very limited pressures on politicians when rural bus service cuts occur, in contrast to any threatened rail closures), and local user groups have only a minimal effect.

1.2.4 Funding and financing

The great majority of capital spending is on vehicles and depots. This is met, with a few exceptions (mainly in London and Northern Ireland), by the operating industry itself, whether in private ownership or the remaining municipals. Funds are generated through depreciation provision, which may be augmented by profit margins (to allow for replacement versus historic costs) or raising capital through loans or shares. It is also possible to lease vehicles, rather than purchasing outright, in which case a private sector leasing company (analogous to rolling stock operating companies (ROSCOs) in the rail sector) provides the vehicles, and the operator pays a periodic leasing charge shown as an operating cost in annual accounts. When contracted services are operated, the operator's bid would normally include capital cost of vehicle provision.

Substantial funding has been provided for buses with reduced emissions through the Green Bus funds, both in England and Scotland (there is no equivalent scheme in Wales). This has included, for example, paying the difference in cost between conventional diesel vehicles and diesel-electric hybrids (which would not be justified on commercial grounds by operators), and also buses powered by natural gas, and retrofitting of older vehicles to meet later 'Euro' standards. For example, the latest round of the Low Emission Bus fund funded 479 buses, split between hydrogen, bio-gas, hybrid and fully electric technologies. In a previous round of the Clean Bus Technology Fund, grants were given to retrofit 439 buses to reduce nitrogen oxide emissions (DfT, 2016).

While some public spending is provided for infrastructure (such as busways, described below) most of that for bus services is in the form of current spending.

Stemming from the former fuel duty rebate, Bus Service Operators Grant (BSOG) is paid for local bus services within England. Originally set at a fixed rate per litre of fuel used on local service (80% of the total duty payable), this was restructured to provide incentives for low-carbon buses, smartcard technology and automatic vehicle location. The core grant remains related to fuel usage. Work by KPMG indicates a benefit-cost ratio of up to 3.7 (KPMG, 2017). Within England, all BSOG was originally paid direct to operators, but for services in London, and

tendered services elsewhere, it was diverted to TfL and the equivalent local authorities from the start of 2014 (DfT, 2013), while still being paid direct to operators for commercial services. Equivalent grants in Wales (Bus Services Support Grant, BSSG) and Scotland operate on a slightly different basis, the latter being a flat rate per bus-km (which tends to favour rural services). Annex D summarises major components of local bus industry income in England and Wales in 2015/16. It can be seen that the proportion of income from users as such is generally around 60%, both in London and elsewhere. The major differences arise from the importance of concessionary fares compensation, which is much lower in London (however, the free child travel in London will affect the gross support shown).

When services are described as 'commercial' (see above) it should be borne in mind that operator revenue includes not only that paid by passengers directly, but also the compensation for revenue foregone as a result of compulsory concessionary travel, and the effect of BSOG on net costs.

Major current spending trends in England are summarised below. These cover the period 1999/2000 to 2015/16 – figures for 2016/17 are not yet published – and are all at 2015–16 prices (source: DfT Table BUS 0502b)

- BSOG grew from £379 million in 1999/2000 to a peak of £470 million in 2009–10, then falling to £254 million in 2015–16.

- Concessionary fare compensation rose from £574 million to £1,049 million (i.e. by 77%, but by 249% outside London and the Mets and the growth in provision and use was most marked). Free throughout Wales, and Scotland 2002, within England 2006, and throughout England 2008. Free in London since early 1970s.

- Local net support payments grew from £313 million to £899 million (+187%), peaking at £1,224 million in 2008/9. The net growth of £586 million was entirely due to that in London (from a base of £1 million). London peaked at £801 million in 2008/9, falling to £621 million in 2015/16.

Central legislation also requires local authorities to provide free concessionary travel for disabled users, and to those in older age groups – initially from 60, but since 2010 in England rising with the female retirement age (and in future, the common retirement age, reaching 66 in 2021). Within Scotland and Wales[6] the eligibility age currently remains at 60. In England outside London, journeys by older people and disabled people represent about 30% of all bus travel outside London, and reimbursement to bus operators is nearly 25% of total bus operating revenue (i.e. passenger fare receipts plus public sector payments such as BSOG).

In England, responsibility for concessionary fares lies with county councils and unitary authorities, and Passenger Transport Executives (or combined authorities) in Metropolitan areas. They determine levels of reimbursement to bus operators, typically through direct negotiation. They can also provide discretionary enhancements to the statutory minimum (e.g. availability of free travel before 09:30 on weekdays). There is therefore a patchwork of arrangements across England, with different payments rates and some variations in the concession.

In Wales and Scotland, payment rates are established at government level, although some administration is at local authority level.

[6] There are also a few areas in England which provide free local travel for those aged between 60 and the statutory minimum, of which the largest is London (on payment of a £20 fee).

In England, discretionary concessions can also extend to children and young people, although there is no statutory requirement beyond the need to provide free travel for longer school journeys. Most bus operators provide reduced fares for children on a commercial basis, but some authorities promote more generous concessions for younger people.

Bus operators are supposed to be compensated for both statutory and discretionary concessions so that they are 'no better off and no worse off' financially. Interpretation of this objective is highly speculative, and can be the subject of dispute between authorities and operators. In England, DfT provides guidance on how to set reimbursement levels, and adjudicates in the case of disagreement.

Statutory free bus travel for older and disabled persons was introduced in Northern Ireland in 2001, Wales and Scotland in 2002, and England in 2006, although there were discretionary free concessionary schemes in some areas before that. Since 2004/5, reimbursement payments for concessionary travel have more than doubled.

The impacts of free concessionary travel took two forms:

- Existing holders of concessionary passes (usually offering half fare) made more trips, as would be expected due to a price elasticity effect

- Increased awareness of the free concession (with no charges made for issue of passes) resulted in a large increase in take-up from those already eligible by age.

As far as 'new' passholders were concerned, there were two impacts on bus journeys:

- Some 'new' passholders may already have been making bus journeys but paying the commercial fare. On obtaining their pass, journeys previously regarded as non-concessionary will be reclassified as concessionary

- Most new passholders would have increased the number of bus journeys made, either from a previous non-zero base, or from negligible previous bus use.

Some 'new' passholders may not have changed their journey patterns at all, potentially because access to the pass provided additional non-bus-related benefits such as acting as an additional form of ID, securing benefits from retailers, etc.

The combined effect was a substantial growth in bus ridership, especially in areas outside London and the metropolitan area where very few schemes had previously offered more than a half-fare concession. In the case of the Salisbury area (Baker and White, 2010), it can be shown that the 'new' passholders made substantially fewer trips than the 'old' passholders, and were typically of higher income than the 'old' passholders. Overall trips per pass issued remained broadly constant and total trips rose broadly in line with passes issued. However, at a national aggregate level it is not possible to make such a distinction and elasticities are derived which combine both effects. This forms the guidance produced from a study by Leeds University for DfT in 2010 (DfT, 2017c).

An indication of impacts on ridership is provided by Last (2017). Within England outside London, growth with concessionary trips within the first year of free travel introduction, where free travel was not previously offered, was between about 25% and 60%, varying by area. Cumulative growth in concessionary travel peaked around 2010/11, when in England outside London, the number of journeys taken by older and disabled concessionary passengers was about 60% higher than in 2005/6. About 55% of the net increase took place in the first year.

(Subsequently, demand has declined due to the rising age of eligibility, and possibly greater car ownership among the age cohort coming into the concessionary range than among earlier cohorts.) The increase was of sufficient size to offset other factors causing a decline in bus travel, such that total bus travel rose up to 2008/9, and then declined more slowly than before, being only marginally lower in 2015/16 than in 2004/5.

1.2.5 Appraisal and major schemes

In terms of formal decision-making and appraisal processes, the elements for concessionary travel and statutory school travel are determined very largely by central government policy, with little discretion at local level. In the case of tendered services, which in practice tend to fill gaps in the commercial network, a fairly ad hoc process may be found, with more systematic ranking of priorities adopted in some areas (e.g. by journey purpose, or time of day/week). Formal assessment procedures do exist in the 'WebTAG' guidance provided by the Department for Transport in England (similar guidance exists in Wales and Scotland), but are not necessarily applied systematically. Within London, where the network is planned as a whole, TfL has a systematic framework for assessing planned service changes, comparing operating costs with user benefits (TfL, 2012).

For capital expenditure, such as segregated busway schemes, WebTAG guidance is employed in the ex-ante evaluation stage, and has also been applied in ex-post assessment of completed schemes. For example, a recent study by KPMG has indicated very high ex-post benefit-cost ratios for two cases, the Crawley/Gatwick area 'Fastway' scheme (a ratio of 8:1) and the South Hampshire 'Eclipse' busway in the Fareham/Gosport area (6:1) (KPMG, 2017). Similar methodology may also be applied to bus priority measures, in which trade-offs are found between time savings to bus users and changes for other road users.

To date, the funding for busway schemes in Britain has come largely through local government, which also initiates and promotes these schemes. For example, Cambridgeshire County Council was responsible for the busway from St Ives to Cambridge and associated links, and Hampshire County Council for the South Hants busway between Fareham and Gosport. Bus services as such are generally operated commercially. An access charge may be payable to the local authority for use of the busway, although practice varies. In some cases, an exclusive agreement may be made with a single operator (e.g. First Group for the Leigh–Manchester scheme) or multiple operators allowed (e.g. two in the Cambridge case).

1.2.6 Specific issues in Wales

The broad regulatory framework and development has been similar to that in England, with the Welsh Government being responsible for determining expenditure. In contrast to England, funding of concessionary travel compensation is centralised at a common rate. Bus use in Wales has declined more sharply than Britain as a whole (see Annex A) and is much more dependent on concessionary travel than in England. BSOG was replaced by Bus Services Support Grant (BSSG), the total of which has been reduced nationally. Current proposals are to introduce incentives for operators to meet higher quality standards, on which allocation of such money would be based. However, within a limited total sum this would further reduce payments to other operators.

The single-tier local authority areas within Wales are relatively small, especially in the South East, making joint tendering of cross-border services desirable. Four regional consortia were created in 2006. Central government later withdrew its support for this approach, but some informal coordination appears to have continued and a shift back toward formal regional consortia appears to be taking place.

A comprehensive document has been produced by the Welsh Government (2017a) indicating specific features of the Welsh bus market and current legal powers. Following this, consultation outcomes have been reported (Welsh Government, 2017b). Future legislation specifically for bus services in Wales may have some parallels with the Bus Services Act 2017 in England, but in marked contrast proposes powers to make the creation of new local authority-owned companies easier.

1.2.7 Specific issues in Northern Ireland

The regime in Northern Ireland differs very radically from that in the rest of the United Kingdom, and could be seen as having more in common with the Irish Republic, in that scheduled service operations are predominantly provided by state-owned companies under the Northern Ireland Transport Holding Company (NITHC), trading as 'Translink', through its subsidiaries Northern Ireland Railways (NIR), and the bus companies 'Flexibus', 'Metro' (services within Belfast), and 'Ulsterbus' in all other areas (including the 'Goldline' express coach services). Under the overall legal framework provided by the Transport Act (Northern Ireland) 2011, in October 2015 NITHC entered a service agreement with the then Department for Regional Development (now the Department for Infrastructure) giving 'the exclusive rights to provide the public passenger transport services specified in the service agreement', for '5 full financial years, with an optional extension of one year' (Department for Regional Devlopment (Northern Ireland), NI Transport Holding Company Concerning Provision of Public Passenger Transport Services, 2015).

In 2016–17, Ulsterbus carried 38.4 million passengers – a decline of 2.3 million trips since 2012–13 – but the number of Metro trips rose from 26.2 to 27.3 million over the same period. This meant that overall there was a net drop in bus use of 1.2 million trips (or 2%): no data are published for other operators. Rail use on Translink was 14.2 million trips in 2016–17 (Department for Infrastructure, 2017). In contrast to the Republic of Ireland, in which a liberal approach to licensing competing express coach operations has been adopted, a restrictive approach remains. A greater degree of integration between scheduled and school bus services has been found in parts of Northern Ireland than much of mainland Britain, with Ulsterbus public services carrying most of the statutory school demand, enabling a higher level of rural bus services to be retained in some areas. About 40% of Ulsterbus passenger traffic is related to school travel (Department for Education, 2014). A further degree of integration between Ulsterbus and Department of Education services is now proposed.

The closer degree of government involvement may impose some limitations – for example, funding for new buses has been dependent on central government expenditure rather than generated within the operators' own budgets, resulting in some fluctuation in replacement programmes. Average age of the fleet was relatively high in 2016–17 at 9.1 years for Ulsterbus and 8.9 for Metro (Department for Infrastructure, 2017, table 6.1). The financial performance of Translink's bus operations was also affected by the withdrawal in November 2014 of fuel duty rebate (equivalent to BSOG in England, and worth about £10 million in 2013–14), its annual deficit in 2015/16 being approximately equal to this figure (Passenger Transport, 2016, p. 12), and also the cessation of the Rural Transport Fund.

Although Translink companies have the dominant role in bus provision, a considerable number of smaller operators are found, both in scheduled services and other types of operation. Under the 2011 Act, bus operators may apply for a 'Commercial Bus Service Permit' (Department for Regional Development, 2015) but unlike the situation in mainland Britain, there is a degree of protection for incumbent operators to enable cross-subsidy for rural services. For example, in 2017 an independent proposal for a Belfast–Londonderry service competing with Ulsterbus was rejected.

1.2.8 Critical governance challenges

Bus Services Act 2017

The implementation of the Bus Services Act 2017 within England gives greater powers to local authorities, although the exact timescale by which secondary legislation needs to be in place is not yet clear. Franchising powers (perhaps more accurately described as contracting powers) enable a system similar to that in London to be created, although only authorities with directly elected mayors will have the powers to do so directly. The extent to which this will be taken up is unclear, and it may be that the stronger partnership arrangements, notably the Enhanced Partnerships, will be of greater impact. These will enable much greater coordination of marketing, ticketing and other aspects of bus service provision, while retaining largely commercial operation. As yet, no authority has made a formal commitment to a franchising proposal, although several have shown interest. One issue may be the degree of financial risk incurred, especially if gross cost tendering were to replace a largely commercial operation. In principle, the authority could gain financially, if commercial services with higher profit margins were taken over, and these were used to subsidise services now run under contract. It would also gain through reallocation of BSOG payments. Compensation for concessionary travel would continue to apply in any case. However, given pressures on local authority budgets, carrying revenue risk could be the crucial factor. Some broadly similar changes are being considered by the governments in Wales and Scotland.

Section 19 & 22 issues

Under the Transport Act 1985, non-profit-making organisations were enabled to offer services under a much simpler licensing system than that required for ‘O licence’ operators. Section 19 services are confined to a specific set of users (for example youth club, or pensioners’ organisation), while section 22 services can be provided for the general public. Often volunteer staff are used, but paid staff may also be employed. Such services may play a useful role in some rural areas, depending on the local support available, such as a pool of volunteer drivers. As with other activities, such operators have also become involved in contracted work for local authorities. However, some operators meeting the full ‘O licence’ requirements questioned whether such competition can be seen as fair. Following a DVSA ruling, DfT in late July 2017 advised section 19 and 22 permit holders that full ‘O licences’ would be needed in order to participate in such tendered operations in future (see Coach and Bus Week, 2017, pp. 16–19). Considerable controversy has resulted.

Departure from the EU

The probable departure of Britain from the EU may raise some questions about powers currently incorporated within British law, and the extent to which these might be changed under a repeal process. It is unlikely that there would be support for significant changes to the environmental regulations or operator licensing structure. However, some minor changes might be appropriate. For example, the rationale leading to stricter drivers’ hours rules for services of over 50 km is unclear, and the practice of specifying professional qualifications (such as the Driver CPC) by duration of study rather than outcomes attained might also be questioned.

Connected and autonomous and vehicles (CAVs)

The potential rapid development of this technology has implications for the bus sector, both in terms of modal competition (e.g. self-driving cars for elderly users), and because it creates new opportunities for high-frequency minibus services on fixed routes if driver costs are removed. Some changes to the regulatory framework may be needed, especially as the boundary between buses and taxis becomes less clear.

Relationship between bus and taxi/private hire vehicle (PHV) regulation

Unlike local buses, taxi and PHV[7] regulation has not been subject to comprehensive reform, although the 1985 Transport Act did introduce the concept of legalised taxi sharing, and encouraged the removal of absolute quantity limits. Licensing remains at lower-tier authority level, except in London. Quality controls on vehicles and drivers vary substantially, and a number of authorities retain quantity limits for taxis. As in the case of section 19 and 22 operations, issues arise regarding fairness of controls vis-à-vis those placed on the bus industry (for example, in respect of drivers' hours). A rapid growth in numbers has occurred in some areas recently (especially in PHVs, such as Uber, which are not subject to local quantity controls). This may have affected bus use, although hard evidence is not yet available (for example, data are available on the numbers of vehicles and drivers licensed in each area – itself a rather crude indicator of supply – but there are no local data collected on usage). There are also questions of efficient use of road space where low passenger occupancies and the extent of empty running in congested areas is considered.

[7] A PHV / private hire vehicle (known as a 'minicab' in London) is a vehicle hired by the customer, but is not able to 'ply for hire' on the streets or pick up at ranks in the manner of a traditional taxi. Most bookings are made by phone or at an office. There is no metered fare scale.

1.2.9 References

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1.2.10 Annexes

Annex A: Local passengers carried by the bus and coach industry in Britain (in millions of trips)

Selected years, derived from DfT Table BUS0601a 'Passenger Journeys on local bus services by metropolitan area status and country: Great Britain', quarterly from 2004/5 (seasonally adjusted)'.

Year / Area	2004/05	2007/08	2010/11	2013/14	2016/17
London	1,802	2,160	2,269	2,362	2,242
***English Mets**	1,069	1,097	1,055	1,010	948
Rest of England	1,178	1,297	1,317	1,298	1,257
Wales	122	120	116	117	101
Scotland	458	487	430	422	393

* 'English Mets' comprises the six metropolitan areas within England outside London (West Midlands, Greater Manchester, Merseyside, Tyne & Wear, South Yorkshire and West Yorkshire).

Annex B: Distribution of operators by fleet size

Fleet size may be defined by the number of discs issued to each operator. This is used as a basis for sampling when DfT collects data on local bus passenger journeys. For example, in 1991 about 1,700 operators ran local bus services. However, those with 1 to 5 discs inclusive accounted for only 1% of all local vehicle miles. Conversely, the operators with 50 or more discs accounted for 89% of local vehicle miles (DfT, 1991).

Annex C: Trends in bus and coach safety

Overall trends in bus and coach safety from the late 1960s onward were examined in work by White and research colleagues (White et al., 1995) showing that a steady decline had occurred over many years in the rate of 'Killed & Seriously Injured' (KSI) bus occupants per 1,000 million passenger-km. This figure fell from 34 in 1970 to 20 in 1990 (and was not affected by deregulation of bus and coach services in the 1980s), with an average of 9 for the period 2005 to 2015 observed subsequently (DfT, 2017d). However, boarding and alighting casualties emerged as a substantial proportion of all occupant casualties (i.e. not necessarily where the bus or coach was involved in any collision, but incidents involving individual passengers).

Conversely, a much higher number of fatalities occur to other road users (pedestrians, cyclists, car occupants, etc.) from collisions in which buses and coaches are involved: around 50 a year. For example, taking data for the period 2011 to 2015 inclusive, bus and coach occupant casualties totalled 40, and those to other road users arising from accidents in which buses and coaches were involved totalled 257 (the majority of whom were pedestrians), a ratio of 6.4. A phenomenon of higher fatalities to other road users was also evident from the earlier study[8],

[8] Data inferred from DfT Statistics Table RAS40004 'Reported accidents, vehicle user and pedestrian casualties by area type and combination of vehicles involved, Great Britain 2015'. Note that totals quoted in this text are for those

with the ratio averaging 6.7 in the period 1981 to 1985. Such ratios largely reflect the fact that buses are much larger and heavier than other road vehicles or users with which collisions may occur, hence the consequences of a collision will be worse for the other road users. However, this does not mean that the bus driver or operator was at fault, which can only be determined by the specific circumstances in each case.

accidents and casualties involving either one or two vehicles, since data within the category 'All accidents with three or more vehicles' does not enable a separate bus and coach category to be identified. This may result in a marginal understatement of casualties to other road users from accidents in which buses and coaches are involved.

Annex D Composition of local bus industry income and related public expenditure (%)

Source: (England) DfT Table BUS0501a 'Estimated operating revenue (at current prices) for local bus services by revenue type and metropolitan area status; England, annual from 2004/05

Area	Passenger fare receipts	Gross support	Concessionary Travel	BSOG/BSSG
All England	60	18	19	5
London	60	29	11	n/a
English Mets	60	10	23	7
Rest of England	57	11	24	8
Wales	[19]	[57]	[25]	

Notes:

Data for 2015/16, expressed in percentage terms, rounded to nearest whole number (hence may not sum exactly to 100)

'Passenger fare receipts' includes all forms of payment from users, e.g. cash, travelcards, smartcards

'Gross support' includes payment to operator for contracted services, and also expenditure incurred by local authorities (and thus overstates income to the bus operating industry as such). In the case of data for Wales it is possible to distinguish between the overall costs, and money passed to operators as such: gross cost of £19,090 million, of which £17,155 million (or 90%) passed to operators. In the absence of other evidence, it may be reasonable to assume a similar proportion for England.

'Concessionary travel' comprises compensation paid to operators for free travel to older and disabled users, primarily net loss of fares income

BSOG – Bus Service Operator Grant – is paid direct to operators for commercial services, but in England for tendered services is paid to the relevant authority (but has been allocated by area). Since almost all services in London are contracted via TfL, BSOG is thus not applicable there, but forms part of gross support.

Data for Wales show percentage composition of public spending, but not operator revenue. Tendered services and concessionary fares expenditure is taken from CSS Wales Transportation Data 2015–16 (columns TRA001, TRA0404 and TRA011; and the BSSG figure is based on an estimate of £25 million p.a. (Bus Users Cymru, 2016-17, p. 5).

1.3 Freight

Dr Tony Whiteing, Institute for Transport Studies, University of Leeds

1.3.1 Scope

In general, and for most transport modes including road and rail, freight very largely operates on infrastructures that are also used for passenger travel, either using public transport services or by private motoring. The general picture of provision, finance, governance and regulation of those infrastructures is covered in other chapters – road, rail, and maritime. This chapter focuses more on the specific issues relating to freight, with particular respect to road freight, although some key issues relating to rail freight and multimodal transport operations are also considered. Given this focus, attention is paid more to the control and regulation of freight operations and to enforcement issues, rather than the provision and funding of infrastructures that are shared between freight and other uses.

1.3.2 Method

This report has been prepared using information from research reports and papers, UK Government websites relating to departments and agencies, local government information, websites of relevant freight industry associations, industry intelligence web sources and media sites.

1.3.3 Institutional structure

1.3.3.1 European Union

EU legislation forms the basis of a considerable amount of UK law relating to freight operations on the transport infrastructure. Due to the important need for interoperability across the UK, the UK Government embodies EU Directives into law, currently for the whole of the UK. Notable examples include lorry driver hours regulations and vehicle weights and specifications for freight vehicles engaged in cross-border operations.

A number of key freight transport corridors within or partly within the UK are designated as part of the EU TEN-T strategic corridor network, and as such have had access to some EU funding for investment. Examples include the A55 North Wales corridor towards Ireland, the A14 corridor towards mainland Europe through east coast ports such as Harwich and Felixstowe, and the Anglo-Scottish West Coast rail route.

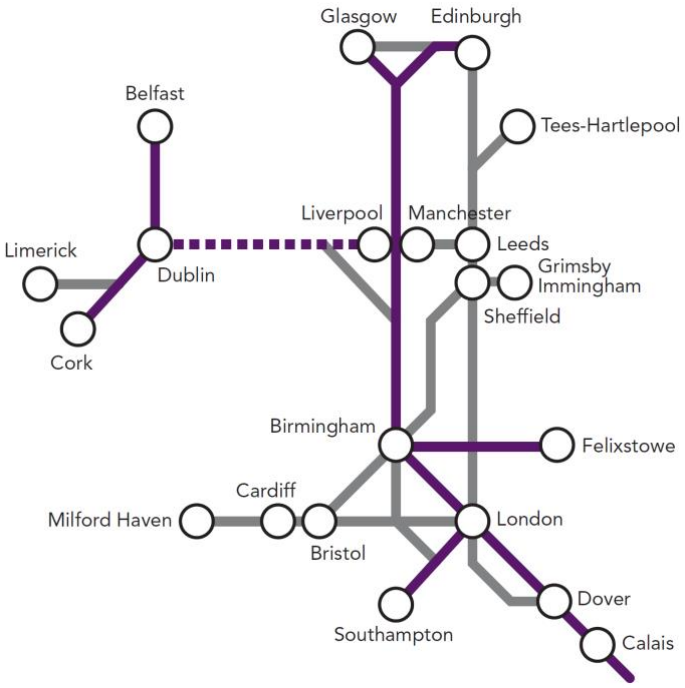

Figure 2: Trans-European Transport Network in UK (Purple refers to the North Sea–Mediterranean network, Grey refers to Other core networks) (source: European Commission, 2016)

1.3.3.2 UK Government

In the case of rail, both the Department for Transport and Network Rail have rail freight planning processes which consider capacity and investment issues for the network. The most recent Department for Transport Rail Freight Strategy was published in September 2016 (Department for Transport, 2016), while the Network Rail Freight Network Study published in April 2017 is part of the rail industry's long-term planning for the future development of freight on the network over the next 30 years, leading ultimately to investment strategies in forthcoming control periods for the development of key freight routes (Network Rail, 2017).

For road, Highways England does not appear to have published a specific freight strategy document to date. While the Highways England 'Strategic Business Plan 2015 to 2020' published in late 2014 (Highways England, 2014) highlights the importance of roads in providing for effective freight and logistics services in support of economic growth and includes listings of priority investment schemes many of which will have clear freight sector benefits, it does not set out in any depth how freight concerns have informed the strategic planning process.

1.3.3.3 Local government

Use of the road infrastructure for freight operations is subject to considerable intervention at local authority level. Local authorities, as the highways authorities for their roads, act to impose various restrictions which impact primarily on commercial vehicles, including weight limits in individual streets or localities, restrictions on lorry movements at certain times of day and restrictions on parking, including short-term for collection and delivery. Conversely, local authorities may act to provide dedicated loading bays for freight vehicles. All such actions frequently form part of wider initiatives for environmental improvement or safety, such as pedestrianisation schemes.

Local authority level freight planning forms an element of the local transport plan (LTP) process in England and Wales. English guidance is that LTPs 'consider the transport needs both of

people and of freight' (Department for Transport, 2009), while in Wales ensuring adequate provision for freight is included in the common themes to be addressed (Welsh Government, 2014). Hence, LTPs are required to consider freight issues. In practice these are often a relatively small element of the overall LTP process though they can be more substantial in authority areas with more pressing freight issues, such as around key ports. They may lead to the development of locally significant road investment schemes, but the more usual focus is typically on reducing congestion relating to freight traffic, and addressing safety and sustainability issues relating to freight movement, through strategies such as advisory routing or encouragement of modal shift, typically from HGV to rail.

1.3.3.4 Sub-national government

In metropolitan areas, the Local Transport Act 2008 placed responsibility for LTP formulation with the integrated transport authority (ITA) rather than individual local authorities. Hence freight strategy is now conducted at combined authority level; for example in the West Yorkshire plan (West Yorkshire Metro, 2010).

LTPs essentially deal with local issues and solutions, and their remit does not extend to national trunk road and rail routes. Many freight activities are carried out over wider regions or nationally, and so the needs of such operators may not be considered. However, regional governmental and/or planning bodies also typically conduct freight planning and publish freight strategies, taking a wider view across their larger areas and regions. This was done by the now-disbanded Regional Development Authorities such as Yorkshire Forward, and is also undertaken by other bodies with regional jurisdiction including Transport for London (TfL). TfL is required to consider freight under policy 6.14 of the current London Plan, under which 'the Mayor will work with all relevant partners to improve freight distribution', with a range of objectives covering the environment, safety and reduction in congestion, among other things (Mayor of London, 2016). However the earlier 2007 London Freight Plan (Transport for London, 2007) does not appear to have been updated. Transport for the North (TfN) is at a relatively early stage but a Northern Freight and Logistics Report has been published which sets out directions for future strategy (Transport for the North, 2016). In Scotland, each of the seven statutory has a regional transport strategy, supported by a delivery plan where freight is considered.

1.3.3.5 Regulatory bodies

The Driver and Vehicle Standards Agency (DVSA) was established in 2014, taking over various functions of the former Vehicle and Operator Services Agency (VOSA). DVSA covers Great Britain, with Northern Ireland having its own Driver and Vehicle Agency. DVSA has responsibility for ensuring that only safely operated and adequately maintained vehicles can legally use the road network. The DVSA also ensures that vehicles in use are consistent with the legislation on maximum vehicle weights and axle loadings, some of which is established at national rather than supranational level. Public weighbridges exist to support vehicle loading compliance; however, the majority of these are available under arrangement with the private companies that own them.

DVSA also has responsibility for the enforcement of driving hours and vehicle tachograph compliance, the regulations for which are enshrined in EU legislation. It also has responsibility, along with the Health and Safety Executive and the police, for the safe carriage of dangerous goods by road – relevant UK legislation again enacting EU legislation.

Responsibility in Great Britain for the system of commercial vehicle operator licensing rests with the Traffic Commissioners (TC). Sponsored by the Department for Transport, TC is a tribunal non-departmental public body, with national coverage but operating with a regional structure. TC responsibilities cover not only the fitness of operators to operate, but also the approval of

company operating centres. Northern Ireland has a separate system which is part of the Department for Infrastructure.

In addition to pre-existing national taxation relating to road freight movement through fuel duties and vehicle excise duties, since 2014 the UK has operated an HGV system (DfT, 2014). This is a levy designed to level the playing field inside the UK between UK and foreign road freight operators, while maintaining overall revenue neutrality for UK operators. It is operated on behalf of the Department for Transport by Northgate Public Services.

Freight vehicles crossing into the UK from Europe suffer from infiltration by illegal immigrants. The policing of this problem in the UK is the responsibility of the Border Force, which is part of the Home Office.

Other enforcement problems relating to road freight operation include the use of untaxed fuel ('red diesel'). Responsibility in this area rests with HMRC.

Unmanned aerial vehicles (UAVs) or 'drones' are increasingly considered as a future means of freight transport, including for 'last mile' home deliveries. Regulations controlling such activities in the face of any significant commercial exploitation are not yet in place, but current law relating to drone use is set out in the 2016 Air Navigation Order. Responsibility for control and regulation of drone activity lies with the Civil Aviation Authority (CAA) (see CAA, n.d. and section 1.1.6).

1.3.3.6 Consumer Representation

The freight industry in the UK has well-established and influential industry organisations. The main ones are the Freight Transport Association (FTA), the Road Haulage Association (RHA), the British International Freight Association (BIFA) and the Rail Freight Group (RFG). These are membership organisations whose primary purpose is to protect and further the interests of their member companies, and they have exerted significant lobbying power to influence legislation. However, they also play a major role in promoting and encouraging safe and legal operations in the industry, and in promoting best practice.

1.3.4 Funding and financing

Notes on individual transport modes have set out the funding and financing arrangements in each case. In the case of roads, while it is not possible to determine precisely how much of the national spending is in respect of freight traffic, such spending will be proportionately higher than the share of freight vehicles in the total traffic flow. This is because the relatively large size of lorries (reflected in passenger car-equivalent units (PCUs)) will impact on capital spending, and the relatively high axle loadings on lorries will impact strongly on the allocation of funds for road maintenance. Routes with large flows of heavily laden freight vehicles will therefore bear a disproportionate need for funding.

Rail investment in recent Network Rail control periods has included several significant schemes to improve infrastructure used for freight trains. Examples include rehabilitation of the Peterborough–Doncaster via Lincoln route, the Doncaster north freight chord (route), the east-to-north chord at Nuneaton and the Ipswich freight chord. In most cases, however, these have been predicated largely on passenger service benefits such as increased capacity and reduced delays, rather than primarily on the freight sector benefits.

Freight Facilities Grants (FFG) were available for many years, funded by the Department for Transport. These contributed to capital costs of freight terminals (for rail and latterly also for water), including those privately owned by user companies, in cases of significant environmental benefit through road traffic reduction. However, FFG is not currently available in

England. The Welsh Government continues to fund rail schemes and the Scottish Government rail and water schemes.

1.3.5 Major scheme example: Radlett Freight Terminal

Proposed developments of large-scale freight terminals can highlight the potential for conflicting objectives between national planning interests and the interests of local authorities and communities. Facilities such as vehicle operating centres, rail freight terminals, docks, warehouses and depots are typically privately-owned commercial operations. As such, the planning process for the development of such facilities rests primarily with local authorities. However, given that some developments are large and also that there may be significant public opposition, the process may be escalated as far as the Secretary of State, who for proposals with potentially major national significance may in turn seek advice from the National Infrastructure Planning arm of the Planning Inspectorate under the terms of the Planning Act 2008, which aimed to streamline the decision-making process for infrastructure projects of national significance.

Several major rail freight/multimodal interchange projects have been determined in this way, with the consequence that planning processes in such cases can become very protracted. As an example, the developer's initial 2006 planning application for a proposed freight terminal at Radlett near St Albans was refused in February 2007. The developer appealed, but after receiving information from the Planning Inspectorate the Secretary of State refused this appeal. The proposal was modified and was reconsidered in 2009/10. It was again refused, went to appeal and the appeal was refused. Following further changes, however, the Secretary of State then determined in favour of the scheme in outline in 2013 after a further local authority refusal and appeal, though requiring a revised application to meet various conditions. This process is still ongoing, and significant local opposition remains, centred on a number of issues including additional road traffic, noise and loss of countryside and amenity (see for example Herts Advertiser, 2017). While this is perhaps an exceptional case – with full planning consent still in the balance after more than a decade – timescales for other terminal developments have also been protracted, such as the proposed development at Colnbrook near Slough (BBC, 2011).

Urban freight consolidation centres are often considered to be the way ahead for reducing the number of freight movements in urban areas, by ensuring that diverse deliveries are effectively consolidated on to vehicles for final delivery. Local authorities can act as facilitators for such schemes, as in the case of the Broadmead scheme facilitated by Bristol City Council. This scheme, operated by DHL, tapped into EU 'Vivaldi' funding and was successful in attracting use from a range of retailers. However, it proved challenging to extend public financial support when initial sources expired. In many cases, retailers are less keen to divert their deliveries through such facilities, and prefer to optimise their logistics within their own organisations. Hence schemes appear to work best where there are clear benefits from consolidation across companies, as tends to occur with major shopping malls or for airport retail facilities (see for example Bristol City Council, n.d.).

1.3.6 Critical governance challenges

At national level, a key feature of enforcement of regulations in the field is that given the diverse nature of potential infringements and the jurisdictions responsible for these, a multi-agency approach is highly advantageous. Such a multi-agency approach, with simultaneous checking for vehicle condition and licensing, overloading, driving hours, tachograph offences, taxation offences and illegal immigration, has been adopted in recent years in known hotspots and while it is resource intensive it has seen some success, as reported for example by the London Freight Enforcement Partnership (Commercial Fleet, 2017).

Effective management of road freight traffic by local authorities has proved challenging due to the difficulties in engaging for a meaningful period of time with a wide range of stakeholder groups with diverse interests (see for example Ballantyne et al., 2013). A preferred way to develop solutions to freight traffic issues has been through the use of Freight Quality Partnerships (FQPs), in which local authorities, transport operators, freight industry organisations and other relevant stakeholders such as environmental groups work together to identify the nature of the issue and preferred solutions. FQPs may be highly specific to a particular identified issue, or they may be more ongoing and consider the range of issues across the area concerned. While FQPs can cover the range of freight transport modes, most have focused superficially on road freight issues and solutions. A review of FQPs up to 2010 can be found in Allen et al., 2010.

A potential issue at local and regional level is that different local authorities in a region may have different priorities and policies. This can cause problems for freight operators – for example, delivery time restrictions or weight limits may differ between authority areas, which can lead to scheduling problems for operators. Hence placing freight planning within regional bodies such as regional combined authorities in city regions may well be the appropriate solution. This issue is raised, for example, in the Transport for the North's 'Northern Freight and Logistics Report', where it is stated that 'TfN will … seek to provide pan-Northern guidance and coordination to harmonise regulations for HGV access to urban areas. While there is unlikely to be a one-size fits all solution it is important that consideration is given to consistency of restrictions – for example on vehicle specification. This will help secure faster and more consistent improvements to the urban environment' (Transport for the North, 2016, p. 80).

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British International Freight Association (BIFA) https://www.bifa.org/

Civil Aviation Authority (CAA) https://www.caa.co.uk/

Driver and Vehicle Standards Agency (DVSA) https://www.gov.uk/government/organisations/driver-and-vehicle-standards-agency

Freight Transport Association (FTA) http://www.fta.co.uk/

Rail Freight Group (RFG) http://www.rfg.org.uk/

Road Haulage Association (RHA) https://www.rha.uk.net/

Traffic Commissioners (TC) https://www.gov.uk/government/organisations/traffic-commissioners

1.4 Maritime

Professor Alf Baird, Independent

1.4.1 Scope

This section considers institutional structures and funding for maritime transport infrastructure in the UK, at EU and national level, within devolved administrations, and at local level, as well as the role of the private sector.

1.4.2 Method

The report has been prepared based on information from UK Government, from the European Commission, from devolved administrations, relevant agencies and organisations, the private sector and from other published sources.

1.4.3 Institutional structure

1.4.3.1 European Union

The European Commission sets out a maritime policy for the EU based on the significance of the sector, with 75% of Europe's trade with other countries and 40% of freight within Europe shipped by sea, and some 400 million passengers using European ports every year (European Union, 2017). A key plank of the policy developed in 2014 is to promote a network of liquefied natural gas refuelling stations at the core maritime ports that make up the Trans-European Network, as well as a clean shore-side electricity supply, and tighter rules on maritime safety. The EU works with the International Maritime Organization (IMO) to promote safety and security standards.

Within the TEN-T policy, the EU plans to establish a 'core network' by 2030. EU funding for maritime transport is primarily focused on the Connecting Europe Facility (CEF) aimed at the core seaport network, with less focus on other ports that are listed as being part of the 'comprehensive network' (Figure 3) CEF funding is intended to leverage in much larger investments from other public (e.g. national, local) and private actors. The European Investment Bank (EIB) provides loans in support of EU CEF co-funded initiatives. This implies that maritime infrastructure projects must be national, local, and/or privately led, and with these entities providing most of the investment. Infrastructure outside of the core network is not generally funded now by the EU, aside from support for 'the poorest regions' (European Commission, 2014a). Motorways of the Sea (MoS) is the maritime 'pillar' of the TEN-T. The MoS concept builds on the EU's goal of achieving a clean, safe, and efficient transport system by transforming shipping into a genuine alternative to overcrowded land transport (European Commission, 2017).

Other EU institutions and bodies closely involved in regulating and/or funding the maritime sector include: European Maritime Safety Agency (EMSA), Maritime Affairs and Fisheries, and the European Investment Bank (EIB).

