GREEN PASSENGER TRANSPORT IN RURAL AREAS (G-PaTRA)

Work Package 5, Activity 5: Understanding Legal, Regulatory and Funding Frameworks

Mapping the Legislative, Regulatory and Funding Frameworks for Passenger Transport in the Six Partner Countries

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Executive Summary

Introduction

This report maps the current legislative, regulatory and funding frameworks for passenger transport in each of the six G-PaTRA partner countries, i.e. Belgium, Denmark, Germany, the Netherlands, Norway, and Scotland. It builds upon the internal expert workshop conducted in Ghent, on 23 March 2018, and the resultant *Summary of Findings*, produced by Urban Foresight.

The information contained within the report has been compiled in two ways. First, an extensive literature search and review was conducted for each of the six partner countries. From the literature, a series of six diagrams was created (one for each country), designed to represent the present author's understanding of the situation within each one.

Second, and where possible, these diagrams and the accompanying notes and commentary were used as the basis for a series of interviews with representatives of G-PaTRA partners, during which their awareness of, and opinions on, country-specific legislation, regulation and funding arrangements were explored further.

The research revealed that each of the six countries has its own distinct and complex system of public transport regulation, administration and operation. While there are some similarities between certain aspects of the countries' approaches, there are also some notable differences.

National, regional and local transport strategies

Three of the six countries — the Netherlands, Norway and Scotland — have a *national*, integrated transport strategy. Of the three, Scotland's is the most recent, first appearing in 2006. The Dutch and the Norwegians can trace the origins of their national strategies to the 1970s and the 1990s, respectively; albeit that these earlier versions concentrated on *road* capacity and investment.

While the other three countries — Belgium, Denmark and Germany — do not have a national integrated strategy, each one does produce a national plan for its rail services (as does Scotland). In addition, Germany produces a country-wide transport *infrastructure* plan.

Integrated transport strategies or mobility plans are far more common at the regional or county level. In five of the six countries, the production of such plans appears to be a statutory obligation. The one exception is Denmark, although there is evidence there of at least two of the country's five regions having produced a strategy on a voluntary basis.

At the more local level, none of the six countries has introduced a *statutory* requirement for transport or mobility plans to be produced by cities, towns, municipalities and other smaller area authorities. Despite this, the production of such plans is considered to be good practice, and, in five of the six countries, numerous examples can be found. The one exception is Norway, where there is little evidence of mobility plans being produced at the municipality level.

Regional transport bodies

With the exception of Belgium (where public transport is, in any case, dealt with at the regional government level), the formation of some form of regional transport body or public transport authority (PTA), to procure and/or coordinate public transport, is commonplace throughout the G-PaTRA partner countries.

At first glance, these bodies may appear very similar, in terms of their roles and responsibilities; however there are some significant differences. In Germany, the Verkehrsverbünde take a number of forms, and are unique in that they include public transport operators in policy-making processes. In Scotland, four of the seven Regional Transport Partnerships have no procurement powers, and the network as a whole is considered much weaker than its equivalents throughout continental Europe.

Contract types

With regard to the types of contracts awarded to public transport operators through competitive tendering processes, the situation across the six countries is mixed, and often dependent on the mode of transport being procured. With local bus services, gross cost contracts are favoured in Belgium, Denmark, Germany, and Norway; but net cost contracts are preferred in the Netherlands and in Scotland. With rail services, net cost contracts dominate in Germany and Norway, in contrast to the gross cost approach preferred in Denmark. Across most of the partner countries, some movement is observed towards the use of risk-sharing, 'hybrid' contracts.

Subsidy levels

The situation regarding subsidy levels is complex, with (sometimes widely) varying estimates being reported — a situation compounded by a lack of readily available, and comparable, data on the subject. For instance, in considering public transport as a whole, a subsidy level of around 50% is estimated for Denmark and the Netherlands; whereas estimates range from 24% to 63% in Germany. Estimated subsidy levels can also vary widely, depending on the mode of transport being discussed. In Scotland, estimated subsidies for bus services range from 43-50%; those for rail services range from 46-66%; while a subsidy level of 62.5% is reported for ferry services. There can also be regional differences within particular countries. In Belgium, the subsidy level in the Brussels-Capital region is reported at around 54%; but this rises to 65% in Wallonia, and to 80-85% in Flanders.

Concessionary fares

All six countries have a range of concessionary fares that are applicable to specific passenger groups, or on particular modes of transport. Generally, these are a mixture of country-wide schemes prescribed by the national or federal government; local schemes, coordinated by regional governments and their transport authorities; and non-statutory, commercially-driven concessions provided by the operating companies. In terms of *national* schemes, for example, Belgium's 'third payer' approach provides free travel for almost all public sector employees; Denmark's Joint National Travel Regulations set out the concessions applied to young children, students, older people, and disability pension recipients; the Dutch Ministry of Education's student travel product is prominent in the Netherlands; Norway has national mandatory concessions for students, elderly people and military personnel; while Scotland's National Concessionary Bus Travel Scheme for Older and Disabled People has recently been extended to all residents of Scotland aged under 22.

With the more local schemes, each of the three Belgian regions prescribes its own arrangements; with Flanders, for example, offering free travel for children under six, disabled people, and jobseekers, and discounted fares for families and older citizens. Many of the German Länder have replaced national concessionary arrangements with their own schemes, in which the Verkehrsverbünde have negotiated discounted ticketing arrangements for "special groups", such as students, senior citizens and unemployed people. In Norway, concessions for children can vary between counties.

Local and regional bus services
With the exception of Scotland, where the local bus market is largely deregulated, and where operators simply go through a licensing and registration process, the procurement of bus services in the partner countries is generally conducted at the regional, county, or major city level. The approaches used, however, can vary. In Denmark, Germany, the Netherlands, and Norway, most or all of the procurement processes are carried out by the regional transport bodies; in Belgium, these are done by the three regional governments.

And while Denmark, the Netherlands (except in Amsterdam), and Norway typically open their bus services to competitive tender, Belgium and Germany use a mixed approach, where both direct awards and competitions are utilised. In Belgium, none of the bus services in the Brussels-Capital Region is outsourced; but Flanders has an obligation to subcontract up to 50% of its lines, and Wallonia must outsource a minimum of 29% of its services. In Germany, direct awards (usually to publicly-owned operators) are typical in the largest cities, with tendering more common in the smaller towns and rural areas.

With regard to the operators, state- or municipally-owned companies dominate the local bus markets in Belgium, Germany, and Norway; whereas private operators are dominant in Denmark, the Netherlands (except in Amsterdam), and Scotland (excluding Edinburgh).

Metro
All six G-PaTRA partner countries have at least one metro system. Here, direct awards (by regional transport bodies or similar authorities) to municipally-owned operating companies are most common. The only exception is Copenhagen's Metro service in Denmark, which is tendered by a specially-created franchising authority, but with the current incumbent being a private company.

Tram and light rail
All six G-PaTRA partner countries also have at least one tram or light rail system, but the number and extent of these ranges from Scotland's single tram line in Edinburgh, to the more than 50 tram, light rail, or 'tram-train' systems across Germany. As with metro services, operational contracts are typically awarded by regional transport bodies, or other similar authorities sometimes created specifically to oversee the construction and operation of new light rail systems. Here, the picture is mixed. Scotland's single line, Belgium's five systems, three of the four networks in the Netherlands, and all but one of Germany's 50-plus systems, have been procured through direct awards to publicly-owned operators. In contrast, two of Norway's three systems are operated by private companies, as will be Denmark's three systems (two of which are currently under construction).

Express coaches
With long-distance coach services two themes emerge. First, in three of the countries — Belgium, Denmark and the Netherlands — the market is limited and not well developed. This is due to the small surface size of the countries (in Belgium and the Netherlands), and the existence of an extensive rail network (in Denmark and the Netherlands). Second, in four of the countries — Denmark, Germany, Norway and Scotland — the market is almost entirely deregulated, with operators requiring only a licence to begin a service. In Denmark and Scotland, *domestic* coach service licences are issued by central government agencies; in Germany and Norway, these are dealt with at the county and (in Germany) the 'county-free city' level.