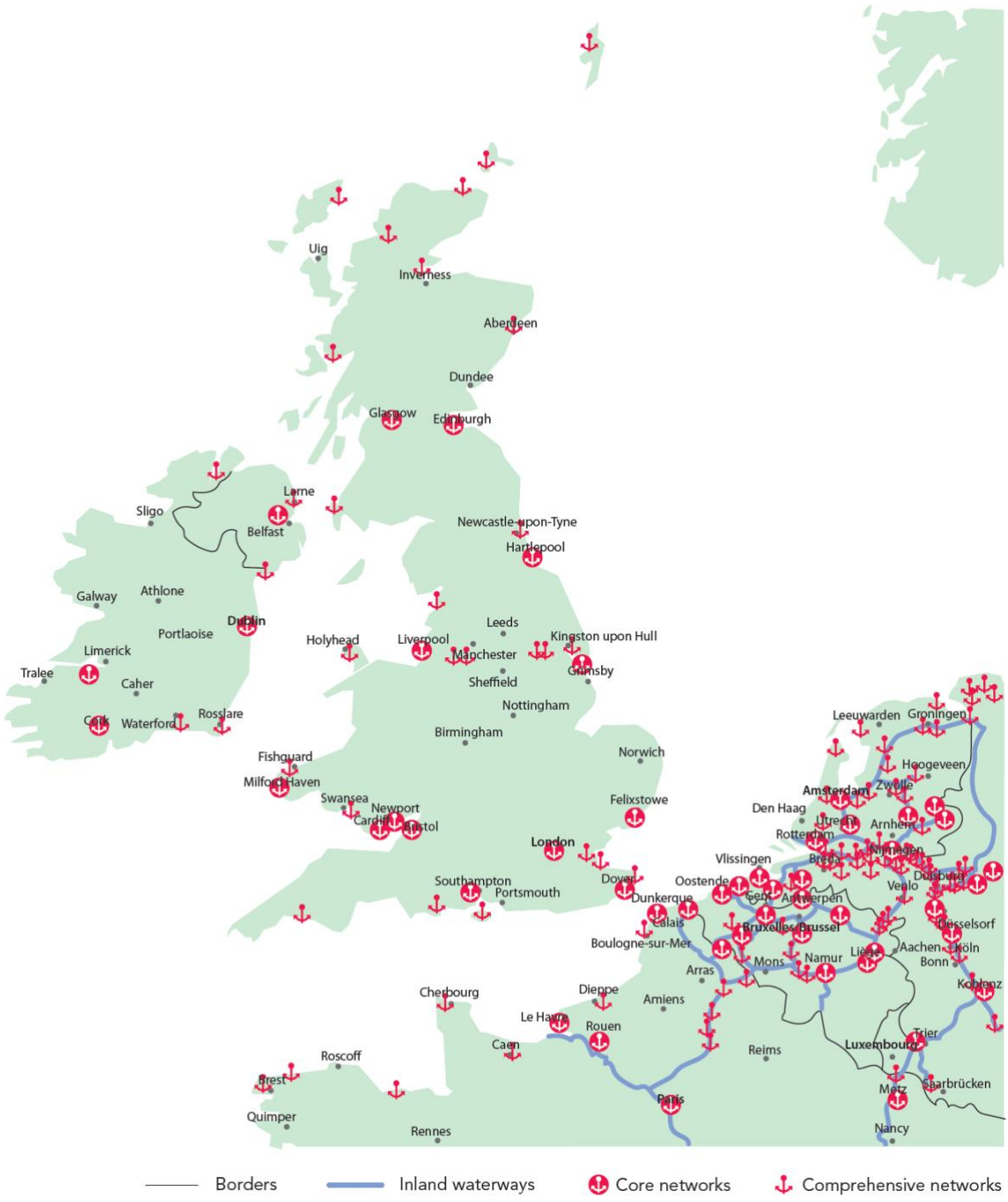

Figure 3: UK ports included within the EU TEN-T core networks (source: European Commission, 2018b)

1.4.3.2 UK Government

DfT describes its main responsibilities under 'Shipping' as twofold, namely: overall maritime strategy and guidance; and keeping shipping safe through the Maritime and Coastguard Agency (MCA) (National Audit Office, 2015). DfT has overall responsibility for maritime policy across the UK. Maritime policy is a broad area; in addition to shipping, it touches on marine business services like insurance, trade, environmental impacts and skills/ recruitment in the sector. DfT is supported by the MCA, the Marine Accident Investigation Branch (MAIB), and the General Lighthouse Authorities (GLAs) which provide a range of maritime delivery functions on behalf of the department (Department for Transport, 2015). The MCA is an executive agency of DfT whose responsibilities include:

- providing a 24-hour search and rescue service;
- enforcing ship safety;
- preventing pollution;
- promoting seafarer health;
- regulating and verifying safety and welfare standards by survey and inspection;
- registering and certificating ships and seafarers; and
- managing maritime pollution and response.

The MAIB is an independent unit within DfT which investigates marine accidents involving UK-flagged vessels worldwide, and all vessels in UK waters. The GLAs are executive non-departmental public bodies responsible for aids to navigation. The Canal & River Trust, formerly British Waterways, is responsible for over 2,000 miles of navigable rivers and canals in England and Wales (Canal River Trust, n.d.). In addition, there are several other government departments (OGDs), agencies and public bodies with responsibility for different aspects of maritime policy (see Figure 4). Figure 4 dates from 2015, but since then there have been minor changes to the departments, such as the amalgamation of DECC and BIS into one department (BEIS), and the introduction of a new department in DEXEU (the Department for Exiting the European Union) which are not shown in the figure.

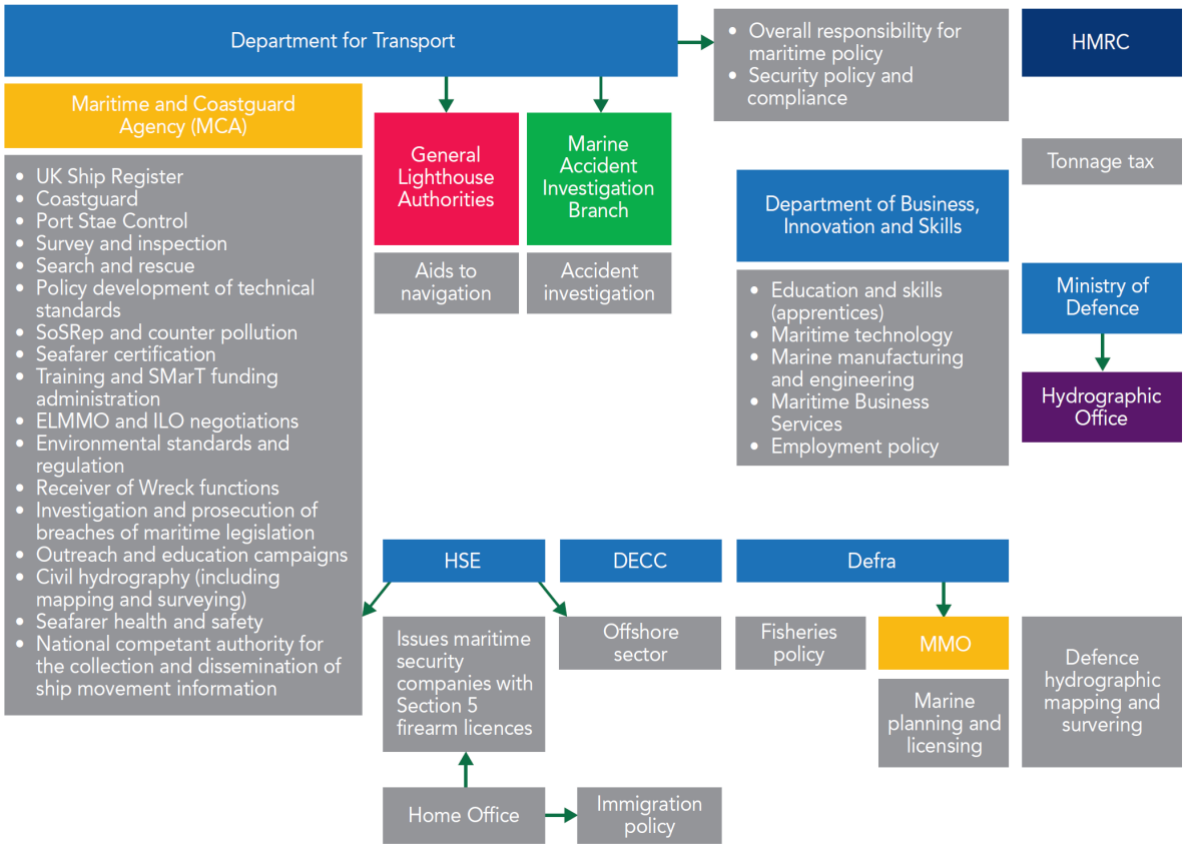

Figure 4: UK Government maritime structure (source: Department for Transport, 2015)

Within DfT, the Maritime Directorate (MD) has responsibility for maritime policy development. The MD's objectives refer to maintaining what it describes as a 'clear strategic vision', with the

focus on safety, security, maximising the UK's 'global maritime influence', meeting 'environmental and technological standards', and 'promoting' the sector (Paterson, 2017). There appears to be a clear absence of more definable objectives in terms of, for example, port and shipping capacity, required investment in ports, international competitiveness of seaports, trade and economic growth, and seafarer employment etc.

DfT undertakes research such as the Port Connectivity Study in England, which reported in 2018 (DfT, 2018a). There is now also work ongoing to develop the 'Maritime vision for 2050' including a call for evidence (Dft, 2018b) . A key assumption in the privatised governance model is that due to market forces private ports will provide new capacity as and when it is needed. Currently (late 2018) UK ports have spare capacity. Overall UK port traffic (tonnes) fell by 3% between 2015 and 2016 with some key sectors (dry and liquid bulk) declining, and the trade gap widening (Figure 5). DfT's 'Ports Good Governance Guidance' aimed at all statutory harbour authorities, and first issued in 2000, was published in March 2018 (DfT, 2018c). Self-governing statutory harbour authorities throughout the UK created by Acts of Parliament, including trust ports, are legislative matters reserved to Westminster.

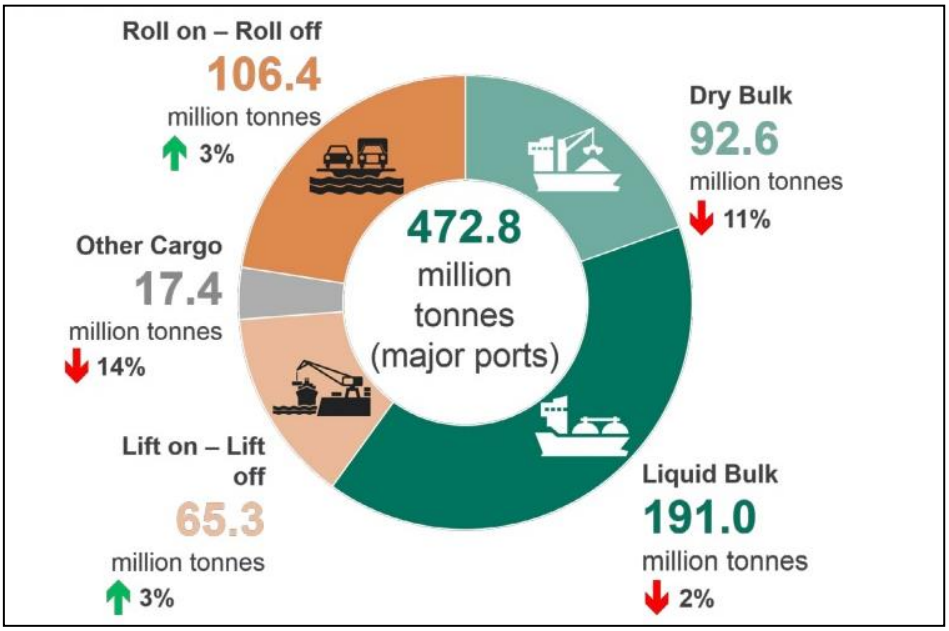

Figure 5: UK major port tonnage by cargo category 2016, and change since 2015 (source: Department for Transport, 2017c)

1.4.3.3 Devolved government

Scotland

Transport Scotland has established a Directorate for 'Aviation, Maritime, Freight & Canals' (Transport Scotland, 2017). The Directorate works within UK policy framework and legislation, tenders subsidised ferry services, and issues small freight mode shift grants. Two state-owned entities overseen by the Directorate are ferry operator Caledonian MacBrayne and port and ferry owner CMAL (Caledonian Maritime Assets Ltd) (see below). The Directorate administers provisions outlined in the Harbours, Pilotage and Ports Acts, as well as any related local legislation, deals with applications for Harbour Empowerment and Revision Orders within Scotland, and liaises with the UK Marine Management Organisation on issues of common interest. There is no distinct 'Scottish' maritime policy as such in terms of ensuring adequate seaport and shipping capacity to serve the needs of the Scottish economy (Nicholls, 2017). Scot-TAG (Scottish Transport Analysis Guide), provides transport practitioners working on Scottish-based transport projects with access to information and guidance when developing and assessing individual transport schemes and strategies (Transport Scotland, 2017).

Wales

The Welsh Government notes that policy and regulation of most ports in Wales is the responsibility of the UK Government (Welsh Government, 2017c). Part of this is scheduled to be devolved to Welsh Ministers from April 2018, notably powers to issue Harbour Revision Orders (HROs) as in Scotland. Major ports in Wales, as in the rest of the UK, are mostly privately owned with the remainder owned by self-governing trusts. The Welsh Ports Group is the only forum representing the views of the maritime sector in Wales. Coordinated by the British Ports Association and the UK Major Ports Group, it holds regular meetings with the Welsh Government and key decision-makers across the planning, transport and maritime sectors. Any major transport initiatives must be appraised using the WelTAG guidance (Welsh Government, 2017b) at the planning stage, to ensure they consider the economy, the environment and society.

Northern Ireland

The Northern Ireland Executive website offers no information on maritime governance activities or policy (Northern Ireland Executive, 2017). Major ports such as Belfast, Warrenpoint and Londonderry are trust ports, while Larne is privately owned.

1.4.3.4 Sub-national government

Regional Transport Partnerships and other such sub-national Transport Bodies (STB) aimed at strengthening planning and delivery of regional transport are involved in the maritime sector to varying degrees. National and devolved administrations work in close liaison with RTPs (and local authorities) to ensure that transport policy is coordinated. Such regional bodies tend to have a relatively limited role in the maritime sector, aside from working with multiple partners on matters of coordination and integration, such as ticketing, timetables, interchange enhancements, studies, consultations, etc. Involvement of STBs in the maritime sector appears to be more evident in areas where domestic ferry services proliferate, such as the Highlands & Islands, though also in London (e.g. Thames Clippers/TfL), albeit that in general the STB role tends to be less focused on capital investment in infrastructure (HITRANS, 2017, MBNA Thames Clippers, 2017). This in large part reflects their limited funding and resources.

1.4.3.5 Local Government

Local government acts as the planning authority for ports situated in their area. The key issues of concern surrounding port projects usually relate to:

- national/ regional/ county planning policy;
- ports policy (supply/demand and alternative sites);
- employment;
- transportation (public/private transport arrangements and rail freight implications);
- landscape/ecology; and
- historic environment (Essex County Council 2002).

However, ultimately the decision concerning a Harbour Order[9] is made at national/ ministerial level. Many local authorities throughout the UK also own ports and harbours. This includes one of the largest ferry ports – Portsmouth. However, most LA-owned facilities comprise relatively small harbours. In Scotland, a few local authorities do own a significant number of ports and piers, mainly used by ferries and for fisheries, and some maintain significant maritime assets

[9] A Harbour Order is used to change the legislation governing the management of a harbour.

and services, such as in Orkney and Shetland which have marine departments within the respective council structures (Orkney Islands Council Harbour Authority, 2017). These local authorities work closely with devolved government where investment in new infrastructure is required, although as budgets become constrained the onus is increasingly placed on the local councils themselves to cover port infrastructure costs and rising ferry subsidies, as in Orkney (Orkney Islands Council, 2015).

1.4.3.6 Regulatory bodies

The Maritime and Coastguard Agency (MCA) is the principal maritime regulating body for the UK. Individual statutory harbour authorities (of which there are several hundred in the UK) regulate port and shipping activities and operations within their defined areas of jurisdiction. Many of the latter are now privately owned, such as the major estuary regulating bodies for the Solent, Humber, Mersey, Tees, Forth, Clyde and Tay. There are some anomalies, as non-port owning regulatory trusts continue to operate at Harwich Haven and on the Thames (Port of London Authority, 2017). Transferring port (authority) regulatory functions (as well as port land property rights) to the private sector made UK governance of ports significantly different from most other countries, where such responsibilities are generally retained within the public sector (Baird, 1995). The Marine Accident Investigation Branch (MAIB) and the General Lighthouse Authorities (GLAs) undertake regulatory functions on behalf of the department. HM Revenue and Customs (HMRC) sets the policy on tonnage tax. The Department for Environment, Food and Rural Affairs (Defra) has responsibility for fisheries and marine conservation. The Marine Management Organisation (MMO) is responsible for non-devolved marine planning and licensing. The Department of Energy and Climate Change (DECC) covers the offshore energy sector. The Health and Safety Executive (HSE) regulates safety. The Home Office regulates immigration policy and maritime security. Many of the processes within a port estate that have the potential to give rise to complaints by local residents are controlled by the Environment Agency (SEPA in Scotland). The MoD has hydrographic survey responsibilities.

1.4.3.7 Companies and arms-length agencies

UK ports are today predominantly owned by private port companies/groups; nine port operators between them own and operate over 40 ports, accounting for more than 70% of the total tonnage handled in UK ports (UKMPG, 2018). Self-governing trust ports account for much of the remaining tonnage, with the balance handled by smaller private and local authority owned ports. The largest publicly owned shipping operator in the UK is Caledonian MacBrayne, which operates 27 ferry routes in the Clyde and Hebrides (Caledonian MacBrayne, 2017). Its main port supplier and ship provider is publicly owned CMAL (Caledonian Maritime Assets Ltd), which owns and operates the fleet of 32 ferries and is Statutory Harbour Authority for 16 ports, harbours and slipways across the West of Scotland and the Clyde Estuary (CMAL, 2018). Both organisations are owned by the Scottish Government.

1.4.3.8. Consumer representation

Several national organisations undertake a consumer representation role. This includes: the Freight Transport Association (FTA); British international Freight Association (BIFA); Chartered Institute of Logistics & Transport (CILT); Road Haulage Association (RHA); Rail Freight Group (RFG); CBI; and UK Chamber of Shipping. Around the UK there are several regional clusters and partnerships representing consumer interests such as: the Scottish Maritime Cluster; Mersey Maritime and Haven Partnership.

1.4.3.9. Other

The main port representative bodies are the British Ports Association (BPA) and UK Major Ports Group (UKMPG). Their memberships include most of the major private and trust ports.

1.4.4 Funding and financing

UK ports are predominantly self-governing and responsible for their own planning, development, and investment (Monios, 2017). Consequently, the UK government does not, directly, invest in standalone port infrastructure as this is a matter for the individual private owners (Department for Transport, 2017b). The recently completed ports connectivity study highlights the importance of and need for enabling inland infrastructure (DfT, 2018a). Of the £20 billion annual DfT spent on transport in 2014–15, 97% went to road and rail, with only 3% (some £600 million) left to support 'other' modes (i.e. maritime, aviation and others). Any enabling investments such as roads to/ from ports are recorded in the roads budget, not the maritime one. In 2014–15 DfT spent a total of £174 million on the MCA, with lesser amounts spent on lighthouse services provided by DfT 'sponsored bodies' the Commissioners of Northern Lighthouse and Trinity House Lighthouse Service. The only major investment listed under 'maritime' relates to a multi-year contract of £1.6 billion DfT has let to Bristow Helicopters to deliver 22 search and rescue helicopters by 2017. These will replace the search and rescue helicopter service, much of it on land as well as at sea, provided by the Royal Air Force, Royal Navy and the MCA.

As ports are overwhelmingly privately owned, the UK government leaves direct investment in them to the owners. Government notes that most UK ports are owned and operated in the private sector, so responsible for their own investment (DfT, 2017a).

Government views its responsibility to ensure that ports are connected to the existing national road/rail networks and that those networks can handle the road and rail traffic they generate. The recently completed Ports Connectivity study highlights the importance of and need for enabling inland infrastructure (DfT, 2018a).

DfT strategy for international (maritime) gateways is twofold: to trust the market to deliver, and to ensure connection to the transport network. Because ports have substantial impacts over a wide geographic area, decisions about their expansion will sometimes constitute nationally significant infrastructure projects under the Planning Act 2008. DfT sets out the framework within which decisions on future expansion of ports will be taken in the Ports National Policy Statement. The National Infrastructure Commission (NIC) aims to publish a National Infrastructure Assessment (NIA) once every Parliament – the next in 2018 – including an assessment of the long-term infrastructure needs. The NIC has an ongoing freight study, but the call for evidence does not explicitly mention ports (NIC, 2017), however its focus on wider freight and infrastructure issues is relevant to the ports sector as an integral part of that wider supply chain.

In terms of appraisal and evaluation, DfT applies the Five Case Model for transport business cases (Department for Transport, 2017a). Nevertheless, the private sector owns and operates most of the UK's crucial maritime transport infrastructure independently without central Government support. Investment at maritime facilities is dictated primarily by commercial considerations and by the (apparent) functioning of a competitive market underpinned by effective regulation. This hands-off approach to seaport investment and planning contrasts markedly with UK airport policy, despite the fact the UK's major airports are also privately owned. In 2015, the Airports Commission published its final report (Airports Commission, 2015) setting out recommendations to government for expanding aviation capacity in the UK, including a new runway at Heathrow Airport and various other measures.

Scotland

In 2016/17 the devolved Scottish Government spent more on maritime transport (i.e. ferries and their piers) than DfT spent for the UK as a whole. This is because the geography of Scotland is such that lifeline ferries are needed for its island communities, in ways not mirrored in the rest of

the UK. In 2016/2017 this amounted to £208 million (£167 million for ferry operating subsidy and £41 million for capital spend), compared with £201 million in 2015/2016 (Auditor General, 2017). In Scotland, as in the rest of the UK, no public funding is generally allocated to the major ports' standalone infrastructure, as it is mostly privately owned. Trust and private ports have received public funding where they provide harbour facilities for domestic 'lifeline' ferry services (e.g. Stornoway, Scrabster, Ardrossan, etc). In a diversion from prevailing (UK) policy, a major new £350 million port development promoted by Aberdeen Harbour Board, a trust port, is expected to benefit from public funding, including a Scottish Enterprise grant of £11.7 million (Aberdeen Harbour, 2017) plus additional funding from the Aberdeen City Region Deal.

Wales

A £2 million Ports Development Fund has been made available for Welsh ports in financial year 2017–18 (Welsh Government, 2017a).

EU

In terms of EU Motorways of the Sea (MoS) Connecting Europe Facility (CEF) funding (European Commission, 2018a), projects require cross-border collaboration and must involve: at least two EU ports (two core ones or one core and one comprehensive) from two different Member States; one maritime operator; and ideally hinterland transport operators. Various port infrastructure or facilities can be co-financed. Ships receiving EU support are required to serve the co-funded actions within the EU area for at least five years after the project end date. The CEF programme portfolio over the past several years amounts to 41 projects, corresponding to a total of €348 million of grant funding. Under the 2015 CEF call, 12 projects were selected corresponding to a grant funding of €85 million – an amount which is expected to generate investments worth €248 million. Funding extends over project duration, which is typically two to three years. In port infrastructure terms these are modest amounts and there are relatively few MoS projects involving the UK. Recent projects (2014) relate to improving environmental compliance and upgrade of existing North Sea MoS services (e.g. Immingham–Esbjerg) resulting in efficiency, capacity, quality and safety improvements to be implemented in the ports involved. One MoS project involves total costs of €10.5 million with the EU CEF contribution being €3.1 million (30%), the investment split between the two ports involved: Immingham and Esbjerg (European Commission, 2014b).

1.4.5 Major scheme example: Liverpool2

The Port of Liverpool is owned by Peel Ports Group, which in turn is owned, 50.1% by the Peel Group and 49.9% by Deutsche Asset & Wealth Management (DAWM) – formerly Reef Infrastructure. The £400 million Liverpool2 container terminal project involved construction of a new 854 m deep-water quay able to accommodate two 380 m-long 13,500 TEU ships. Construction started in 2013, although licences from the Marine Management Organisation (MMO) for dredging of over 5 million cubic metres from the seabed, much of it used for reclamation and creation of terminal land, allowed a start to the work in 2012. The terminal opened in November 2016. Three licences were needed from MMO to perform construction activities. In addition, planning activities for the project were carried out in conjunction with the Environment Agency and Natural England, to meet the environmental requirements. Plans for the terminal were initially given consent via a Harbour Revision Order issued by DfT in 2007 (Container Management, 2007). Sefton Council helped create and lead a Port Masterplan Group (PMG) early in the project's development (Sefton Council, 2012). The PMG was tasked with assessing likely environmental and traffic impacts, undertaking community engagement, and engaging with key stakeholders such as the Highways Agency, Sefton MBC, Peel Ports and Mersey Maritime. The Port Master Plan was viewed positively within the Liverpool City Region Deal (Liverpool City Region Local Enterprise Partnership, 2018).

The project falls under Annex I of the EIA Directive 85/337/EEC as amended by Directives 97/11/EC and 2003/35/EC. A full EIA was undertaken for the project, including environmental impact studies (EIS) and a public inquiry. Principal contractor appointed by Peel for construction of the project is Lend Lease. Project cost was £400 million, with £150 million of this financed through a long-term loan from the EIB (European Investment Bank, 2012). The bank financed the project because of its 'capability as a category A TEN-T (i.e. core) port to support maritime and inland transport as an alternative to other modes and thus contribute to transport sustainability'. The project was also dependent on a £35 million UK Government grant to dredge the Mersey to accommodate larger ships (BBC News, 2012). This grant was applied for by Sefton Borough Council from the Regional Growth Fund, albeit with the money subsequently going to Peel to cover dredging expense (Osborne, 2012). The choice of applicant was considered by competing ports to be 'a device' to circumvent the issues of state aid which would apply if Peel Ports had been the applicant. The European Commission subsequently decided that the aid for dredging was for public works in the general interest and did not therefore constitute state aid (European Commission, 2014c). This reflects common practice elsewhere in the EU where public bodies maintain navigation channels. The proposed Highways England scheme to upgrade the A5036 aims to reduce congestion on the main road serving the port.

Despite having significant environmental impacts, the appraisal for Liverpool2 revealed economic and social benefits to Merseyside and the broader North West region. This includes adding £5 billion gross value to the local economy, as well as 5,000 direct and indirect jobs of which 400 will be at the Port of Liverpool (Bam Nuttall, 2017). Peel Ports is a member of the government's Northern Powerhouse Partnership Programme, which aims to champion the North's strengths, as well as promote local developments across transport, skills and innovation, culture, and devolution. Environmental factors represented key issues within the regulatory landscape, followed by financial challenges. Support of the local council was crucial for the project, as was high-level political support at UK level. This in turn helped create support for grant aid deemed essential for the project to proceed. EU designations (core port status) assisted in terms of the EIB loan facility, the latter allocated on preferable public sector terms (i.e. longer repayment term than commercial loan).

The case reflects how different institutional actors discharge their responsibilities in the context of a major maritime infrastructure development, as well as funding challenges faced. This case highlighted the possibility of ports occasionally needing access to public funding to aid development.

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1.4.7 Annex: Division of maritime responsibilities within the UK Government

Government function	Responsible department/agency
Security policy and compliance	DfT
Policy development	DfT
Environmental standards and regulations	DfT and MCA
Administration of UK Ship Register	MCA
Coastguard	MCA
Search and Rescue	MCA
Port State Control (PSC)	MCA
Survey and inspection	MCA
Training and SMarT funding administration	MCA
Safety regulation (including port marine safety code)	MCA
Seafarer certification	MCA
EU/IMO and ILO negotiation	MCA
Policy development of technical standards	MCA
SoSRep and counter-pollution	MCA
Security compliance	MCA
Receiver of Wreck functions	MCA
Investigation and prosecution of breaches of maritime legislation	MCA
Outreach and education campaigns	MCA
Seafarer health and safety and medical certification	MCA
Civil hydrography (including mapping and surveying)	MCA
Accident investigation	MAIB

1.5 Rail

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1.5.1 Scope

This chapter considers the responsibility for heavy rail infrastructure in the UK. It will only cover what is referred to as the national rail network, and will not cover purely local railways, such as the London Underground or light rail. It will deal only briefly with Scotland, which is the subject of a separate note.

The national rail network of Great Britain comprises 15,799 route-km, and currently carries around 65 billion passenger-km and 18 billion tonne-km per annum (TSGB, 2016).

It should be noted that the arrangements relating to the small rail network in Northern Ireland are totally different from those of the rest of the UK. These arrangements will be noted briefly, but nothing said elsewhere in the chapter should be assumed to apply to Northern Ireland. Northern Ireland Railway has a route length of 362 km and carries around 400 million passenger-km annually.

1.5.2 Method

This chapter has been prepared using information from the websites of the European Commission, the British Department for Transport, the Office of Rail and Road, Network Rail, Passenger Focus, Transport for London, Transport for the North, Rail North, Northern Ireland Railways, the Welsh Assembly and a small number of academic papers already known to the author. Specific reports and papers are listed in the reference section at the end of the chapter.

1.5.3 Institutional structure

The overall structure of the British rail industry is illustrated in Figure 6. The individual organisations involved are described below.

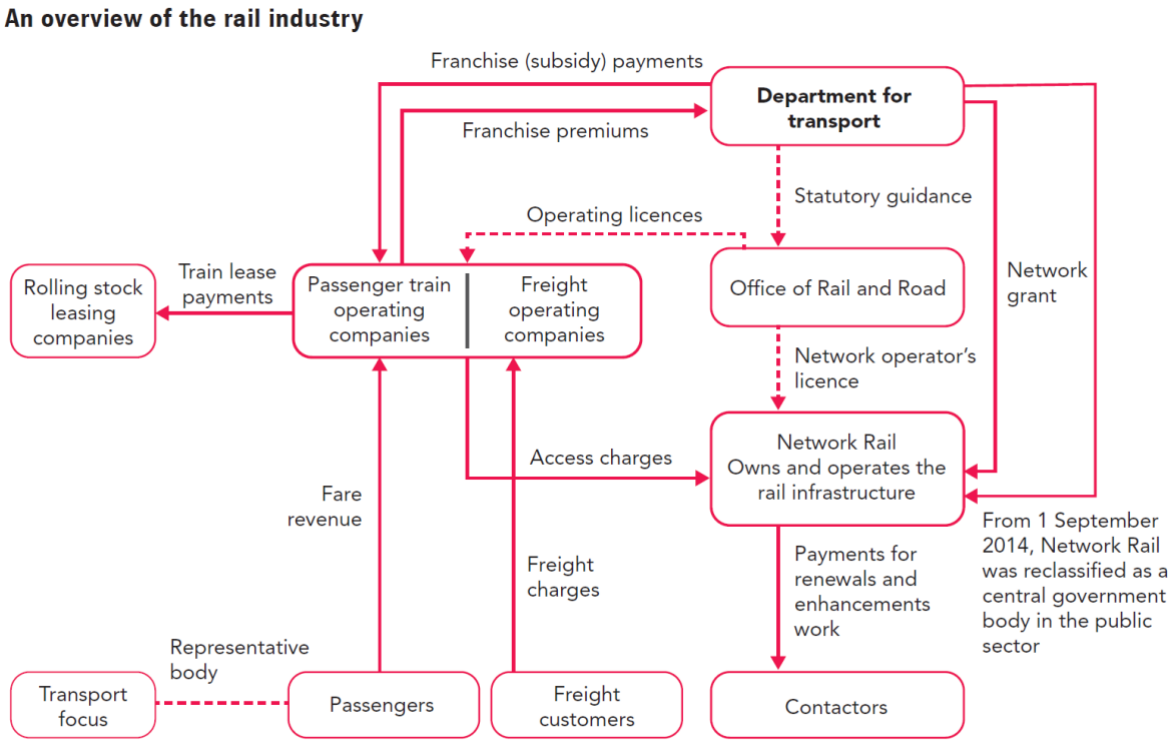


Figure 6: Structure of the rail industry (source: Adapted from National Audit Office (2015))

1.5.3.1 The European Union

The European Union intervenes extensively in the rail sector, most notably through its four railway packages of Directives which, among other things, require:

- Access to the rail network by all licensed freight and international passenger operators (from 2020 this will be extended to domestic passenger)
- From 2022, competitive tendering for public service contracts
- Creation of an independent regulator to ensure non-discrimination in pricing track access and allocation of capacity
- Arrangements, either through regulation or multi-annual contracts with the government, to bring pressure on the infrastructure manager to reduce costs and charges while ensuring that an efficient infrastructure manager is able to finance its activitiesFollowing standard European Technical Standards for Interoperability in all investments (although because of its particular situation as an island with only two direct rail links with other EU member states the UK has negotiated derogation from some of these provisions).

Except for those relating to interoperability, these provisions have had little influence in Britain, because Britain was generally already complying with them before the legislation was passed.

European rail legislation does not generally apply in Northern Ireland because of the limited nature of the services, which are classed as regional passenger (Northern Ireland Railways does not handle freight).

The EU also contributes funding towards planning and execution of rail projects on the designated Trans-European rail network, although for Western European countries the proportion of cost contributed is generally small.

1.5.3.2 The UK Government

The national rail network (including not just track, structures and signalling but also stations and many maintenance facilities and freight terminals), is owned, maintained and operated by Network Rail. The only significant exception is the high-speed line from London to the Channel Tunnel, which is privately owned although still maintained and operated by Network Rail. Until 2014, Network Rail was regarded as a private sector company limited by guarantee, with members including the government, train operators and general representatives of the public. However, in that year the Office of National Statistics ruled that, as its debts were guaranteed by the government, Network Rail should be regarded as a government-owned company.

This has led to significant changes in the institutional structure. Prior to 2014, Network Rail was regulated by the Office of Rail Regulation (ORR; since renamed the Office of Rail and Road) and borrowed on the open market, with government guarantee. Now, although ORR continues to have significant regulatory responsibilities for Network Rail, it is also monitored and supervised directly by the Department for Transport and is only allowed to borrow from the government, which itself sets borrowing limits (Bowe, 2015). DfT now approves and monitors enhancement projects directly rather than through the periodic review, taking account of advice from the National Infrastructure Commission.

Other bodies may contribute to investment costs – for instance train operators, local enterprise partnerships and the Welsh Assembly. The Hansford report (Hansford, 2017) recommended the further development of PPPs to ensure that projects are delivered efficiently and not delayed by Network Rail borrowing constraints. For some very large investments (HS2 and Crossrail) separate companies have been set up to plan and deliver them.

1.5.3.3 Devolved government

Responsibility for both franchising and infrastructure in Scotland is now devolved to the Scottish Government and is covered in section 2.1. There is currently no such arrangement in Wales; although the Welsh Assembly does play a major role in specifying services and managing the franchise, DfT remains the franchising authority (Champion, 2016a). However, it is intended that the next franchise for Welsh passenger services will be fully devolved to the Welsh Assembly and will include control of and investment in infrastructure on the Welsh Valleys commuter lines near Cardiff. Otherwise, the Welsh Government sets out its priorities and prepares business plans for rail infrastructure investment but largely in an advisory capacity (Champion, 2016b). The Welsh Assembly does have powers to invest in rail infrastructure which it uses on a relatively small scale (for instance to improve stations).

The small rail network in Northern Ireland, consisting solely of a limited suburban service and a small number of inter-urban lines including one to Dublin operated jointly with Irish Railways, is fully devolved. Northern Ireland Railways is a subsidiary of the Northern Ireland Transport Holding Company (NITHC), which is a public corporation established under the Transport Act (NI) 1967 to oversee the provision of public transport in Northern Ireland. Both infrastructure and train operations are entirely the responsibility of this body, which is responsible to the Northern Ireland Department of Infrastructure and markets its services as Translink. The Department of Infrastructure approves investment plans and funding proposals from Northern Ireland Railways, such as those in its latest five-year corporate plan (NITHC, 2017).

1.5.3.4 Sub-national government

In recognition that the planning of transport infrastructure needs a regional input, Transport for the North has been established as an association of local authorities and local enterprise partnerships to consider the need to enhance rail infrastructure in the region, among other things. It is purely an advisory body with no current responsibilities for actual procurement or maintenance of infrastructure. It is discussed further in another chapter. A similar body, Rail

North, has also been set up to work jointly with DfT with responsibility for specifying, awarding and managing rail franchises in the North of England. Rail North is now being merged into Transport for the North. A similar approach has also been proposed for other regions, and in particular the West Midlands.

1.5.3.5 Local government

Passenger franchises in London and Merseyside have been fully devolved to Transport for London and Merseyside Combined Authority respectively, but this does not include responsibility for infrastructure. In all metropolitan areas, Passenger Transport Authorities or their equivalent (see additional reports on local and regional transport bodies) are responsible for producing local transport plans, as are county councils elsewhere, and these may make recommendations regarding rail infrastructure. Local government (and LEPs) play a part in financing small rail infrastructure projects such as new stations.

1.5.3.6 Regulatory bodies

As noted above, the national rail regulatory body is ORR. It is responsible for monitoring the performance of Network Rail, enforcing licence conditions and determining Network Rail funding and required outputs through the periodic review. Regulation is divided into five-year control periods. Each control period starts with DfT publishing a statement of funds available (SOFA) and a High Level Output Specification (HLOS), while the Rail Delivery Group (RDG) publishes an Initial Industry Plan (IIP) and Network Rail publishes a schedule of proposed track access charges. It is the responsibility of ORR to consider these documents, to check their consistency and to produce a settlement which determines Network Rail regulatory outputs, charges and other funding. In doing this, it is required to regard the SOFA as binding, so that required outputs must be adjusted to fit the funds available.

In the current periodic review, due for completion in 2018 (PR18), the process has changed substantially, in that the HLOS only covers requirements concerning maintenance, renewals and operations, and not enhancement. Enhancement projects will be considered by DfT as and when they are fully specified and the business case completed. This is in response to problems in the last periodic review, when a number of projects were added in before they had been fully prepared, and this led to substantial overspending on budget (Bowe, 2015). But it does represent a substantial shift of control from ORR to DfT.

In the event of a disagreement over the settlement, Network Rail has the right of appeal to the Competition and Markets Authority, which also has a potential role in Competition Act issues, and has the power to start its own investigations into the rail sector, as it did on the issue of open access passenger competition (Competition and Markets Authority, 2016). The report recommended an expansion of open access competition in the passenger market and put forward a variety of models by which this could be achieved, but accepted that this would have to await franchise renewal, implementation of a PSO levy to make open access operators contribute to the costs of subsidised services and a revision to track access charges to ensure that open access operators contribute to the fixed costs of the rail system. DfT consulted on a PSO levy earlier this year, and ORR are currently consulting on revised track access charges.

1.5.3.7 Companies and arms-length agencies

As noted above, Network Rail is a government-owned company responsible for most rail infrastructure in Britain. Network Rail generates investment proposals through a long-run planning process, through which it makes long-run forecasts of demand and considers, on a route by route basis, needs for investment to enhance capacity and/or capability. It consults widely on this, and takes account of recommendations of the National Infrastructure Commission but takes decisions ultimately on the basis of its Governance of Rail Investment Projects (GRIP) appraisal process, which is designed to be consistent with DfT's WebTAG

(website transport analysis guidance) appraisal process and the Treasury Green Book. All Network Rail projects are subject to this procedure and are thus in effect subject to a WebTAG appraisal. However, its investment plans are reviewed by ORR, which has imposed a licence condition that Network Rail must meet the reasonable needs of its customers, and also now by DfT.

Passenger trains are operated by private sector train operating companies, mainly under franchises awarded by DfT; freight trains are operated by private companies on a purely commercial basis, as are a small number of open access passenger services. In general, train operators are not directly involved in providing and maintaining infrastructure, although they do sometimes contribute directly to investment costs and this is a development likely to be encouraged in the future (Hansford, 2017). Passenger operators do lease passenger stations and maintenance depots, and undertake some investment in passenger facilities, car parks etc., and freight operators often own freight terminals, while some other freight and maintenance depots are privately owned. In general, investment in freight terminals is a private sector activity, although obviously subject to the planning process and sometimes in receipt of government grants where it is deemed to provide social benefits in terms of reduced congestion and environmental impact by diverting traffic from roads. Freight facilities are considered in more depth in another chapter.

Following the McNulty Report (2011), which argued that a major source of cost increases was misalignment of incentives for Network Rail and train operators to work together to optimise the system as a whole, new mechanisms were set up to involve train operators more extensively in infrastructure decisions. Most relevant to this report is the setting up of the Rail Delivery Group (RDG), which brings together operators and Network Rail in a single organisation for planning and policy issues. RDG is responsible for producing an integrated Initial Industry Plan as an input into the periodic review process (see above). DfT also encourages the formation of alliances between Network Rail and train operators, mostly for specific purposes such as station improvement. In one case, the South West Alliance, the alliance went much further than this, involving creating a single management structure and sharing any cost and revenue deviations from plan. However, this has now been dismantled, and proposals for a similar arrangement in the case of ScotRail have yet to be concluded, although the same person fulfils the role of managing director of the train operator and route director for Network Rail.

1.5.3.8 Consumer representation

Transport Focus is the body formally required to examine rail industry performance from the point of view of consumers and to conduct a rolling survey of quality of service and passenger satisfaction as well as hearing complaints. It is a non-departmental public body sponsored by DfT.

1.5.4 Funding and financing

The financing of the rail industry is outlined in Figure 7. There are two main sources of finance, namely passengers and government. A small amount of finance comes from other sources such as freight customers and property.

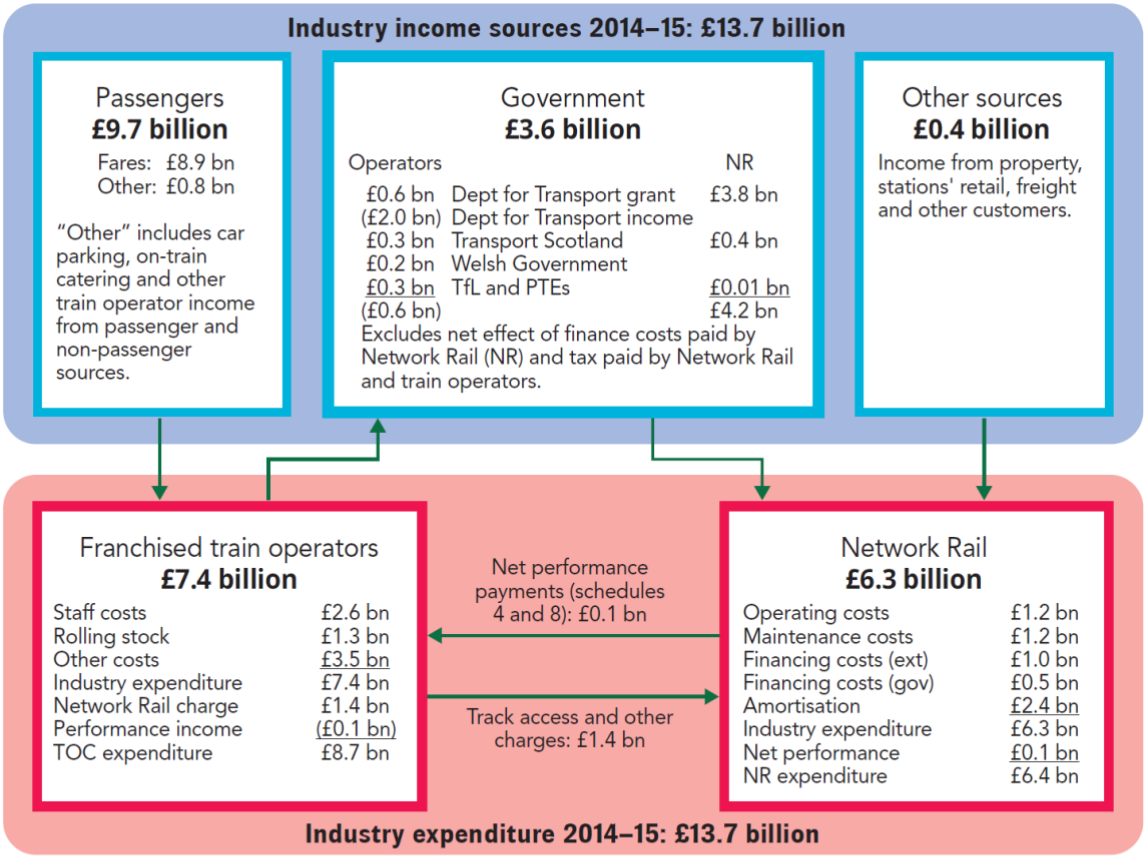
Central government finances the industry in three ways:

- By payments under passenger franchises (but this source is now negative, as premiums from profitable franchises outweigh subsidies to unprofitable ones).