Of the other two partner countries, Belgium (more specifically in Flanders and Wallonia) typically makes direct awards for domestic coach services to the same municipally-owned companies that operate most local bus services. In the Netherlands, domestic coach services are tendered by the public transport authorities, with the contract holders typically being private companies.

Despite the long-distance coach services in Norway and Scotland being largely commercial in nature, they do still receive varying levels of public financial support. In Norway, a few routes receive support for serving local markets and accepting local fares; in Scotland, domestic coach services are included in the National Concessionary Bus Travel Scheme, therefore operators are reimbursed by government for lost fares revenue.

Ferries

The one transport mode on which relatively little literature could be found was that of domestic ferry services. As a result, the situation regarding the procurement and operation of ferry services in the six countries is not entirely clear. Nevertheless, some similarities have been identified.

In Denmark, Norway, and Scotland, procurement is the responsibility of both central government agencies *and* local transport authorities. In Denmark, *regional* ferry services are procured by the Danish Transport, Construction and Housing Authority, while *local* services are the responsibility of the municipalities. In Norway, ferry services connecting *national trunk* roads are administered by regional offices of the Norwegian Public Roads Administration (NPRA); those services connecting *regional* roads are procured by the counties and their PTAs, with some assistance from the NPRA; while the coastal route between Bergen and Kirkenes is the responsibility of the Ministry of Transport. In Scotland, around half of the country's ferry services are procured by Transport Scotland, with the others being administered by relevant local authorities in the Scottish Highlands and Islands.

In Belgium, ferry service procurement appears to be the responsibility of specific agencies within the three regional governments: the Agency for Maritime Services and Coast, and Flemish Waterways, in Flanders; the Directorate-General for Mobility and Waterways in Wallonia; and the Port of Brussels in the Brussels-Capital Region. In Germany and the Netherlands, the situation is not particularly clear. In Germany, 'urban' ferry services in the largest cities are typically operated by city-owned companies, they form part of the common tariff zone established by the local Verkehrsverbünde, and they are regarded as part of that city's integrated public transport network. They therefore presumably form part of a direct award process that also encompasses the other transport modes (i.e. buses, trams, and/or metro). Away from Germany's larger cities, evidence suggests that individual municipalities may be responsible for procuring local ferry services. In the Netherlands, a small number of fare-based ferry routes are subject to competitive tendering (presumably by the relevant PTA), but many more free and fare-based services (the majority for pedestrians and bicycles only) *appear* to be the responsibility of individual provinces or municipalities.

With regard to the operators of ferry services, these would appear to be a mix of private operators (many of them very small businesses) and publicly-owned companies (e.g., VLOOT in Flanders, CalMac in Scotland).

National and regional rail

In five of the six countries, the procurement of rail services is conducted largely at the national level. The main exception is Germany, where the procurement of *regional* and *local* services is devolved to the Länder. Although the German long-distance market has been liberalised since the 1990s, the state-owned rail operator Deutsche Bahn (DB) continues to dominate. DB's regional rail subsidiary, DB Regio Schiene, also dominates the tendered, local and regional services market.

Elsewhere, the vast majority of rail services in the Netherlands are awarded directly to the state-owned Dutch Railways by the Ministry of Infrastructure and Water Management. In Belgium, the Federal Public Service for Mobility and Transport negotiates an operational contract with the National Railway Company of Belgium. In Denmark, with the exception of a small number of private railways (*privatbaner*), the Danish Transport Construction and Housing Authority is responsible for procuring most services across the country; these are largely the subject of a negotiated contract with the state-owned Danske Statsbaner, although some competitive tendering has taken place for services in Mid and West Jutland.

In Norway, the Norwegian Railway Directorate has traditionally purchased the vast majority of the country's rail services through a net service contract with the Norwegian State Railways, NSB. And while 2015 rail reforms saw the beginning of competitive tendering in Norway, a new incoming government has recently announced that such processes are to be scrapped, leaving future arrangements uncertain. In Scotland, Transport Scotland is responsible for the letting and management of the country's two rail franchises; while those for cross-border services are awarded by the UK Government's Department for Transport.

In terms of the rail service operators, state-owned companies dominate in Belgium, Denmark, Germany, the Netherlands, and Norway; with other companies occupying small shares of the market (some of them the state-owned companies, or their subsidiaries, of other countries). In Scotland, while the holder of the main rail franchise (ScotRail) is currently Abellio, the Scottish Government is about to take control of the network with a publicly-owned 'operator of last resort'. In a few weeks' time, then, the passenger rail networks of all six countries will be dominated by state-owned operators.

Mobility hubs

The concept of the mobility hub is a common theme throughout all six partner countries, albeit that each country is at a different stage of development and implementation. Since 2003, Germany — particularly the city of Bremen — has been at the forefront of the movement, with larger *mobil.punkte* situated in central locations, and smaller *mobil.pünktchen* in residential neighbourhoods. In the Netherlands, hubs have been installed in the cities of Amsterdam, Rotterdam and Utrecht; at various locations in North Holland; and, since 2017, across the two G-PaTRA partner provinces of Groningen and Drenthe. In Belgium, the Flemish Government plans to introduce 1,000 mobipoints (*mobipunten*) in the period 2020-2024; while the Walloon Government proposes to have at least one in each of its 262 municipalities. In Norway, the city of Bergen has a small network of *mobilpunkt* stations, with Oslo, Stavanger, and the county of Viken following suit. Similar, modest pilots have been introduced in Denmark, in Aarhus and the municipality of Guldborgsund. In Scotland, meanwhile, the production of guidance and a framework for the introduction of mobility hubs across the country is currently being considered by Transport Scotland as part of its second Strategic Transport Projects Review.

Concluding remarks

The overall situation is a fluid one, subject to (relatively sudden) change on the arrival of new governments or new policy directions.

In Belgium, for example, the National Railway Company's monopoly on domestic rail services will technically end in 2023; while the Flemish Government is to lift De Lijn's monopoly on long-distance coach services and instead introduce a tendering process. In Germany, the Federal Government's vision of an integrated, nationwide timetable, the Deutschlandtakt, may have significant impacts on the procurement and management of national and regional rail services.

In the Netherlands, the government is looking to increase competition in international rail services from 2025; and is facing legal challenges on Dutch Railways' continuing monopoly of domestic rail services. In Norway, the new government has recently ceased the competitive tendering of the country's rail services, but has yet to announce an alternative approach. And in Scotland, the country's entire transport governance system is currently under review, as are its ferry service procurement arrangements; while the Scottish Government is soon to take control of the operation of the main domestic rail franchise. The proposed merger of Stagecoach and National Express in 2022 will also result in a significantly different bus and coach operator landscape in Scotland.

With these points in mind, this report should be regarded only as a 'snapshot' of the situation, as of early-2022.

1. Introduction and methodology

This report aims to map the current legislative, regulatory and funding frameworks for passenger transport in each of the six G-PaTRA partner countries, i.e. Belgium, Denmark, Germany, the Netherlands, Norway, and Scotland. It builds upon the internal expert workshop conducted in Ghent, on 23 March 2018, and the resultant *Summary of Findings*, produced by Urban Foresight.

The information contained within this document has been compiled in two ways. Firstly, a literature search and review was conducted for each of the six partner countries. Here, the focus was on relevant academic, government and trade literature, written in English and published within the last 10 years (i.e. from 2010 onwards), although some earlier (and frequently cited) papers have also been included. On occasions, where English-language material has been lacking, Google Translate was used, to form at least a basic understanding of the literature available only in the partner countries' languages. Generally, however, a significant body of English-language material could be found for each of the six countries. Indeed, while Busch-Geertsema *et al.* (2019, p.1) observe that *German* transport and mobility research is "still relatively infrequently published in the English language and in international publications", the body of literature collected for the Germany country report was significantly larger than those for four of the other five countries. The one transport mode on which relatively little literature could be found, was that of domestic, island and/or inland waterway ferry services. As will be seen in the individual country reports, while Norway and Scotland are well served by ferry-focused, English-language literature, this is not the case with the remaining four partner countries.

From the literature, a series of six diagrams was created (one for each partner country), designed to represent the present author's understanding of the situation within each country. Where possible, these diagrams, and the accompanying notes and commentary, were then used as the basis for a series of interviews with representatives of G-PaTRA partners, during which their awareness of, and opinions on, country-specific legislation, regulation and funding arrangements were explored further. In some cases, prior to the interview, the interviewee had circulated the diagrams and commentary amongst colleagues, for additional comment. Following these interviews, any suggested additions or amendments to the diagrams were incorporated into those presented here.

In viewing the diagrams (and in response to one reviewer's comments), it should be emphasised that the width of the columns that contain details on each of the six modes of transport do not in any way represent the relative importance, or frequency of use, of each mode of travel within a particular country. Indeed, efforts were made to keep the width of the columns broadly consistent across all six modes and all six countries. Where these differ, the width has been determined more by the number of text boxes and the amount of text to be included in that column, rather than by any efforts to represent visually the numbers of systems, services or passengers.

In this document, each partner country is discussed individually, and in alphabetical order, with the country-specific diagram being followed by the explanatory notes and commentary. A final discursive section briefly summarises the key similarities and differences across the six countries.

The country-specific diagrams are designed to illustrate both the *modes* of public transport (e.g., bus, rail, ferry, etc.)[1] that operate in each country, and the *level of government* (i.e., national/central, regional/provincial/state, municipal) that is responsible for funding and/or regulating each mode. Here, however, we can encounter some definitional difficulties. While the European Union, and other international agencies, have produced very precise definitions of various public transport modes, largely for

[1] The icons representing the travel modes were obtained from https://icon-library.com/icon/public-transport-icon-16.html and https://thenounproject.com/browse/icons/term/metro/?iconspage=1

statistical reporting purposes, this level of specificity is not always found in the wider literature. For example, while Eurostat *et al.* (2019) make distinctions between metro/subway (p.10), light rail (p.12), and tram/streetcar (p.16) systems, van der Bijl *et al.* (2019, p.17) note that the term 'light rail' is often used as a 'container concept', to encompass all forms of rail-based public transport in urban and metropolitan areas. Similarly, while Eurostat *et al.* (2019) differentiate between 'seagoing'/'maritime' ferry services (p.95), such as the inter-island ferries in the Danish archipelago, and 'cross-waterway' ferry services (p.63), such as those crossing the Norwegian fjords, these are typically discussed collectively in the literature (e.g., Baird and Wilmsmeier, 2011).

With this in mind, the following paragraphs present the broad public transport modes that appear in the diagrams, together with a brief indication of what is included in (or excluded from) each category:—

Local and regional bus services
As the name would suggest, the category of local and regional bus services encapsulates bus services that operate within municipal boundaries; perhaps those of a city, a district, a county, a state, or a region. It also includes *trolleybus* services, which operate in three of the G-PaTRA partner countries (Germany, the Netherlands, and Norway). While Eurostat *et al.* (2019, p.40) very much distinguish trolleybus services from other forms of bus service, they are included here because those partner country cities with trolleybus systems typically regard them as part of their bus network, in terms of fares, route maps and timetables.

Metro
There would appear to be no standard definition of a metro system. With this in mind, this report has drawn on the definitions provided by the International Association of Public Transport (UITP, 2018, p.8) and by Eurostat *et al.* (2019, p.10). The metro category here, then, includes high capacity, high frequency, urban rail services that operate using heavy-duty rolling stock on a segregated track bed, large sections of which may run underground.

Tram and light rail services
For the tram and light rail category, this report draws largely on van der Bijl and van Oort's (2014, p.8) definition:-

> "Light rail is a rail-bound mode of public transport for cities and urban regions. Contrary to train (heavy rail) and metro (subway, underground) light rail principally is able to be integrated within public realm, sharing public space with other traffic to some extent."

It also includes systems that are described as "pre-metro", "hybrid", or "tram-train", which share some features of underground or overground "heavy rail", or indeed can share sections of the same track. As will be seen later, such systems include the CHRONO lines in Brussels, the RandstadRail system in the Netherlands, and, in Germany, Kassel's RegioTram system. Two suspended monorail systems in Germany — each regarded as an integral part of the local public transport network — have also been included in this category.

Long-distance coach services
Long-distance coach services are regarded here as scheduled, timetabled services that cross wider municipal boundaries, such as those between counties, provinces, states, or regions. Typically described as "intercity", "interurban" or "express" coach services, these services travel directly between large metropolitan areas, or have limited stops. This category also includes international, cross-border coach travel.

Ferry services
This report considers *domestic* waterborne public transport only: it excludes international passenger ferry services. It therefore includes scheduled services that connect coastal or island communities within the same country; those that cross rivers, lakes or fjords; and those that operate within urban ports or along

major rivers or canals. It includes both passenger-only craft, and those that may also transport bicycles and/or motor vehicles.

National and regional rail services
This category consists of overground "heavy rail" passenger services, which, in Europe at least, are generally defined as systems that operate on a dedicated right of way (although tracks may be shared by freight traffic), have a relatively high passenger capacity, and use heavy-duty rolling stock (e.g., Edwards, 2013, pp.51-52; Stopher and Stanley, 2014, p.253; van der Bijl *et al.*, 2019, *passim*). It includes long-distance services that cross municipal boundaries, such as those between states or regions; as well as urban/suburban/commuter services, such as Germany's *S-Bahn* systems and Greater Copenhagen's *S-tog* network. It also includes services that cross international borders.

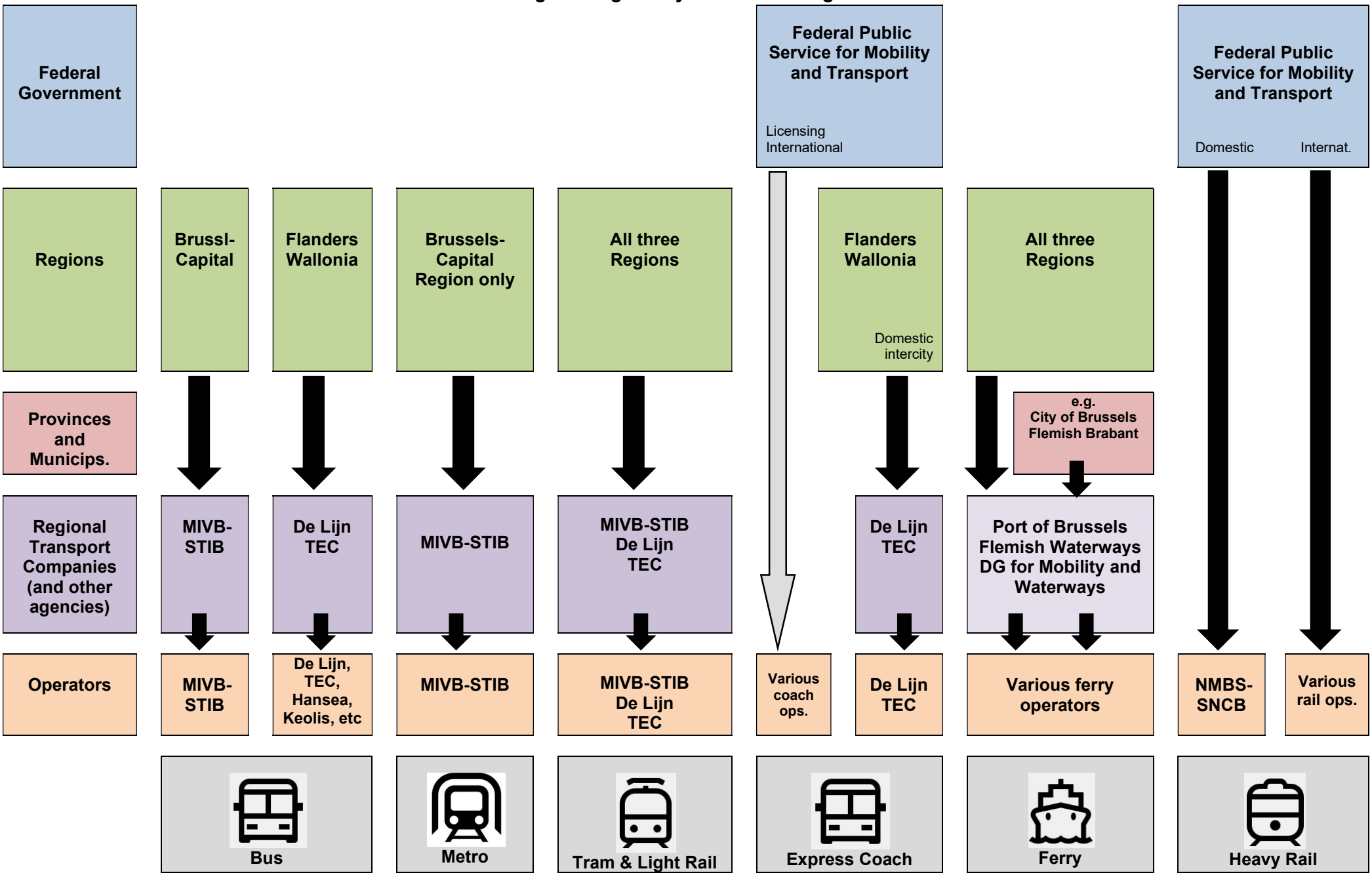
Throughout this report, numerous references are made to the award of gross cost contracts, or net cost contracts, for the provision of public transport services. For readers unfamiliar with this terminology, they can be defined as follows:

Gross cost contracts. Where the operator is paid a fixed contract price for operating the service, with the transport authority retaining all of the fare box revenue. The tendering authority, therefore, bears the 'revenue risk', while the operator carries the 'cost risk'.

Net cost contracts. Where the transport authority pays a fixed contract price, and the operator retains the fare box revenue. Here, the operator takes on both the revenue risk *and* the cost risk.[2]

[2] Adapted from Northern Ireland Assembly (2009), Department of Transport (2017, p.33), and Sheng and Meng (2020, p.2).

2. Belgium: regulatory framework diagram



Belgium: notes and commentary

Government in Belgium

Belgium is a federal state and has a complex governmental structure. While the Federal Government retains important powers, such as finance, defence and justice, other powers are devolved to three Communities and to three Regions. The three Communities are based on the concept of language, and are thus known as the Flemish (Dutch), French, and German-speaking Communities. They hold powers relating to culture and education. The three Regions — the Flemish Region, the Brussels-Capital Region, and the Walloon Region — hold numerous powers, including those relating to the economy, employment, agriculture, housing, energy, and (importantly here) most of the country's transport provision. Belgium is further divided into 10 provinces and 581 municipalities. The Flemish and Walloon Regions each consist of five provinces; while the Brussels-Capital Region has no provinces, but consists of 19 municipalities (see Belgian Federal Government, 2021a).

Transport governance in Belgium

With the notable exception of the Belgian rail network, which is the responsibility of the Federal Government, most of the country's public transport is administered at the regional level. Each region has a publicly-owned transport company responsible for public transport provision, with the contracts between the regions and these companies being awarded directly every five years (Steer Davies Gleave, 2016a, p.292).

In the Brussels-Capital Region, the company is known by both its Dutch abbreviation MIVB (*Maatschappij voor het Intercommunaal Vervoer in Brussel*) and its French abbreviation STIB *(Société des Transports Intercommunaux de Bruxelles*), although the company's English-language web pages typically use the French version (see https://www.stib-mivb.be). As of 2019, MIVB-STIB was responsible for 83 bus, metro and tram lines in the region (STIB, 2020a). In Flanders, *Vlaamse Vervoersmaatschappij De Lijn*, usually just known as De Lijn (https://www.delijn.be), is responsible for the region's bus services and three tram networks. In Wallonia, meanwhile, TEC (*Transport En Commun*) is the operating company responsible for the 778 bus and tram lines throughout the region. TEC's legal name is *Opérateur de Transport de Wallonie*, or OTW (see https://www.letec.be).

While there is a national transport plan for rail passenger services, with the current version covering the period 2020-2023 (Belgian Council of Ministers, 2020), there is no such country-wide strategy for other modes of public transport. Indeed, while it would appear that there have long been calls for a national mobility plan (e.g., Federal Government of Belgium, 2000, p.77), most recently from Belgium's Federal Mobility Minister (*Brussels Times*, 2019), each region continues to produce its own strategic plan. In the Brussels-Capital Region, for example, the current mobility plan, *Good Move*, covers the period 2020-2030, and aims to facilitate "a pleasant and safe city, made up of peaceful neighborhoods, linked by structuring intermodal axes, and centered on efficient public transport and more fluid traffic". To help to achieve these ambitions, each of the 19 municipalities in the Brussels-Capital Region is also developing its own Municipal Mobility Plan (Bruxelles Mobilité, 2020).

In Flanders, the earliest regional mobility plan (Mobility Plan Flanders; *Mobiliteitsplan Vlaandere)* was built upon the supply-oriented concept of 'basic mobility' (*basismobiliteit*), which was prescribed in a Flemish Government decree of 2001, and which gave every Fleming the legal right of access to a minimum level of public transport service, irrespective of the location of their residence (Fransen *et al.*, 2015). For example, those living in a rural area should be no further than 750 metres away from a bus stop; while those living in cities and large towns should have to travel no further than 500 metres to reach a public transport stop (De Lijn, n.d.). More recently, though, there has been a move towards the more demand-driven concept of 'basic accessibility' (*basisbereikbaarheid*), and towards 'combi-mobility', which aims for an integrated, multimodal public transport network with seamless interconnections. With these concepts in mind, the Flemish Government is currently working on a new mobility vision towards 2040, to be introduced in late

2021. It is also worthwhile noting that the Flanders Region has recently sub-divided into 15 'transport regions', each with a transport regional council that will monitor, direct and evaluate the implementation of basic accessibility in that particular area. As a result, and in addition to the overall Mobility Plan Flanders, each transport regional council will now draw up its own Regional Mobility Plan. Optionally, a Local Mobility Plan can also be created, based on the geographic area occupied by one or more municipalities (see Eubelius, 2019; Flemish Government, 2021).

A key initiative aimed at achieving combi-mobility throughout Flanders is the creation of mobility hubs, to be known as mobipoints (*mobipunten*). These are to be dedicated, visible, and recognisable on-street locations where a range of sustainable transport modes are co-located in close proximity. In 2020, the Flemish Government announced that over €100M would be made available for the creation of 1,000 mobility hubs, in the period 2020 to 2024. There are to be five different types of mobipoints, based on where they are located on the overall transport network, and the range of commuters and passengers that will depart from them: 1) interregional mobipoints, based on network logic; 2) regional mobipoints, based on network logic; 3) local mobipoints, based on network logic; 4) neighbourhood mobipoints, based on network logic; and 5) neighbourhood mobipoints, based on proximity logic (Flemish Department of Mobility and Public Works, 2020). An associated website, app, and call centre, that will provide information on mobility options, timetables, connections and prices, is expected in 2022. The first of these mobility hubs opened in 2020, and they are being branded collectively as 'Hoppin' points (see https://hoppin.be). The mobipoints concept would appear to be much further advanced in Flanders than in the Brussels-Capital Region. While the *Good Move* mobility plan does briefly mention the proposed introduction of mobipoints (Bruxelles Mobilité, 2020, p.203), their likely number is undefined; although it has been suggested that they will be located at the capital's three major railway stations and some of the "more important" metro stations (BRUZZ, 2018; CD&V, 2018).