- By Network Grant to Network Rail. This covers those costs of Network Rail not met from track access charges, given ORR assumptions about what may be achieved in terms of efficiency improvements, including the cost of servicing past borrowing.

- By lending to Network Rail for investment.

As noted above, there are also small contributions direct from devolved governments and local authorities.



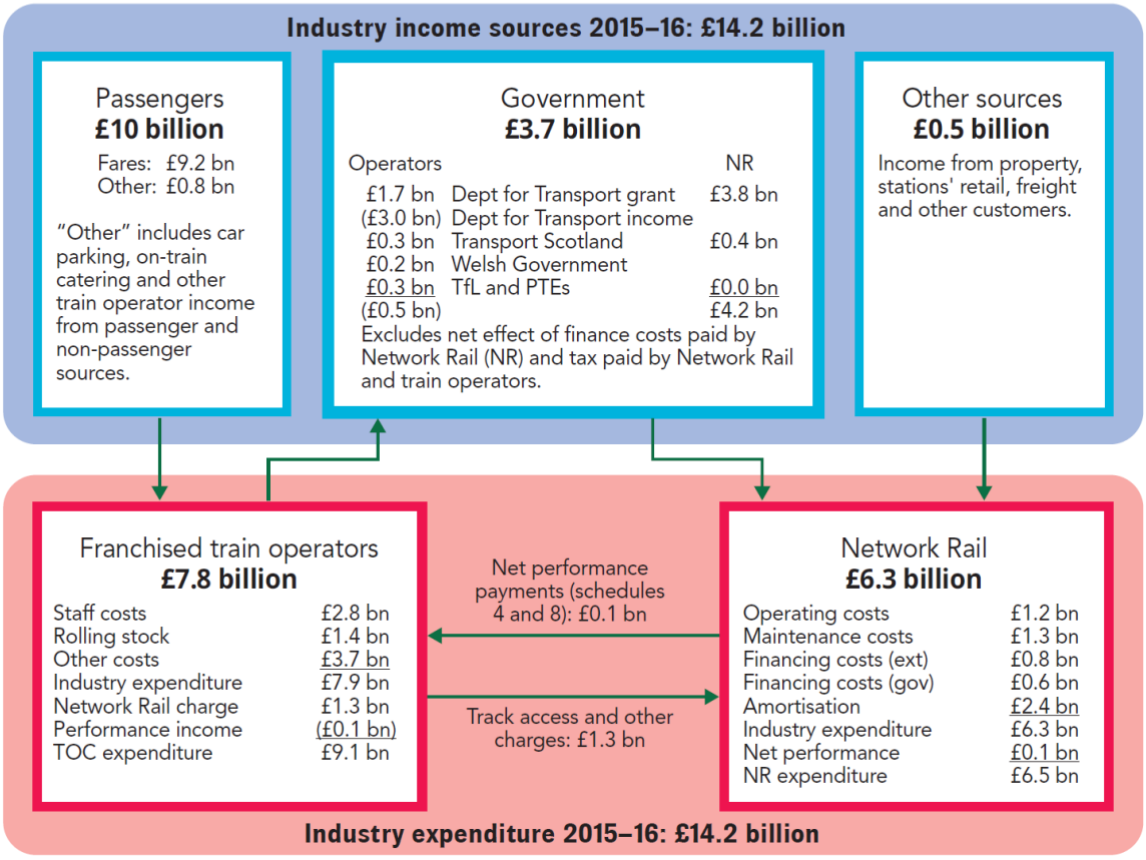


Figure 7: Financing of the rail industry (source: ORR, 2017)

1.5.5 Major scheme examples in rail

Major rail projects tend to have long gestation periods, and to be heavily influenced by political pressure. Three examples are briefly considered here.

Crossrail and HS2 both have their origins in studies for the then Strategic Rail Authority (SRA) prompted by continued growth in rail demand leading to anticipated pressures on capacity. Both studies examined a range of options, using the appraisal criteria then in use by SRA, and reported in 2002.

In the case of **Crossrail**, the best option was found by SRA to be a Liverpool St–Paddington tunnel used by express services, but pressure to benefit inner suburbs led to adoption of the current service pattern. Crossrail was only approved after strong pressure from business interests led to acceptance of the case for wider economic benefits following a report from the highly respected economist Tony Venables, and following the introduction of a supplementary business rate to ensure that businesses which benefited from it helped pay for it. The decision to go ahead was taken in 2005, and It was taken forward jointly by DfT and TfL through a jointly sponsored TfL subsidiary company established specifically for the purpose (Worsley, 2011).

The SRA study found a good case for a new domestic high-speed line, with the best route being a Y-shaped one serving London, Birmingham, Manchester and Leeds with trains continuing to serve stations beyond. However, at the time the railway was in financial crisis following the Hatfield accident, and the scheme was not taken forward. A further study by Network Rail reaffirmed the case for a **London–Birmingham/ Manchester high-speed line**. But only in 2009 did the government set up a new company, HS2 Ltd, to pursue it (Nash, 2013).

The **Great Western electrification project** emerged essentially as a result of strong pressure from the rail industry to reverse a then-existing rule that electrification projects had to be appraised over a very short time period, on the basis that uncertainty due to the emergence of new fuels such as biofuels made it too risky to consider longer-term benefits. Network Rail then undertook a study which found an economic case for electrifying a large number of lines (Network Rail, 2009). The Great Western main line was not the highest priority in terms of the economic case, but the need to replace life-expired rolling stock led to it being given priority. The franchise agreement was approved in March 2015. This has since suffered from severe overruns in terms of cost and time scale (NAO, 2016).

1.5.6 Critical governance challenges

The current arrangements in the rail sector involve many strengths in terms of the role of competition in achieving efficiency in train operations, the role of an independent regulator in ensuring efficiency and non-discrimination on behalf of the natural monopolist, Network Rail and the clarity of the role of government in terms of specifying its requirements and the funding available. However, the arrangements have come under strain from a number of sources, as described below.

1. Concern over Network Rail efficiency

In recent years, Network Rail has failed to meet the targets for costs (particularly for renewals) set it by ORR, and has experienced substantial overruns in cost and time on some major projects (most notably Great Western electrification, as noted above). The resulting financial crisis has been exacerbated by the simultaneous change in the status of Network Rail, meaning that it can only borrow up to a predetermined limit.

This is leading to changes in governance arrangements, including more direct monitoring and control of the project by DfT and more decentralisation of Network Rail into a systems operator and a set of individual routes (Shaw, 2016). Thus Network Rail centrally will remain responsible for planning, capacity allocation, track access charge proposals and investment, while individual routes will manage operations and maintenance. Ultimately it may be that routes will be concessioned to the private sector, either as free-standing bodies or as part of vertically integrated franchises (the latter was suggested by the McNulty report).

2. Devolution

Although considerable progress has been made regarding devolution of responsibility for rail services, the only case to date of devolution of infrastructure is that of Scotland. There are demands from various bodies, including the Welsh Assembly and Transport for the North, for at least a degree of devolution of infrastructure. One reason has been a perception that the current arrangements are leading to an excessive concentration of investment in the South East. So far, these suggestions have been resisted on the grounds that the rail infrastructure of England and Wales is a network, with much overlapping of services on the infrastructure; thus a single systems operator needs to take charge of planning and investment for the system as a whole. This would continue even if individual routes were concessioned, as would ORR oversight. As noted above, bodies such as Transport for the North and Integrated Transport Authorities currently have a purely advisory role regarding investment, except where they can finance it out of their own funds. Currently this is confined to small projects.

3. Funding investment

There is concern that the new arrangement which limits Network Rail to borrowing from the government subject to a strict cash limit will make financing investment difficult. This is leading to exploration of new arrangements for introducing private capital into rail infrastructure through PPPs, as well as attracting more funding from beneficiaries such as developers (see for instance the Hansford Report as noted above – Hansford, 2017). It is likely that assets created through PPPs would be leased to Network Rail, so that the private partner would bear risks on the cost side but not regarding revenue.

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1.6 Roads

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1.6.1 Scope

This chapter considers the responsibility for road infrastructure in the UK. It will deal only briefly with Scotland, which is the subject of a separate chapter.

1.6.2 Method

This chapter has been prepared using information from the websites of the British Department for Transport, the Office of Rail and Road, the National Audit Office, UK Parliament, Highways England, Passenger Focus, Transport for London, Transport for the North, the Welsh Assembly, Department for Infrastructure (Northern Ireland) and a small number of academic papers already known to the author. Specific reports and papers are listed in the reference section at the end of the chapter.

1.6.3 Institutional structure

In Britain the ownership and management of roads is divided into two:

- **Strategic roads**, which cover motorways and 'trunk' roads. Trunk roads are roads which are classed as strategic routes. These are owned and managed by Highways England in England, Transport Scotland in Scotland and the Welsh Government in Wales.
- **Local roads**, which cover the remaining roads in public ownership. There are owned and managed by local authorities in England, Scotland and Wales.

Table 2: Road lengths by country and road type source: DfT (2017a) and DfI (2017, 2014) for Northern Ireland

Nation	Strategic road length (km)	Local road length (km)	Total (km)
England	7,100	296,300	303,400
Scotland	3,200	56,100	59,400
Wales	1,700	32,200	33,900
Northern Ireland	1,200	24,400	25,600

In Northern Ireland ownership and management of all public roads falls to the Department for Infrastructure.

1.6.3.1 Strategic roads

In terms of strategic roads there is a distinction between England, where Highways England is a separate government-owned company, and Wales and Scotland where strategic roads are managed by a government agency. Thus, in England the strategic roads infrastructure manager is at arm's length from central government. This in turn gives rise to the need for more involved governance structures.

The overall governance structure of strategic road infrastructure in England is illustrated in Figure 8[10]. The individual organisations involved are described below.

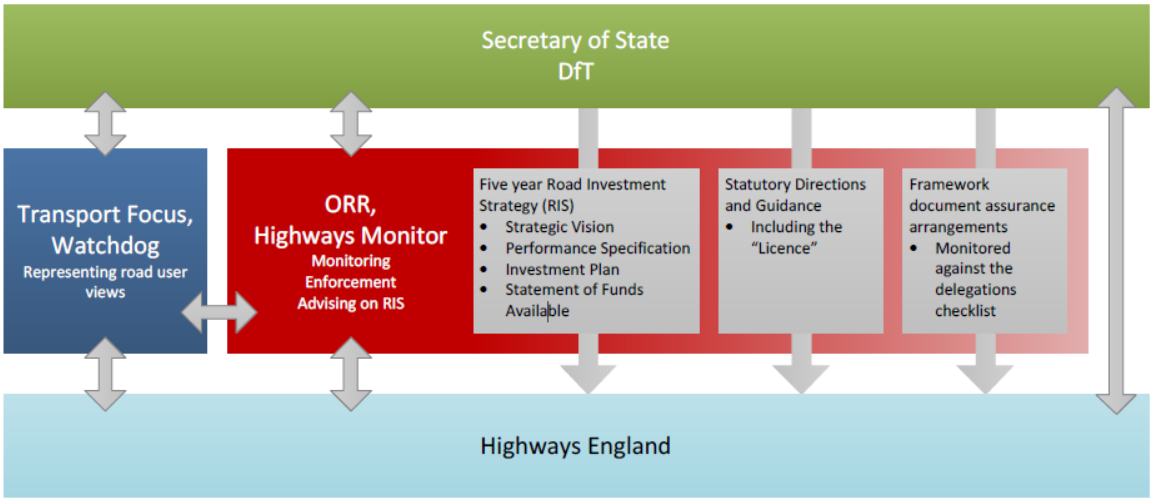

Figure 8: Institutional structure for strategic roads in England (source: Office of Rail and Road, 2015)

1.6.3.2 Governmental actors on strategic roads

The Department for Transport 'sets the government's strategic goals for the road network; approves the five-yearly Road Investment Strategy and holds Highways England's Board to account for its governance of the Company and its delivery of the strategy' (NAO, 2017).

The formation of Highways England was in response to the Cook Review, which concluded that the existing arrangements with the Highways Agency – an agency of government – was suboptimal. The findings of the review are summarised in Figure 9 and led to the formation of the current structure.

The Road Investment Strategy is the process by which the maintenance and investment plans of Highways England for a five-year period are approved by the Secretary of State for Transport. The process is similar to that in rail in the sense that there is an interplay between infrastructure manager who proposes plans (see section 3.4), the Department for Transport which funds plans, and the Highways Monitor which advises the Secretary of State on the viability of the plans.

[10] The licence is the document by which the licence holder (Highways England) receives its legislative functions as strategic highways company. As a result, the Highways England is the highway authority, traffic authority and street authority for the strategic road network. (DfT, 2015)

The main findings of the Cook Review	The government's response
The Highways Agency's Board was advisory, so lacked the decision-making powers to make long-term, strategic view of the needs of the network. The Department, however, which was responsible for providing strategic direction, had not given the Agency a clear and consistent picture of its long-term aims.	The Highways Agency would become a government-owned company – Highways England – so that it could develop a more strategic approach to investment on the network, operate more flexibly and efficiently, provide better customer service and get better value for money from investment.
The annual funding of the Agency made it more vulnerable to cuts than other parts of transport in difficult times. Stop-start funding and the related lack of certainty in the budget from year to year made it harder to secure efficiencies through long-term agreements with suppliers that could offer better value for money.	The Department announced the first Road Investment Strategy, a five-year planning model similar to that used by Network Rail since 2002.
The Agency had to abide by rules designed for office-based civil service departments. This generated red tape and limited its ability to attract skilled specialists and project managers.	Highways England is largely subject to civil service guidelines on pay, but is able to ask HM Treasury for dispensation to pay specialist staff more than the standard civil service pay structure.
The work carries out by the Agency lacked a clear yardstick with which to measure performance, to help show where greater savings could be made.	The government established an independent body, through the Highways Monitor, part of the Office of Rail and Road, to monitor and help improve the performance and efficiency of Highways England.

Figure 9: The Cook Review and Government's response (source: National Audit Office, 2017)

1.6.3.3 Regulatory bodies on strategic roads

As noted above the Office of Rail and Road has a function of Highways Monitor.

At a high level [the role of Highways Monitor] has four main aspects:

- to monitor how well Highways England is delivering against the Performance Specification, Investment Plan, and aspects of its licence; to benchmark the performance of Highways England against other highways operators; to publicly report our findings; and to advise the Secretary of State;
- if there are problems with delivery, to require improvement and potentially levy a fine (together, 'enforcement');
- to advise the Secretary of State on the development of the next Road Investment Strategy (RIS) including advice on performance metrics and deliverable efficiencies; and
- to advise the Secretary of State on any other relevant issues as requested.' ORR (2015, p.5)

As such, the Highways Monitor is not an economic regulator. It has limited powers and primarily operates as an advisor to the Secretary of State. However, to discharge this advisory role, it has to undertake similar exercises, such as performance benchmarking, as it would if it was an independent economic regulator.

There is no directly equivalent body for Scotland and Wales given the agency structure. Both the Welsh Audit Office and Audit Scotland do have a general oversight role of government spending in the respective jurisdictions.

1.6.3.4 Local roads

Local roads are maintained and operated by local authorities with highway powers. There are 152 such authorities in England, 32 in Scotland and 22 in Wales. These local authorities have a legal duty to maintain the highway under section 41 of the Highways Act 1980. To help discharge this duty there are standards of repair that they must follow. For local highway authorities these are set out in *Well-maintained Highways: Code of Practice for Highway Maintenance Management*, published in July 2005 by the UK Roads Liaison Group (UK Roads Liaison Group, 2005). While this is not a statutory document, it is published with the backing of central and local government (UK Parliament, 2016). Local road funding is discussed in section 1.6.4.

1.6.3.5 Devolved government

Responsibility for the strategic road infrastructure in Scotland is now devolved to the Scottish Government and is covered by a separately in section 2.1. Similar arrangements exist for Wales. In both cases an agency approach to management of the Strategic Road Network is adopted. Further, as in England, local authorities have responsibility for local roads, although their funding arrangements are separate from the English arrangements, as discussed in section 1.6.4.

1.6.3.6 Sub-national government

In recognition that the planning of transport infrastructure needs a regional input, Transport for the North has been established as an association of local authorities and local enterprise partnerships to consider the need to enhance both rail and road infrastructure in the region, among other things. Currently it is purely an advisory body with no current responsibilities for actual procurement or maintenance of infrastructure. It is discussed further in chapter 2.2.

1.6.3.7 Companies and arms-length agencies

Highways England

As noted above, Highways England is a government-owned company responsible for the maintenance and operation of the strategic highway network in England. Highways England generates investment proposals for each five-year Road Investment Strategy (RIS). Highways England approaches this by considering 18 routes and developing route strategies which consider the future demands on each route and resulting investment needs (Highways England, 2016). There is a route strategy for every part of the Strategic Road Network. In addition to these strategies, Highways England undertakes strategic studies on specific parts of the network. An example is the Trans-Pennine Tunnel study to consider connectivity between Manchester and Sheffield. It consults widely on both types of strategies including with local authority stakeholders, and takes into account work by the National Infrastructure Commission.

Contracts for outsourcing

In addition to Highways England, companies are involved in the provision of maintenance and investment on both the strategic and local road network.

Local authorities operate a mix of maintenance delivery models ranging from in-house provision to private finance initiatives (e.g. Sheffield with Amey).

The network of Highways England is divided into 12 contract areas, operating Managing Agent Contracts (MACs). Further, approximately 15% of the Strategic Road Network in England is provided via a range of private design, build, finance, and operate (DBFO) concessionaires. An example is the M1/A1 link road (now part of the M1 J43-47) and the M6 Toll Road. These contracts are typically concessions lasting 25–30 years. They are awarded under competitive tender and so should yield cost efficient outcomes if designed effectively.

Section 106 agreements

Section 106 planning agreements with property scheme developers can, at the margin, be an important way to finance new road infrastructure in order to accommodate new development. Such contributions tend to be a relatively small proportion of total road investment since any contribution has to be proportionate with the size of the development. In many areas Section 106 agreements for funding have been replaced by Community Infrastructure Levy charges.

1.6.3.8 Consumer Representation

Transport Focus is the body formally required to examine the performance of the strategic roads from the point of view of road users. It is a non-departmental public body sponsored by DfT. Identifying road users is not a trivial task, as there are both drivers (covering freight and personal) and other users, e.g. pedestrians and cyclists. A further complication is that users of roads are not often aware of when they move from the local roads to strategic roads, and so eliciting a true representation of customer satisfaction is challenging (Transport Focus, 2016).

For local roads, local highway authorities are accountable to their residents through the political system. Over 100 of the 152 local authorities with highway responsibilities participate in the National Highways and Transportation (NHT) public satisfaction survey which samples households in each authority on an annual basis and covers satisfaction across a broad spectrum of highway services, from quality of carriageway to provision of local bus services and maintenance of rights of way. Participation in this survey does provide local authorities with some credit within the incentive fund criteria discussed in section 1.6.4.

1.6.4 Funding and Financing

This section considers arrangements in England and Wales only. Scotland, other than for comparative data, is considered in a separate chapter 2.1.

1.6.4.1 Strategic roads

The spend per strategic road mile for each area in the United Kingdom is shown in Figure 10. It shows that spend per road mile is largest for England, followed by Scotland and Wales. Northern Ireland spends markedly less per strategic road mile.

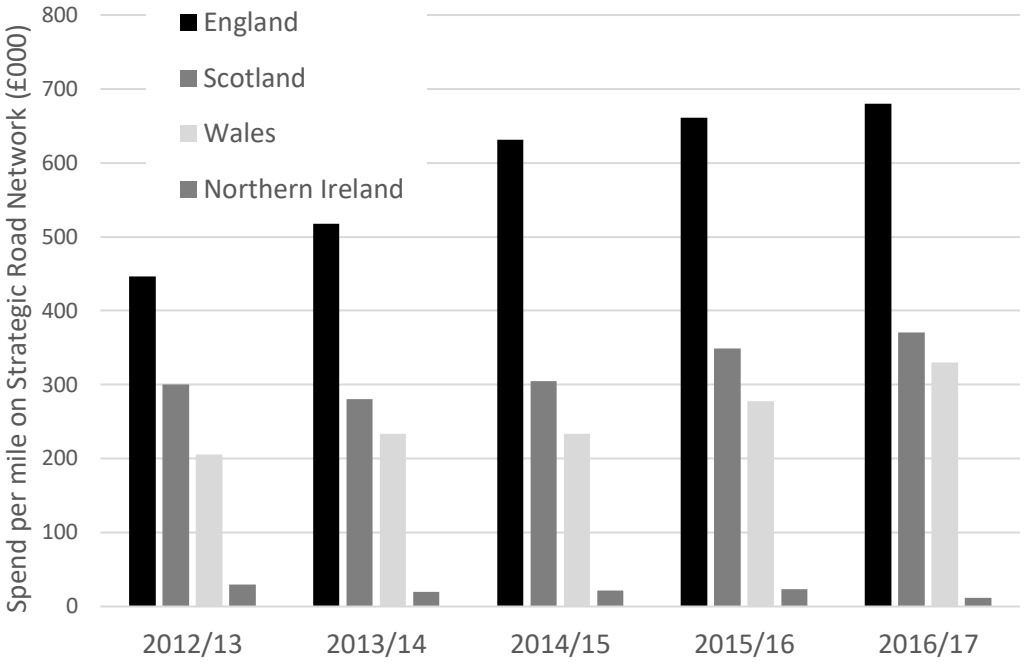

Figure 10: Strategic Road spend per strategic road mile (£000's). Source: HMT Country and regional analysis, 2017)

Highways England are funded by central government and as such they have access to government borrowing. Figure 10 shows a breakdown of expenditure for the previous financial year. Nearly half of all expenditure is on capital renewals or enhancement (improvements). Figure 11 highlights the large planned increase in capital spending in the current RIS period.

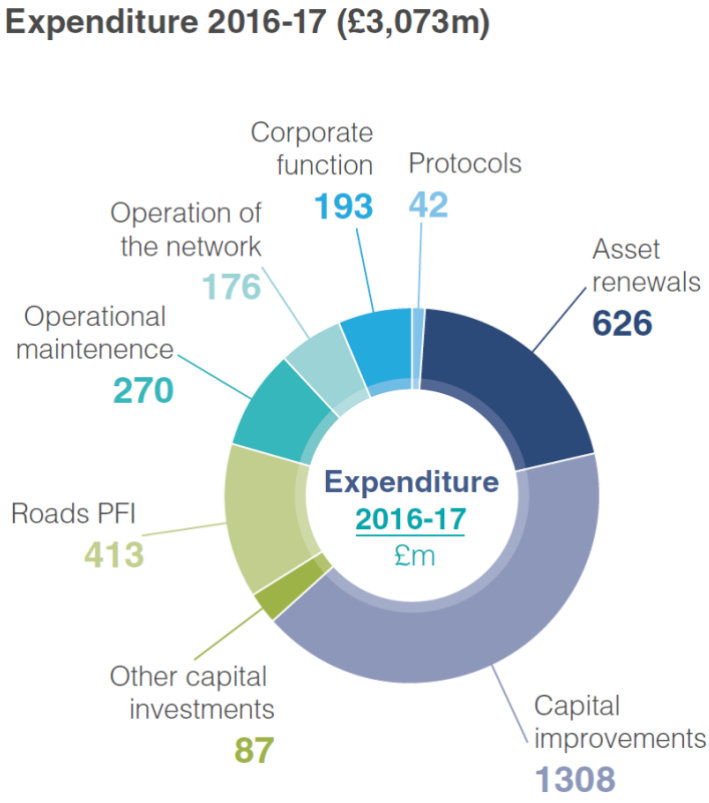

Figure 11: Highways England Expenditure 2016-17 (source: Highways England, 2017, p. 58)

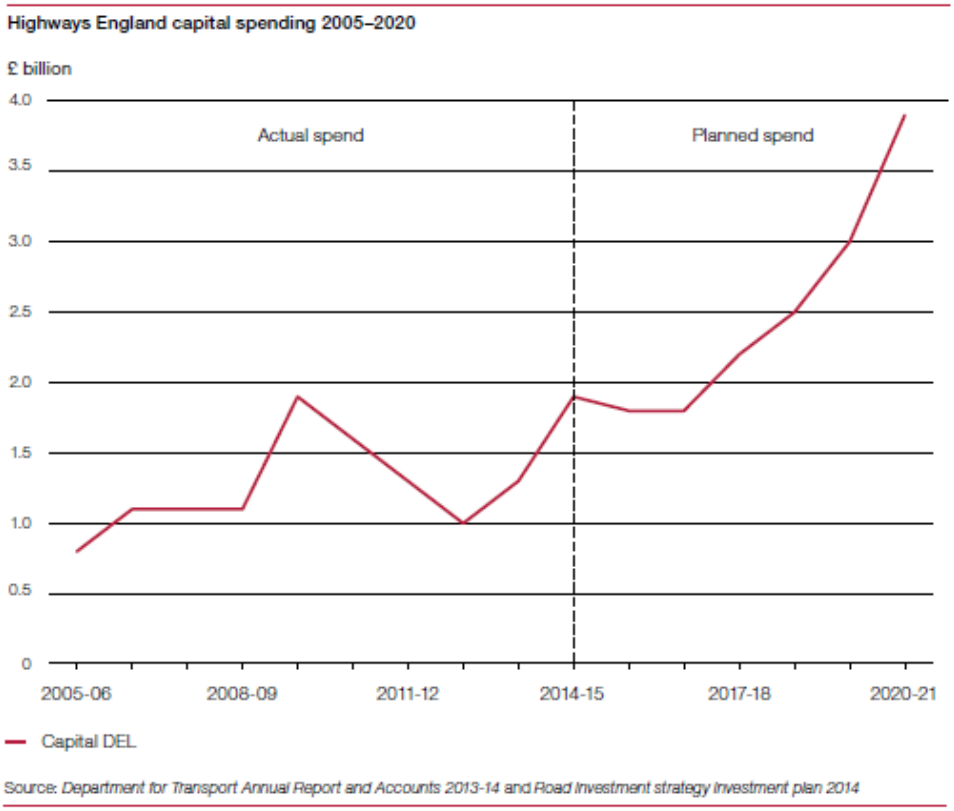

Figure 12: Planned capital spending for Highways England (source: National Audit Office, 2016)

1.6.4.2 Local Roads

Local authorities receive revenue to maintain and develop local highways from central or devolved government as well as some developer contributions (Section 106 agreements or CIL) for enhancements in response to new developments. They can also use their own resources, such as revenue from council tax and parking fees. Importantly, most central government revenue is not ring-fenced for highways infrastructure. Figure 13 summarises the relative funding per road mile for each part of the UK. This shows that England receives more per road-km than other areas. The funding for local roads is about tenfold less per road-km than for the Strategic Road Network in all locations except Northern Ireland.

Figure 13:Local road spend per mile 2016/17 (£'000). Source: HMT Country and regional analysis (2017)

Figure 14 summarises the various sources of central government funding for English local highway authorities, and these are explained in Figure 15. Needs funding and Pothole Action Fund are allocated using a formula. The Challenge Fund is funded through competition. The first tranche of NPIF was paid by formula but phase two was paid through competition. The Incentive Fund is interesting as it requires local authorities to demonstrate (through self-assessment) that they are following good asset management processes, though the award is also allocated by formula. As such this could be viewed as some limited incentive regulation on the part of DfT. Figure 14 was correct when produced, but it does not include the additional £420m agreed by the Chancellor in October 2018 for local highways maintenance (Hammond, 2018).

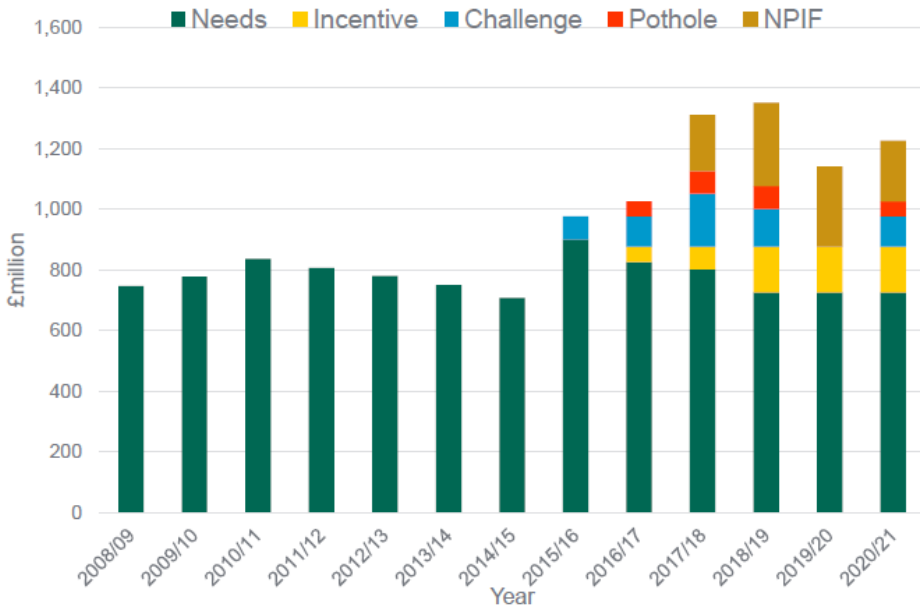

Figure 14: Funding for local highways in England (source: Kemp, 2017, p. 15)

Fund Name	Description	How allocated	Ring-fenced for highways?
Integrated Transport Block	For small transport improvement projects	Formula	No
Highways Maintenance Needs Fund	To maintain local road network	Formula	No
Highways Maintenance Incentive Fund	Additional maintenance funding based on efficiency improvement self-assessment	Formula	No
Highways Maintenance Challenge Fund	For projects not possible to complete with Highways Maintenance Needs Fund	Bidding process	No
Local Growth Fund	For infrastructure to support Local Enterprise Partnerships' (LEPs) plans to deliver growth	Bidding process	No
Pothole Action Fund	To repair potholes on local roads	Formula	Yes
National Productivity Investment Fund (NPIF)	Focus on housing growth and removing barriers to productivity growth	Bidding process	No
Safer Roads NPIF	To make the 50 most dangerous sections of the local road network safer	Targeted funding	No
Resilient Roads	To repair flood damaged roads and to make the network more resilient	Targeted funding	No

Figure 15: Explanation of funding sources (source: Mayat (2017) analysis of Kemp (2017)) and personal correspondence with DfT)

1.6.5 Major scheme examples road

Smart motorways

Traffic on the Strategic Road Network is projected to increase by up to 60% by 2040 (Transport Select Committee, 2016). 'Smart motorways' is a term used to describe a motorway where the hard shoulder has been converted into a running lane, which can either be active at peak times, in the case of earlier schemes, or permanently active in the case of more recent schemes (so-called all lane running schemes). Smart motorways include variable speed limits which can be varied according to traffic conditions, advanced road user information systems, emergency lay-bys and various types of sensor technology to detect emergency incidents.

The primary motivation for smart motorways is that traditional motorway widening (retaining the hard shoulder) is very expensive. The Transport Select Committee (2016) highlights that widening the M42 to a full three lanes would have cost between £21.4 million and £35.0 million per road-mile compared to £9.0 million per road-mile for the smart motorway alternative. By the end of 2025 (the end of the second RIS), 300 miles or 10% of the motorway network is in line to be smart motorway, as illustrated in Figure 16.

While Smart Motorways are a cheaper way to increase capacity, the Transport Select Committee (2016) was sceptical about the safety case for the current model of implementation – all lane running. In particular it noted that:

‘While the case for increasing motorway capacity is clear, the earlier forms of smart motorway have, by Highways England’s own analysis, a lower risk profile than All Lane Running. The type of scheme used on the M42 has a track record of safety and performance, and it is perverse for the DfT to continually lower the standard of the smart motorway specification, while presenting such changes as a logical next step. The permanent removal of the hard shoulder is a dramatic shift from previous smart motorway schemes. There is no one-size-fits-all solution and each proposal needs to be justified on its own terms.’

Additionally, the Transport Select Committee advised that:

‘*The Department should not proceed with a major motorway programme on the basis of cost savings while major safety concerns continue to exist.’*

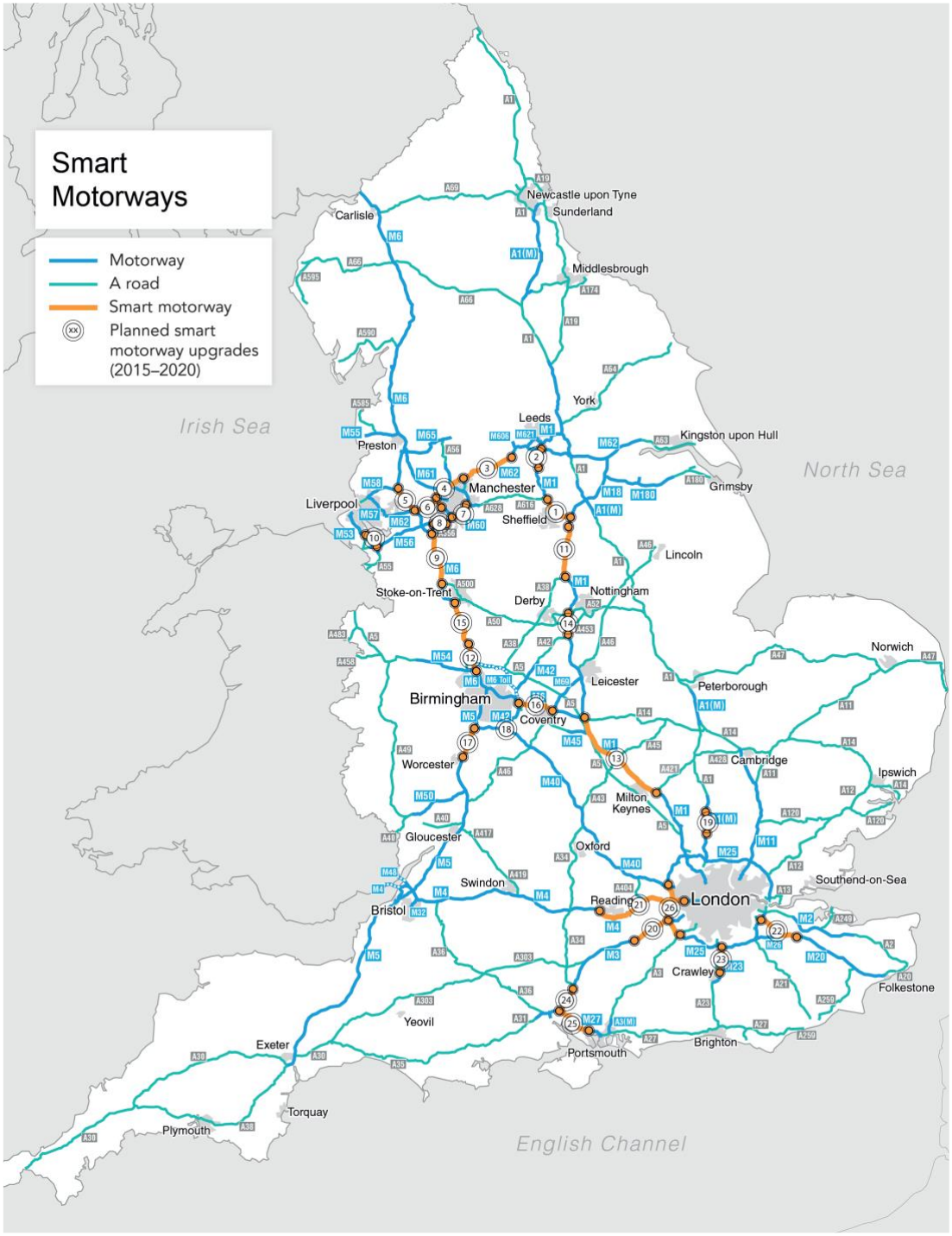

Figure 16: The SRN in England showing motorways (blue); trunk roads (green) & smart motorways (orange) (source: Highways England, 2014)

City Deals

City Deals is a term used to describe a process by which regional areas, usually urban areas, in England were given extra powers devolved from central government. The first wave in 2012 (National Audit Office, 2015) involved eight city regions, as shown in Figure 17. The nature of the devolved powers differed from deal to deal, including transport investment, investment in skills, investment in housing development and enterprise zones. The overall objectives of the deals also differed, but generally they are aimed at increasing economic growth and the environmental sustainability of the region.

The National Audit Office publication *Devolving responsibilities to cities in England: Wave 1 City Deals* (NAO, 2015) evaluated the first wave of City Deals. It highlighted the challenges of

governance within the region, i.e. coordinating decision-making and accountability between the local authorities comprising the city region. The publication also highlighted the importance of deciding on the funding sources for the deal upfront, as this is intrinsically linked to both the feasibility of the deals and the design of successful governance structures. This in turn requires clear arrangements with central government, which can involve many government departments. The complexity of such issues has resulted in some City Deal arrangements proceeding more slowly than originally envisaged.

The NAO publication also highlighted that Greater Manchester, Sheffield and Leeds now have in place a combined authority, defined strategic growth priorities, and a single appraisal framework for prioritising major investment. This in turn is allowing them to assure central government (and their own local government constituents) that their investments represent good value for money and this has helped unlock funding.

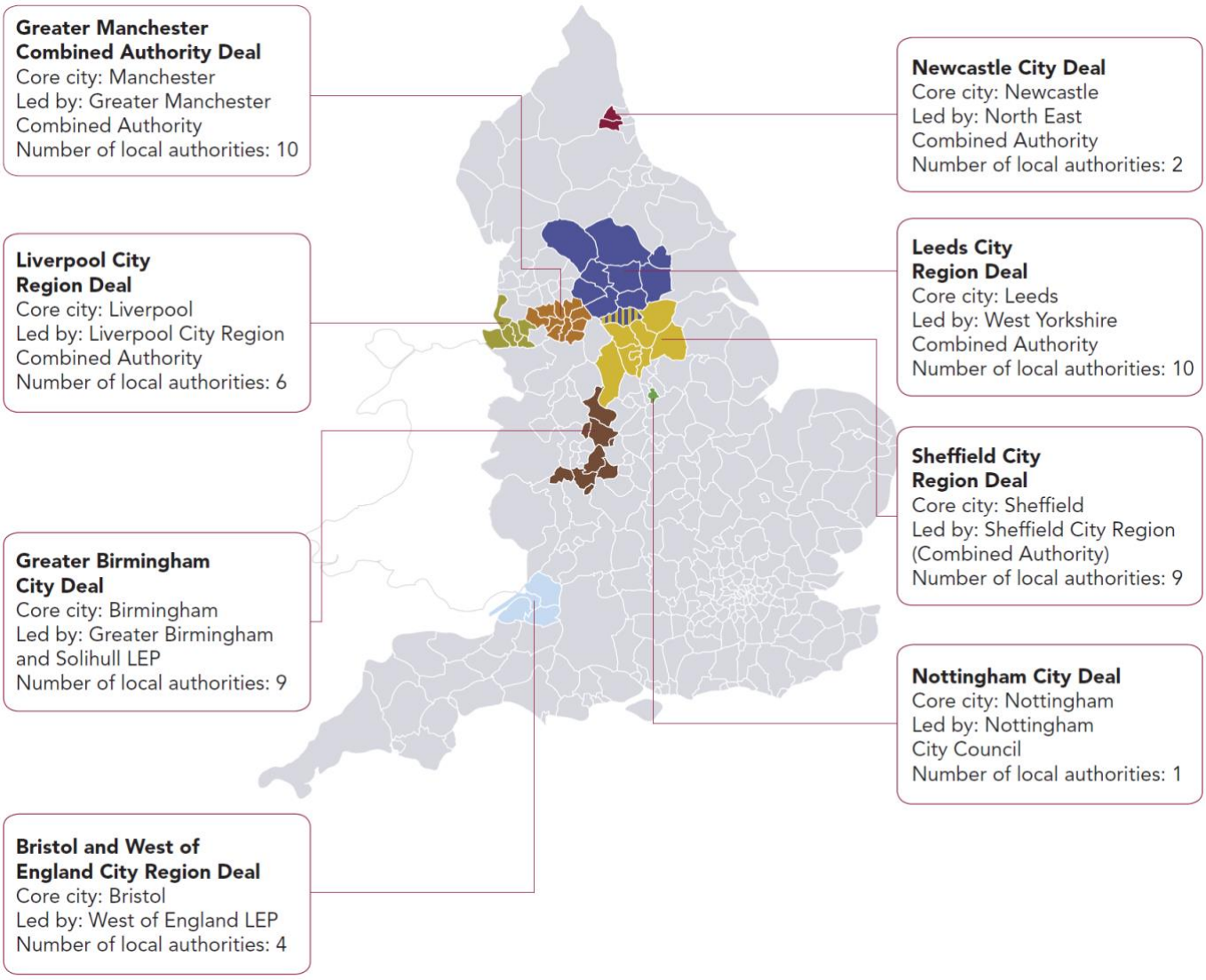

Figure 17: First wave of City Deals (Source: National Audit Office, 2015)

Further devolution is expected through devolution deals (see UK Parliament, 2015b) which will require the election of a region-wide mayor. As can be seen in Figure 17, proposed devolution deals cover city areas and regions, and represent large areas of public spending. All proposed devolution deals have devolved consolidated transport budgets. Only the Sheffield[11], Liverpool

[11] The approach adopted in Sheffield has changed since 2015 with, latterly, Doncaster and Barnsley withdrawing from the devolution deal.

and West Midlands proposed devolution deals have firm plans to consolidate local road maintenance to the regional level (UK Parliament, 2015b); see Figure 18. Cornwall County Council holds a number of the powers set out here in its capacity as a unitary authority (so are marked below in pale green).