In Wallonia, meanwhile, some authors trace the origins of today's regional mobility plan back to a decree on public transport regulation ('Decree 89'), adopted by the then Regional Council of Walloon in 1989 (Van Zeebroeck and Florizoone, 2019, p.4); others relate it more to a decree on 'local mobility and accessibility', adopted by the Walloon Government in 2004 (EPOMM, 2018, p.42). Whatever the origins, in 2017 the Walloon Government adopted its FAST (*Fluidité Accessibilité Sécurité Santé Transfert modal*) vision for mobility in Wallonia by 2030, which aims to create a mobility system that guarantees "Fluidity, Accessibility, Health and Safety to everyone via modal transfer". Two years later, in 2019, the Walloon Government adopted the first part of its new Regional Mobility Strategy, which defined how these objectives would be achieved, in terms of the mobility of people (a second part of the Strategy, on the movement of goods, was adopted in 2020). The implementation of this Strategy, the Walloon Government argues, will also make it possible to reduce emissions by more than 35% by 2030 (see Walloon Government, 2020a). As is the case in the other two regions, the individual municipalities in Wallonia have been encouraged to produce their own Municipal Mobility Plans, with around two-thirds having done so by 2018 (EPOMM, 2018, p.42). And, like Flanders, Wallonia has sub-divided into smaller geographic areas; in this case six 'mobility basins' (*bassins de mobilité*), each one with a 'consultation body' that will coordinate passenger transport planning in their component municipalities (Van Zeebroeck and Florizoone, 2019; Walloon Government, 2020b). The mobility hub concept also forms part of the Wallonian mobility strategy. Here, though, the Walloon Government differentiates between those that will be located in urban environments (*mobipoints*) and those that will appear in interurban and rural locations (*mobipôles*). The precise number of proposed hubs is unclear; only that each municipality in the region (of which there are currently 262) should have at least one (Walloon Government, 2020a, p.40). The Walloon Government's infrastructure finance agency, SOFICO (*Société de Financement Complémentaire des Infrastructures*) suggests that around 100 hubs will be deployed by 2023 (SOFICO, 2018).

The regional approach to public transport governance has received criticism from a number of quarters, not only in terms of the lack of a national mobility plan, but also in terms of the lack of integration of fares, timetables, networks and information provision (Strale, 2019), and in poor coordination between the regions when public transport services and large infrastructure projects cross regional boundaries (Hubert *et al.*,

2013; Ermans *et al.*, 2018; te Boveldt and Macharis, 2018; Strale, 2019). From a scholarly research perspective, Witlox *et al.* (2013, p.109) also highlight a "noticeable, but also detrimental trend" where regional studies are more common than those at the national, Belgium-wide level.

Public transport in Belgium is heavily subsidised, with the OECD (2020, p.39) observing that the country has one of the highest subsidy levels in the EU. Basche and Spera (2021, p.9) put the figure at "approximately 80%". There would appear to be some regional differences in estimated subsidy levels. For example, in the Brussels-Capital Region, 54.3% of MIVB-STIB's income in 2019 was from subsidies (STIB, 2020b); while recent estimates set the subsidy levels in Wallonia at around 65% (De Borger and Proost, 2017, p.48), and those in Flanders at around 80-85% (*Flanders News*, 2014; van Hulten, 2015, p.37; De Borger and Proost, 2017, p.48).

As Boossauw and Vanoutrive (2017) point out, Belgium has a long tradition of providing concessionary travel on public transport. Many of these concessions are of the type to be found in the other G-PaTRA partner countries. For example, in Flanders, De Lijn offers free travel for children under six, people with disabilities, and jobseekers with a vocational training contract; as well as discounted annual travel passes for families and for those aged 65 or over (see https://www.delijn.be/en/vervoerbewijzen/kortingen/). However, since 2004, Belgium has also operated what is known as a 'third payer' or 'third party payment' scheme, in which almost all staff in the public sector, and increasingly those in the private sector, can receive free travel to work and have all or most of these costs paid by their employer (e.g., De Witte and Macharis, 2010; Vanoutrive *et al.*, 2012; Laine and Van Steenbergen, 2017).

Local and regional bus services

In the Brussels-Capital region, MIVB-STIB operates all local and regional bus services without the need for any outsourcing. In Flanders and Wallonia, however, the public operators (i.e. De Lijn and TEC) have a contractual obligation to subcontract up to 50% of operational lines (ICF Consulting Services, 2016, p.18). In Flanders, De Lijn would appear to regularly meet this maximum quota, with Steer Davies Gleave (2016a, p.292) noting that 47% of *bus-kilometres* are outsourced under competitive tender, and the company itself reporting that "approximately half" of bus services were outsourced to operators in 2019 (De Lijn, 2021). In Wallonia, where there is also a contractual obligation to subcontract a *minimum* of 29% of the region's bus services, around 30% of TEC's regular bus lines are currently sub-contracted (ICF Consulting Services, 2016, p.14).

A number of authors have noted a gradual shift in subcontracting practices in the Flemish and Walloon Regions. Here, the subcontracted bus routes have traditionally been operated by 'tenants' — small family-owned businesses that have operated under gross cost contracts and owe their position to historic 'rights' rather than to any form of competitive tendering (Zatti, 2011, p.59; ICF Consulting Services, 2016, p.18; Steer Davies Gleave, 2016a, p.292; van de Velde, 2019, p.74). van de Velde goes on to suggest that Wallonia has been "rather against competition", and has been reluctant to change their contractual processes, except for the addition of improved quality management and monitoring clauses (p.185). In contrast, De Lijn cancelled all existing contracts with tenants in Flanders, and by 2003 had tendered all routes competitively, in 79 small 'batches' of routes; although these small batches were offered in a conscious effort to prevent large international operators dominating the subcontracted services, to the detriment of family-run tenant operators (van de Velde, 2019, p.74). In any case, throughout both Flanders and Wallonia, it has been observed that many of the small family businesses have gradually been acquired or subsumed by larger operators (ICF Consulting Services, 2016, p.21; van de Velde, 2019, p.74).

In Flanders, the contracted bus market is currently dominated by Hansea, who were previously part of the French-based transport company Veolia Transdev, but who now form part of the DWS Infrastructure investment group (see https://hansea.be/). Hansea also operate services in the Walloon Region, but the dominant subcontracted operator there is Keolis, who were awarded 31 contracts by TEC in 2019 (Keolis, 2020, p.37).

Metro

Constructed and opened in the 1970s, the Brussels metro has its origins in infrastructure (tunnels and stations) created in the 1960s, for a tram-based, pre-metro system. This infrastructure was then progressively adapted to accommodate the metro (Bioul and Derie, 2016). The current system, which is managed and operated by MIVB-STIB, consists of four lines (STIB, 2021c), but work is ongoing to create a new line that will cross Brussels from north to south (see https://metro3.be). This involves converting and upgrading an existing pre-metro line, and building a 4km extension with seven new stations. The new line is expected to be fully operational by 2030 (*Brussels Times*, 2020).

Tram and light rail services

Belgium currently has five operational tram or light rail systems, with others planned or under construction.

In Brussels, MIVB-STIB currently operate 17 routes across 147km of tram lines (STIB, 2021a). Lebrun (2018) notes that some of these routes are historical, with Brussels, unlike many other European cities, having never fully dismantled its tram network. This was due largely to the 1958 Brussels World's Fair (Expo 58), for which parts of the existing Brussels tram network were renovated, new lines constructed, and new trams purchased (Carton, 2018). A number of these routes have pre-metro features; and five routes are what MIVB-STIB call 'CHRONO lines', where the trams run on tracks that are for the most part separated from other tram traffic, and which operate a more frequent service than other tram routes. While MIVB-STIB indicate that the CHRONO routes offer a service "close to that of the Metro" (STIB, 2021b), they are included here, rather than in the metro section above, because MIVB-STIB do make a distinction between the two services in their network maps and other literature (STIB, 2020 & 2021c). In any case, together with bus services in Brussels, the metro and tram lines form part of an integrated public transport network (in terms of ticketing and mapping) operated solely by MIVB-STIB.

In the Flemish Region, the cities of Antwerp and Ghent have tram services, both operated by De Lijn. The Antwerp network consists of 14 lines (see De Lijn, 2019), eight of which travel partly underground (known as the Antwerp Pre-metro). The Ghent system consists of three lines (De Lijn, 2020). De Lijn also operates the Coastal Tram (*De Kusttram*), a 67km route with 67 stops, that connects the cities and towns along the entire Belgian coast, between De Panne near the border with France, and Knokke-Heist near the Dutch border (see https://www.dekusttram.be). De Lijn will also operate a new 'express tram' service that is to run between the cities of Hasselt, in the province of Limburg, and Maastricht in the Netherlands. Currently under construction, this 12-stop, 30km line (27km on Flemish territory, 3km in the Netherlands) is due to be fully operational in 2024. The tram service will form part of De Lijn's future plans for Limburg — the "Spartacus plan" — that aims to coordinate tram lines, express buses, city and regional buses, and train connections throughout the province (see https://www.trammaastrichthasselt.eu). Mention should also be made here of the Flemish Government's *Brabantnet* project (see https://www.delijn.be/nl/mobiliteitsvisie2020/brabantnet), which originally aimed to create three new tram lines, to be managed and operated by De Lijn, that would improve connections between the Flemish Brabant province and Brussels. One of these lines will connect the Brussels-North railway station with Brussels Airport, with construction possibly starting in 2022. A second 'express tram' line will connect Brussels-North station with Willebroek, with construction due to start in 2023. However, plans for the third tram line, to run from Jette, via Vilvoorde, to Brussels Airport, were abandoned, and instead a 'Ringtrambus' service was introduced on the proposed route in June 2020. The trambus concept combines the design and passenger capacity of a tram with the manoeuvrability of a bus. The vehicles run on rubber tyres, and therefore need no rails or overhead lines; and they use new dedicated bus lanes, wherever possible (see also Cosyn *et al.*, 2020).

In Wallonia, TEC operate a four-line system in the city of Charleroi (TEC, 2021). While some observers (e.g., ICF Consulting Services, 2016; Belgian Federal Government, 2021b) describe the Charleroi network

as a tram system, others (e.g., Collard, 2018) regard it more as a pre-metro or light rail system. TEC (2020), themselves, describe it as the Charleroi Light Metro (*Métro Léger de Charleroi*). In the city of Liège, meanwhile, construction of a new 11.7km tram line (*Tram de Liège*) began in January 2019. The route, which will have 23 stops, will run from Sclessin in the south-east of the City, through the heart of the city, to Coronmeuse and Bressoux in the north-east. The project is a public-private partnership, and is due for completion in May 2023. When open, TEC will be responsible for its management and operation (see https://letram.be).

Long-distance coach services

The market for long-distance coach travel in Belgium is limited, due in part to the small size of the country (van de Velde, 2009, p.17; Lannoo *et al.*, 2018, p.166). Domestic intercity coach services have historically not been open to competition (European Commission, 2019a, p.25; 2019b, p.53), and have instead been administered and operated by the regional transport companies, although Steer Davies Gleave (2016b, p.265) note that no such services are operated by MIVB-STIB in the Brussels-Capital Region. Recently, however, the Flemish Government has announced that it is to lift De Lijn's exclusive monopoly on long-distance coach services and will open parts of its intercity network to competitive tender (European Commission, 2020, p.60).

International, cross-border coach travel is the responsibility of the Federal Government, with operating licences being issued by the Federal Public Service for Mobility and Transport. Steer Davies Gleave (2016b, p.265) note that these licences are not difficult to obtain. The dominant operators of international coach travel in Belgium have been Eurolines, and more recently FlixBus (Van Acker *et al.*, 2020).

Ferry services

There would appear to be very little literature available, at least in English, on domestic waterborne passenger transport in Belgium.

Perhaps understandably, given that it is the only one of the three regions with a coastline, most of the country's ferry services would appear to be located in the Flemish Region. A number of these services are the responsibility of the Flemish Government's Agency for Maritime Services and Coast (*Agentschap Maritieme Dienstverlening en Kust*, or *MDK*), and its shipping company VLOOT (see http://www.welkombijvloot.be). MDK and VLOOT operate several free, short-distance ferry crossings, in Nieuwpoort, Ostend, Ghent and Antwerp. Since January 2021, MDK and VLOOT have also become responsible for the Port of Antwerp's waterbus (*DeWaterbus*; see https://dewaterbus.be). Initially established in 2017 as a pilot project by the Antwerp Port Authority, the waterbus runs between Hemiskem and Lillo, along the River Scheldt, and is designed as an alternative commuting option for port employees (see also Vanoutrive, 2019, p.492; and Pecorari *et al.*, 2020, p.2089). Unlike the other MDK and VLOOT services, however, fares apply on the Antwerp waterbus. Another Flemish Government agency, Flemish Waterways (*De Vlaamse Waterweg*) would appear to have responsibility for several short-distance ferry crossings on the navigable inland canals and waterways in the region (see https://www.vlaamsewaterweg.be/veerdiensten). Again, these would appear to be largely free services, for pedestrians and cyclists.

Wallonia has its own agency responsible for inland waterways, the Directorate-General for Mobility and Waterways (*Direction générale opérationnelle de la Mobilité et des Voies hydrauliques*, see http://voies-hydrauliques.wallonie.be). And while the Walloon Government (2018, p.9) does provide some details of a small number of shuttle boats and ferries in the region, this information appears to be aimed more at the tourist than the commuter. In the Brussels-Capital Region, meanwhile, the government authority responsible for inland waterways would appear to be the Port of Brussels (*Port de Bruxelles*), which manages the port estate along a 14km stretch of the Antwerp-Brussels-Charleroi Canal (see https://port.brussels). Together with the City of Brussels Municipality, Flemish Waterways, and the Flemish

Brabant Province, the Port of Brussels is a partner in a fare-based waterbus service, that operates on a 10km route between Brussels and the city of Vilvoorde, in Flemish Brabant. Although the waterbus website (https://waterbus.eu) suggests that the service is "an extension of public transport" that offers a "seamless connection between the canal shuttle stops and existing bus, tram and subway stops", it does appear to be aimed more at the tourism and leisure market.

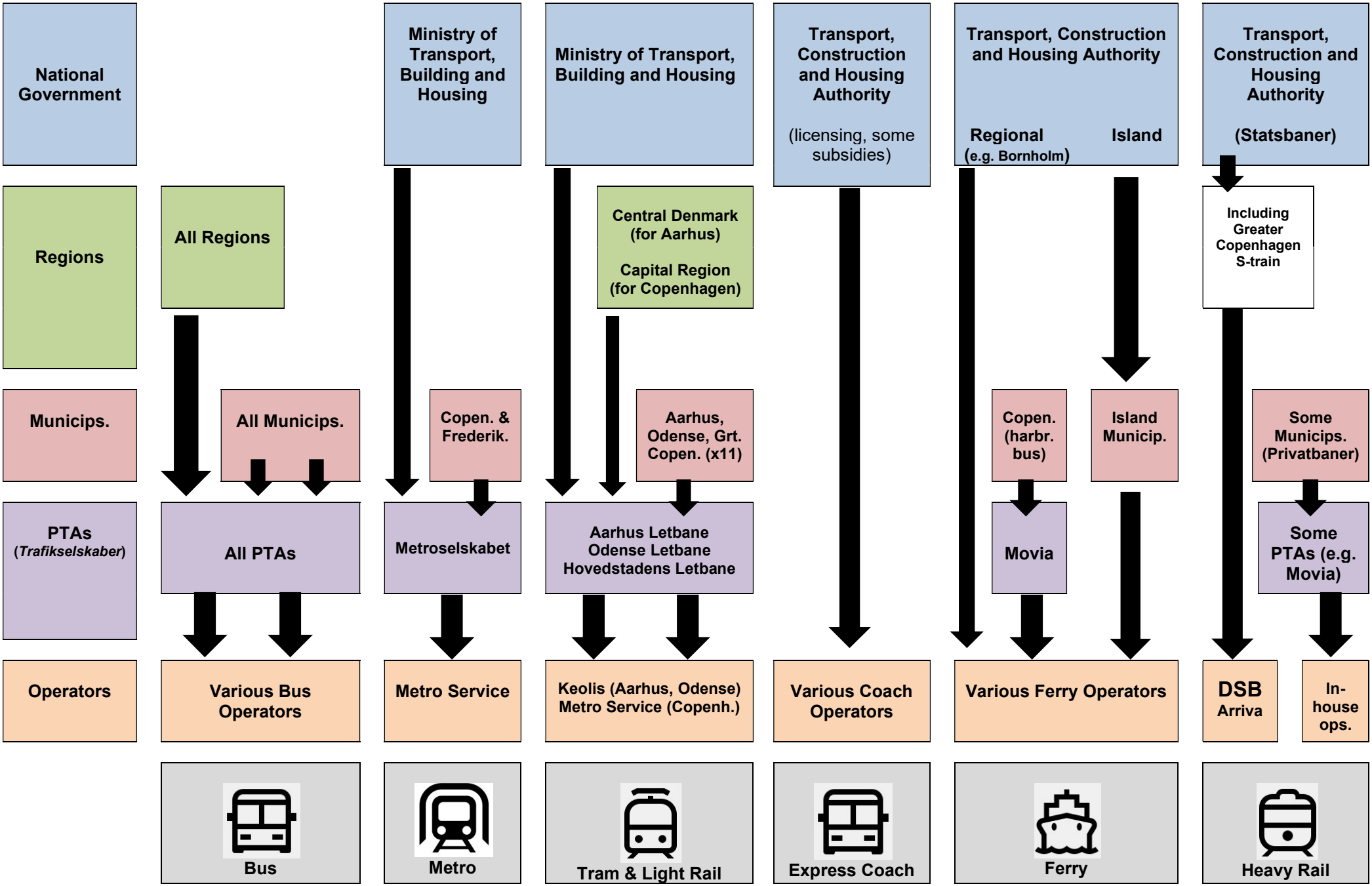
Each of the three Belgian regions, then, has some form of waterborne passenger transport. While agencies of the respective regional governments play a role in administering these services, it would appear that the regional governments' transport companies (MIVB-STIB, De Lijn, and TEC) have no direct role in their operation.