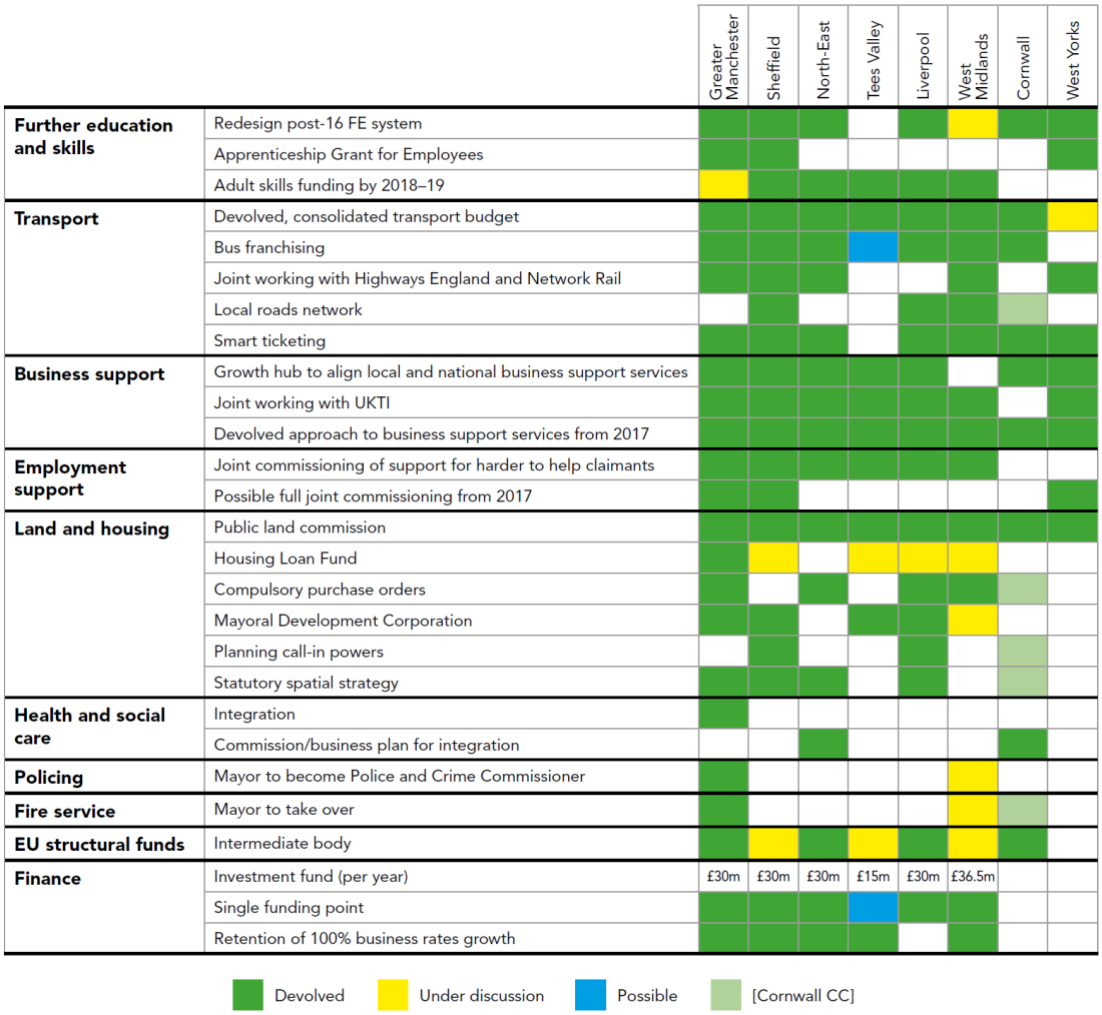

Figure 18: Proposed scope of devolution deals (source: UK Parliament, 2015b)

1.6.6 Critical governance challenges

1. Delivering the RIS programme in the new organisational structure

As discussed previously, the Road Investment Strategy (RIS) for this period (to 2020) and the next period (to 2025) represents a substantial increase in the capital investment of the Strategic Road Network in England. This comes at a time of great change for the institutional and governance arrangements for the strategic roads infrastructure manager, where all parties (Highways England, DfT, ORR and Transport Focus) are currently refining how to discharge their respective roles including how to interact with local government and road user stakeholders.

NAO (2017) evaluated progress on delivering the RIS. The current RIS includes £1.2 billion of efficiency savings required of Highways England and overall the NAO considers that the new organisational environment does allow Highways England to implement reforms to its practices (and provide certainty to suppliers) to make the savings relative to the previous structure, as well as deliver the ambitious investment programme. The NAO does express several concerns related to whether the investment schemes can be delivered within the original funding

envelope, and highlights that the RIS was developed relatively quickly by DfT. Highways England is now reviewing the investment programme to ensure value for money.

2. Devolution and the major road network

In 2017, the Department for Transport (2017b) announced that it would consult on plans to introduce a 'Major Road Network' for England. The MRN would comprise local roads of strategic importance (for example key A roads) in addition to Highways England's road network, and it is proposed that this network could access a ring-fenced funding stream arising from the proceeds of Vehicle Exercise Duty (VED). This followed work by Quarmby and Carey (2016), who identified 3,800 miles of local roads which could form part of the MRN. This could represent a substantial increase in funding for these roads (see section 3 for spend per road-km on the Strategic Road Network versus local road network).

Several issues remain with such a proposal. Firstly, ownership of MRN roads which were local roads is proposed to stay with local authorities. However decisions on investment will require input from various governance levels. This may be at city region level, but also at the national level. Further the formation of sub-national transport bodies, such as Transport for the North, introduces a further stakeholder.

3. Maintenance of local roads

This section is based on industry estimates rather than official government figures. Figure 19 highlights the impact of long-term underfunding of the local road network. It indicates that between 2012 and 2016 the backlog in road maintenance and renewal increased such that it will now take at least one decade to clear systematic backlogs in road maintenance. The poor state of the road network affects not only road users, but also costs the taxpayer in terms of compensation to road users and also higher costs of road maintenance over time, because resource constraints imply that interventions that could minimise whole-life costs are prohibited by short-term budgetary constraints.

The delineation of the major road network, and additional funding of it, does present an opportunity to channel the existing local road funding to address such issues. However, that scenario assumes that the funding for the residual local network is not adjusted downwards in response to any revise delineation.

	England (ex-London)		**London**	
	2012	2016	2012	2016
Total shortfall in annual carriageway maintenance budget	£627m	£623m	£89m	£86.7m
Estimate time to clear carriageway maintenance backlog	11 years	14 years	9 years	16 years
Estimated one-time catch-up cost per authority	£73m	£88.8m	£20m	£22.1m
Average number of potholes filled per authority last year	12,392	16,616	3,083	4,099
Total spent filling potholes in past year	£80.6m	£110.6m	£5.6m	£11.4m
Amount paid in road user compensation claims	£16.7m	£8.9m	£3.2m	£4.1m

Figure 19: Backlog in local road maintenance (source: UK Parliament (2016) original source: AIA, Annual Local Authority Road Maintenance Survey 2016, 23 March 2016, p. 3)

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2. SPATIAL DIFFERENCES

2.1 Scotland

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2.1.1 Scope

This chapter is one of a number setting out the current structures and processes of transport governance across the UK. It focuses on the situation in Scotland, where the devolution of many aspects of responsibility for transport creates a complex and distinctive policy environment.

2.1.2 Methods

This chapter has been prepared drawing mainly on information from the Scottish Government and its national transport agency, Transport Scotland, as well as the House of Commons Library and the Scottish Parliament Information Centre (SPICe).

2.1.3 Institutional structure

2.1.3.1 Devolution

Certain functions of the UK Government have been exercised separately in Scotland since the establishment of the Scottish Office in 1885, with several important 'domestic' functions, including roads, brought together in an emergent government department in the 1920s and 1930s. Following the 1997 devolution referendum, the Scottish Parliament was created to provide *legislative* devolution to accompany this significant extent of *administrative* devolution that existed previously.

The doctrine of parliamentary sovereignty means that devolution in the UK is based on a formal division of powers between the Westminster Parliament and the devolved administrations achieved through legislation. The Scotland Act (1998) that established the Scottish Parliament therefore lists a range of 'matters' or powers that are 'reserved' to the UK Government; that is, those powers (such as over foreign affairs, the constitution and the macro-economy) that are critical to the overall maintenance of the UK as a single nation state. This means that the Scottish Parliament can legislate on any issue that is not explicitly listed as reserved.[12] The Scotland Act (2016) passed in the aftermath of the 2014 Independence Referendum modified the list of reserved powers, as well as introducing devolution of certain revenue streams, most importantly income tax (Figure 20).

With specific legislation for each devolved territory rather than a codified 'federal' or equivalent constitution, devolution in the UK is therefore highly uneven or 'asymmetrical', with each of the different territories having been granted different powers and institutional arrangements. Scotland has substantial devolution over most areas of 'domestic' policy, including transport. However, transport is not fully devolved as there remain substantial areas pertaining to safety and regulation reserved to Westminster. Broadly speaking:

- **Roads** policy is substantially devolved, with the important reservations being vehicle safety standards and road traffic law (although the 2016 Act devolved the power to set the blood alcohol limit to Scotland).

[12] This is the reason why climate change – an issue that might be assumed to be cross-UK in nature given its scale and interaction with international treaties – is in fact devolved, since the notion of climate change as a separate legal 'matter' had not emerged by 1998.

- **Railways** policy is generally reserved (a common misperception is that it is devolved). Following amendments to the original devolution settlement in 2001 and 2005, Scottish Ministers were granted powers to specify the franchise for passenger rail services beginning and ending in Scotland, and the funding of rail infrastructure respectively. Powers over the structure of the rail industry, safety and economic regulation remain reserved to Westminster.

- **Maritime** policy is generally reserved, with the exception of the powers to specify passenger services beginning and ending in Scotland, in a similar manner to rail above.

- **Aviation** policy is generally reserved, although the Scottish government (which has some executive functions devolved to it) is able to influence certain aspects of policy (especially pertaining to airports themselves) via its devolved planning powers.

Until 2016, funding for devolved aspects of transport in Scotland came wholly from the 'Scottish Block'; that is, the annual spending allocation made by Westminster to the Scottish Government for its policy responsibilities. The size of this block is governed by the (in)famous Barnett Formula, which adjusts the annual financial settlement for each of the devolved administrations in line with the additional funding received (or funding reduced) for equivalent services in England, above a notional relative baseline. The Scotland Act (2012) devolved some minor taxes to Scotland, but the 2016 Act transfers control over the rates and bands of income tax, bringing substantial (although by no means comprehensive) taxation powers to Scotland. Further specific taxes are due to be assigned to the Scottish Parliament until 2019. The size of the Scottish Block will reduce as these taxes are devolved.

1999	2015	2016	2017	2018	2019
Scottish Parliament can increase or reduce Income Tax by 3p in the pound Scottish Parliament has powers over Non-domestic Rates.	Scottish Parliament controls Fully Devolved Taxes, Land and Buildings Transactions Tax and Landfill Tax.	Scottish Parliament gains partial powers to set the Scottish Rate of Income Tax.	Scottish Parliament gains further powers to set Income Tax rates and bands.	Replacement for Air Passenger Duty.	Assignment of VAT receipts.

Figure 20: Tax devolution to Scotland (source: Scottish Government, 2016)

2.1.3.2 Transport Scotland

Transport Scotland (TS) was established as an executive agency in 2006, with responsibility for the delivery of the Scottish Government's strategic road and rail projects, and the introduction of a national concessionary fares scheme. All of the Scottish Government's remaining transport functions, including those pertaining to buses and ferries, as well as overall transport strategy development, were transferred to TS in 2010. Although still formally an agency, TS now de facto operates as a division of the Scottish Government, albeit a relatively autonomous and highly specialised one.

Transport Scotland describes its role (and in turn its contribution to the Scottish Government's overarching 'Purpose') thus:

'Transport Scotland's purpose is to support and advise the Scottish Government on strategy and policy options for transport in Scotland, and increase sustainable economic growth through the development of national transport projects. Our work supports the Scottish Government to deliver their purpose:

To focus government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth.'

Transport Scotland is organised into six Directorates:

- Rail
- Trunk Road and Bus Operations
- Aviation, Maritime, Freight & Canals
- Transport Policy
- Major Transport Infrastructure Projects
- Finance, Corporate and Analytical Services.

It is notable that in contrast to England, Transport Scotland remains a multimodal agency with responsibility for a wide variety of transport types. The current directorate structure, in particular the Major Transport Infrastructure Projects division, was put in place with the explicit intention of encouraging learning between previously siloed road and rail teams, although the extent to which this has been particularly effective is uncertain, given the continuing role of Network Rail.

Transport Scotland's policy frameworks

Scotland's National Transport Strategy (NTS) was published in 2006, and refreshed in early 2016 (Transport Scotland, 2016a). The original iteration of the strategy was heavily focused on economic growth, with the emphasis on three 'key strategic outcomes':

- improved journey times and connections, to tackle congestion and lack of integration and connections in transport;
- reduced emissions, to tackle climate change, air quality, health improvement; and
- improved quality, accessibility and affordability, to give choice of public transport, better quality services and value for money, or alternative to car.

The first Strategic Transport Projects Review (STPR), a 20-year programme of infrastructure investment projects managed by the Scottish Government in support of the NTS objectives, was published in 2012, and is due to run until 2032. However, once the current 'refresh' of the NTS is completed, the STPR will also undergo a mid-period review to ensure its planned programme of interventions remains appropriate. This is clearly a much longer planning horizon than either the rail control periods or road periods in England, which presents the potential benefit of a longer horizon to manage the investment pipeline and the supply chain required to deliver it, but also runs the risk of being more difficult to flex as the context for transport interventions changes.

Transport Scotland's appraisal frameworks

Scottish Transport Appraisal Guidance (STAG) is the appraisal framework used to support investment decisions in major transport infrastructure projects in Scotland – whether they are promoted by central government or local authorities. The original version of STAG was published in 2003, and it has been continually updated since. STAG was innovative when introduced – and remains one of the most highly developed such frameworks – because it was deliberately designed as an 'objective-led' rather than 'solution-led' approach in which transport projects emerge as solutions to wider problems rather than being promoted in their own right. In practice this means that the process begins with a review of the wider socio-economic issues in a particular place or corridor, with subsequent analysis of connectivity needs leading to the generation of project options for full appraisal. This contrasts with the 'traditional' approach in which an already developed transport infrastructure project proposal is tested against a set of predefined appraisal criteria.

Transport Scotland Funding

The overall funding for Transport Scotland (TS) is in the order of £2 billion a year, which equates to around 2% of GDP, with around a quarter of this categorised as capital expenditure. Local authorities spend in the order of an additional £900 million per annum (Transport Scotland, 2016b), bringing total public expenditure on transport to almost 3% of GDP.

Of particular note in the TS funding breakdown is the highly significant share of expenditure devoted to rail. Notwithstanding the high cost base of rail in the UK per se (McNulty, 2011), this represents both the current large rail infrastructure projects such as the £750 million Edinburgh–Glasgow Improvements Programme funded by the Scottish Government, but also the high-quality specification of the ScotRail and Caledonian Sleeper passenger franchises.

Also of interest is the *c.*£190 million annual expenditure on ferry services serving the western and northern islands. This level of expenditure on ferries is unique in the UK, and represents a highly significant funding constraint on the overall TS budget envelope for other initiatives. Equally, with Scotland accounting for one third of the UK land mass but just 8% of the population (ONS, 2016; 2018), the trunk road network managed by TS is much more rural in nature than that of Highways England.

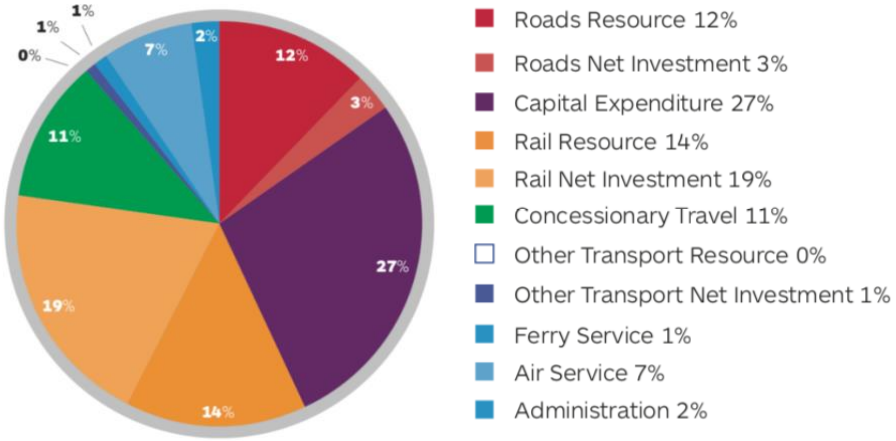


Figure 21: Spending distribution for Transport Scotland 2016/17 (source: Transport Scotland, 2016c)

	Original Budget 2015-16 £000's
Rail Services	808,300
Concessionary Travel	260,600
Motorways & Trunk Roads	646,550
Ferries	187,100
Air	52,900
Other Transport	65,900
Scottish Futures Fund	20,250
Local Authority Grants	29,900
Total DEL	**2,071,500**
AME	-
ODEL PFI Resource	80,900
ODEL PFI Capital	-
TOTAL	**2,152,400**

Figure 22: Budget for Transport Scotland 2015/16 (source: Transport Scotland, 2016c)

In overall terms, transport spending in Scotland has been consistently among the highest of any regions outside London and the South East in several years, and significantly above that seen in the other devolved administrations (Figure 23).

Figure 23 - Public Spending on Transport by Region 2012/13-2016/17 (£bn). Source: **HMT Country and regional analysis (HMT, 2017)**

2.1.3.3 UK Government

The principal interaction between the Scottish and UK governments in the transport domain is the rail system. Although Scottish Ministers now control domestic passenger services and the franchise that structures them (which represent approximately 95% of rail journeys in Scotland) and fund rail infrastructure from the Scottish Budget, the legal basis of the system remains reserved to Westminster.

This means that rail infrastructure in Scotland is still provided exclusively by Network Rail (now a public company wholly owned by the UK Government), but the Office of Rail and Road (ORR) acts as economic regulator for the system, whose cost base (i.e. the value of the railway pound) is largely determined by the requirements of the large London/SE network and Intercity operations. This division of responsibility is politically controversial: Scottish Ministers have repeatedly asked that the functions of Network Rail in Scotland be devolved, while UK Ministers have recently moved to change the basis of the funding allocation to Scotland, arguing that it has been too generous.

As transport safety is reserved to Westminster, the Department for Transport retains an operations role in Scotland in terms of vehicle standards and testing, and the DVLA similarly operates on a GB-wide basis.

2.1.3.4 European Union

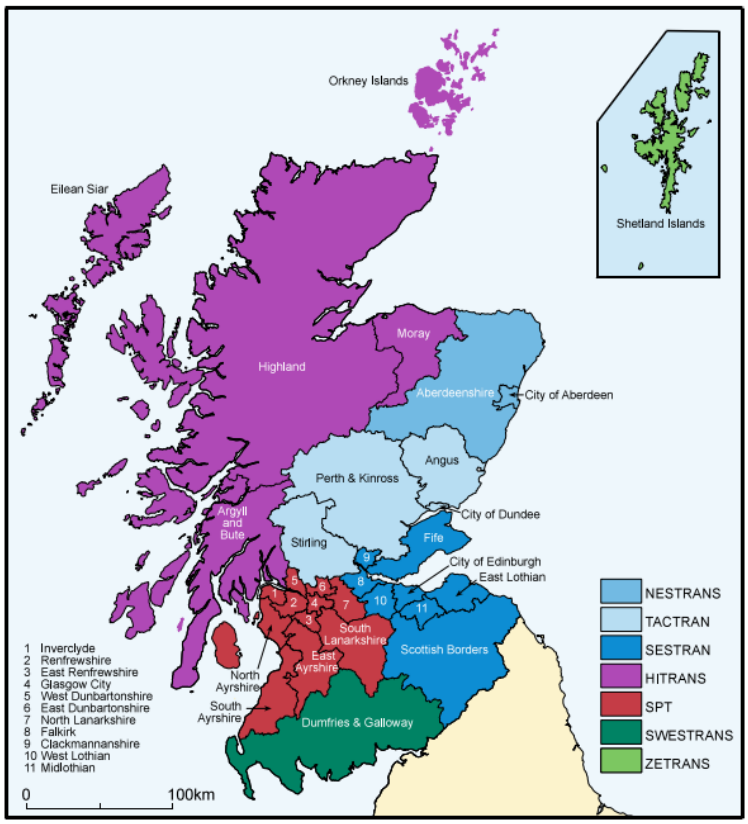
There is an active debate about the impacts of Brexit not just on the economy in Scotland but also on the legal basis for devolution. This is because the 1998 Scotland Act provides for the directly incorporation of aspects of European Law into Scots Law, and that Scottish legislation is obliged to be compatible with the European Convention on Human Rights.

With respect to transport policy directly, the most important recent impacts of the EU are on the obligation of Scottish Ministers to issue a competitive tender for the provision of ferry services on the Clyde and Hebridean routes (Caledonian MacBrayne) and Orkney/Shetland (Northlink). The other major influence of the EU has been through the funding of several transport infrastructure projects under the successive Structural Funds initiatives. As a former Objective One area, the Highlands and Islands has benefited from major roads upgrades over recent decades due to the availability of European funding.

2.1.3.5 Sub-national government

Seven Regional Transport Partnerships (RTPs) were established on 1 December 2005 by the Transport (Scotland) Act 2005. RTPs are independent public bodies corporate based on the model of local councils, although they are formally neither local authorities nor non-departmental public bodies. Their purpose as defined by legislation is to strengthen the planning and delivery of transport across Scotland at the regional level. The seven RTPs are: (Figure 24)

- Shetland Transport Partnership (ZetTrans)
- Highlands and Islands Transport Partnership (HITRANS)
- North-East of Scotland Transport Partnership (NESTRANS)
- Tayside and Central Scotland Transport Partnership (TACTRAN)
- South-East of Scotland Transport Partnership (SESTRAN)
- Strathclyde Partnership for Transport (SPT)
- South-West of Scotland Transport Partnership (SWestrans)



Map 4-8 The Statutory Regional Transport Partnerships and constituent Local Authorities
(Source: prepared by Cartography, Geography and Environment, University of Aberdeen)

Figure 24: Scottish Regional Transport Partnerships (source: Pangbourne, 2010, reproduced with permission of author)

With a focus on coordination, the RTPs are rather weak bodies in practice. They rely on councils voluntarily sharing their transport powers, and although the potential exists in the

legislation for an agreement to coordinate the roads function regionally, this has not taken place anywhere. Thus the role of the RTPs has largely been limited to producing a regional transport plan that seeks to guide the actions of other actors.

Strathclyde Partnership for Transport (SPT) is rather different as it was formerly a Passenger Transport Authority and Executive created under the same UK-wide legislation as its equivalents in England. SPT lost its powers to specify local rail services to Transport Scotland when the national agency was set up, which represented a major diminution in its powers. However, it still operates the Glasgow Subway, seven bus stations, and some local ferries.

The National Transport Refresh has a 'Role and Responsibilities' workstream in which the future delineation of transport powers in Scotland between central government, councils and any intermediate tier such as RTPs is being re-evaluated.

2.1.3.6 Local government

Local government in Scotland was last restructured in 1996. The former two-tier system of regional and district councils was replaced by 32 unitary councils. These councils largely mirrored the former regions in the rural parts of the country, but the former districts in the urbanised central belt. This means that the urban core of the country has a local government system that is highly fragmented, with a complex geography of responsibility for planning, roads etc. There are several well-known examples of car-dependent developments that have been granted permission by those areas that see themselves 'in competition' with the main cities of Glasgow and Edinburgh.

To try and address these issues, the Scottish Government has fostered regional collaborative bodies for transport (the RTPs), for strategic planning, and also 'community planning', a formal inter-authority process of joining up public sector interventions across all policy domains. However, each of these 'regions' has a different geographical expression and so coordination is also difficult at regional scale.

City Deals are a further complication. City Deals are investment packages co-funded by the Scottish and UK governments designed to accelerate public investments that will generate economic growth. Transport infrastructure is a key component of many of the deals. Given their highly political nature (the concept emerged during the run-up to the 2014 Scottish Independence referendum, and muddies the water about which government 'pays for' both devolved and reserved matters) the City Deals are highly controversial. Further, given that they have assigned budgets to be spent in a defined (and limited) timescale, City Deals can also represent a challenge to established project development and appraisal frameworks.

2.1.3.7 Regulatory bodies

Regulation (e.g. economic regulation of the rail network) is effectively completely reserved to Westminster as it pertains directly to the management of the UK economy and markets.

2.1.3.8 Companies and arms-length agencies

The ScotRail franchise is the Scottish Government's single largest commercial contract and is worth around £7 billion over 10 years. ScotRail is therefore a major corporate player in the Scottish economy as well as a transport operating company.

Other key operating companies include:

- Caledonian Sleeper: the Scottish Government's other passenger rail franchise, currently operated by SERCO
- Lothian Buses: a large bus operator owned by local authorities in the Edinburgh city region
- Deregulated bus operators: both First Group and Stagecoach are international companies with headquarters in Scotland
- Caledonian MacBrayne: the publicly owned company operating ferry services on the west coast (CalMac is a highly politicised issue given its crucial role in sustaining fragile communities)
- Northlink: the franchised ferry operator serving Orkney and Shetland
- Highlands and Islands Airports Ltd (HIAL) Scottish Government-owned operating company of the smaller airports in Scotland.

2.1.3.9 Consumer representation

Most major consumer organisations have a dedicated Scottish entity in recognition of the distinctive/devolved policy environment.

2.1.4 Major scheme example

The Edinburgh–Glasgow Improvement Programme (EGIP) is a set of rail network improvements including electrification and the rebuilding of major stations with a total capital cost of around £750 million. EGIP was one of the two national priorities identified by Transport Scotland in the original Strategic Transport Projects Review and is funded by the Scottish budget.

Responsibility for the actual design of EGIP rested with Network Rail, as any major rail intervention would do. The early years of the project preparation stage were marked by friction between Network Rail and TS over the design and scope of the project. With no obvious mediation mechanism to resolve conflicting views, much time and resource was spent with decisions bouncing back and forward between the two organisations until a final scope was agreed.

Delivery of some aspects of EGIP, most importantly the core electrification of the main line, has run significantly late and over budget. The Scottish Government has no option but to direct additional resources to Network Rail if the project is to be completed. Further, the late delivery of the project has ramifications for the revenue profile of the ScotRail franchise and therefore public sector support of the railway in the round. At the same time, the choice to use the franchisee to procure the new rolling stock for the route adds an additional interface to project delivery.

2.1.5 Critical governance challenges

One of the strengths of the transport governance system in Scotland is the proximity of senior decision-makers to each other. The phrase 'it's possible to get everyone in the one room' is often heard to describe the operation of the Scottish governance in general, but it is actually true. As well as this level of direct personal engagement, Scotland is a relatively small polity, with a now well-developed set of governance institutions including specialist entities such as Transport Scotland. The potential to deliver substantial trust and social capital between senior policy-makers is therefore evident.

Like many new institutions, Transport Scotland had some difficulties in its early years, for example managing the change of administration in 2007 and the subsequent period of minority government. However, after 10 years, the agency has now developed a track record of major scheme delivery that gives government confidence that transport is an area of public investment that will be delivered effectively.

In terms of governance challenges, the three most evident in Scotland are:

- Sub-national governance confusion. Scotland's structure of 32 unitary councils is highly fragmented across the urban core of the central belt. This leads to explicit spatial competition, and makes effective collaboration difficult. Further, the regional tier is very weak, and has often been unable to reduce evident competition between authorities to achieve more cohesive regional action;

- With a much lower overall population density than England, Scotland has extensive rural road and rail networks, and a substantial supported ferries network. This means that the ongoing revenue support requirement for the network is considerable, and therefore in turn constrains government potential to invest elsewhere, particularly the larger cities, with obvious risks to their competitive position. The high cost base for the rail industry in particular exerts a major drag on Transport Scotland's budget;

- Delivering transport in Scotland is a complex multilevel endeavour. In particular, the ongoing unfolding of devolution is rather ad hoc, with transfer of powers becoming more piecemeal as the politicisation of constitutional issues is maintained at a high level. The most recent changes in the Scotland Act (2016) devolve income tax responsibility, but do not devolve other (consumption) taxes such as a duty revenue that would enable a wholly different policy posture on transport.

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2.2 Transport for the North

Nigel Foster and Emma Roberts, Fore Consulting

2.2.1 Introduction

Transport for the North (TfN) was created in October 2014 and is a partnership of local transport authorities, the Department for Transport, and business leaders. Its membership includes 19 local authorities and 11 LEPs in the North and it works with national agency representatives from Highways England, Network Rail and HS2 Limited to develop plans and identify priorities for strategic transport infrastructure over the North of England. Draft regulations were laid before Parliament in November 2017 and TfN was granted statutory status as a sub-national transport organisation on 1 April 2018 (DfT, 2017c, TfN, 2018).

2.2.2 What modes of transport do they have a role or influence on?

TfN was established to develop plans for strategic transport interventions in the North, including the preparation of a Strategic Transport Plan (STP) for the North of England with the aim of facilitating a transformation of inter-urban connections between centres of population and to accelerate economic growth (Transport for the North, 2017a).

A draft Strategic Transport Plan (STP) for the North of England was prepared with the aim of facilitating a transformation of inter-urban connections between centres of population and accelerating economic growth (Transport for the North, 2017a). It sets out proposals for a multi-modal programme of prioritised interventions comprising all transport modes reflecting the TfN's preferred options for achieving its aims within realistic budget parameters and was published for public consultation in January 2018 (Transport for the North, 2017a; Transport for the North, 2017b). Informed by the consultation outcomes, the final STP will become the adopted plan and main policy document for TfN in 2018.

Transport for the North was also tasked with assessing the case for some specific transport interventions including the proposals for Northern Powerhouse Rail (Transport for the North, 2017c) and three strategic road projects: the Trans-Pennine Tunnel, the M60 North West Quadrant, and North Trans-Pennine links via the A66 and A69 (Transport for the North, 2017d). It was allocated £150 million of funding to develop plans and implement a project for integrated smart travel in the North (DfT, 2017). In addition, Rail North will transfer to TfN when it becomes a statutory body in April 2018, ensuring that TfN can take a coordinated view of 'track and services' strategic planning and investment case development.

2.2.3 What role do they play?

TfN's work to date has been to build an evidence base for its STP, assess the major pan-Northern road and rail schemes that it inherited and develop the Integrated Smart Travel project. In 2016 TfN published the Northern Powerhouse Independent Economic Review and has also prepared initial Integrated Rail (Transport for the North, 2017e) and Major Roads (Transport for the North, 2017f) reports to inform the STP and set out its ambitions for the rail and road networks. This was followed by the STP Position Statement (Transport for the North, 2017g), which gives an overall view of TfN's transport blueprint for the North, why it is needed, how it will be implemented, and for what benefits.

While TfN supports local and national government to align local investment in public transport and national infrastructure to form a coherent investment programme, TfN is not intended to replace or replicate the work of existing local transport bodies (Transport for the North, 2017h).

2.2.4 What is the legal or other basis of this?

The *Cities and Local Government Devolution Act 2016* provides for the creation of sub-national transport bodies (STB) and enables the functions of STB's to be derived from a number of sources including (WYCA, 2016):

- The power to prepare a transport strategy and the power to advise, coordinate, and make proposals from the Local Transport Act 2008;
- Other public authority functions to be exercisable either instead of, by, or jointly (but not concurrently) with public authorities; and
- Local transport functions (i.e. of CAs, LTAs or PTEs) to be exercisable either instead of, by, or jointly (but not concurrently) with local authorities.

A draft version of *The Sub-national Transport Body (Transport for the North) Regulations 2017* was laid before Parliament in November 2017. The regulations set out the functions of TfN in relation to transport strategy and delivery in the North of England. The key functions of the TfN are:

- To develop a Transport Strategy for the North;
- To advise the Secretary of State on transport in the North;
- To coordinate regional transport programmes such as smart ticketing; and
- To co-manage the rail franchises in the North and the planned major road network.

If, in the future, further responsibilities were to be devolved to TfN (i.e. to set the strategic pan-Northern transport objectives for Highways England and Network Rail or to take responsibility for specifying franchised rail services), TfN would require powers currently exercised by central government to be devolved. These might include (WYCA, 2016):

- Powers to set the objectives and priorities for the Rail Investments Programme;
- Powers to determine the franchise rail service specification; and
- Powers to set and vary the objectives of the Road Investments Programme.

2.2.5 How are decisions made?

The Partnership Board provides direction, scrutiny and oversight on the TfN's strategy, performance and capability. It also has a statutory role as an advisory body to TfN. It is made up of representatives from local government and LEPs, along with the Secretary of State for Transport and representatives from Highways England, Network Rail and HS2 Ltd. The Board has an independent Chair – John Cridland CBE, former Director-General of the CBI (Transport for the North, 2017i).

Each local government representative receives a vote weighted to reflect the population of their constituent authority. To approve a budget, approve the constitution, or adopt a transport strategy will require an increased majority of 75% of the weighted votes and a simple majority of Members of TfN (Transport for the North, 2017h).

The Partnership Board is supported by the Executive Board, which is the main body for managing and delivering the TfN's programme of work and which also provides decisions for approval to the Partnership Board. Its members include senior representation from each local transport authority partner, the Department for Transport, each national transport body, and the independent Chair (Transport for the North, 2017a).

A separate Commissioning Board is responsible for the approval to procure, contract and commit funds on behalf of TfN. The national agencies are excluded from this board as they provide paid technical services to TfN (Transport for the North, 2017a).

A range of advisory panels and working groups advise and support the work of the Executive Board and its committees. These include the Northern Analytical Steering Group and the Northern Powerhouse Rail Steering Group, both of which have members from DfT.

The day-to-day operations of TfN are exercised by officers who are delegated authority from the Partnership Board.

The organisational structure of TfN is summarised in Figure 25.

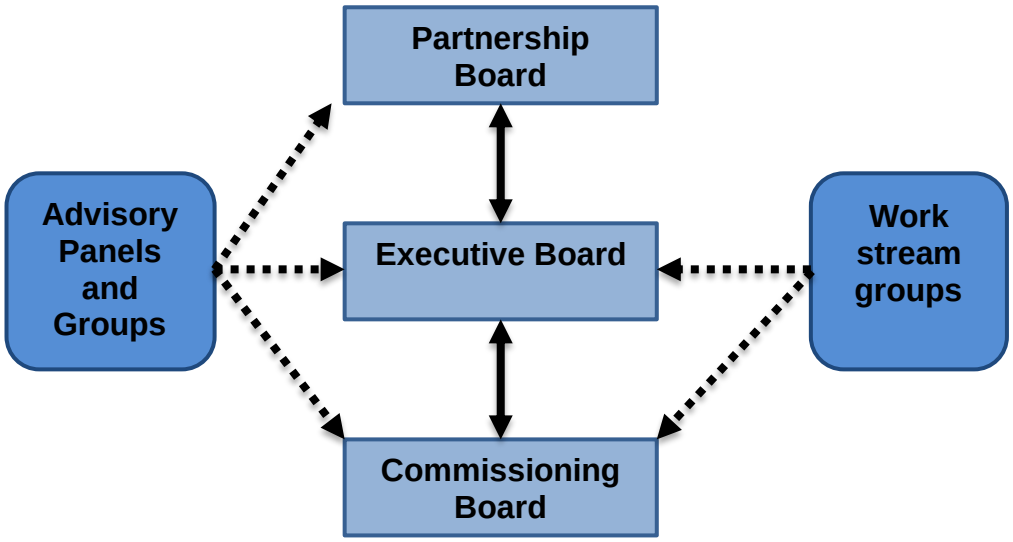

Figure 25: Transport reporting structure – Transport for the North

2.2.6 How do they evaluate successful delivery of projects?

TfN produces an annual business plan which outlines how it is working to deliver on its visions and objectives. The business plan sets out a multi-year development programme with funding requirements that is reviewed and approved annually by the Partnership Board (Transport for the North, 2017a).

To measure the performance of its activities in developing pan-Northern transport and travel solutions in the delivery of Transport for the North's strategic objectives, TfN will use three levels of key performance indicators (KPIs). These are set out in the 2017–18 Business Plan (Transport for the North, 2017j) as follows:

- **Strategic KPIs** that report the impact that the TfN's objectives are having on the economy. This will be quantified through five performance metrics: journey times, resilience, flows, user experience, and, in the future, sustainability.

- **Organisation performance KPIs** that focus on the performance of the TfN as a Sub-National Transport Body and which cover all aspects of the organisation including business plan objectives, resources, commercial, procurement and contracts, technical performance, communication, legislation and regulation, supply chain, governance and service delivery.

- **Programme KPIs** that measure the delivery performance of TfN's chosen programmes and projects. There are four measures used to monitor the performance of programme delivery: project scope, meeting, programme objectives, milestone delivery, and budget.

TfN's performance against these objectives will be reported to the Partnership Board.

Other measures of success could include the extent of TfN's success in meeting the targets identified in the Northern Powerhouse Independent Economic Review, making the share of UK transport funding more equitable, or value for money.

2.2.7 Funding

Until April 2018, TfN was not a permanently constituted organisation. Its staff were employed by Transport for Greater Manchester and West Yorkshire Combined Authority which, along with other partners including Sheffield City Region and Merseytravel, also procures goods and services on TfN's behalf. With the attainment of statutory status, staff can now work directly for TfN (Transport for the North, 2017j).

TfN's funding is provided by the Department for Transport although its current funding comes from a number of different sources (Transport for the North, 2017j):

- **Core funding –** £50 million of non-ring-fenced funding over five years. Approximately £10 million to be spent in 2017/18.

- **Transport Development Fund (Northern Powerhouse Rail) –** Approximately £60 million of ring-fenced funding to be spent only on Northern Powerhouse Rail Activity. £15 million to be spent in 2017/18.

- **Transport Development Fund (Roads) –** Approximately £75 million for three Strategic Road Studies in the North which has been principally managed by the Department for Transport and Highways England. TfN secured £400,000 for a Wider Connectivity and Impact Assessment in relation to the Trans-Pennine Tunnel.

- **Smart funding –** Funding for integrated and smart travel dependent on approvals through normal business case processes. TfN has been allocated £150 million to deliver Smart outputs over the forecast period.

Additionally, the constituent authorities may be required to contribute to the costs of TfN but the decision on the amount of such contributions would require unanimous agreement and written consent from the Transport for the North Constituent Authorities (TfN, 2017l).

2.2.8 Statutory body status

TfN began to operate as the first Sub-National Transport Body in England on 1 April 2018 (DfT, 2017; TfN, 2018). The statutory status enables TfN to (Transport for the North, 2017j):

- Develop a Strategic Transport Plan for the North, coordinating investment and work across the region; and
- Coordinate and deliver a smart integrated ticketing system across the North.

Together with the Department for Transport, TFN will:

- Agree objectives for the region for Network Rail and Highways England to ensure they are driven by the needs of the North; and
- Share responsibility for managing the Trans-Pennine Express and Northern Rail franchises, with an emphasis on investments and long-term planning.

2.2.9 Reflections

The establishment of Transport for the North has provided the basis of a single voice for the North on strategic transport matters, and the prioritisation of pan-Northern projects. Having governance and leadership drawn from both the public and private sectors, and with national and regional organisations, enables a comprehensive view of strategic transport investment, and how it supports wider policy objectives particularly for the economy.

This combination creates much more powerful integration between transport and economic policies in a way that is not as easy for single authorities to achieve. This should facilitate more capability across a larger functional economic geography to deliver growth for the North.