National and regional rail services

Domestic rail passenger services in Belgium are currently the exclusive competence of the National Railway Company of Belgium, under an operational contract negotiated with the Federal Public Service for Mobility and Transport (Directorate General Sustainable Mobility and Rail Policy). These include the suburban S-Train services in the cities of Brussels, Antwerp, Ghent, Liège and Charleroi (see https://www.belgiantrain.be/en/travel-info/train-offer/s-train).

The National Railway Company is an autonomous public enterprise, and formally styles itself using either the Dutch abbreviation NMBS (*Nationale Maatschappij der Belgische Spoorwegen*) or the French abbreviation SNCB (*Société Nationale des Chemins de fer Belges*); although on the English-language pages of its website (see https://www.belgiantrain.be/en), the French version SNCB is used. Since 2005, a separate company Infrabel (https://infrabel.be) has looked after the rail network infrastructure. NMBS-SNCB will have a legal monopoly to provide domestic passenger transport until at least 2023, with the market only having become completely liberalised on 1 January 2019. The international passenger market has been liberalised since 2010; therefore other operating companies (such as Deutsche Bahn, SNCF, and Eurostar) do currently access the Belgian rail network (Deville and Verduyn, 2012, pp.27-57; CER and ETF, 2016, pp.1-13; Werner, 2019; Regulatory Body for Railway Transport and the Brussels Airport Operations, 2021).

3. Denmark: regulatory framework diagram



Denmark: notes and commentary

Government in Denmark

Denmark has three levels of administrative government: the national government; regions (*regioner*), of which there are five; and municipalities (*kommuner*), of which there are 98. The regions and the municipalities are independent of each other (Danish Ministry for Economic Affairs and the Interior, 2014).

Transport governance in Denmark

In Denmark, while the rail network is largely state-controlled, most other local and regional public transport services are determined and funded by the regions and municipalities. There are, however, some exceptions, and these will be discussed below. Following local government reform in 2007, six regional 'transport companies' (*Trafikselskaber*) were formed, to procure and oversee local and regional public transport services. These companies, also referred to in the literature as passenger transport authorities, or PTAs, (e.g., Urban Transport Group, 2017; Sørensen, 2018) are collectively owned and governed by both regions and municipalities. It should be noted here that Syddanmark, the Region of Southern Denmark, has two PTAs, *Sydtrafik* and *Fynbus*, the latter for bus services on the island of Funen; while Sjæland (Region Zealand) and Hovedstaden (the Capital Region) have a joint PTA, called *Movia*. It should also be noted that some authors (e.g., Sørensen, 2018; MAMBA, 2019) suggest that there are only five PTAs in Denmark. This would appear to be because they overlook or discount *BAT* (*Bornholms Amts Trafikselskab*), the separate PTA that administers bus services on the island of Bornholm (see Urban Transport Group, 2017, p.17). Gross cost contracts dominate in the Danish public transport sector (Urban Transport Group, 2017; Sørensen, 2018); although the Urban Transport Group (p.18) further observes that larger operators are often advocates of net cost contracts.

Public transport is heavily subsidised in Denmark. The Urban Transport Group (2017, p.27) notes that subsidies, at least for *bus services* in Denmark, are high in comparison to those of the country's Scandinavian neighbours, Norway and Sweden. Citing 2015 figures for Zealand and the Capital Region (p.23) they noted that just 45.5% of bus service operating costs were met by ticket revenue, with the balance (54.5%) coming from the public purse (they noted further that subsidy data for regional train and metro services was not available). This is broadly in line with Sørensen's observation that "'approximately half of the cost of public transport is funded by ticket revenue and half by public authorities at the state, regional, and municipal levels" (2018, p.413). However, Steer Davies Gleave (2016), discussing local bus services throughout the entire country, put the subsidy level at 61% (p.318), with this rising to 66% in the Greater Copenhagen area (p.319).

Public transport services in Denmark also typically provide a number of concessionary fares, for young children, students, older people, and disability pension recipients. These are outlined in the country's *Joint National Travel Regulations*, which are published annually by the national rail company *Danske Statsbaner* (*DSB*) and the six PTAs, in accordance with the Danish Railway Act and the Danish Transport Companies Act (DSB *et al.*, 2020). The *Joint National Travel Regulations* (p.27) also list the most important national and European laws and regulations that apply to public transport provision in the country.

While Denmark has seen a number of national plans and strategies aimed at more sustainable public transport provision — most notably a green investment plan for transport infrastructure (Danish Government, 2008) and a cross-party agreement on a green transport policy (see Mathiesen and Kappel, 2013; Sørensen *et al.*, 2013), the Danish government has not yet produced a single national integrated transport plan (Urban Transport Group, 2017). The Urban Transport Group (p.18) also observes that there have been multi-modal studies and plans for particular areas of Denmark (see also Eltis, 2019; Schleeman, n.d.). Probably the most notable of these are the 'traffic plans' (more recently, 'mobility plans'), produced by Movia every four years for Copenhagen and the island of Zealand more widely. The most recent version was published in 2020 (Movia, 2020). Knowles (2012) traces the origins of these to Copenhagen's

famous 'Finger Plan' of 1947, in which Greater Copenhagen was to develop alongside five commuter rail lines (or 'fingers') radiating from the 'palm' of the core urban area of the city. Also with regard to Zealand and the Capital Region, it is perhaps worthwhile mentioning here the existence of an umbrella organisation, *Din Offentlige Transport* (*DOT*), or 'Your Public Transport' (see https://dinoffentligetransport.dk/), which is designed to provide coordination and integration across the various public transport modes in the area; although Sørensen (2018, p.413) suggests that DOT is considered a "very weak" body.

While there is no national plan for public transport more broadly, the Danish government does produce a national plan for the state railway every four years, the most recent one being published in 2017, for the period 2017-2032 (Danish Transport, Construction and Housing Authority, 2017).

Local and regional bus services

In Denmark, *local* bus services (i.e. those operating within municipal boundaries) are determined and funded by the municipalities, whilst *regional* bus services (those that cross municipal boundaries within regions) are commissioned and funded at the regional level. Copenhagen also has another two types of bus service: high-frequency A-Buses in central Copenhagen; and S-Buses, which are faster, more direct services with fewer stops, and which connect the main residential, commercial and educational areas with stations and other transport hubs in and around Copenhagen (Urban Transport Group, 2017). As has already been noted, however, *all* local and regional bus services are procured and administered by the relevant PTAs.