This integrated approach to transport and economic planning by Transport for the North allows for the development of strategic interventions that is greater than would be achievable through the sum of its individual parts. It will better facilitate the development of stronger propositions for investment in key transport infrastructure for the whole northern region of England.

2.2.10 What has this enabled?

Much of the evidence base for TfN's projects when it is granted statutory status has been developed, allowing for the publication of the Strategic Transport Plan which TfN can begin to implement as a full Sub-national Transport Body in 2018.

2.2.11 What challenges remain?

TfN's focus is on strategic transport and pan-Northern measures to improve intra-urban connectivity. Some critics argue that TfN should also seek to help improve local transport across the North via the support of local authorities in implementing the goals of their local plans. The argument is that TfN will be seen as irrelevant to many communities if it does not also focus on local transport across the North. It should be noted that the development of smart ticketing is seen to be a step in the right direction.

As TfN represents a large area of England and comprises a partnership of multiple groups, it may be expected that there could be difficulties associated with reaching a consensus when making decisions. For example, when deciding on where to focus investment it is likely that there will be multiple competing opinions. Meeting them all would risk spreading investment too thinly, while prioritising certain projects over others will lead to difficulties during the decision-

making process. Furthermore, this may make it harder to generate benefits that are only possible through a “joined-up” package of schemes and to meeting the need to prioritise to ensure value for money.

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2.3 West Yorkshire Combined Authority

Nigel Foster and Emma Roberts, Fore Consulting

2.3.1 Introduction

The West Yorkshire Combined Authority (WYCA) was established in April 2014 as part of the Leeds City Region City Deal agreed in the first wave with Government in 2012. WYCA's area is West Yorkshire; that is, the area comprising the five West Yorkshire District Councils ('Constituent Councils'): Bradford, Calderdale, Kirklees, Leeds and Wakefield. The City of York Council (a non-constituent council) also appoints a representative to WYCA.

Each council appoints one representative to the WYCA – conventionally this is the council leader. The Constituent Councils also appoint between them three additional members to reflect political balance across West Yorkshire. The WYCA also appoints an LEP Member – by convention the private sector chair. The WYCA was the first combined authority to include an LEP Member.

In September 2015, WYCA submitted proposals to HM Treasury for a Mayoral Devolution Deal for the Leeds City Region (Leeds City Council, 2015), but this has yet to be determined by Government. The WYCA also has accountable body status for funding awarded to the LEP (WYCA, 2017b).

2.3.2 What modes of transport do they have a role or influence on?

The order establishing the WYCA transferred functions for transport (across all modes) from the West Yorkshire Integrated Transport Authority (WYITA) and West Yorkshire Passenger Transport Executive (WYPTE) to the WYCA, with both WYITA and WYPTE dissolved upon the creation of WYCA. The WYCA also has powers in relation to economic development and regeneration, which are exercisable concurrently with its constituent councils.

The WYCA's transport powers, duties, and functions include (WYCA, 2017c):

- The responsibility for producing a local transport plan, which can include details on how transport will support local housing and jobs, and how WYCA will tackle problems like traffic congestion and air pollution.
- The ability to run local travel concession schemes, advanced ticketing schemes, advanced quality partnership schemes, and enhanced partnership schemes in relation to bus travel.
- The ability to run a bus franchising scheme (providing the requirements set out in the Local Transport Act 2000 as amended by the Bus Services Act 2017 are met).

The WYCA's transport schemes and programmes are progressed under its Assurance Framework, as are other economic development and regeneration schemes. The Transport Committee also has certain delegated powers, mainly in relation to approving public transport operations and investment.

The Constituent District Councils remain the local highway authority for their respective areas. As highway authority, each Council is responsible for maintaining those highways which fall within its area of control, regulating activities of developers in relation to their highways, and implementing the actions identified in the WYCA's Transport Strategy. Public transport planning and other functions are undertaken by the WYCA.

2.3.3 What role do they play?

The WYCA has prepared a Transport Plan in accordance with its statutory duty as local transport authority. The plan supports the Leeds City Region's Strategic Economic Plan (SEP), which sets out the economic growth plans and policies for the City Region from 2016 to 2036. The SEP was co-designed and signed off by both the WYCA and the LEP. The Transport Plan sets out how the WYCA and the Constituent District Councils will develop and deliver improvements to West Yorkshire's transport network, including how they propose to increase the number of journeys made by sustainable transport modes such as walking, cycling and public transport. The transport strategy will be implemented through a series of five-year implementation plans, containing the specific objectives for each period, and with gateway reviews at the end of them (WYCA, 2017d).

2.3.4 What is the legal or other basis of this?

The process to establish the WYCA was initiated as part of a 2012 Leeds City Region Deal (Cabinet Office, 2012) and the WYCA was formally established on 1 April 2014 by The West Yorkshire Combined Authority Order. Additional growth deals were reached in July 2014 and January 2015 (Cabinet Office, 2015) and, as part of the 2015 Budget, a non-mayoral devolution deal was agreed between the Government and the WYCA (WYCA, 2015a). The deal agreed to devolve funding for transport, employment and skills.

The power to create a combined authority is contained in the Local Democracy, Economic Development and Construction Act (LDEDC Act) 2009, which enables Government to establish combined authorities which have transport functions and functions relating to economic development and regeneration.

The *Cities and Local Government Devolution Act 2016* amended the 2009 Act to allow combined authorities to have directly elected mayors and potentially a wider range of functions.

The *Combined Authorities (Overview and Scrutiny, Access to Information and Audit Committees) Order 2017* provides for the membership and proceedings of overview and scrutiny committees, and audit committees, of combined authorities.

The WYCA discharges functions under the Transport Acts 1968, 1985 and 2000 and the Railways Acts 1993 and 2005.

The WYCA will become a constituent authority of Transport for the North when it becomes a sub-national transport body (STB), having consented to the regulations to establish the STB in accordance with the Local Transport Act 2008.

The Bus Services Act 2017 amended the Transport Act 2000 to provide for combined authorities to have bus franchising powers, although non-mayoral combined authorities such as WYCA can only do so where the Secretary of State provides for this by regulation.

2.3.5 How are decisions made?

Decisions are taken by the WYCA, membership of which is described in section 9.1. The appointment of the three members for political balance is required by the WYCA Order 2014. WYCA believe that ensuring cross-party support limits the impacts of potential political changes on the direction and effectiveness of their transport strategy.

The WYCA Order 2014 reflects the LDEDC Act, by providing that the LEP Member and WYCA Member appointed by the City of York Council be non-voting. However, the voting members can

decide that this provision does not apply. To date, the WYCA has granted voting rights to both the LEP and the City of York Council members on all decisions with the exception of decisions on budget and levy setting, and the adoption of any implementation plans appended to the Transport Strategy (WYCA, 2017e).

The WYCA has appointed a number of committees to provide advice and discharge delegated functions. The Transport Committee provides advice to the WYCA and carries out a number of transport functions on a delegated basis, with the final approval of transport plans reserved to the WYCA (WYCA, 2014). The work of the Transport Committee is supported by Consultation Sub-Committees for each constituent council area. Investment decisions proposed to the WYCA by the Transport Committee may also be considered by the Investment Committee to ensure wider strategic alignment.

The WYCA's governance structure is outlined below.

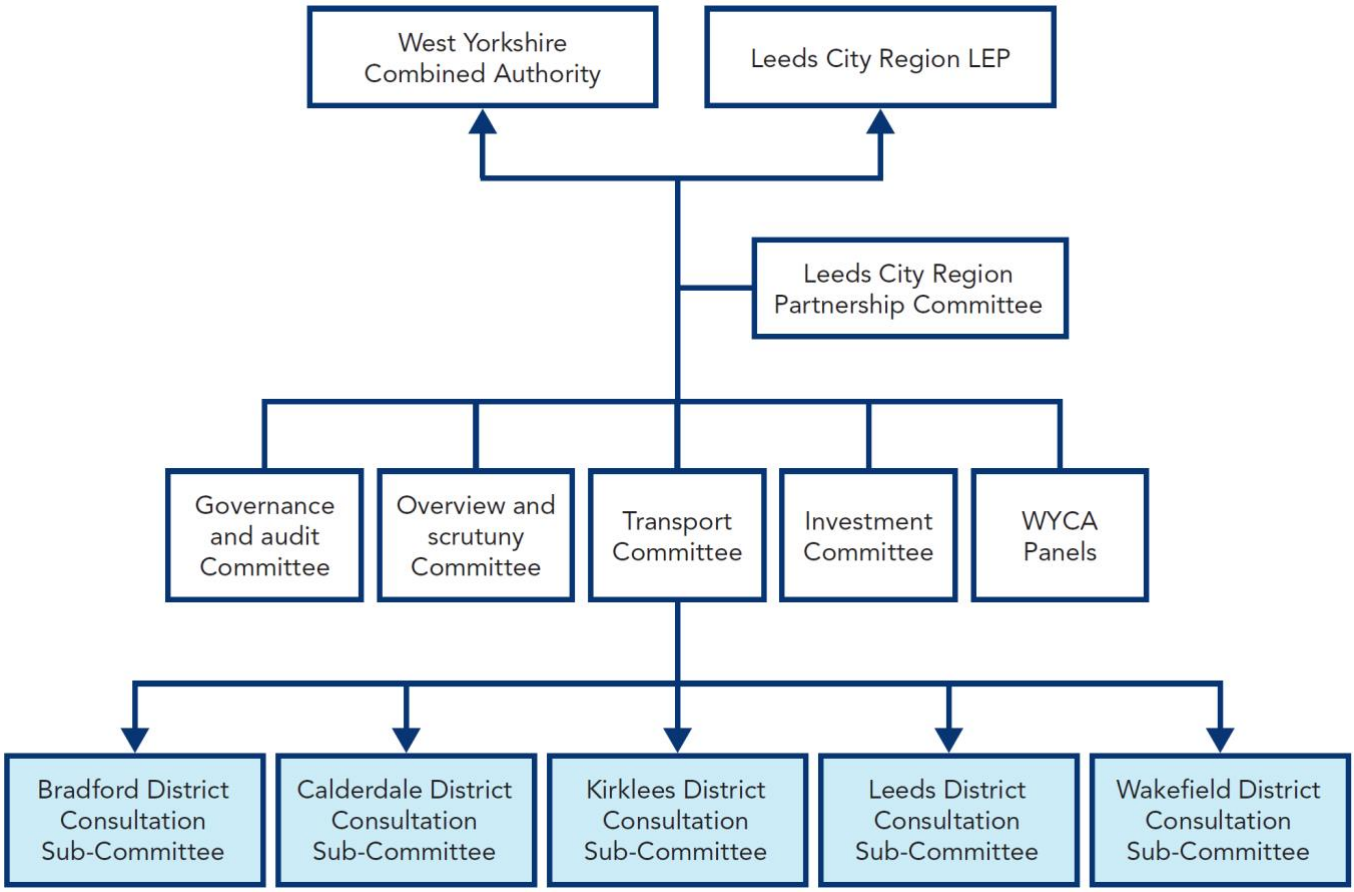

Figure 26: Transport Report Structure-West Yorkshire Combined Authority (WYCA)

2.3.6 How do they evaluate successful delivery of projects?

When setting its annual budget, WYCA receives a comprehensive report which details forecast outturn expenditure for the current financial year and the proposed budget for the coming financial year.

Risk management is undertaken with regular reviews of the risk registers and exception reporting through the officer Audit and Risk Management Group and through the Governance and Audit Committee, membership of which comprises WYCA members and an independent member. A Risk Manual, endorsed by the Governance and Audit Committee, sets out the risk management strategy and the way risks are identified, recorded and monitored (WYCA, 2017b).

The WYCA also has an Overview and Scrutiny Committee comprising 18 members, three from each of the five West Yorkshire Councils as well as three from the City of York Council. The committee may 'review or scrutinise decisions made, or other action taken in connection with the discharge of the Combined Authority's functions'. The Committee may direct that a decision should not be implemented for up to 14 days, and may also recommend that a decision be reconsidered. The CA must consider any recommendations made, respond to the committee indicating the actions which the combined authority proposes to take in reflection, and publish their response should the committee have published their reports or recommendations (House of Commons Library, 2017). In addition, further scrutiny committees within the District Councils are able to challenge work being undertaken by the WYCA (WYCA, 2017b).

Most scrutiny is therefore undertaken locally from within the WYCA although, as part of the West Yorkshire plus Transport Fund (WY+TF), the WYCA must commission an independent review of the economic benefits and impacts of the first tranche of investment with the unlocking of further investment depending on this review (Cabinet Office, 2015).

2.3.7 Funding

WYCA has several income streams:

- As part of a City Region Growth Deal in 2014 (Cabinet Office, 2015), the LEP and WYCA secured a £1 billion WY+TF, covering West Yorkshire and York. The Transport Fund is targeted at balanced economic growth by reducing congestion, improving the flow of freight and making it easier for people to commute to and from expected major growth areas (WYCA, 2017f).
- The Integrated Transport Block from the government totalling £13 million in 2017/18, which is then distributed out to the councils by an agreed method (WYCA, 2017g).
- The Highways Maintenance Block totalled approximately £25.9 million in 2017/18 and is distributed to each council according to DfT's allocation formula (WYCA, 2017g). For 2017/18 this distribution was as follows (WYCA, 2015b):
    - Bradford £5.5m
    - Calderdale £3.5m
    - Kirklees £5.4m
    - Leeds £7.7m
    - Wakefield £3.8m

- The Highway Maintenance Incentive Fund totalled approximately £2.5m in 2017/18 (WYCA, 2017g).
- WYCA also generates revenue income via a transport levy. Totalling approximately £101 million in 2017/18, the levy is paid by the five West Yorkshire district councils in proportion to the population of each district. Around 85% of the levy is spent on passenger transport activities such as concessionary travel schemes and subsidised bus services, with remainder allocated to support the delivery of WY+TF projects (WYCA, 2017g). The levy was raised from the Districts for 2017/18 as follows (WYCA, 2017g):
    - Bradford £23.7m (23.3%)
    - Calderdale £9m (9.1%)
    - Kirklees £18.6m (19.1%)
    - Leeds £34m (33.9%)
    - Wakefield £15.4m (14.6%)
- The Leeds City Region authorities (which includes authorities not within the WYCA) pay a total subscription of £0.7 million to support the activities of the LEP, and this funding is supplemented by £0.5 million of government funding (WYCA, 2017g).
- The WYCA may also borrow money through the local government prudential borrowing arrangements, currently for a purpose relevant to its transport functions only (although the Secretary of State may by regulation provide for borrowing in relation to other specified functions (Local Government Act 2003 S1 and S23(5))).

2.3.8 Future Devolution

WYCA is seeking a second-stage devolution deal to build on the first-stage deal agreed in 2015 (WYCA, 2017a). While the first round of devolution deals negotiated in 2015–16 allowed for areas which did not wish to create a mayoralty to propose 'alternate governance arrangements', this now appears to have been rescinded, so that that any deal of substantial powers requires the establishment of a mayoralty (House of Commons Library, 2017).

In 2015, a proposal was submitted to the Treasury for a mayoral devolution deal for the Leeds City Region (Leeds City Council, 2015), but this has yet to be determined by Government. The absence of a directly elected mayor has so far prevented further devolution of powers (House of Commons Library, 2016b). WYCA authorities continue to explore different options for devolved governance structures across a range of geographical footprints, including a deal spanning the whole of Yorkshire (WYCA, 2017a).

2.3.9 What has this enabled?

Prior to the establishment of the WYCA, the West Yorkshire Integrated Transport Authority (WYITA) and the West Yorkshire Public Transport Executive (WYPTE) undertook many transport functions for West Yorkshire. These two organisations were separate but related bodies; WYITA was a joint authority while WYPTE was a branded statutory body. Both WYITA and WYPTE used the business name Metro. WYITA was the local transport authority and the body to which the WYPTE was accountable. WYPTE provided the 'hands on' operational

management of regional public transport while WYITA determined the policies, budgets and finances within which WYPTE operated (WYITA, 2011).

WYITA comprised 22 elected members from the five West Yorkshire district councils and its role was largely operational, with little funding beyond that raised from the levy on the district councils. Therefore, WYITA was unable to fund large-scale investment into new schemes and its capabilities to ensure wider strategic alignment with other local government projects were limited as it had no direct link to the wider leadership of the district councils.

With the creation of WYCA, WYITA and WYPTE functions were transferred to the combined authority, which has delegated many of these functions to the Transport Committee while reserving specific key transport functions to the WYCA, such as the approval of the statutory local transport plan and major transport investment policies and strategies. This new arrangement provides for the WYCA to undertake transport functions at a more strategic level than previously, given the membership of the WYCA. This allows the WYCA to speak with a powerful single voice rooted in the power structures of the district councils. There is also integration between transport and economic policies in a way which was not possible under WYITA, and the WYCA is therefore able to discharge its transport functions with respect to wider, longer-term economic strategic plans and in support of the Government's industrial strategy. Through the devolution deal, the WYCA also has access to more funding than WYITA did, allowing for investment in transport on top of its operational functions.

Compared with WYITA, the WYCA has more capabilities to deliver growth for the region. The inclusion of the LEP and City of York Council enables the WYCA to work across a larger area, as does WYCA's role as accountable body for Local Growth funding across the Leeds City Region– encompassing the whole functional economic geography of the region. This, as well as the combined transport and economic functions of the combined authority allows for a level of strategy, planning, and implementation which is greater than would be achievable through the sum of its individual parts.

Furthermore, the combined organisational structure also allows for a 'single voice' to represent the West Yorkshire region on the national and regional stage. This better facilitates participation within the Northern Powerhouse and workstreams established by Transport for the North (TfN) to identify transport interventions and develop key infrastructure projects for the whole northern region of England. For example, the WYCA is aiming to ensure that the improvements in rail infrastructure resulting from HS2 and Northern Powerhouse Rail benefit not only Leeds, but the whole West Yorkshire region by integrating these projects closely into inter-city, local and regional public transport infrastructure (WYCA, 2017d).

2.3.10 What challenges remain?

The WYCA is one of only two devolution agreements which have not yet included a mayor (the other being Cornwall). Originally the Sheffield City Region devolution deal did not include a mayor either, but subsequently a mayoral deal was agreed.

The WYCA has ambitious plans for the transport system, but faces challenges funding them in terms of both capital and revenue. WYCA provides revenue support for rail services in the West Yorkshire boundary, although this can create some perverse incentives, and for some commuting trips within city region the cost per mile is not comparable such as Barnsley, Selby or York. Even with the funding provided by the £1 billion Transport Fund, the Highway Maintenance Block and Integrated Transport Block, the WYCA estimates that it requires an extra £90 million per year for the next 20 years to fund its entire transport strategy (WYCA, 2017d). The WYCA hopes to raise these funds through a number of sources, including securing

new capital funding from government grants or Local Growth Deals, exploring options for new areas of revenue funding from sources such as road user charging and workplace parking levies, and through development funding from the private sector (WYCA, 2017d). Additional funding could also be secured through the agreement of a mayoral devolution deal. However, there is no guarantee that these funds will be sufficient to match the WYCA's aims and this remains a major challenge in delivering the overall plan.

The WYCA has proposed a £1 million reduction in its transport levy in 2017/18, with further reductions considered in future years in recognition of continuing pressure on local government funding. The funds raised by the levy are used in part to support the WY+TF, with the remainder applied to normal transport activities. The WYCA calculates that this represents an almost 3% loss each year, which is supported via the use of reserves (WYCA, 2017g).

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2.4 Tees Valley Combined Authority

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2.4.1 Introduction

The Tees Valley Combined Authority (TVCA) was established in April 2016 and comprises five unitary authorities in North East England: Stockton-on-Tees Borough Council, Darlington Borough Council, Hartlepool Borough Council, Redcar and Cleveland Council, and Middlesbrough Council. The TVCA's cabinet consists of a representative from each of its five member authorities, plus a directly elected mayor – currently Ben Houchen. The TVCA also serves as the accountable body for the Tees Valley Local Enterprise Partnership, who are also Associate Members of the TVCA's cabinet.

2.4.2 What modes of transport do they have a role or influence on?

The creation of the Tees Valley Combined Authority transferred powers for transport, investment, and employment and skills from central government to the TVCA and the mayor. The TVCA is the Transport Authority for the area, which previously did not have an Integrated Transport Authority or Passenger Transport Executive.

In terms of transport these powers are (DCLG, 2017):

- Responsibility for producing a local transport plan for the area was transferred from the constituent unitary authorities to the mayor. The transport plan will include details on how transport will support local housing provision and jobs, and how the mayor and the TVCA will tackle problems such as accessibility, congestion and air pollution.
- The mayor has powers under the Bus Services Act 2017. These include options for oversight of local bus services; including 'bus franchising powers' to set standards for local bus services including the routes, timetables and fares, subject to the provisions in these powers. These powers were not previously held by the unitary authorities and they form part of the devolution arrangements allocated by central government.
- The mayor has the power to propose that a particular area should be included in 'Mayoral Development Corporations' (MDCs). An MDC has the power to acquire and develop land to deliver regeneration and economic development and may take on the role of making local plans for the area or deciding on planning applications. This power was not previously held by the unitary authorities and has been transferred from central government.

It should be noted that, although some transport powers have been transferred from the unitary authorities to the TVCA and mayor, the unitary authorities remain the highway authority for their respective areas. Each highway authority is responsible for maintaining those highways within its area, regulating activities of developers in relation to their highways, and implementing the actions identified in the TVCA's Strategic Transport Plan via local implementation plans.

2.4.3 What role do they play?

The TVCA is developing a strategic transport plan due for publication in early 2018. This plan is designed to support the overarching strategic economic plan which sets out the growth ambitions for the Tees Valley until 2026. The strategic transport plan will set out how the TVCA wants to improve local transport systems, and it will identify a number of priorities for improvement involving multiple modes of transport. The TVCA has identified a Key Route

Network for the Tees Valley, across which they will identify and deliver proposals to support economic and housing development where required, using funding from within the investment plan. The pipeline of projects across this network will be set out in an area action plan, a supporting document to the strategic transport plan (TVCA, 2017a, pp. 30–31).

The South Tees Development Corporation, a Mayoral Development Corporation on a South Tees site in Redcar, was established by the *South Tees Development Corporation (Establishment) Order 2017* to coordinate and drive regeneration in the area.

2.4.4 What is the legal or other basis of this?

In 2015 a devolution deal was agreed in principle between the Government and the constituency unitary authorities of the now Tees Valley Combined Authority, then acting in shadow capacity (HM Treasury, 2015). The deal agreed to establish a mayoral combined authority and to devolve significant powers for transport, investment, and employment and skills from central government to the TVCA and the mayor. As no Passenger Transport Executive or Integrated Transport Authority (ITA) previously existed in the Tees Valley (as in many other areas that have become combined authorities), the transport powers typically held by ITAs were directly granted to TVCA and were not assumed from these other bodies as they were dissolved (TVCA, 2015).

The power to create a combined authority is contained in the *Local Democracy, Economic Development and Construction Act 2009*, which gives Government the power to establish combined authorities with powers to deliver transport functions and council functions relating to economic development and regeneration.

The *Cities and Local Government Devolution Act 2016* changed the 2009 Act to allow combined authorities to receive a wider range of powers and functions and to have directly elected mayors. Through an order, the Government can give any council power to a combined authority, give any public authority power to a combined authority, or create an elected mayor for a combined authority's area in response to proposals agreed by the combined authority and its constituent councils.

The legislation establishing the Tees Valley Combined Authority is as follows:

- The *Tees Valley Combined Authority Order 2016* established the Combined Authority.
- The *Tees Valley Combined Authority (Election of Mayor) Order 2016* provided that the area of the combined authority was to have a directly elected mayor, and for the date of the first and subsequent elections to the role of mayor and the term of office.
- The *Tees Valley Combined Authority (Functions) Order 2017* conferred on the Tees Valley Combined Authority 'in relation to its area functions corresponding to functions that the Mayor of London has in relation to Greater London'. These functions included the power to designate any area of land in Tees Valley as a mayoral development area, as well as the ability to decide that a mayoral development corporation (MDC) is to be the local planning authority for some or all of the area and to make a scheme transferring to an MDC property, rights and liabilities of certain persons.
- The *Tees Valley Combined Authority (Functions and Amendment) Order 2017* conferred certain functions of the constituent councils and a certain public authority function to be exercised by the combined authority and mayor. These functions include that 'the Mayor of the Tees Valley will take responsibility for a devolved and consolidated transport budget and the preparation of a statutory transport plan for the area'.

The *Bus Services Act 2017* provides for the mayor to have bus franchising powers should they wish them.

The *Combined Authorities (Overview and Scrutiny, Access to Information and Audit Committees) Order 2017* provides for the membership and proceedings of overview and scrutiny committees, and audit committees, of combined authorities.

2.4.5 How are decisions made?

Regarding transport matters, decisions are taken by the Tees Valley Combined Authority Cabinet comprising the mayor (who chairs the cabinet) and the leaders of the constituent authorities. The chair of the Tees Valley Local Enterprise Partnership also sits on the cabinet, but does not have a vote (DCLG, 2017).

Cabinet decisions are ideally taken by consensus but when decisions cannot be reached by consensus, matters are decided by a majority vote wherein each cabinet member has an equal vote. The mayor must vote with the majority for the vote to be carried however, thereby effectively giving the mayor a veto (DCLG, 2017). Additionally, the Mayor's Transport Plan requires unanimous agreement from the cabinet.

The TVCA also has a Transport Committee which advises the cabinet on transport issues. It is chaired by a cabinet member responsible for the TVCA's transport functions, and the other members are executive members from each constituent authority. The cabinet may delegate any transport-related function to the Transport Committee (DCLG, 2017).

Many groups are responsible in some way for the Tees Valley's transport infrastructure. The Transport Advisory Group brings together these groups to develop proposals for investment and improved services. The group comprises Officers, who convene on a monthly basis, and Partners, who attend on a quarterly basis. The reporting structure of groups relating to transport in the TVCA is outlined in Figure 27 (TVCA, 2017b).

In order to set up a Mayoral Development Corporation (MDC), the Mayor needs the consent of the constituent council members who represent the areas covered by the MDC, as well as a majority of the cabinet as a whole. The cabinet also sets the constitution of the MDC (DCLG, 2017).

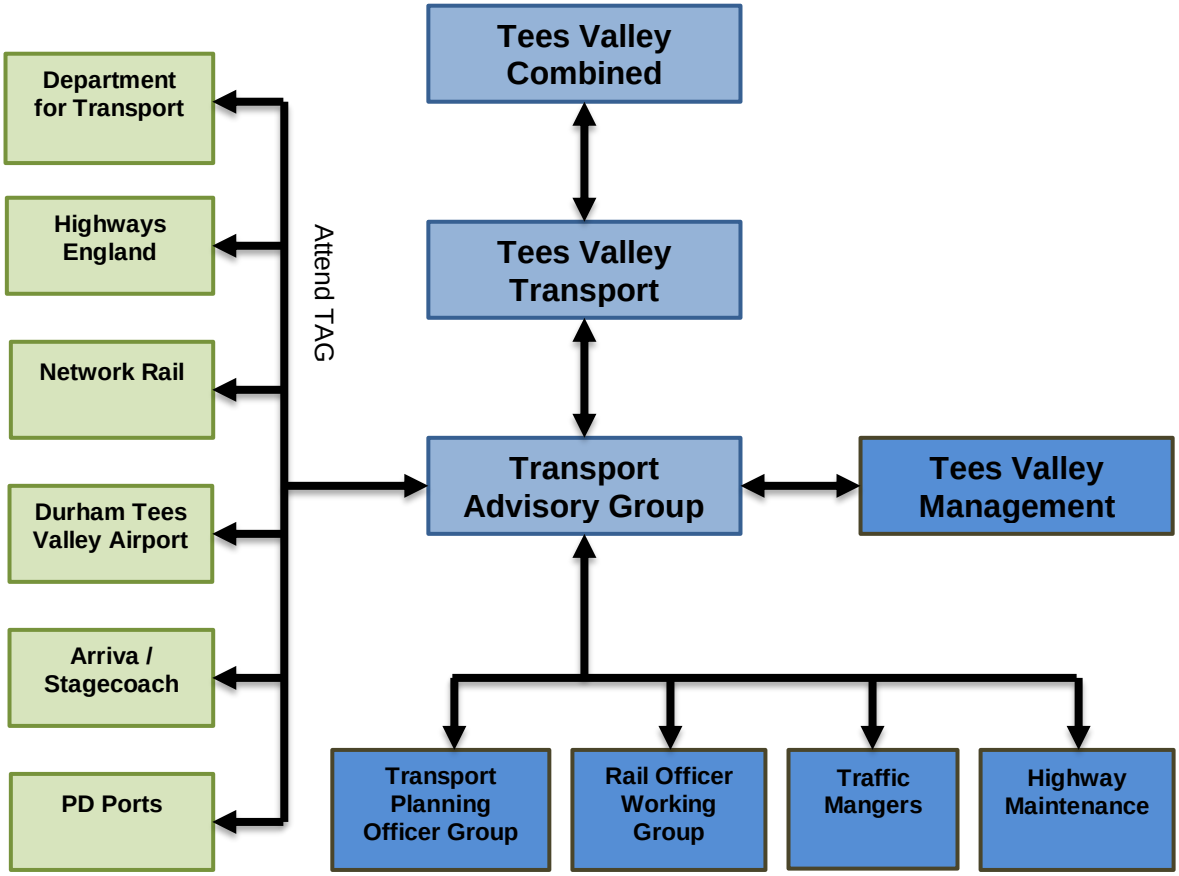

Figure 27: Transport reporting structure – TVCA (source: TVCA, 2017b)

2.4.6 How do they evaluate successful delivery of projects?

The Tees Valley Devolution Deal required the TVCA to implement a programme of evaluation, whereby an independent assessment will be undertaken of the economic benefits as well as the social and economic impacts of the investments made under the Investment Fund, including whether the projects have been delivered on time and to budget.

A five-yearly assessment will be carried out by independent advisors commissioned jointly by the government and mayoral combined authorities that benefit from an investment fund. Further funding will only be unlocked if this Gateway process confirms that investment has met the assurance framework and contributed to national growth (HM Treasury, 2015).

The TVCA has published a Single Pot Assurance Framework to explain how they will ensure accountable and transparent decision-making, appraise projects, monitor and evaluate schemes to achieve value for money, and ensure that funds are spent lawfully (TVCA, 2016). As part of this document, the TVCA have set up:

- an Audit and Governance Committee to 'assure sound governance, effective internal control and financial management of the CA, and that the CA observes a high standard of conduct in public office'. An annual external audit of the combined authority's accounts will also be undertaken by an external accountancy firm appointed by Public Sector Audit Appointments Limited and will be included within the statutory statement of accounts.

- a £1 million Evaluation Fund (TVCA, 2017c) to enable the evaluation of their investment programme to ensure that decisions are made on the best possible evidence, and robustly evaluated.

The TVCA also has an Overview and Scrutiny Committee comprising 15 members – three from each constituent authority. The committee may 'review or scrutinise decisions made, or other action taken in connection with the discharge of the Combined Authority's or the Mayor's functions'. Where a decision has not been implemented, the committee may direct that it is not implemented for up to 14 days and may also recommend that a decision be reconsidered. The combined authority must consider any recommendations made, respond to the committee indicating the actions which the combined authority proposes to take in reflection, and publish their response should the committee have published their reports or recommendations (TVCA, 2017d).

2.4.7 Funding

The TVCA and mayor will have control of a 'single pot' of funding from government, made of a number of different budgets. TVCA is able to move single pot funding between different types of projects or spend it in different years should they wish (DCLG, 2017). For transport these budgets include:

- Investment Fund Grant: £15 million per year for the next 30 years totalling £450 million (DCLG, 2017).
- Transport Grant: comprising several existing funding streams (DCLG, 2017):
    - Integrated Transport Block (formula funding);
    - Highways Maintenance Block (formula funding);
    - Highway Maintenance incentive funding;
    - National Productivity Investment Fund (2017/18 only);
    - Pothole Action Fund; and
    - Transforming Cities Fund.

The Integrated Transport Block, Highways Maintenance Block and Highway Maintenance total an annual grant of £13.93 million each year until 2020/21 and the TVCA distributes the annual grant to each local authority. For the period until 2020/21, the distribution is as follows (TVCA, 2017d):

- Hartlepool: £1,870,972
- Middlesbrough: £2,837,243
- Redcar and Cleveland: £2,907,534
- Stockton-On-Tees: £3,739,214
- Darlington: £2,575,740

The National Productivity Investment Fund totals £2.298 million (TVCA, 2017e).

The Pothole Action Fund is paid directly to each local authority from Highways England, rather than distributed via the TVCA (DfT, 2016).

Another source of funds is the Local Growth Fund, a competitive fund for LEPs and council partners to invest in projects to improve the Tees Valley area. It is made up of a range of different funding streams. The total 'flexible' element of the TVLEP's Local Growth Fund allocation for 2016/17 to 2020/21 is £103.129 million (DCLG, 2017).

In addition, there are several other ways in which mayoral Combined Authorities can raise additional funding (House of Commons Library, 2017):

- Mayors are able to raise a precept on constituent authorities' council tax bills.
- CAs may raise a levy on their members. This constitutes a shift in funding between tiers of government, rather than a means to raise 'new' money.
- CAs may, once a new Order is approved by Parliament, borrow money under the local government prudential borrowing regime.

The Government provides some funding for bus franchising through the Bus Services Operator Grant and concessionary fares payments made as part of the Local Government Finance Settlement. Usually the operator grant is paid to the bus services, but can instead be paid to the combined authority should the mayor take responsibility for bus services. In this event, the CA must then pay running costs for any franchised services (DCLG, 2017).

2.4.8 What has this enabled?

The creation of the TVCA has unlocked significant extra funding and powers from central government to the local area. Bringing all the unitary authorities together under one organisation ensures that local decision-making is more collaborative and provides for a more coordinated approach to strategic planning. For example, in terms of transport the publication of a single local transport plan for the whole of Tees Valley allows for a more comprehensive and integrated plan for the whole area than was possible prior to devolution when each unitary authority published individual Travel Plans.

This combined organisational structure also allows for a 'single voice' to represent the Tees Valley region on the national and regional stage. For example, it allows for participation in workstreams established by Transport for the North (TfN) and Rail North to identify transport interventions and develop key infrastructure projects for the whole northern region of England.

New mayoral powers provide the TVCA and mayor with the ability to overhaul the working of bus services and establish Mayoral Development Corporations. The TVCA has announced that they are producing a standalone 'bus strategy' for the Tees Valley to inform future decisions relating to these new powers (TVCA, 2017f). Additionally, the first MDC – the South Tees Development Corporation – has been set up to drive regeneration in its area.

2.4.9 What challenges remain?

As a consequence of governing a larger region many of the investment priorities identified by the TVCA are of larger scope too. Within the TVCA's Investment Plan they have identified a key issue: some of the priorities they have identified are too large to be funded locally, but too small to access available national funding (TVCA, 2017a). To be eligible for Local Major Funding, for example, schemes must be demonstrated to be both unachievable through local funding and also estimated to cost more than £36 million (DfT, 2017). In cases where expected costs fall

between these two parameters or where they are unable to secure Local Major Funding, the TVCA must seek to complement its own investments with a range of other available funding sources which adds substantially to the complexity and uncertainty of funding major projects.

The TVCA faces a unique challenge relating to the political affiliation of its cabinet compared to its mayor. Each local authority which comprises the TVCA is Labour-led while the mayor is Conservative. Associated differences in political opinion and objectives between the mayor and the rest of the cabinet could therefore present operational difficulties to the TVCA in the future, given that the decision-making process outlined earlier (i.e. the mayor's effective veto and the cabinet's ability to reject the Mayor's Transport Plan). In practice, however, many of the issues being taken forward by the TVCA are subject to a high level of local consensus.

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2.5 Local transport

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2.5.1 Scope

This section considers governance of local transport. It focuses on the competencies and resources spent at a local authority scale. It connects to the sections on city devolution, buses, rail and roads. It looks at differences in structures within England and in the devolved administrations.

2.5.2 Method

This chapter has been prepared drawing mainly on information from the Department for Transport, Scottish Government, Welsh Assembly, Northern Ireland Infrastructure Directorate, Office for National Statistics and publications from the House of Commons Library. A search of Google scholar using the term 'governance of local transport UK' was undertaken. The search was limited to records from 2013 onwards given the ongoing reform processes and the results ordered by relevance. Four articles by the author of this review were identified on the first page from comparative England/Scotland work on local climate change policy. The remainder were either not related to transport, not about the UK or focused more on general governance processes such as devolution.

2.5.3 Institutional structure

2.5.3.1 European Union

Urban transport policy is only influenced indirectly by the European Union. The EU operates with a concept of 'subsidiarity', which Sikow-Magny (2007, p. 69) describes as 'the principle according to which decisions should be taken at the lowest decision-making level possible, given the objective pursued'. In the case of urban transport policy therefore, the EU has focused on investment programmes to stimulate the uptake of more sustainable and innovative city strategies through programmes such as CIVITAS and associated knowledge transfer platforms such as ELTIS+ (CIVITAS, 2017; ELTIS+, 2017). The EU has, more recently, advocated the development of Sustainable Urban Mobility Plans (Wefering et al., 2014) as a basis for local transport planning. However, the guidance drew significantly on the Department for Transport's Local Transport Plan process, which was set out initially in the Transport Act 2000 and is discussed further below.

EU legislation of various sorts, as enacted in UK law, has an impact on local transport policy. There is, for example, significant focus on compliance with the EU Air Quality Directive (2008/50/EC), with local authorities establishing air quality management areas and clean air zones to tackle transport's contribution to the problem. However, relative to other parts of the transport sector, the EU has a limited role in local transport.

2.5.3.2 UK Government

Local transport is a devolved matter. The UK Government in Westminster therefore 'develops the policy and provides the bulk of the funding for local transport in England, including: buses, walking, cycling and local transport (highways and rail) more generally; in other parts of the UK this is provided by the relevant devolved administration' (Butcher, 2017, p. 3). This section therefore provides some general information about spending across England, Scotland, Wales and Northern Ireland on local transport before describing, in more detail, the specific arrangements in each.

Journeys always start and finish in a local area, but many will traverse local boundaries. Similarly, local journeys may be carried out largely on 'national' networks such as motorways. To describe local transport as a devolved matter is a slight oversimplification given that interactions with national rail, strategic roads, aviation and maritime all form part of 'local transport' policy. However, those relationships are described in the other chapters of this annex.

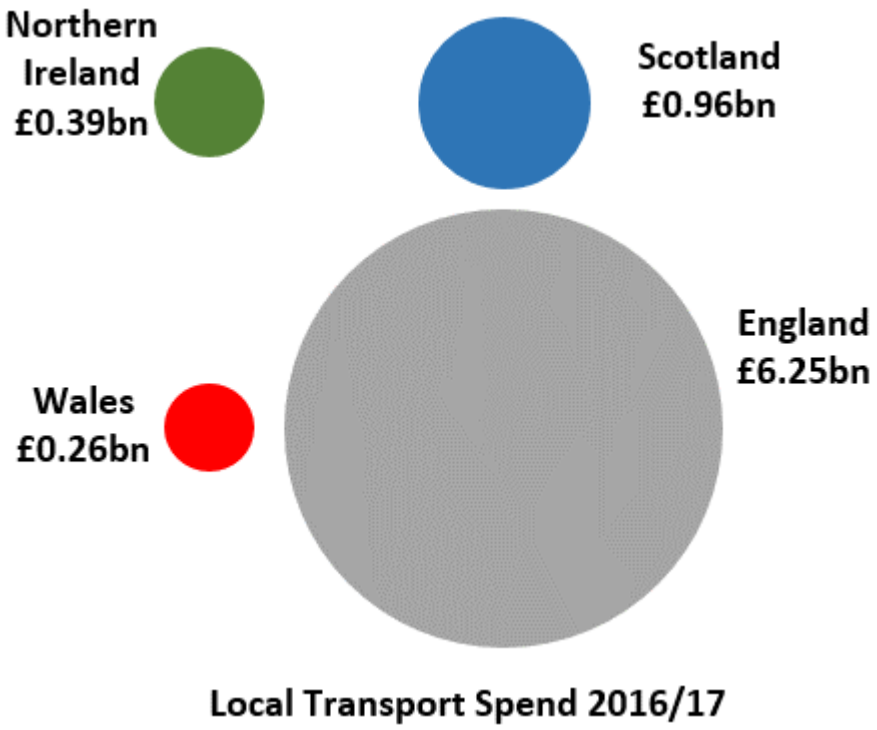

Figure 28: Local Transport Spend by Administration 2016/17. Source: HMT Country and regional analysis

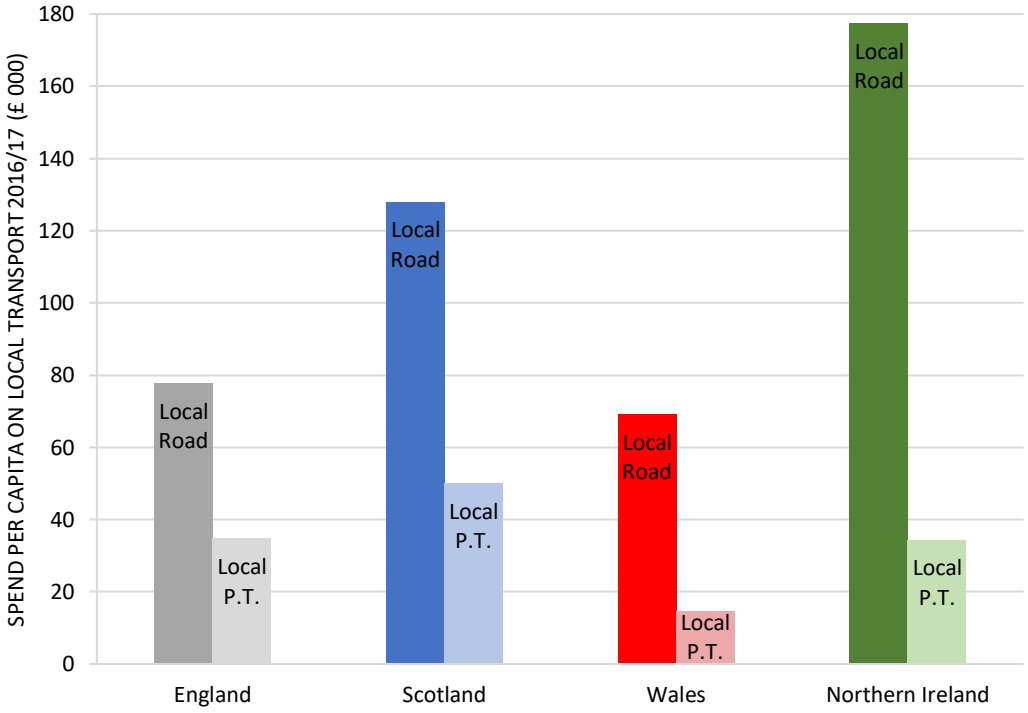

Figure 29: Local transport spend per capita by administration 2016/17 (P.T. refers to Public Transport) Source: HMT Country and regional analysis

The figures on spend on local transport highlight two aspects of relevance to the further discussion of competencies for local transport planning in the sections that follow. First, there are very different scales of total local transport expenditure in the different administrations, with local transport spend in England more than six times that of Scotland and more than 24 times that in Wales. Greater spending will partially reflect the larger population. However, the scale of expenditure will have a connection to numbers of institutions and proximity from local to national decision-makers. Broadly, larger institutions will have greater budgets, so will deal with larger projects as part of their routine business. The second point is that per capita the differences are, while not insignificant, smaller (the highest per capita spend is in Northern Ireland, which is over twice that in Wales) and they vary more significantly in the balance of road to public transport spend across jurisdictions. Total spend differences may be linked to the funding settlement process for each administration as well as local circumstances (e.g. largely rural characteristics will put more emphasis on road spend) and preferences of decision-makers.

This section now describes the differences that exist between arrangements for local transport planning in England, Scotland, Wales and Northern Ireland before comparing across the different jurisdictions. This is a complex picture as in England, Scotland, and to some extent Wales, there are significant variations at a sub-national level. Indeed, institutional heterogeneity and complexity is a key feature revealed by the analysis.

2.5.3.3 England

The National Audit Office in its 2012 review of funding of local transport in England summarised the overarching role of local government in planning transport services, stating that 'They have around 300 statutory responsibilities for transport, such as developing local transport plans and administering the "national concessionary travel scheme". [Local authorities] plan and commission services (including bus and light rail), and provide and maintain infrastructure (collectively they are responsible for 98 per cent of the road network). Local authorities encourage public use by providing information and services for groups such as the elderly and disabled' (NAO, 2012, p. 5).

Local transport planning in England is delivered through a variety of structures. In total there are five possible types of local authority in England. These are:

- 'County councils – cover the whole county and provide 80 per cent of services in these areas, including [transport], children's services and adult social care

- District councils – cover a smaller area within a county, providing more local services (such as housing, local planning, waste and leisure but not children's services or adult social care); can be called district, borough or city council.

- Unitary authorities – just one level of local government responsible for all local services, can be called a council (e.g. Medway Council), a city council (e.g. Nottingham City Council) or borough council (e.g. Reading Borough Council)

- London boroughs – each of the 32 boroughs is a unitary authority.

- Metropolitan districts – effectively unitary authorities, the name being a relic from past organisational arrangements. They can be called metropolitan borough or city councils.' (LGIU, 2017)

In addition to these bodies there is the Greater London Authority, which sets out the Mayor of London's transport strategy. Transport for London acts as the delivery agency for much of the mayor's transport strategy and works with the London boroughs for more local matters.

Elsewhere in England there are nine combined authorities, many but not all of which are based around previous Passenger Transport Authority areas: ‘These combined authorities receive additional powers and funding from central government. They are important for transport and economic policy across the regions in which they are based and in many cases for planning and delivery of services in conjunction with the associated Metropolitan Districts and other partners’ (LGIU, 2017). There are currently nine combined authorities in England, as follows (with an indication of whether they have a directly elected Mayor or not):

- Cambridgeshire and Peterborough – mayor
- Greater Manchester Combined Authority – mayor
- Liverpool City Region – mayor
- Sheffield City Region – mayor
- Tees Valley Combined Authority – mayor
- West Midlands Combined Authority – mayor
- West of England Combined Authority – mayor
- North East Combined Authority – no directly elected mayor
- West Yorkshire Combined Authority – no directly elected mayor

In the chapters on devolution and city governance the relationships between local enterprise partnerships, combined authorities and pan regional developments with Transport for the North are discussed further.

To describe local transport planning in England is, then, to discuss what is becoming an increasingly heterogeneous set of arrangements.

Service	Department for Transport	Local authorities
Road network	• Sets policy framework and provides guidance • Responsible for the Strategic Road Network (via Highways England) • Provides funding and guidance to local transport authorities for local roads	• Manage, maintain and enhance local highway network (including traffic signals and signs)
Bus services	• Sets policy framework to determine how bus services are managed • Pays a grant to all private operators • Advises Department of Communities and Local Government on the formula for the concessionary fare payments scheme for local authorities	• Contract with bus companies to provide commercially unprofitable services • Reimburse bus operators for concessionary fares • Run some community bus services • Maintain and enhance bus stops, stations and signs

Rail services (incl. light rail)	• Sets policy framework to determine how rail services are managed and sets high-level rail outputs • Provides funds for enhancing, maintaining and operating national rail network • Specifies and manages franchises with train operating companies	• Are consulted when new rail services are contracted. • May buy extra services or infrastructure improvements from operators or Network Rail • London, Merseyside and Tyne and Wear specify and manage rail services within their area paid for by a grant from DfT • Some local authorities build and run light rail or community rail schemes
Other transport services and infrastructure	• Allocates funding for major schemes, services or funding competitions • Sets the policy framework for walking and cycling	• Deliver transport projects, usually through third party contractors • Infrastructure for pedestrians and cyclists • Parking services • Licensing private hire vehicles and taxis

Table 3 sets out, in general terms the division of responsibilities for local transport between national government and local government.

Table 3: Roles and responsibilities for local transport in England (NAO, 2012)

Service	Department for Transport	Local authorities
Road network	• Sets policy framework and provides guidance • Responsible for the Strategic Road Network (via Highways England) • Provides funding and guidance to local transport authorities for local roads	• Manage, maintain and enhance local highway network (including traffic signals and signs)
Bus services	• Sets policy framework to determine how bus services are managed • Pays a grant to all private operators • Advises Department of Communities and Local Government on the formula for the concessionary fare payments scheme for local authorities	• Contract with bus companies to provide commercially unprofitable services • Reimburse bus operators for concessionary fares • Run some community bus services • Maintain and enhance bus stops, stations and signs
Rail services (incl. light rail)	• Sets policy framework to determine how rail services are managed and sets high-level rail outputs • Provides funds for enhancing, maintaining and operating national rail network • Specifies and manages franchises with train operating companies	• Are consulted when new rail services are contracted. • May buy extra services or infrastructure improvements from operators or Network Rail • London, Merseyside and Tyne and Wear specify and manage rail services within their area paid for by a grant from DfT • Some local authorities build and run light rail or community rail schemes
Other transport services and infrastructure	• Allocates funding for major schemes, services or funding competitions • Sets the policy framework for walking and cycling	• Deliver transport projects, usually through third party contractors • Infrastructure for pedestrians and cyclists • Parking services • Licensing private hire vehicles and taxis

2.5.3.4 Scotland

Scotland has the most complete set of powers over transport devolved to it from Westminster. Over the course of the Scotland Act (1998), the Scotland Act (2012) and Scotland Act (2015) most powers related to local transport have been devolved. These include 'Roads and road-based transport: promotion of road safety; bus policy – including bus subsidies and regulation; cycling powers; parking policy; local road pricing (including congestion charging); speed limits; road signs; management of pedestrian crossings; and concessionary travel schemes' (Butcher, 2017).

In Scotland, three tiers of government matter to transport delivery: national (where Transport Scotland is the strategy and delivery organisation for the Scottish Government), regional and local. At a national level Transport Scotland is responsible for a range of policy areas which have direct influence over regional and local transport as well as funding allocations and the approval of major scheme funding. Transport Scotland sets a policy context through a National Transport Strategy, it manages the national concessionary fares scheme for elderly and disabled people, liaises with regional transport partnerships, including monitoring of funding, and leads on sustainable transport, road safety and accessibility, local roads, bus, freight and taxi policy (Rehfisch, 2016).

Transport Scotland sets out the purpose of Regional Transport Partnerships (RTPs) as being 'to strengthen the planning and delivery of regional transport developments' (Transport Scotland, 2017). Each RTP has to prepare a Regional Transport Strategy and set out when and how cross-boundary projects and proposals would be delivered. It is also important to note that the Strathclyde Partnership for Transport (formerly Strathclyde Passenger Transport Executive) owns and operates the Glasgow subway and major bus stations across the west of Scotland. The seven RTPs are shown in Figure 24. Transport Scotland establishes the administrative form of RTPs as 'independent bodies corporate defined in the Transport (Scotland) Act 2005. That legislation bases them on the local government model but they are not local authorities and they are not NDPBs [non-departmental public bodies]. RTPs are like joint boards, bringing councils together to perform local government functions collectively and strategically over a larger area' (Transport Scotland, 2017).

RTPs are independent bodies corporate defined in the Transport (Scotland) Act 2005. That legislation bases them on the local government model, but they are not local authorities and they are not NDPBs. RTPs are like joint boards, bringing councils together to perform local government functions collectively and strategically over a larger area.

There are 32 unitary local authorities in Scotland. Local authorities are the designated highways authorities for non-trunk roads. Unlike in England, local transport plans are only required where the local authority is seeking to bring forward a proposal for congestion charging. There are no powers available for Scottish local authorities to bring forward workplace parking levies.

Local authority areas reflect the geographical diversity within Scotland with wide variations in size (from 60 km^2 in Dundee City council area to 25,656 km^2 in Highland council area) and population (from under 20,000 people in Orkney Islands council area to over 600,000 in Glasgow City council area).

Full details of the Scottish local transport system are provided in section 2.1.

2.5.3.5 Wales

The Welsh Government is 'responsible for developing and delivering a transport strategy and a National Transport Plan' (Butcher, 2017, p. 14). The last National Transport Strategy was published in 2008, although a more recent Finance Plan was produced in 2015. Local transport

planning powers and arrangements have seen substantial changes, and continue to do so. This is in part due to the changing devolution relationship between Westminster and Cardiff and in part due to changing emphasis given to transport planning through regional or local bodies.

The Wales Act (2017) will, broadly speaking, mirror the devolution agreement arrangements in place in Scotland so that all matters which are not specifically reserved for decision-making at a UK level will be devolved to Wales. This contrasts with the position at the moment where only those matters which have specifically been listed could be legislated upon. In effect, the key areas of local transport competence which will become devolved once the provisions of the Wales Act (2017) are put in place are:

- setting speed limits;
- regulating with regards to pedestrian crossings and traffic signs;
- prescribing signs and approving school crossing patrol uniforms;
- complete powers over the bus network including to legislate on re-regulation; and
- taxi and private hire vehicle licensing.

Local government in Wales comprises 22 single-tier unitary authorities. 'The Transport Act 2000, as amended by the Transport (Wales) Act 2006, introduced a statutory requirement for local transport authorities to produce a local transport plan every five years and to keep it under review' (Welsh Government, 2014, p. 3). This is similar to the requirement for strategy development in England.

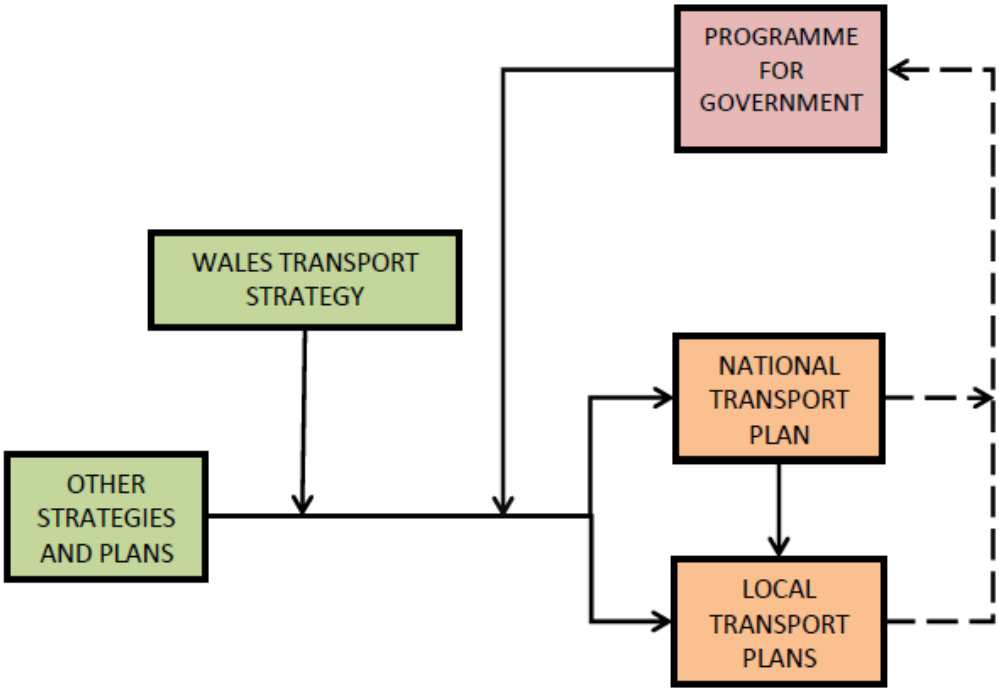

Figure 30: Welsh local transport plans in context (source: Welsh Government, 2014, p. 4)

It is up to local authorities whether to work alone or to submit joint plans with neighbouring local authorities. In total nine local transport plans were submitted in 2015 from the 22 single-tier authorities. It is important to note that in 2006, the Regional Transport Planning Order (2006) required that local authorities be part of one of four Regional Transport Planning consortia

covering South East Wales, South West Wales, Mid Wales or North Wales and that this should be the basis for transport planning (NafW, 2006 and Figure 31). However, these consortia were abolished in April 2014.

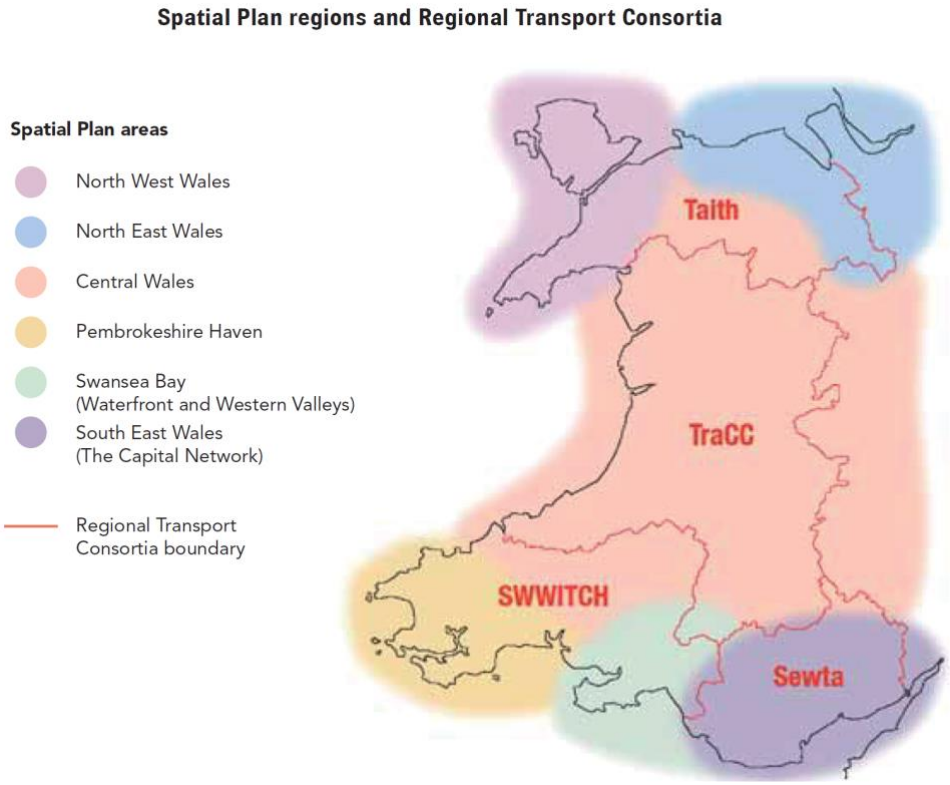

Figure 31: The now defunct Regional Transport Consortia of Wales (source: NafW, 2008, p. 56)

The establishment of the Cardiff Capital City Region Deal has, however, re-ignited discussion on integrated transport planning at a regional scale. In January 2017 the City of Cardiff confirmed plans for a non-statutory 'Capital Region Transport Authority' which would be responsible for:

- 'Pooled local transport resources;
- Regional planning for the local transport network;
- Working with Transport for Wales to ensure objectives for transport investment are aligned;
- Exploring the creation of a single integrated ticketing platform for public transport across the Cardiff Capital Region;
- Working in partnership with the Welsh Government to define the priorities of the South East Wales Metro concept and to support its delivery;…' (CoCC, 2017, p. 7)

Over time, therefore, there has been considerable variation not only in opinions on regional-level planning, but also in who has formal responsibility for transport planning at a local versus regional scale. The reality is that with nine local transport plans and one bottom-up regional body, there is a pooling of resources across authorities to help deliver cross-boundary projects

and also in recognition of the scale of tasks and the need to share skills and resources effectively across boundaries.

The approach to funding suggests a very strong national-level influence over what happens year to year in each authority or plan area. The Welsh Government publishes a set of approved schemes which, for 2017–18, ranged from £4,000 for the production of active travel maps through to £1.5 million for highway works on Cynon Gateway South (Welsh Government, 2017).

A noteworthy legislative difference between Wales and other administrations is the Active Travel (Wales) Act 2013. This requires local authorities to develop integrated network maps for active travel (walking and cycling) and to consider these when developing their local transport plans. The maps were due to be produced in autumn 2017 and so it remains early in the process to say how this is affecting practice on the ground.

2.5.3.6. Northern Ireland

There are 11 local councils in Northern Ireland, all acting as unitary authorities. This was consolidated from 26 in 2015. The largest authority is Belfast City Council, with a population of just under 340,000. However, the local councils are not responsible for transport except for off-street car parks. Transport is the responsibility of the national Department for Infrastructure, which deals with all aspects of policy and planning from bus service registrations, concessionary fares, walking and cycling investments to major new transport schemes. The Department for Infrastructure therefore acts as the highways authority for all roads and is responsible for all roads, footways, bridges and streetlights. This split of national and local powers has been in place since 1973 following the Local Government Act (Northern Ireland) 1972 (see Department for Infrastructure, n.d.).

2.5.3.7 Comparison

There is a very varied set of local and national delivery structures across the UK. It ranges from entirely centralised in Northern Ireland through to a potential six tiers of government in England. Scotland and Wales largely function with a two-tier system of national and local, although regional bodies have some limited influence and this tends to be in a state of flux over time. The illustration in Figure 32 summarises the varying tiers of governance between countries.

One of the reasons for regional or pan-regional bodies is that schemes do not always fall neatly into national or local categorisations. Commuting patterns and the movement of goods over extended distances provide some need for coordination beyond local authority boundaries. The critical issue or tensions, as explored in the case studies of Transport for the North, West Yorkshire and Tees Valley Combined Authorities, is how much influence these bodies have over schemes which are often delivered by either the national network providers or local highways authorities. The scale of governance in England relative to the devolved administrations means that there are many more of these interfaces. Devolution is leading to somewhat different arrangements emerging in different parts of England.

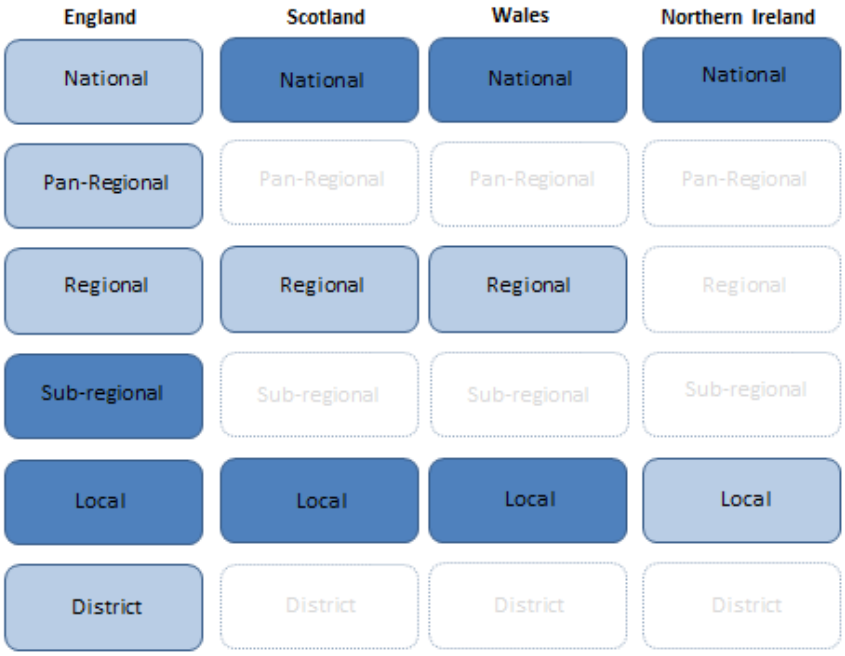

Figure 32: Different tiers of government

2.5.3.8 Regulatory bodies

There is no specific local regulatory body for transport as these issues are covered under modes.

2.5.3.9 Companies and arms-length agencies

As identified in the chapter on buses, there remain a few bus companies with some local authority ownership but these are a minority and the number is not expected to grow. Some local authorities have shares in airports and some involvement in smaller ports. In general, however, local transport planning is about setting policy and managing the use of infrastructure rather than owning assets to run services.

2.5.3.10 Consumer representation

Consumer representation is organised by mode of transport. It is also arguably played out in political support for or criticism of schemes and policies that are brought forward.

2.5.3.11 Other

Sustrans is a national charity which exists to promote walking and cycling and to support the development of safe traffic-free bike routes. Sustrans develops and maintains the National Cycle Network, which is now over 14,000 miles long. There is an increased interest in growing walking and cycling across all administrations, but thus far Wales is the only administration to have passed an Active Travel Bill.

2.5.4 Funding and financing

Funding for local transport comes from both national transport and local government departments, with the exception of Northern Ireland where all funding is managed through the Infrastructure Department at a national level.

Local transport spend is a relatively small part of overall capital spend, as shown in Figure 33. Care needs to be taken in interpreting the figures, however, as ‘national’ rail investments also benefit local travel. Note that the figure for Network Rail is larger than that for Railways’ money from DfT, because Network Rail has other sources of income, including subsidy and Crossrail.

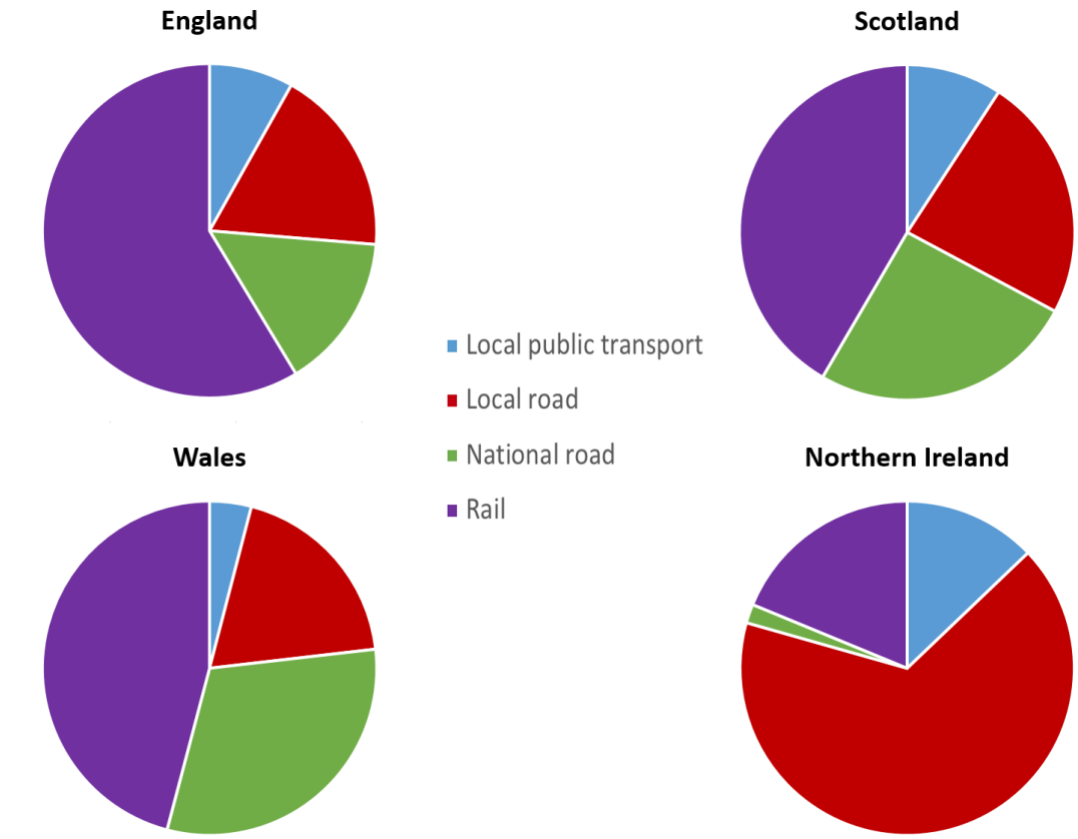

Figure 33: Spend by category by country 2016/17. Source: HMT Country and regional analysis (2017)

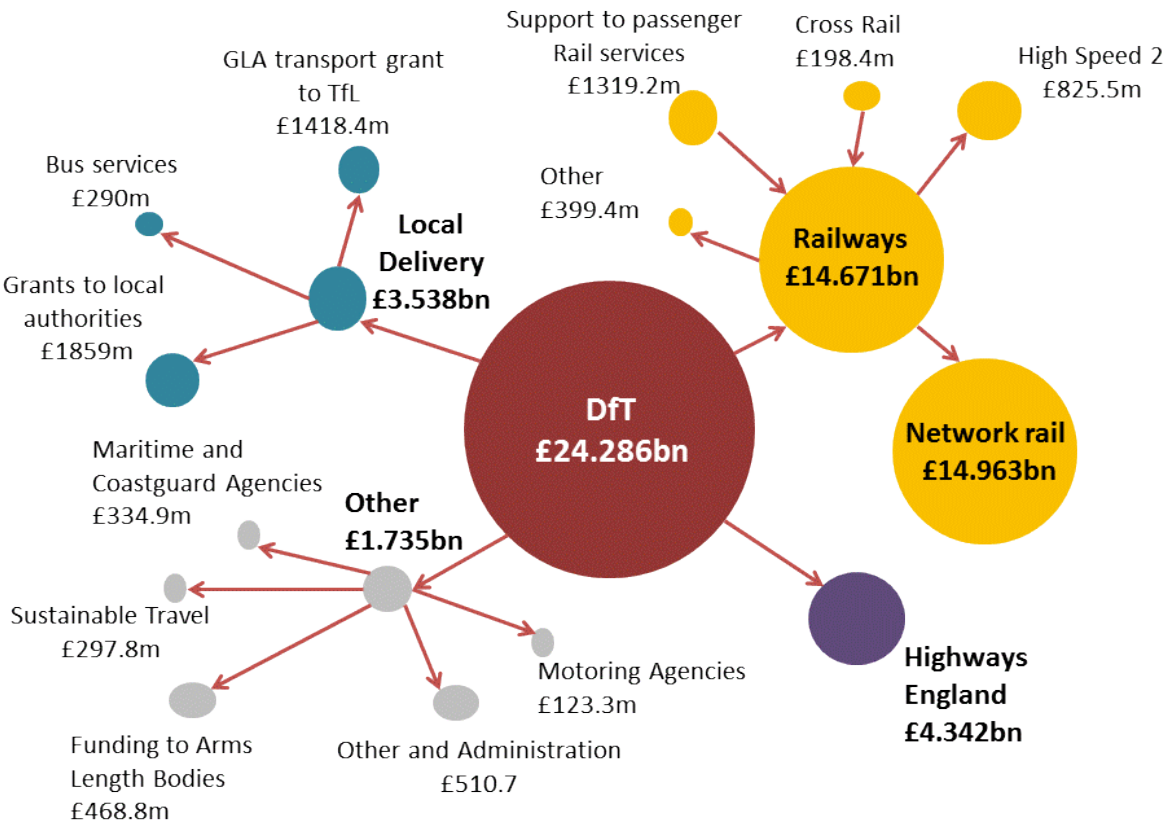

Figure 34: Department for Transport spending profile (data: DfT, 2017a)

The amount of local revenue resource which is provided to assist with behaviour change measures, supporting socially necessary bus services and road safety interventions, has been declining.

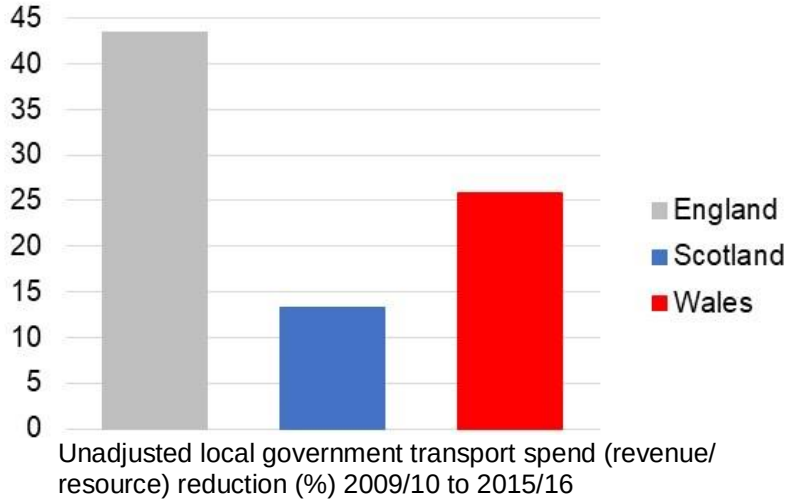

Figure 35: Declining revenue resources for local government (DfT, 2017b)

Other sources of local revenue include income from planning obligations or the Community Infrastructure Levy (in England ad Wales) and parking charges. In England, in 2016/17 an estimated £1.582 billion of income was gathered from parking with a net profit after operating costs of £819 million – up 10% on 2015–16 and up 40% on 2013–14 (Leibling, 2017). Clearly this is one way in which local authorities are seeking to backfill for resources lost from other income streams.

The National Audit Office reviewed all local government spending and the contribution of transport to this in 2012. It found that, In England, 7% of local authority budgets were spent on transport of which around 36% was used to build or maintain infrastructure. Almost two thirds of the Department for Transport's funding given to local authorities was not ring-fenced to be spent on transport (NAO, 2012). Clearly the decline in revenue support across the whole of local government has led to a need to reduce the support given to things like bus services (see chapter 1.2) but also to reduce the size of the staff base in place to deliver services. Any funding predicated on competitions also may favour richer areas or larger cities as those could have more existing capacity or resources to write the necessary bids.

2.4.5 Critical governance challenges

A strength of the current governance system is that there is strong local accountability for expenditure. Where transport has been brought together as an integrated set of systems with clear powers and funding independence this has improved the transport systems. Examples which were identified as particularly effective during the expert workshop were London, Nottingham and Greater Manchester.

There are a number of challenges which face local transport, however. These include:

- There has been a layering of government between local and national, particularly in England. Managing transport only at a local government level is seen to lead to sub-optimal gaming of planning decisions which encourage growth in car travel from more peripheral areas. There has, however, been very limited movement in passing powers up to higher-tier authorities despite diminishing local skills.

- Some areas have already stopped supporting socially necessary bus services due to income shortages and competing needs. There is a growing local maintenance backlog. Simply managing the levels of service seen today is becoming increasingly difficult.

- Some local authorities have such a small transport team that they will probably struggle to adapt to the additional challenges of integrating new services and technologies on their networks, leading to a widening gap between the larger cities and other areas.

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3. FUTURE GOVERNANCE

3.1 Automation

Professor Oliver Carsten, University of Leeds

3.1.1 Introduction

We are on the cusp of a revolution in transport whose effects will be as profound as the introduction of the automobile in the 20th century. Just as the car and truck transformed every aspect of urban and rural life, together with the economy and polity, in the 20th century, it is likely that the same will be true of automation in road transport in the next 50 years.

To date, the focus among policymakers on automated vehicles has been largely on industrial competitiveness and on promoting testing and trials. So it has been deemed important to indicate that each country or region has an open-door policy and welcomes the conduct of trials with as little legal restriction as possible. Thus, prior to his 2017 Budget statement, the Chancellor of the Exchequer Philip Hammond told the BBC that his objective was that driverless vehicles without a safety attendant should be on the UK's roads by 2021 (BBC, 2017).

In fact, the beginnings of the tide of change are already occurring. For example, on 20 November 2017, Volvo Cars announced that it would be supplying tens of thousands of autonomous drive compatible cars to Uber between 2019 and 2021 (Volvo Cars, 2017). Here one can see the link between vehicle automation and Mobility as a Service.

3.1.2 Pathways to automation

There are a number of distinct pathways to automation:

- An **evolutionary** path, where vehicles (typically newer, luxury cars) offer increasing levels of automated assistance to drivers, when the vehicle is operating on more simple roads, i.e. in motorway driving. At Society of Automotive Engineer (SAE) defined Level 4 automation, there will be a capability for hands-off driving, with the main benefit to the human 'driver' being the ability to freely engage in non-driving-related tasks such as interacting with a smartphone, reading, watching videos, etc. Thus some of the time spent driving is no longer 'wasted'.

- A specific **freight-oriented** path in the form of truck platooning. Here only the driver of the lead vehicle is engaged in driving; those in the driving seat of the following vehicles have to be ready to take over, but are not actively engaged in vehicle control. The main benefit is in improved fuel economy, but there could potentially be operational savings if the time spent in a following vehicle does not count towards a driver's hours of service.

- A **revolutionary** path, with the introduction of truly driverless vehicles, which have no pedals or steering wheel, and which therefore cannot be controlled directly from within the vehicle. The most famous example is the Waymo (formerly Google) pods, but others are the pods being used in UK trials in Milton Keynes and Greenwich and the Chrysler Pacifica minivans with Waymo sensors and software being used in US trials (Krafcik, 2016).

Another vehicle type is the 'Last Mile' shuttle for shared public transport, tested in such projects as CityMobil2 and now being sold by companies such as Navya and EasyMile. Navya vehicles are in regular on-road operation in Sion, Switzerland (Navya, 2017).

These vehicles typically operate at low speeds in urban settings, and often require dedicated road space. But they are a foretaste of truly driverless vehicles: their range and capabilities are

likely to be gradually extended so that they can operate in mixed traffic on most urban roads and eventually on almost all road types.

3.1.3 Reasons to automate

While governments may focus on the potential safety benefits of automation, for purchasers and users safety is not the driving force. As already stated, Level 4 driving on motorways offers 'drivers' the opportunity to use their driving time for work-related activity or for 'infotainment'. Urban driverless cars and shuttles provide consumers with convenient door-to-door transport. Driverless vehicles will also provide new possibilities of mobility to user groups who are unable to drive – children, vision-impaired individuals and elderly people.

3.1.4 Costs

In the short term, there will be a need to develop new Whole Vehicle Type Approval procedures for the testing and approval of highly and fully automated vehicles (SAE Levels 3 and 4). This has been recognised by European working groups such as GEAR 2030.

In the medium term, there could well be a need for substantial additional infrastructure investment, e.g. in providing dedicated road space. There is also likely to be a need to provide a roadside communications infrastructure to support automated vehicles with real-time information, as shown in Figure 36. This will impose burdens on highway authorities, not only for initial investment but also for maintenance.

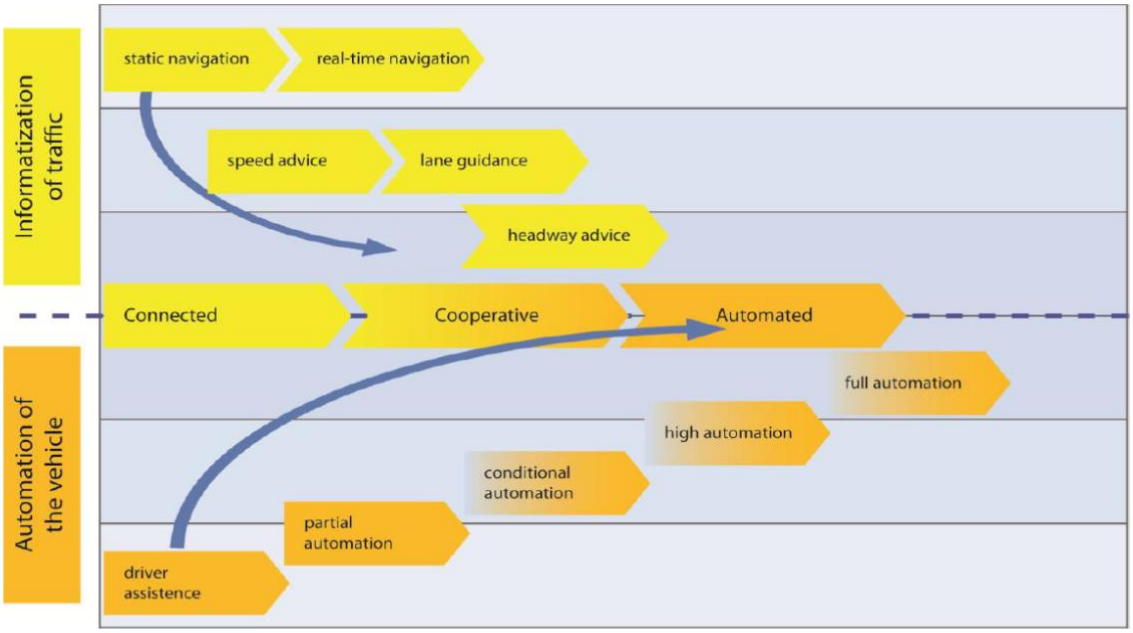

Figure 36: Synergy between information provision and automation (source: Government of the Netherlands, 2016)

3.1.5 Wider impacts

Automation, particularly in the form of driverless vehicles, is likely to have very substantial wider impacts in the medium and longer terms (Turnbull, 2015). It is likely to affect economic growth, energy use, social equity, liveable cities and living streets, access to employment, residential location choice, healthy lifestyles, sociability, travel intensity and mode choice. One can hypothesise that effects might be, for example:

- Competition with urban public transport, particularly buses
- Competition with heavy rail
- Increased intensity of motorised traffic
- Attractiveness of travel which would result in decreased use of healthy modes
- Encouragement of long-distance commuting and urban sprawl
- Substantial impacts on employment from the automation of freight transport and taxi driving.

On the other hand, there would be more favourable or at least less disruptive changes:

- New mobility for the disadvantaged
- Decreased need for parking space on urban roads
- ‘Last mile’ mobility encouraging the use of public transport.

Governance at all levels will be crucial in steering society towards favourable outcomes and also in ensuring that there are measures in place to assist those who may be directly disadvantaged, such as truck and van drivers. In November 2017, the US Government Accountability Office (GAO) accused the US Department of Transportation of lacking a comprehensive plan to address the challenges resulting from the introduction of automated vehicles (GAO, 2017).

The focus in the GAO report was exclusively on relatively short-term and quite narrowly focused issues such as handling interaction of vehicles with pedestrians and specific infrastructure needs to enable AV operation. The situation in the UK and Europe is little different. If even short-term implications are not being considered properly, the far more challenging wider impacts over the medium and long term are being totally neglected.

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3.2 Governance Scenarios

Professor Iain Docherty, University of Glasgow

3.2.1 Introduction

In order to explore the 'what are the challenges for future governance, and what will change?' elements of the project specification, the project team hosted a workshop for 22 expert participants from across the transport sector in York on 27th November 2017. The core of the workshop was a participatory scenarios exercise in which attendees were asked to consider four possible future scenarios that the processes and institutions of transport governance might have to operate within in 2040.

3.2.2 Method

The workshop methodology followed what Millett (2003) calls the 'gold standard' of foresight methods, the 2x2 matrix technique. In their recent transport foresight review, the New Zealand Government summarised the method thus:

"The two-by-two matrix is the most commonly used framework in the dimensions of uncertainty approach to scenario planning. Scenarios are developed based on the shortlisting of two uncertainties from a wider set of environmental elements or drivers. Scenarios are developed in each of the four quadrants, representing two high impact and highly uncertain factors, and four ways they could play out. The two-by-two matrix approach allows detailed exploration of two critical uncertainties that can guide understanding of how they could play out in the future." New Zealand Ministry of Transport (2014:5).

Despite the limited time available, our workshop participants were able to grasp the concept, and create meaningful scenario worlds with which to structure our exposition of future governance challenges. We structured the matrix using the standard model of two 'critical uncertainties' derived from analysis of current trends and trajectories for transport and its wider contextualisation within the overall direction of government policy and action. The two critical uncertainties chosen were:

1. The extent to which 'smart' transport technologies such as connected and autonomous vehicles (section 3.1) become commonplace or even ubiquitous compared to a much more incremental, 'patchy' roll out;

2. The appetite of the state to adopt a 'hands on' interventionist approach to macroeconomic management, versus a 'hands off' laissez faire approach (see also Marsden and Reardon, 2018).

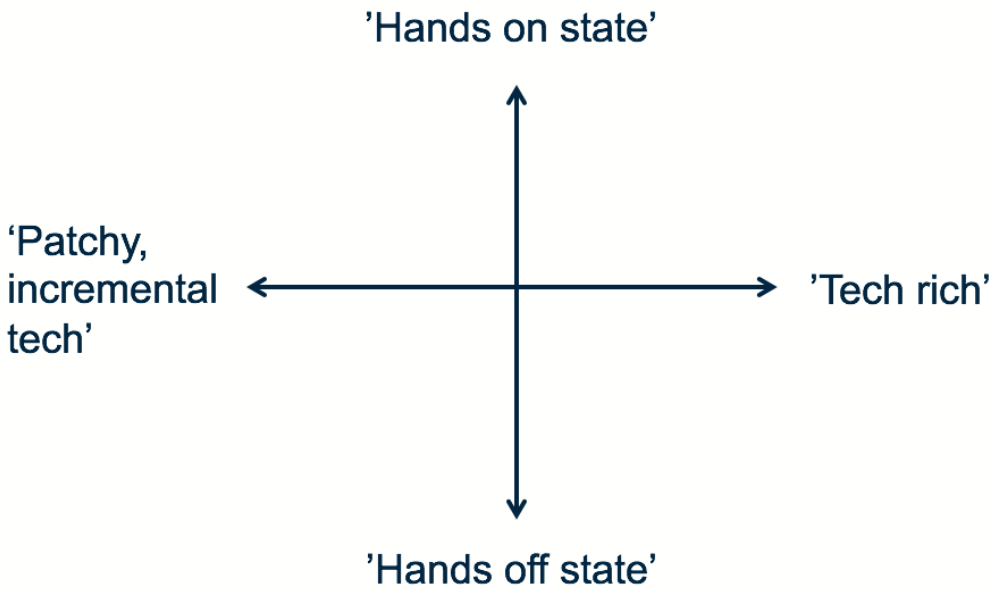

Figure 37: Workshop 2x2 future scenario model

3.2.3 Discussion of the four worlds

Each matrix quadrant represents a plausible world that policy makers might find themselves operating in. We divided the workshop participants into two groups, and asked each to consider the key policy issues that would be apparent in two of the four worlds. As is usual in these workshop settings, we asked the groups to consider 'opposite' scenarios (i.e. diagonally opposing quadrants on the matrix) to stimulate their thoughts as much as possible.

In the tech rich/hands on state future world, we found that several preferred mobility policy solutions that emerged in the 'New Realism' era of the late 1990s / early 2000s but which were deemed too difficult to implement in practice resurfaced. Of particular note was the potential for the state to harness real time 'smart' infrastructure and vehicles to achieve genuinely dynamic pricing and allocation of roadspace. In this world, the available scope for policy makers to manage the transport network so that it contributed directly to wider public policy objectives, especially emissions reduction, was maximised. The key risk in this scenario was a lack of public acceptance of the state assuming the role of 'mobility manager'. Given the already apparent aversion to the collection of more personal data by government, there was agreement that a new democratic 'bargain' about the extent to which mobility is a 'right' would have to be negotiated given the much enhanced role for the state envisaged in this world.

In the tech rich/hands off world, there was a common view that the implied retreat by the state would create a scenario in which there was much greater divergence in the scale and quality of mobility opportunities between places, communities and individuals. Greater complexity would be apparent in terms of competition between a small number of 'curated' mobility solutions packages offered to the market by global technology players such as Apple and Google. In this world, there was the obvious opportunity for service innovation to occur, with the potential that a 'world class' model of mobility making best use of new technologies might emerge. Key risks identified included the imperfect competition implied by an oligopolistic service provider model, and well as the entrenched social inequalities that might result from a purer market model. To mitigate these risks, the need for government to promote and sustain a new wider regulatory framework for mobility, based on the idea that general parameters for 'public value' be set that market providers then worked within, would be necessary. However, the extent to which UK

government could achieve this given the international nature of the standards bodies dominating the technology sector was unclear.

The incremental tech/hands off world was seen as being highly problematic. Many participants envisaged this world, and its inherent policy challenges, as a magnified version of today. The key risk in this world was perceived to be fragmentation of effort, leading to 'islands' of good practice and service delivery, but 'oceans' of mediocrity (the example of having multiple incompatible 'smart' tickets was used to good effect here). This divergence of quality of service was also seen expressed spatially: there was support for the idea that those places that either retained relatively more state control or in which partnership working as more effective would accelerate away from others, in much the same way that the level of service in London today is now qualitatively set apart from major provincial cities. Participants also imagined that the state would be perpetually in 'catch up mode', struggling to put in place any form of effective regulation, and focusing its efforts to enable the mediocre to improve, leaving the few service innovators largely unregulated.

The hands on/incremental tech world was seen as having a range of opportunities and risks. It was likely that there would be multiple niches of excellence, with many opportunities for piloting and experimentation, with those innovators that were able to lead potentially creating efficient mobility solutions that would not only serve their local markets but could also potentially be exportable in some form. However, the key risk in this scenario was that in its quest to 'pick winners' in terms of emerging technologies in order to improve transport, the state might in fact pick 'losers' instead. Even if the state avoided the worst of the 'VHS/Betamax problem' by avoiding investing in failing or short-lived technologies, it was possible that government would be over cautious in supporting technological innovation through fear of doing so. Other key questions in this world were consistent with those of today, especially the extent to which intervention in the form of cross-subsidy would be required to limit the level of service (and wider) inequality to what were deemed tolerable levels. This question would reopen long-running debates about who pays for transport, which modes are subsidised (at the expense of others), and so on.

3.2.4 Commonalities and Transitions

Each of the four worlds presents very different challenges for policy makers. However, as is the objective in these scenario exercises, it is useful to try and identify which if any policies are applicable to each possible future, as these are a key starting point in assessing how to minimise the risks inherent in future intervention.

One common theme in each scenario was the need for government to present a refreshed vision of what regulation and policy intervention are for – and importantly – not for. There was consensus that our current complex of highly asymmetric governance models and mixed public/private ownership of transport operations was the result of a number of long-running yet unplanned and sometimes unmanaged path dependencies. Such was the potential for change in types of transport mode, service quality, distributional impact, pricing and so on inherent in smart mobility – even if its implementation turns out to be patchy and uncertain – that it was agreed the state would have to bring some kind of clarity to its regulatory role, otherwise the political economy of smart implementation might become very difficult to manage and generate problematic externalities.

Another commonality was the need to recognise the data underpinning smart mobility as the key 'resource' in the future transport system. How this data is collected, shared and put to use would be of key importance in terms of defining the overall scope for the state to manage the mobility system and particular issues arising from it – which range from the scope to use

dynamic pricing to radically reduce emissions to constructing a fiscal model to mitigating the significantly divergent service quality levels that might emerge between places.

3.2.5 References

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3.3 Future Funding

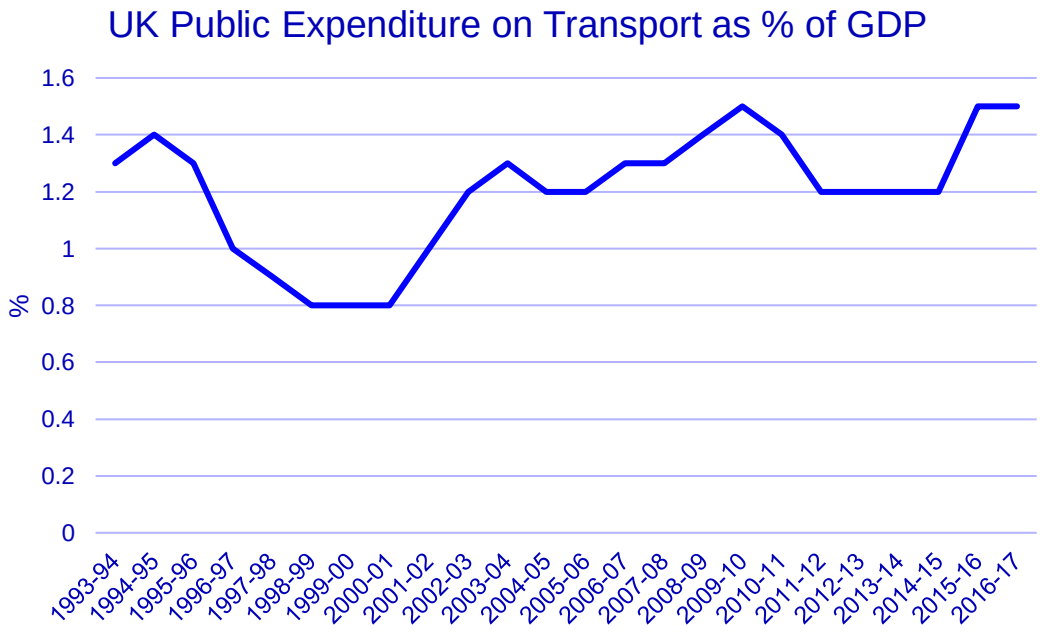
Dr John Nellthorp and Professor Greg Marsden, University of Leeds

3.3.1 Introduction

The remit for the study as a whole was to look at what works, what is particularly difficult and what will change as we look out to 2040. In particular, there is a consideration of substantial change that might result from technology but also wider changes in the governance environment.

3.3.2 What works in transport funding?

The state plays a substantial role in funding the UK's transport sector. In 2016/17, public expenditure on transport was £29.1bn, equal to 1.5% of GDP. Two thirds of this is capital spending and one third is current expenditure (HM Treasury, 2017a).



Source: DfT (2017a), Transport Statistics, Table TSGB1301

Figure 38: UK Public Expenditure on Transport

The timing of the peaks in public expenditure on transport as a share of GDP over last 25 years (Figure 38) reflects both the overall fiscal stance and transport-specific factors. The peak in 1994-5 coincided with the UK emerging from the early 1990s recession. This was the period of the Decently Modern Metro investment in London, the opening of Sheffield Supertram and the implementation phase of the 1989 Roads for Prosperity White Paper. By 1995-6, Ministers were rethinking the roads programme in the light of political resistance to particular schemes such as the A34 Newbury Bypass, and research evidence showing that continued investment in trunk roads was likely to exacerbate congestion problems in other parts of the network (SACTRA, 1994 - 'Trunk Roads and the Generation of Traffic').

After Labour's initial tight fiscal stance and the 1998 Roads Review – reflected in the trough in spending from 1997-2000 (0.8% of GDP) – there was then a ramp up to a higher spending level by 2003-4, including more rail spending (see the Rail Funding section below). There was some

minor retrenchment, post-financial crisis, in 2010-2015, particularly in current spending – whilst capital spend on transport remained relatively strong throughout this period. For example, transport was allocated the largest share of Capital DEL (departmental expenditure limit) in the 2013 Spending Round (HM Treasury, 2013). The recent peak at 1.5% of GDP matched the previous peak in 2009-10, and comprised £19bn of capital expenditure and £10bn of current expenditure (Table 4).

Table 4: Capital and current public expenditure on transport, 2016/17

	Total	**Capital**		**Current**		**Proportion**	
	£ bn	**£bn**	**% GDP**	**£bn**	**% GDP**	**Capital %**	**Current %**
Local Public Transport	2.31	0.25	0.0	2.06	0.1	11 %	89 %
Local Roads	5.56	4.32	0.2	1.24	0.1	78 %	22 %
National roads	4.16	2.92	0.1	1.24	0.1	70 %	30 %
Other transport	1.43	0.25	0.0	1.18	0.1	17 %	83 %
Railway	15.68	11.28	0.6	4.4	0.2	72 %	28 %
Total	**29.14**	**19.01**	**1.0**	**10.12**	**0.5**	**65 %**	**35 %**

Source: HM Treasury (2017a), Country and Regional Analysis

Turning to international comparisons: OECD data suggests the UK is not out of line with other OECD countries – or the US for example – at an average of 1% of GDP *invested* in inland transport infrastructure in recent years. However, the contrast with earlier phases of economic development is striking, e.g. US investment in transport and water was 3% in the early 1960s, and China is currently investing over 5% of GDP in inland transport according to the OECD data (OECD, 2017). There are also some notable differences across countries when *all transport investment and maintenance* is included: some countries such as Switzerland and Canada spend a noticeably higher share of GDP (~ 2%), than do the US and UK (~1%) (OECD, 2015). Some caution is needed with these comparisons, since the data used by the OECD are based on different underlying definitions at national level.

The workshop discussion suggested that the current level of transport funding by the state is politically and economically sustainable. There seems to be no strong evidence of public or business resistance to the % of GDP being allocated to transport at present (though there may be some specific questions about allocation *within* the sector – see the following sections). Arguments can be made for increasing it – for example to respond to technological change or the changing shape of the future economy with continued urbanisation. The CBI has pressed for a slight increase in Public Sector Net Investment to 2% of GDP across sectors (and 2.5% in the medium term), not all of which would be for transport (CBI, 2016). On the other hand, attempts to increase public spending on transport imply either reducing spend on other sectors or increasing taxes or borrowing – which would be expected to produce some political resistance. On balance the workshop discussion pointed towards an acceptance of the current level of funding.

Looking ahead, this acceptance of the status quo cannot be taken for granted. Poor investments would undermine the credibility of the process that has delivered them, and could test political

support for transport expenditure. This is a particular challenge during periods of major technological and social change as governments try to anticipate where best to focus investment. The discussion highlighted that there are major choices in relation to:

- electrification of the road vehicle fleet – in particular provision of charging infrastructure, and reshaping of the electricity grid to support this – for example to increase the capacity of local networks;
- focusing of rail investment across the UK;
- how to respond to the expected growth of mobility as a service over the coming years - the impact of MaaS across modes is still the subject of great uncertainty.

One potential scenario is that MaaS providers will become purchasers of road access, as part of their supply chain, rather than private motorists purchasing it. How quickly this will become a dominant factor in the market, and whether it will allow for a shift in attitudes towards paying directly for road infrastructure access, remains an open question. Discussants pointed to the continuing appetite for private driving among some motorists, and on the other hand the opportunities for more flexible mobility through MaaS that would be attractive to market segments including young urban dwellers. We recommend it is worth DfT/highway authorities closely monitoring developments in charging technology, so that if the acceptability position changes they are ready.

Alongside state funding of transport (and involvement in policy, planning and delivery), the private sector of course plays a wide range of key roles, as operators, suppliers, owners, concession-holders, financiers, investors, developers and transport users. Total transport sector Gross Value Added (GVA) was £74 billion in 2016, representing 4% of UK GVA. Of this, the main contributors were: Land Transport 34%; Warehousing, storage and support activities 24%; Postal and courier, 14%; Air 12%; Rail 7%; Water 10% (DfT, 2017b).

3.3.3 Road funding

When we look at the level of expenditure on roads in the UK, we have for the last 15 years invested a lower % of GDP than France or Germany, based on OECD data (Figure 39). Even if this increased to 0.5% and France and Germany stayed at their 2015 levels it would take 15 to 20 years to catch up with Germany – if that was deemed to be desirable.

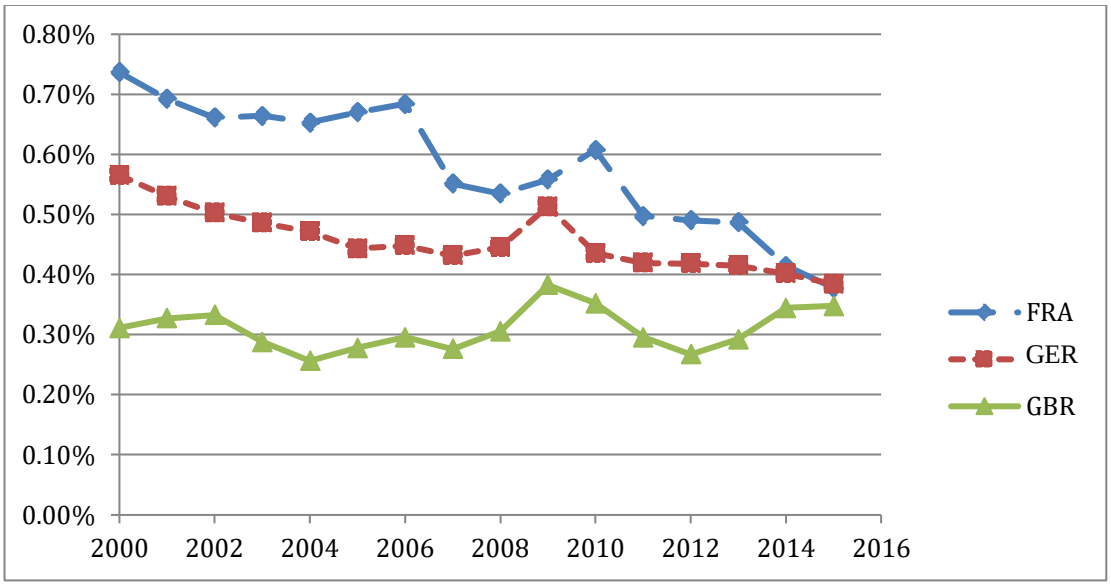


Figure 39: Road infrastructure investment as a % of GDP (France, Germany, UK) Source: OECD, 2017

Whether this is a problem or not depends on how the public, and business, see road provision. One key point emerging from the discussion is the difference in perception between investment and maintenance: investment produces attractive headlines for government, whilst maintenance and operation may be seen in government as a 'low profile' activity in terms of the political benefits of any increase in spending. Yet the current backlog in local road maintenance – £8.6bn or more – is seen as one of the top four concerns by 38% of motorists, a considerably greater number than for congestion (27%) (RAC Foundation, 2016).

3.3.4 Rail funding

By contrast, the UK has invested more as a % of GDP in rail over the last 15 years than either France or Germany (Figure 40). One of the questions to be asked here is whether this spend has represented value for money – given, for example, the high cost per mile of track in the UK compared with other countries. The House of Lords Economic Affairs Committee took evidence on the reasons why HS1 and HS2 were up to nine times more expensive than constructing high speed lines in France (House of Lords, 2015). They found that there are some good reasons for the difference – particularly the amount of tunnelling in populated areas – but also a need for further efforts to reduce the costs per mile of HS2 and other future lines. The National Audit Office examined the value for money of HS1 in 2012, and found that the Benefit to Cost Ratio (BCR) would be about 0.7 based on journey time savings alone, but also that: "Other expected benefits from the project such as reduced crowding, improved train reliability, wider economic impacts and regeneration would have a significant value. We have been unable to estimate these as data are not yet available". It would be interesting to revisit that conclusion with the latest evaluation methodology. Another mega-project in the rail sector, Crossrail, as of May 2018 appeared to be running within time and money budgets. Its forecast BCR is 1.97 including reduced crowding on the network, and 3.09 if wider economic impacts are also included (Crossrail, 2011). In the workshop discussion, there was consensus that Crossrail represents good governance in both planning and implementation. Its funding package is a mix of traditional public grant support and an innovative package of private sector contributions (see 'Transport funding futures' below).

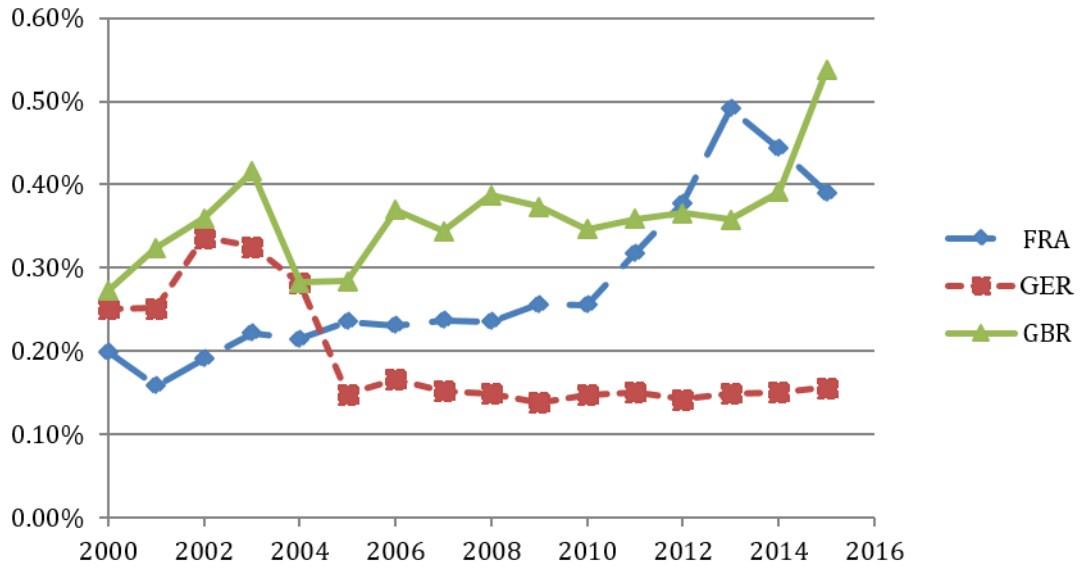


Figure 40: Rail infrastructure investment as a % of GDP (France, Germany, UK) Source: OECD, 2017

3.3.5 Variations in public funding across modes, forms of spending and geography

The role of the state in funding transport in the UK varies widely (Figure 41):

- across modes; and
- in terms of investment versus service subsidy.

For both road and rail, the vast majority of infrastructure investment is publicly funded. It should be remembered that some of this is met from tax receipts while some of it is met from borrowing against future revenue streams (taxes, fares or other sources). The picture is different for air and port infrastructure, and for service subsidies (Figure 41).

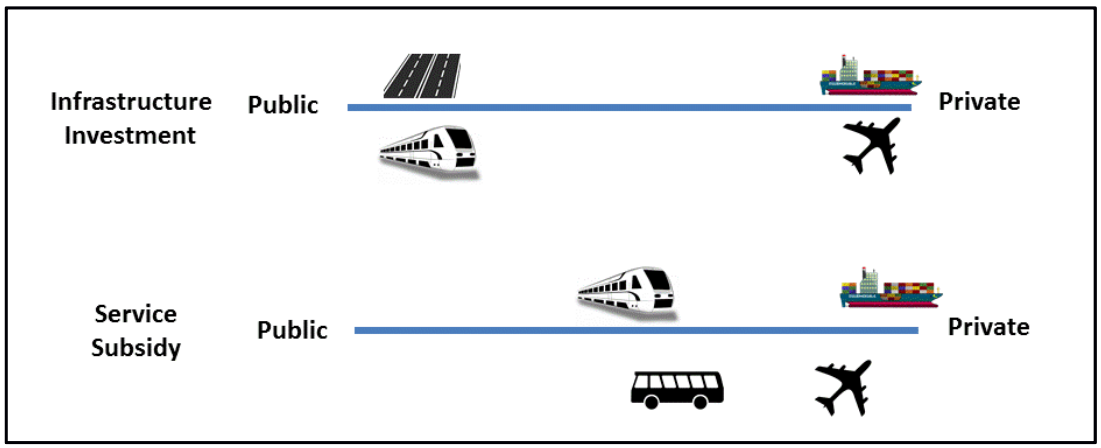


Figure 41: Role of the state in funding transport in the UK (authors' analysis)

Roughly 90% of the National Infrastructure Pipeline for transport investment 2016/17-20/21 is publicly funded vs 10% private (IPA, 2016). Meanwhile, roughly 21% of the costs of passenger

rail journeys are met by taxpayers rather than fare-payers/others (ORR, 2017 – see Figure 45); for bus the proportion is closer to 40% (see Figure 46).

In theory there is a rationale for public spending on both investment and operating subsidy: benefits from infrastructure investment accrue more widely than to those who use it (due to agglomeration effects in particular); while benefits from public transport use include decongestion, environmental improvement, health benefits, and so on. A question that was discussed in the workshop was: are the public, or business, well aware of this; and is the evidence on this clear enough to represent a robust rationale for investment and service subsidy? The view at the workshop was that there is a considerable degree of consensus about the logic for public spending on transport, even though much of this amounts to tacit agreement. Very few railways worldwide cover their costs on an accounting basis without public funding, yet there is widespread acceptance of this. Investment appraisals in the UK are explicit about the wider benefits expected from transport projects, on a GDP and a welfare basis (DfT, 2017c), and this has helped to make the case for a wide range of projects – including Crossrail and HS2. Government does also publish the strategic case and value for money assessments for service subsidy interventions (e.g. DfT, 2016a – 'Value for Money of Tendered Bus Services'). The evidence base could perhaps be collated better across modes and interventions to allow resource allocations to be discussed more openly. A review could be undertaken to examine which areas of transport funding lack an up-to-date strategic and value for money case.

An important caveat is whether the costs of public transport are being managed to maximise efficiency, even if they do create wider benefits and meet DfT's 'high value for money' criteria. The McNulty, Brown and Shaw reviews indicate the nature of the problem and the effort that is being directed into this in the rail sector.

Another aspect that emerged strongly from discussions is the role of public funding to manage risk during the 'ramp up' phase of major projects: HS1; toll motorways; and metros/urban rail projects such as the Jubilee Line Extension and Crossrail are examples. The issue is the high cost of financing such projects privately due to demand/traffic/revenue risks during the early years after the project opens, exacerbated by political and economic risks, some/all of which may be beyond the control of the promoter and contractor. For this reason, public funding of major road and rail infrastructure is seen as inevitable in most cases – mirroring the current National Infrastructure Pipeline. Later in the project lifecycle it may be feasible to sell the asset or a concession (as in the case of HS1) if desired.

Figure 41 also included aviation and shipping: airports and ports are mostly privately owned and financed, although there is a public decision-making role in airport expansion (e.g. Airports National Policy Statement 2017), while surface access to airports and ports crosses over into the 'road and rail' sectors discussed above.

We have been asked to look at variations in governance across the UK and different levels of administration. There are very important differences of scale: in population and geography, which is reflected in the spending totals and governance structures (see Figure 32 and Figure 43). So, in Northern Ireland the local authorities have no transport powers. In Scotland there are 32 local authorities, a very weak regional tier and a strong national delivery agency. By contrast England is very complex with between two and six different scales capable of being in play in decision-making. There will always be tensions about what is the right scale at which to take decisions. However, this is currently organised very differently across the UK – alongside a strong centralising theme.

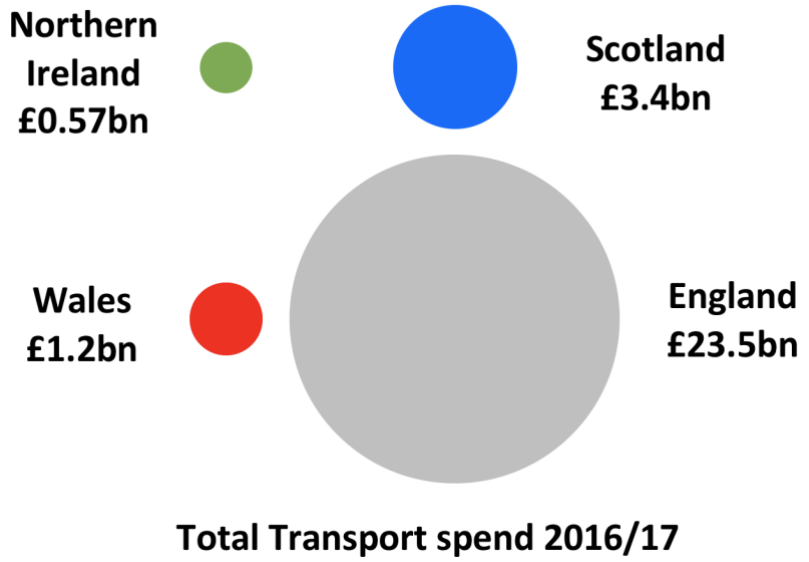


Figure 42: Total Spend on Transport by Country. Source: HMT Country and regional analysis (HMT, 2017a)

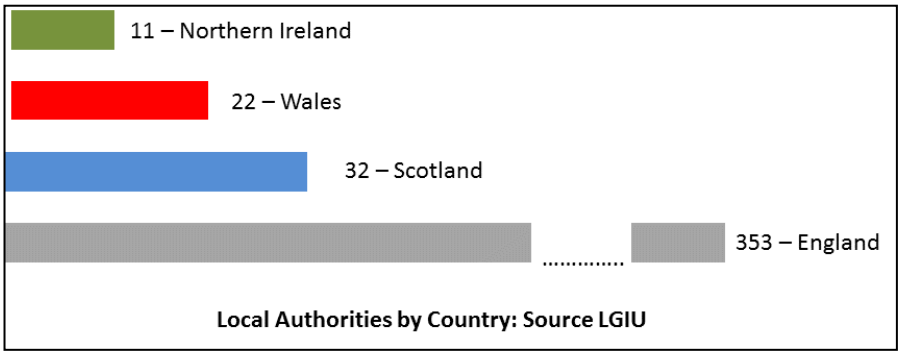


Figure 43 Number of local authorities by country

Discussants noted examples of English conurbations where the constituent Local Authorities do not co-operate well with each other on transport policy, and where the trust needed to push through cross-boundary projects and initiatives can be lacking. This applies to their approaches to future mobility as well as to conventional infrastructure, services and pricing. Even in London, which discussants generally regarded as the highest-performing regional transport authority area in the UK, there had been some barriers to overcome in co-ordination between different councils.

Devolution was seen as producing a very mixed picture: whilst significant public funding is flowing through the City Deals and other devolution settlements, London has the advantage of a central political body (in the form of the Mayor and the GLA) to drive change through. This was perceived to be producing an unbalanced set of outcomes in terms of transport provision – even though some of the devolved national bodies and regional combined authorities are showing pockets of excellence. Elsewhere there remains a capacity/capability issue – particularly in small local authorities, which hampers progress and innovation in the mobility arena.

At the national level, there are concerns that the Infrastructure Pipeline can only support one mega-project at a time: this view is not universally held, but is challenging in that there are projects in both the North and the South (for example) that are likely to cost over £10 billion and arguably

are in the top priority category to achieve the economic goals of UK plc. The imbalance in governance is therefore a problem, even if the funding itself is not a barrier (a substantial share of the funding is likely to come from the national level in any case).

The modal allocation of spending is shown in Figure 34**.** This chart shows that a large proportion of spending is allocated to rail, which accounts for only 2% of all trips and 9% of all distance travelled. Spending on Highways England is growing substantially whilst local delivery has shrunk and is now stable although reductions of the TfL grant are planned. The focus on rail is striking compared with the balance of the Department of Transport's activities 20 years ago. One important factor in explaining this allocation is urbanisation: the growth of employment in cities and the knowledge economy. Rail (in all its forms) is a highly efficient people mover in/into high density cities, and London and to an extent the other major UK cities exemplify this. However, we need to look closely at the equity implications of this pattern of spend. To what extent are communities with low average incomes being catered-for by this rail growth – and is there a risk that bus or car dependent communities will be 'left-behind'?

The focus of the current investment pipeline is shown in Figure 44. 87% of this £91.9bn is publicly funded; 7% through public-private partnerships; and 6% private. The figure highlights the dominant role of rail in investment spending over the next 5 years, with HS2 and other Rail taking up more than half.

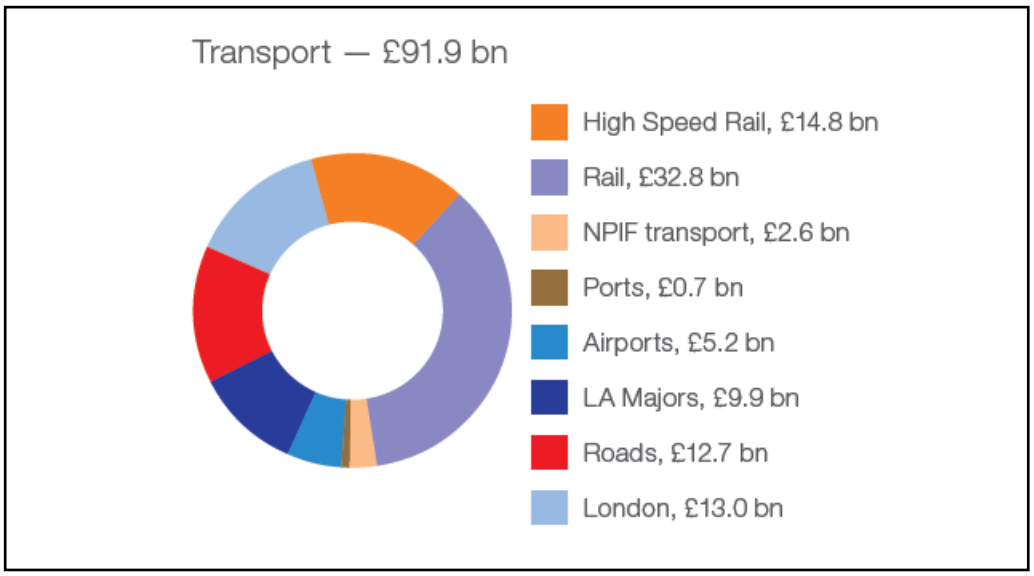


Figure 44: Overview of total investment in National Infrastructure Pipeline from 2016/17 to 2020/21 Source: IPA (2016)

Note: The new National Productivity Investment Fund (NPIF) includes almost £11 billion of additional investment in housing and economic infrastructure, in addition to the existing infrastructure spending commitments made at the Spending Review 2015.

Whilst railway investment needs are high – in order to renew the historic network and cater for strongly-growing demand – the perceived quality of UK rail services is generally good in terms of safety and reliability (OECD, 2015). At the same time, fares are relatively high in a European comparison: 0.21/km in the UK versus 0.12/km in France or 0.08/km in Italy in 2015, although Germany also had a mean fare of 0.21/km (SDG, 2016).

A question arising from this is: is the pattern of rail subsidy sustainable? Where should the burden of funding rail services sit between travellers and general taxation? How different is that balance today across modes and areas? What should the balance be? Figure 45 shows a subset of GB

passenger rail franchises, giving the latest ORR data on government funding, including funding for train operations (the darker blue bars), and direct funding for infrastructure (paid to Network Rail). For both types of funding an upward-pointing bar indicates positive funding by government, or a downward-pointing bar indicates a repayment to government. The overall net funding position of each franchise is indicated by the black horizontal markers, and a very interesting mixed picture across regions / franchise types emerges. Not only operators in less-densely populated areas, but also some operators in London have a relatively high rate of subsidy (>33% of operator income). Meanwhile, TSGN and East Coast indicate that both commuter and long-distance franchises can roughly break even on this basis, and South Western shows that a net payment to government is possible in certain circumstances.

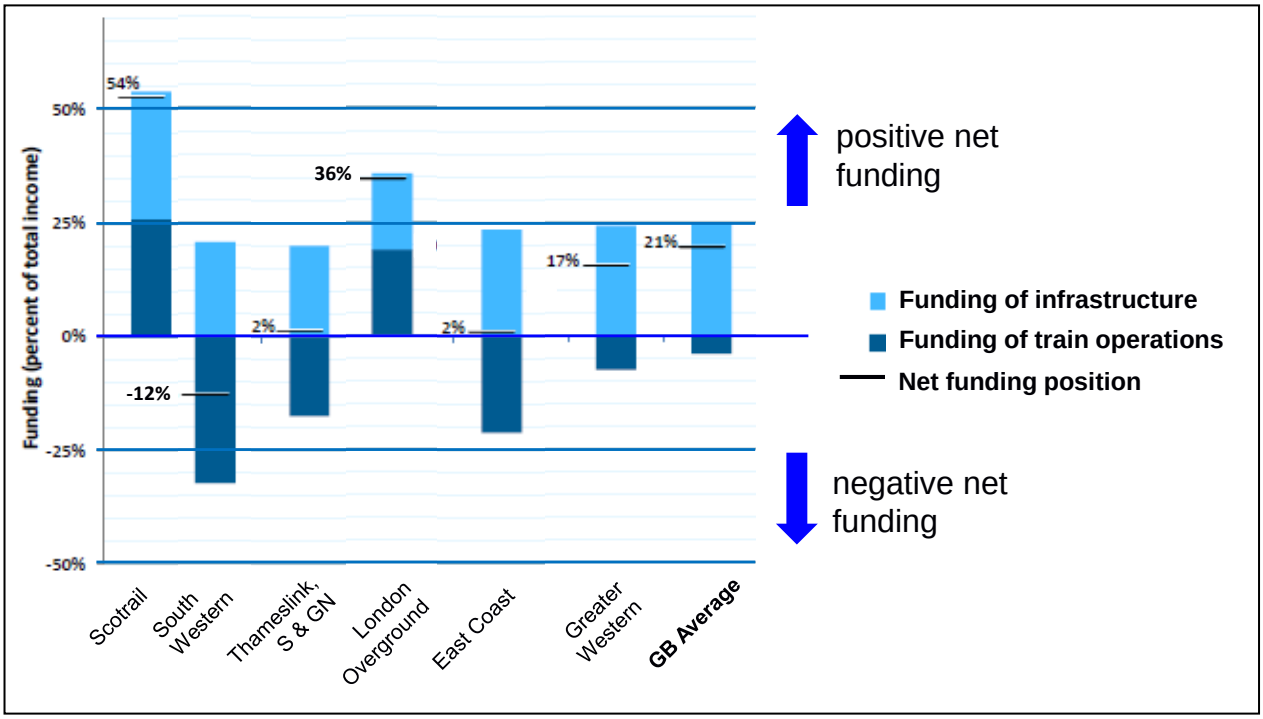


Figure 45: Contribution of net government funding to train operators and Network Rail. Source: ORR (2017)

Figure 46 broadens the scope to show the proportions of operating costs covered by fare payers on average across bus and rail. There has been a rebalancing in rail towards greater fare paying contributions in the past few years. With bus, there has been an increase in funding for concessionary travel but continued cutbacks on tendered rural, weekend and evening services.

The discussion highlighted an acceptance of net public funding for public transport services at the present time. The 21% taxpayer contribution to passenger rail income was seen as the current price for the size and quality of network being provided – subject to the concerns about rail sector cost efficiency. Looking ahead there would be public choices about whether to expand the network, and if so to be mindful of the impact on net costs on one hand, and on economic performance and wellbeing on the other. Rail is seen as a mode which allows workers to have a higher quality of life for a given level of GVA per capita. A key question is whether automated vehicles will offer similar benefits from car-based commuting in the future.

Linking land-use change and property development with the opening and expansion of transport hubs was seen as a useful way of securing gains on all these measures – when implemented well. Examples in Hong Kong are widely cited, however the UK network also offers examples: in

London Docklands; the Olympic site; Salford Quays; and several new stations and terminal/interchange station developments.

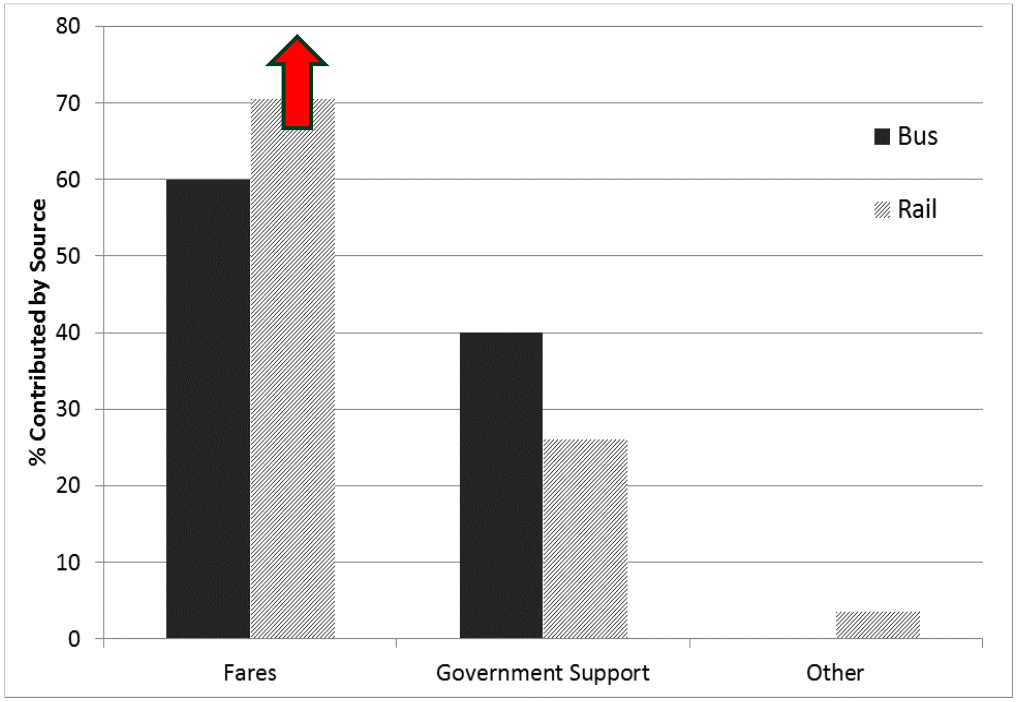


Figure 46: Rail and bus fares' cost contribution

Source: Rail (ORR. (2017), Bus: DfT (2017d)

Bus networks are seen to be negatively impacted by reductions in local government resource spending between 2009/10 and 2015/16. Spending fell by 31% in England, 24% in Wales and 12% in Scotland during that period. This highlights the susceptibility of subsidised transport services to changes in the government fiscal position.

Finally, it is worth drawing attention to some of the variability across jurisdictions. Rail spend does not dominate nearly so much in Scotland as England and Wales. Local roads are the biggest funding area for Northern Ireland (Figure 47).

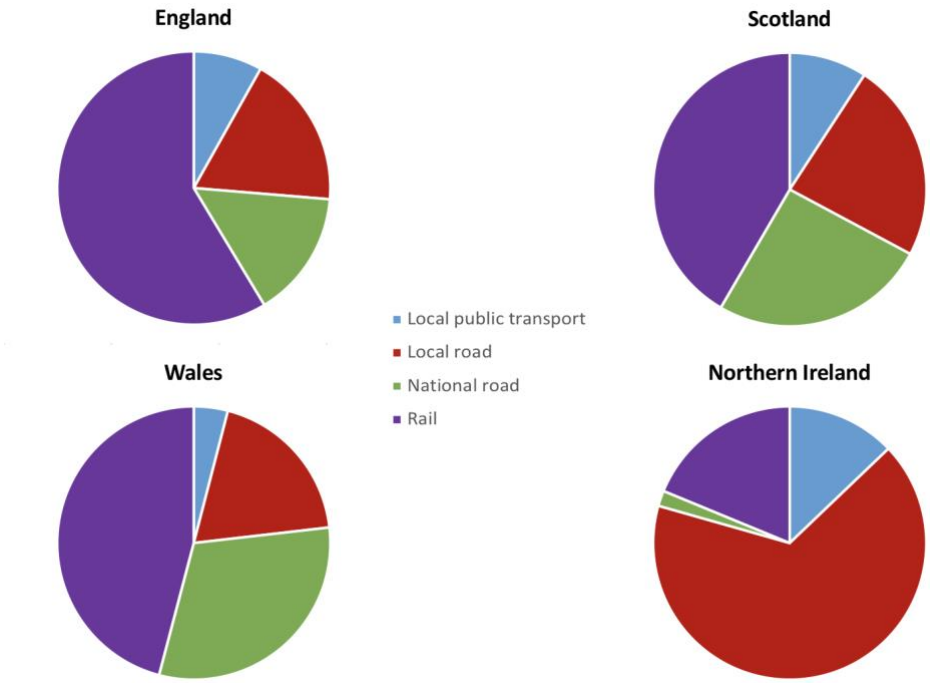


Figure 47: Spend by Category by Country 2016/17. Source: HMT Country and regional analysis (HMT, 2017a)

Spend per capita on transport (Figure 48) and per mile on local roads (Figure 49) also differs widely across the UK:, there is apparently an issue to consider in terms of how funding is distributed geographically.

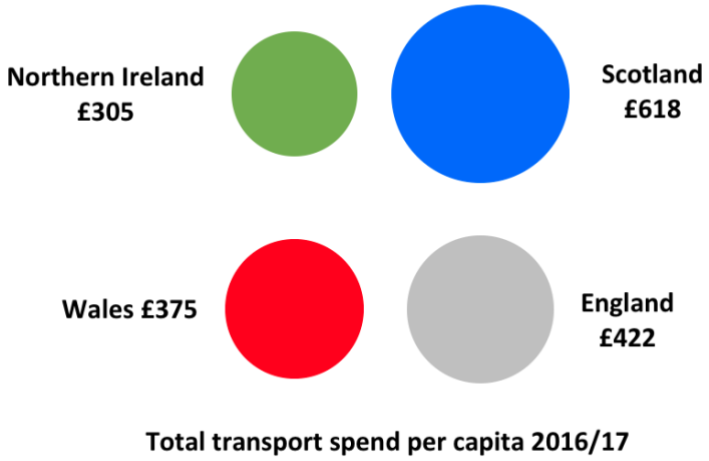


Figure 48: Total Spend per Capita on Transport by Country. Source: HMT Country and regional analysis (HMT, 2017a)

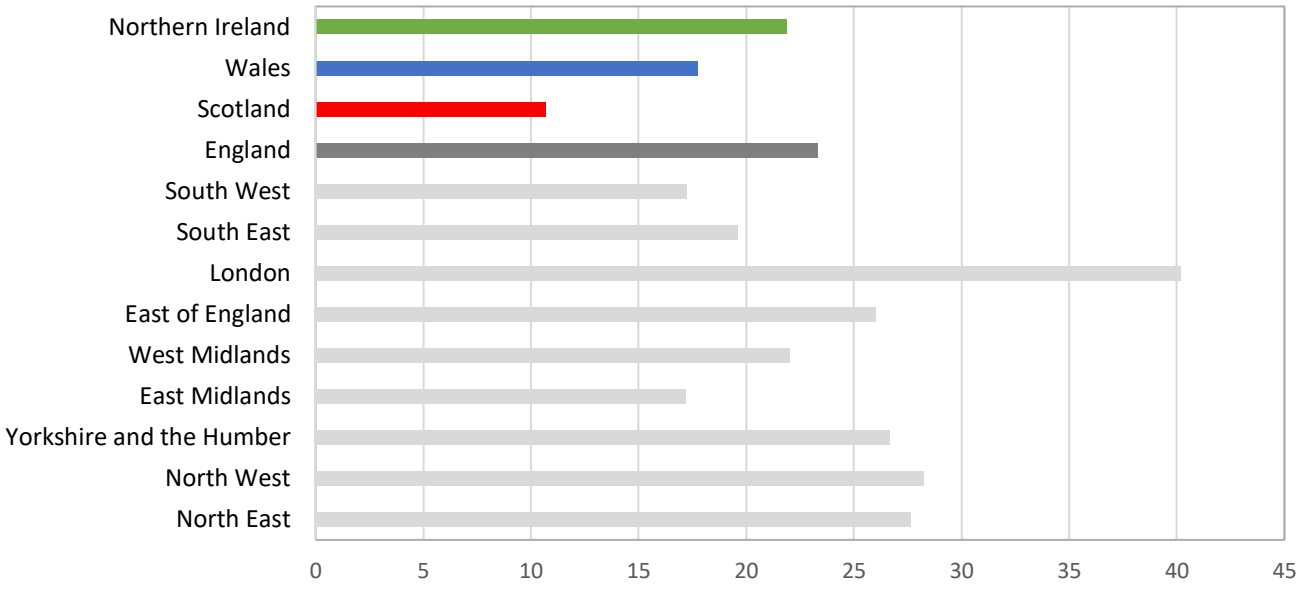


Figure 49: Local road spend per mile 2016/17 (£'000). Source: HMT Country and regional analysis: (HMT, 2017a)

3.3.6 Challenges and Opportunities arising from Future Mobility

3.3.6.1 What will change up to 2040?

One thing that will change barring unforeseen policy U-turns or technological barriers is the shift to more electric vehicles. Projected improvements in the energy density of vehicle batteries mean that range can be increased and both weight and cost can be reduced, overcoming key disadvantages of current models.

Figure 50 shows how the costs of driving could change over the period up to 2040, based on PhD research at Leeds University (Palmer et al., 2017/8). The vertical axis measures the total cost of ownership and use for different types of car over a 3 year period, based on common assumptions about miles driven per annum, and including depreciation from the initial purchase price to the car's used value after 3 years. The left hand part of the figure is based on actual data up to 2015. The sudden increase in cost for pure electric vehicles and plug-in hybrids in 2019 reflects the planned withdrawal of government grant to purchasers (now extended to 2020).

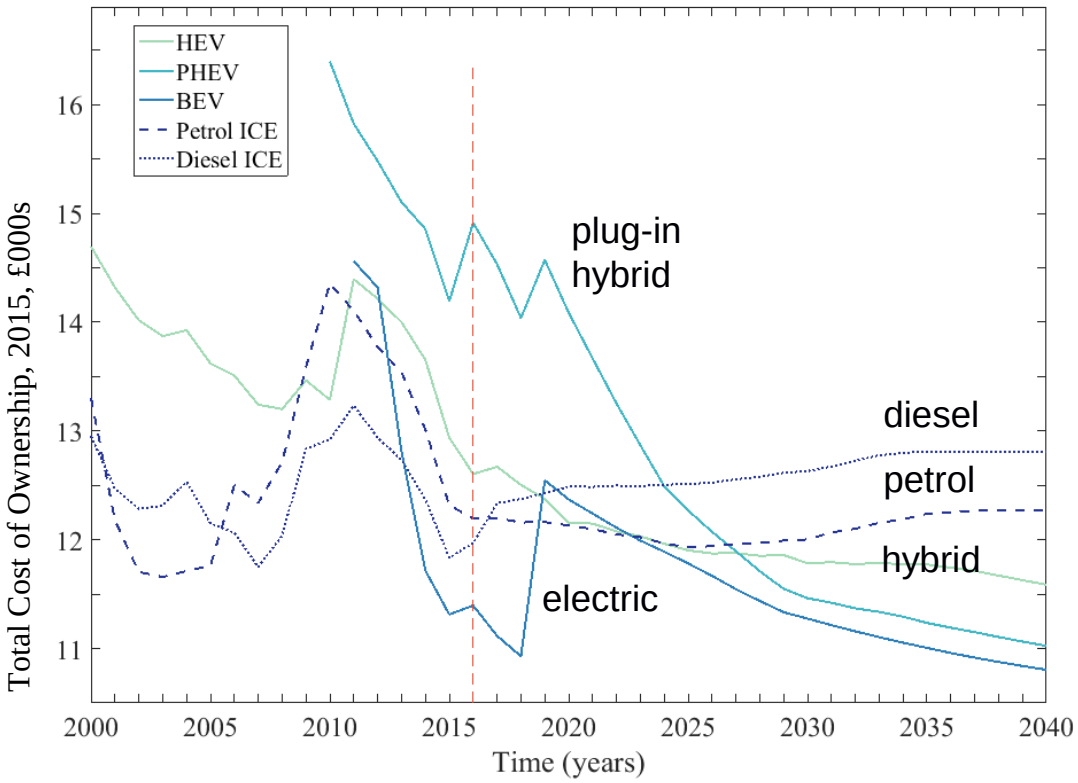


Figure 50: Past and projected total costs of ownership for different car technologies, 2000-2040
Source: (Palmer et. al., 2017)

A surprising feature of these results is the relatively low total cost of pure battery electric vehicles (BEVs) in the short term, which contrasts with their rather high purchase price. What the figure does not show is the inconvenience associated with limited range and repeated charging stops, and it is this which limits the market demand for most current BEVs. By 2030, the range issues should be greatly reduced or eliminated for new vehicles.

Government policy in relation to electric vehicles and the phasing-out of petrol and diesel cars from sale by 2040 has firmed-up from an ‘ambition’ in the carbon plan of 2011, to a promise to ban from sale in the most recent policy statements in 2017.

What are the implications of these projected future trends in driving costs? We can expect to see the costs of motoring declining slightly again, after a period of real terms growth over the last 20 years (Figure 51). The mode shift implications are potentially more complex, however, as we can anticipate other changes in the costs and quality of mobility over the period to 2040.

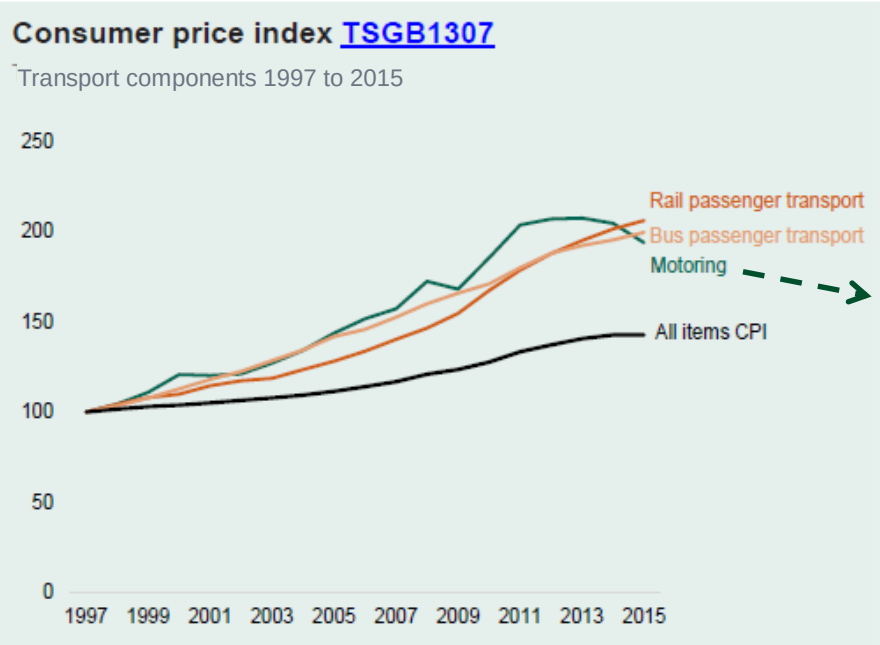


Figure 51: Changing travel costs for motoring, rail and bus (adapted from DfT (2016b)).

Autonomous vehicles (AVs) and connected autonomous vehicles (CAVs) are now the subject of trials and legislation is being prepared to allow them on public roads from 2021. For private car users, there is a benefit in being freed from the driving task, to relax or engage in productive activities while travelling. For taxi and bus services, the cost model could be transformed, since upwards of 50% of costs are the labour costs associated with the driver – this could shift the competitive balance back in favour of public transport (in a broader sense) for some trips. Freight and delivery services also stand to see large cost savings. Autonomous taxis potentially offer a very well-adapted connecting mode to rail stations. The rail sector is also expected to implement battery-electric technology for some services away from the 'electrified' network – potentially simplifying powertrains and reducing the use of diesel.

Discussion focused on the transition to a more electric, more automated mobility future. The shift to renewables in the energy sector was given as an analogy: initially a subsidy was used to incentivise energy suppliers (new and existing) to take on the risk of investing in new technology whose market success was not guaranteed; as the unit cost of electricity from renewables fell and became competitive with fossil fuels, policy shifted surprisingly rapidly to a zero subsidy regime.

In the case of electric (road) vehicles, there is a 'chicken and egg' issue with vehicles and charging points: the attractiveness of the former depends on good availability of the latter. Public charging points are directly in the field of 'governance', whilst public policy (and funding) may also have an influence on private decisions to install charging facilities at homes and businesses. The challenge is multi-faceted, and includes:

- What types of charger to install – and whether to attempt standardisation? The discussion highlighted that both users and providers potentially stand to lose if a co-ordinated approach is not taken to this – led by government/NIC/another national body.
- How many to install, in what locations?
- How to fund? The Autumn Budget 2017 has put forward a co-funding model with matching government and private sector contributions to an overall £400million fund (HM Treasury, 2017b).

Assuming that the charging network expands as envisaged, BEVs and PHEVs should transition from a luxury/niche to a mass market product – given their improving cost proposition and increasing range.

The next critical challenge will be to reshape the power network to accommodate the emerging pattern of electricity generation and use (and storage). Grid reinforcement is expected to be needed, particularly for local networks, to meet the demand of car chargers. Grid-scale batteries will enable charge to be transferred over time periods. While some large generation capacity (like the Hinkley Point C and Moorside nuclear plants) will be needed, there will be great value in more local, small nuclear plants and combined heat and power (CHP). Together, these changes should enable charging at home/work/public places, during both night and day, at lower costs.

From a governance perspective, key challenges include:

- Ensuring that local and regional authorities have the powers and the financial incentive needed to invest in and maintain growing networks of charging points. This will include integration with residents' and visitor parking.

- Ensuring that the reshaping of electricity grids is joined up across government departments with the planned roll-out of electric vehicles. Will the additional costs be funded by the users of EVs, general taxation or through additional charges to domestic electricity bills?

- Anticipating and managing the transition in terms of costs of power – which are falling as renewables and distributed power generation develop – against the costs of electricity distribution, which will rise at least in the short term as the costs of investing in reshaped and reinforced local grids feeds through the system. Undertaking work to plan this transition and assess any funding or financing requirements early on would be worthwhile.

- Considering the case for offering private individuals and businesses incentives to invest in charging points, for example using grant/subsidy approaches, concessions or revenue sharing models.

The funding needs associated with this are included to a limited extent in the National Infrastructure Pipeline Figure 52 – for example Hinkley Point C and Moorside are included. There is scope to review the Energy and Transport sector pipelines together to verify that their assumptions about the roll-out of electric vehicles and the growth and funding of the charging and power networks are mutually consistent.

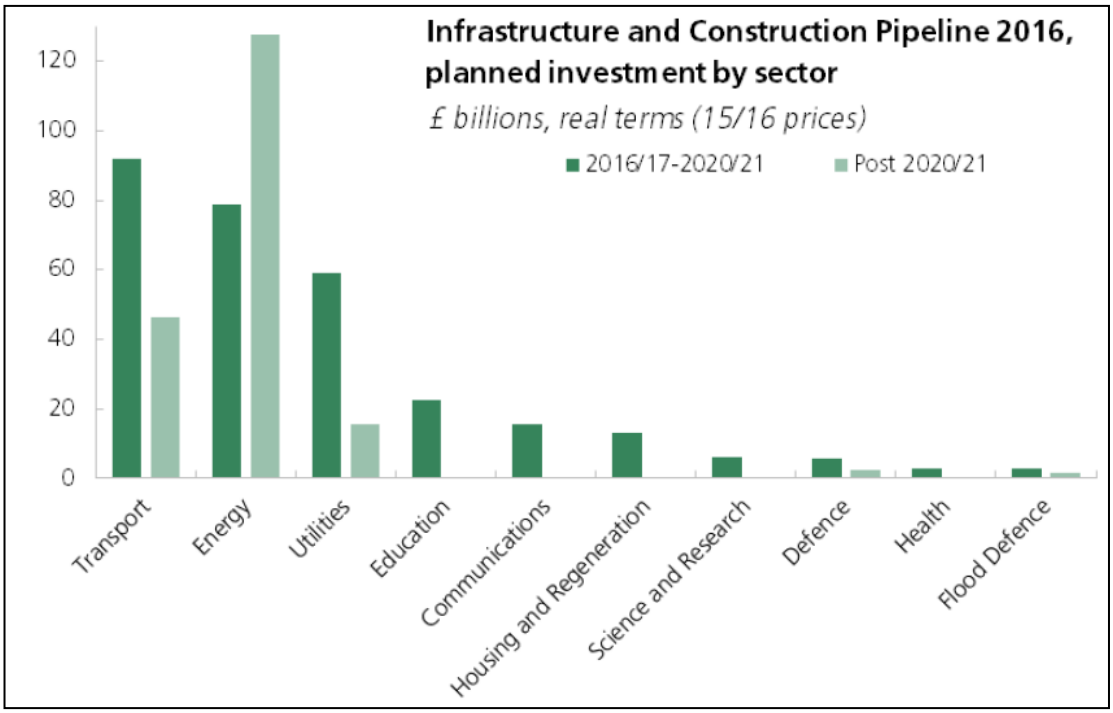


Figure 52: Infrastructure and Construction Pipeline 2016 (Source: House of Commons Library (2017))

A wider implication for transport funding that has already been much discussed elsewhere is the impact of more efficient and more electric road vehicles on the tax take from road use. In particular fuel duty revenue, which amounts to approximately £30billion, is declining steadily over time and forecast to continue doing so as petrol and diesel engines leave the fleet (Figure 53).

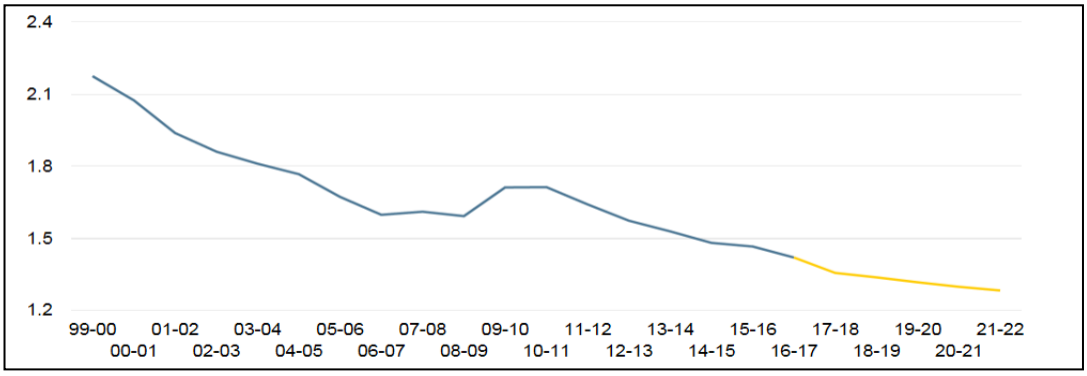


Figure 53: Fuel duties, latest forecast (% of GDP) (Source: Office of Budget Responsibility Website

If government wished to replace this revenue stream (and of course another option is to allow it to decline), there may be scope to consider alternative models of funding local and national roads. A shift towards MaaS would make payment for road access just one part of the supply chain: the MaaS provider would decide their charging model and bundle up the road access costs along with energy costs, financing costs and backroom costs into their tariff. The technology for direct charging of road users using ANPR, GPS, mobile networks and online payment systems has advanced greatly and is used in the London C-charge zone and the Dartford Crossing, for

example. The question to be considered further is whether this might allow direct charging for road use to go forward – possibly in place of, or partly in place of, current fuel duty rates.

3.3.6.2 Transport Funding Futures

We considered whether changes in the transport funding landscape itself could play an important role in shaping decision-making about what types of transport system could be implemented for the future.

The key innovations here are summarised in the following list, based on SDG (2016) research for CBT:

- Tax Increment Financing (e.g. Manchester 'Earn Back' deal);
- Business Rate Supplement;
- Asset exploitation (land and property holdings);
- Residential land value capture (e.g. Council Tax levy/ precept, Stamp Duty retention);
- Developer contributions + Community Infrastructure Levy;
- Municipal bonds.

Their use in upcoming projects is illustrated by the proposed Crossrail 2 funding package (Figure 53), which builds on the success of the original Crossrail funding package featuring many of the same components in smaller shares. Notably around 45% of the funding requirement for Crossrail 2 is expected to come from what can broadly be described as land value capture techniques – some of this on new development, some on residential property and some on business property. Other major rail projects, particularly those connected to economically-dynamic urban areas, would be leading candidates for similar funding arrangements. Local roads/transport facilities serving new developments are also prime candidates for Community Infrastructure Levy (CIL) funding. All other things being equal, this should relieve the burden on the public funding stream and enable more infrastructure to be developed for a given level of public spending.

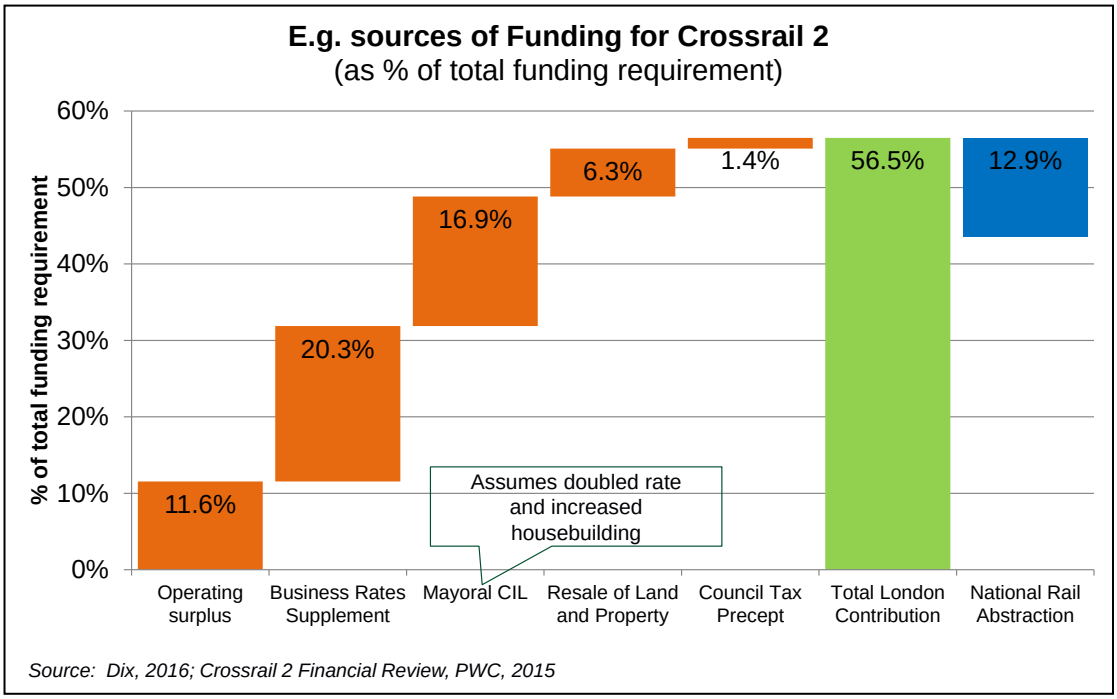


Figure 54: Potential sources of funding for CrossRail 2

The discussion raised two questions around the use of these techniques:

- Are they always less distorting than a much wider-based national source of tax revenue? – for example, a local Business Rate Supplement could have significant disincentive effects if applied to businesses in a particular area who did not all benefit to the full extent from the infrastructure improvement.

- There were concerns about whether all regions of the country could benefit from these techniques, if land value uplift was not always as pronounced as in Greater London, following a transport improvement.

3.6.3.3 Pain Points

Finally, it is important to outline the other concerns raised in the discussion, which could limit the achievement of economic and social goals, despite the best of intentions in mobility policy and despite very substantial public funding being available.

The first of these is around economic rebalancing and regional inequality. As the OECD puts it: "*The economic structure of the UK exhibits a wide dispersion in regional productivity … levels, in particular between the South East, including London, and the rest of the country ... Adequate infrastructure provision would be instrumental in lowering regional disparities*" (OECD, 2015).

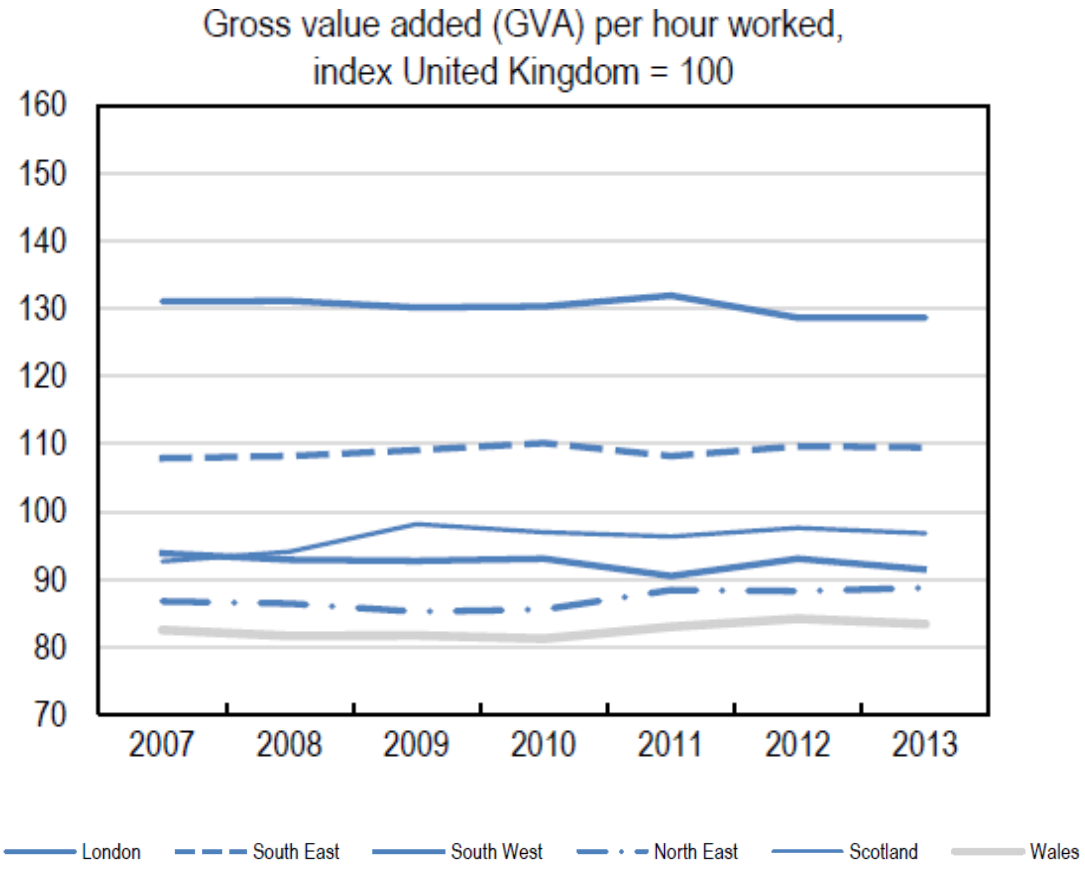


Figure 55: Productivity variation across UK regions (Source: OECD (2015))

The Northern Powerhouse Independent Economic Review (SQW, 2016) found that poor connectivity within the Northern economy (an area of ~10 million people) was a key constraint on labour mobility and productivity, and a deterrent to inward investment. This links back to two issues raised previously which emerged from the workshop discussion:

- For the North, and other UK regions, to move successfully to a more electric, more automated future they require truly integrated, co-ordinated governance across local boundaries to ensure that the new mobility services and technology are useable across a wide area. This relates to charging points – to pick one specific example – but even to 'basics' such as integrated smart ticketing where the regions lag far behind Greater London.
- To develop and implement transformative transport projects on the scale of Crossrail or the Jubilee Line Extension, the regions require governance arrangements that combine political decision-making capability with planning capability, as well as funding. Transport Scotland is seen as in some ways a model arrangement outside London. Many English regions are either moving towards such a co-ordinated model, or are faced with various hurdles that impede their ability to move forward. Transport for the North is one new body that is seeking to bridge these long-established barriers to co-ordination.

A second 'pain point' is around climate change goals. The electrification and automation agendas have been carefully worked-out in terms of their contribution to meeting the UK's decarbonisation targets. However, unintended consequences of a reduction in the cost of (conventional petrol and diesel) motoring and an expansion of the road network in pursuit of economic growth goals, could jeopardise that if they occurred. Equally, a failure to deliver on electrification, for whatever reason, could have serious consequences.

Thirdly, the discussion touched on generational demographic trends. Urbanisation combined with house price trends and intergenerational wealth effects has led to some significant changes in the pattern of transport that future workers (and voters) will want. AVs and CAVs, and MaaS, throw an additional layer of uncertainty into the calculation. We recommend that studying and forecasting these changes using a scenario-based approach is essential, for UK government – collectively – to keep a handle on the efficient and successful use of public funds over the time horizon of this study.

3.3.7 Conclusions

This exercise had extremely wide scope, which makes conclusions difficult. Also a foresight exercise necessarily involves uncertainty. Nevertheless, the aim has been to explore possible paths – at least the directions of travel as far as we can see them from now, and to think widely about the factors involved, and the linkages between funding, governance and transport policy.

Summarising the key messages emerging from the review and discussion:

1. The current level of transport funding by the state – approximately 1.5% of GDP – was considered politically and economically sustainable in the workshop discussion, however looking ahead this cannot be taken for granted. Poor choices of investments would undermine the credibility of the process that has delivered them, and could test political support for transport expenditure.
2. This is a particular challenge during periods of major technological and social change as governments try to anticipate where best to focus investment. Government faces major choices in relation to: electrification of the road vehicle feet – in particular provision of charging infrastructure, and reshaping of the electricity grid to support this; focusing of rail investment across the UK; and how to respond to the expected growth of mobility as a service (MaaS) over the coming years.
3. Investment produces attractive headlines for government, whilst maintenance and operation may be seen as a 'low profile' activity in terms of the political benefits of any increase in spending. Yet the current backlog in local road maintenance – £8.6bn or more – is a key concern for drivers (RAC Foundation, 2016).
4. According to OECD comparative data, which should be treated with caution due to definitional differences across countries, the UK has lagged behind France and Germany in funding of road investment as a % of GDP since 2000, however UK rail investment has been comparatively strong over the same period. Overall, the UK's transport investment as a % of GDP appears to be similar to the OECD average.
5. The role of the state in funding UK transport investment varies greatly across modes: the state is most heavily involved in road and rail infrastructure. Meanwhile, passenger rail journeys are supported by on average 21% taxpayer subsidy, while bus journeys are supported by on average nearly 40% subsidy.
6. Perhaps surprisingly, the logic for public sector funding in these forms is thought to be widely shared and understood, at least in general terms, i.e. we invest public money in transport because of the wider benefits it brings (e.g. agglomeration & productivity benefits from improved connectivity) and we fund particular modes (e.g. rail and bus services) because of their external benefits as demand shifts from other modes (e.g. decongestion; pollution reduction; health benefits; reduced inequality; etc).
7. This public sector involvement amounts to roughly 90% of the National Infrastructure Pipeline for transport investment 2016/17-2020/21, versus 10% privately funded.
8. Another role of public funding is to avoid excessive financing costs due to the amount of risk during the 'ramp up' phase of major projects: HS1; toll motorways; and metros/urban rail projects such as the Jubilee Line Extension and Crossrail are useful examples. For this reason, substantial public funding of major road and rail infrastructure is seen as inevitable in most cases. Later in the project lifecycle it may be feasible to sell the asset or a concession (as in the case of HS1) if desired.
9. There are stark differences in governance structures for transport across the UK:
    - Two levels of government in Northern Ireland, versus three in Wales and Scotland, versus up to six in England;

- London is perceived as having very effective governance arrangements with the advantage of a central political body (in the form of the Mayor and the GLA) to drive change through, alongside the unified transport planning body (TfL) and clear funding channels.
- Devolution was seen as producing a very mixed picture, with some pockets of excellence, and elsewhere some capability/co-ordination issues.
- The workshop discussion noted examples of English conurbations where the constituent Local Authorities do not co-operate well with each other on transport policy, and where the trust needed to push through cross-boundary projects and initiatives can be lacking.

10. At the national level, there are concerns that the Infrastructure Pipeline can only support one mega-project at a time: if true this could impair the task of rebalancing the UK economy – if most of the large projects funded are based in, or of primary benefit to, London and the Southeast.
11. A large and growing proportion of public funding in England (54%) is allocated to rail, which accounts for only 2% of all trips and 9% of all distance travelled. Spending on Highways England is growing substantially whilst local delivery has shrunk and is now stable although reductions of the TfL grant are planned. Arguably it is important to look at the equity implications of this pattern of spend. To what extent are communities with low average incomes being catered-for by this rail growth – and is there a risk that bus or car dependent communities will be 'left-behind'?
12. Another key question is whether MaaS and ride-sharing will offer similar benefits in the future that 'public transport' does today, if they bring trip costs down and increase the efficiency of road space utilisation. There is a perception that this may – in time – help to alleviate the gaps in bus service caused by local government funding constraints.
13. Looking ahead there will be public choices about whether to expand/improve the rail network, and if so to be mindful of the impact on net costs on one hand, and on economic performance and wellbeing on the other. For now, the 21% taxpayer contribution to passenger rail income is seen as the collective 'price' for the size and quality of network being provided (subject to concerns about rail sector cost efficiency).
14. Linking land-use change and property development (housing, commercial property, urban realm) with the opening and expansion of transport hubs is seen as a way of simultaneously achieving better value for public money, securing private sector contributions, whilst meeting goals in economic development, productivity, housing and mobility policy.
15. Land value capture and other innovative funding methods are being used in London, Manchester and elsewhere to ensure that a range of beneficiaries from transport investment also contribute to its funding. Crossrail 2 is proposing to fund approximately 45% of its costs in this way, building on the Crossrail experience.
16. Some key concerns with these innovative funding methods were also raised: Are they always less distorting than a much wider-based national source of tax revenue – does it depend on the pattern of who pays and who benefits?; What if land value uplift is not always as pronounced as it is in Greater London, following a transport improvement?
17. Between now and 2040, one thing that will change barring unforeseen policy U-turns or technological barriers is the shift to more electric vehicles. The latest research shows that the 3 Year Total Costs of Ownership (and use) for a pure battery electric car are now lower than for a conventional petrol or diesel vehicle for the first time. Low (but rising) market penetration is due in part to limited range and the available charging infrastructure, but these barriers should be ameliorated or eliminated for new vehicles by 2040.

18. Despite the expected withdrawal of public subsidy to electric cars (and plug-in hybrids) in 2020, these vehicles should have clearly the lowest costs of any vehicle type by 2030 – at least for users who drive an average annual mileage or more. Government policy has evolved to a ban on the sale of petrol and diesel vehicles by 2040.
19. The implications for long term trends in driving costs are interesting: these costs may soon start to decline again after a period of real terms growth over the last 20 years. Whether this will lead to substantial mode shifts will depend on a number of factors, including:
    - Whether bus and rail also see cost reductions from (battery) electrification;
    - Whether congestion will increase and deter further car growth;
    - How autonomous vehicles (AVs) and connected autonomous vehicles (CAVs) develop and what types of mobility at what cost they can really provide.
20. For private car users, there is a benefit in being freed from the driving task, to relax or engage in productive activities while travelling. For taxi and bus services, the cost model could be transformed, since upwards of 50% of costs are the labour costs associated with the driver – this could shift the competitive balance back in favour of public transport (in a broader sense) for some trips. Freight and delivery services also stand to see large cost savings. Autonomous taxis potentially offer a very well-adapted connecting mode to rail stations. The rail sector is also expected to implement battery-electric technology for some services away from the 'electrified' network – potentially simplifying powertrains and reducing the use of diesel.
21. In the case of electric (road) vehicles, there is a 'chicken and egg' issue with vehicles and charging points: the attractiveness of the former depends on good availability of the latter. How to fund this is a key issue. The Autumn Budget 2017 has put forward a co-funding model with matching government and private sector contributions to an overall £400million fund (HM Treasury, 2017b).
22. Assuming that the charging network expands as envisaged, BEVs and PHEVs should transition from a luxury/niche to a mass market product – given their improving cost proposition and increasing range.
23. The next critical challenge will be to reshape the power network to accommodate the emerging pattern of electricity generation and use (and storage). Grid reinforcement is expected to be needed, particularly for local networks, to meet the demand of car chargers. Grid-scale batteries will enable charge to be transferred over time periods. While some large generation capacity (like the Hinkley Point C and Moorside nuclear plants) will be needed, there could be value in more local, small nuclear plants and combined heat and power (CHP). Together, these changes should enable charging at home/work/public places, during both night and day, at lower costs. In the transition, the costs of distribution will rise – whilst the costs of generation are falling. How the additional costs are paid for matters. Is this general taxation, domestic electricity bills or through EV users? Each have different challenges.
24. The decline in fuel duty revenues has been widely discussed. If government wished to replace this revenue stream, a shift towards MaaS *might* help by making payment for road access just one part of the supply chain, which the MaaS provider would bundle up into their tariff. Whether this would help overcome the acceptability issue remains an open, but interesting question.
25. The study included a focus on what is difficult, or 'pain points'. The need for economic rebalancing between regions is one of these, where governance differences are perceived to be a barrier to truly integrated, co-ordinated decision-making in some areas, whether related to EV charging infrastructure, or even existing 'basic' issues such as integrated smart ticketing. The allocation of funding is obviously a key issue too.

26. Although somewhat in the background at the moment due to a focus on other immediate policy issues, climate change goals are another ‘pain point’ with funding implications attached, or which could impose large costs later if neglected.

Areas where we identified work is needed, or potentially needed, included the following:

i. Research to investigate the question: what is the optimal share of GDP for the UK to spend on transport?;

ii. Appraisal and evaluation of maintenance to ensure value for money and an optimal level of funding;

iii. The evidence base could be collated better across modes and interventions to allow resource allocations to be discussed more openly. A review could be undertaken to examine which areas of transport funding lack an up-to-date strategic and value for money case.

iv. We recommend DfT/highway authorities closely monitor developments in pricing technology, so that if the acceptability position changes with MaaS or other parts of the smart mobility transition, they are ready.

v. Ex post evaluation of High Speed Rail (HS1) might be revisited, as the NAO evaluation was published in 2012 and the measurement of ‘wider impacts’ has since developed further.

vi. Work focusing on funding (or governance) barriers facing projects and strategies which would contribute to regional rebalancing of economic growth.

vii. Equity and distributional aspects of the allocation of investment funds by mode and region.

viii. The efficiency (and acceptability) of land value capture and other funding mechanisms in different market conditions.

ix. Designing incentives for local and regional authorities to install and maintain growing networks of charging points, including integration with residents’ and visitor parking.

x. Reviewing the Energy and Transport sector Infrastructure Pipelines together to verify that they are consistent for the roll-out of electric vehicles and the growth and funding of the charging and power networks.

xi. Studying and forecasting major technological changes including AVs and CAVs, or generational demographic trends, using a scenario-based approach is essential, for UK government – collectively – to keep a handle on the efficient and successful use of public funds over the time horizon of this study.

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