The franchising of bus services in Denmark began, in Copenhagen, in the early 1990s. Today, competitive tendering is used for almost all local and regional bus services across the country. The one exception is on the island of Bornholm, where there is a municipal, in-house operation (see https://www.bat.dk). Bus service contracts are mostly gross cost (Steer Davies Gleave, 2016a, p.317), with some incentives offered for passenger satisfaction and/or increased patronage (Urban Transport Group, 2017, p.21). The Urban Transport Group further notes that the Danish PTAs have been keen to establish conditions that encourage smaller operators to bid, and thereby secure competition. This is done, for example, by keeping the geographic area for tendered bus services relatively small. Area-wide contracts for bus services are therefore rare in Denmark (p.21). In 2014-15, the dominant operator was Arriva, with a 35% share of the market, followed by Keolis Bus Danmark A/S (now Keolis Danmark A/S) with a 13% share. However, 17% of the market was operated by smaller companies with fewer than 50 buses each (Urban Transport Group, 2017, pp18-19).

Metro

First opened in 2002 — see Pineda & Jørgensen (2016) for an account of its origins — the driverless Copenhagen Metro now has four lines, including the recently opened circular M3 *Cityringen* (opened in September 2019), and line M4 to Nordhavn (opened March 2020). An extension of the M4 line, to Sydhaven, is currently under construction, and is due to open in 2024 (see also https://intl.m.dk/). Unlike most of the other public transport in Greater Copenhagen, the responsible franchising authority is not Movia, but *Metroselskabet I/S*, which is a company owned jointly by the Danish Government and the Municipalities of Copenhagen and Frederiksberg (Steer Davies Gleave, 2016a; Sørensen, 2018). Metroselskabet I/S also owns the infrastructure as well as the rolling stock on the Metro system. Metro operations are tendered on a gross cost contract basis (Urban Transport Group, 2017, p.21), with the current operator being Metro Service A/S, which is a joint venture between the main public transport operator in Milan, ATM (Azienda Trasporti Milanesi), and Hitachi Rail STS (formerly Ansaldo STS) (see https://www.metroservice.dk/en/).

Tram and light rail services

Denmark has a rich tramway history, with city operations having previously existed in Aarhus, Odense and Copenhagen. However, faced with increased competition from private cars and other transport modes, Denmark's final passenger tram ran in Copenhagen in April 1972 (Johnston, 2018). The last decade has seen something of a 'renaissance' in street-level, rail-based transportation, with the cities of Aarhus, Odense and Copenhagen all progressing plans for new light rail systems (Johnston, 2015). Meanwhile, plans for a light rail system in Aalborg were abandoned in 2015, in favour of a cheaper bus rapid transport solution (Olesen, 2020).

The new light rail projects in Aarhus, Odense and Copenhagen have all been collaborative efforts, involving the relevant regions and municipalities, with additional financial support from the Ministry of Transport (see Nicolaisen *et al.*, 2017, in particular Table 2 and Figure 5).

The most advanced of the three projects is the Aarhus Light Rail (*Aarhus Letbane*), the first phase of which has been fully operational since April 2019. Here, two existing railways, Odderbanen and Grenaabanen, have been transformed into electric light rail, and connected with an extra and new light rail track, to give a total of 110km of lines. Plans are also in place for new lines to Brabrand and Hinnerup, with a longer-term vision of these lines being part of a much larger network of light rail in East Jutland. The construction of the Aarhus system has been overseen by Aarhus Letbane I/S, a company owned by the Aarhus Municipality and the Midtjylland Region, with administrative support from the Midttrafik PTA. The initial operating contract, for six years with a potential extension, was awarded to Keolis Danmark A/S (Keolis, 2017); while contracts for the maintenance of the infrastructure and the rolling stock were awarded to Aarsleff Rail A/S and the ASAL consortium, respectively (see also https://www.letbanen.dk/).

The Odense Light Rail (*Odense Letbane*) is scheduled to open in the spring of 2022. It will consist of a 14.5km line, with 26 stations, that will run from Tarup in the north-west of Odense, through the city centre, to Hjallese in the south of the city. The construction of the line is being overseen by Odense Letbane P/S, a company wholly owned by Odense Municipality; but when the line opens the service will be operated and maintained by Keolis Odense Letbane, a subsidiary of Keolis Danmark A/S, on a 15-year contract (Keolis, 2018a). Odense Letbane P/S conducted the operator tendering process, albeit with some input from Fynbus, the PTA for the island of Funen, and other Danish transport procurement bodies (Odense Letbane, 2016). Fynbus will have responsibility for operational information provision, ticketing, and the marketing of the Odense Light Rail system (see also https://www.odenseletbane.dk/).

In Copenhagen, meanwhile, the Greater Copenhagen Light Rail (*Hovedstadens Letbane*) began construction in 2018 (see https://www.dinletbane.dk). Here, a 28km light rail line is being built alongside the 'Ring 3' ring road, from Lyngby in the northern suburbs of Copenhagen, to Ishøj in the south-west. The route will have 29 stations, including six existing suburban S-tog stations. The line is due to start operating in 2025. The construction of the line is being overseen by a company called Hovedstadens Letbane I/S (previously Ring 3 Letbane I/S), which is owned jointly by the Capital Region and by 11 municipalities, and which has a physical secretariat at Metroselskabet I/S (see the Metro section above). Indeed, when the line opens, it will be operated and maintained, on a 15-year contract, by Metro Service A/S, the same company who operates Copenhagen's Metro service (Metro Service, 2018; Hovedstadens Letbane, 2019).

Long-distance coach services

Denmark's network of intercity, long-distance coach services (or *fjernbusserne*) is not well developed; due, in part, to the existence of the country's extensive rail network (Steer Davies Gleave, 2016b, p.288). They are commercially operated, although operators can claim reimbursement from the national government for providing concessionary fares, for example for children and students (Urban Transport Group, 2017, p.16). Operating licences are issued by the Danish Transport, Construction and Housing Authority (TBST), generally for a period of five years, if the route requested does not infringe on an existing public bus

service. Current operators of long-distance services include Gråhundbus, Abildskou A/S, and Thinggaard Express (Steer Davies Gleave, 2016b, p.288).

Ferry services

There would appear to be very little written recently (at least in English) on ferry services in Denmark. However, the material that *has* been produced has typically made a distinction between 'regional' ferry services — which use larger vessels, serve larger communities, and carry more passengers — and 'local', 'small', 'island' or 'small island' ferry services (e.g., Mosgaard *et al.*, 2014; Winther, 2018). The even smaller body of literature on the regulatory situation for Danish ferries (Rehmatulla and Tibbles, 2014; Mahony, 2018) has tended to cite a now decade-old paper by Baird and Wilmsmeier (2011).

In 2011, Baird and Wilmsmeier (pp. 94-99) noted that the Danish Transport Authority, or *Trafikstyrelsen* (now the TBST, or *Trafik-, Bygge- og Boligstyrelsen*) was responsible for the public procurement of ferry services, and that tendering was based on single route operations, or on small 'bundles' of routes. As a detailed example of the latter, Baird and Wilmsmeier (p.97) discussed the lengthy procurement procedures associated with the major ferry services to the island of Bornholm, which is located remotely from the rest of Denmark, being over 100 miles by sea from the ferry port of Køge, south of Copenhagen.

Baird and Wilmsmeier found that net cost contracts were the norm for Danish ferry services. However, they also found that the tendering process had been less successful with many small-scale routes. With the smaller services, these had either never been submitted to tender procedures, or the tender process had been cancelled, due to a lack of interest from operators. They also found that many of the Danish ferry companies consisted of two entities: with one company (often owned by the state, mostly at the municipal level) owning the vessel(s), and another operating company actually running the service. There were still cases, however, when ferry services were owned and operated wholly by municipalities.

It would appear that this situation remains largely unchanged. Certainly, the more extensive services, such as those to and from Bornholm, are the subject of competitive processes; with a cross-party 'ferry agreement' of 11 December 2014 now ensuring that the winner of the tender will be the operator who can offer the lowest average price on selected ticket types, and, of course, can otherwise meet the tender conditions (see Danish Ministry of Transport and Construction, 2016). The current Bornholm contract, to 2028, is operated by Molslinjen A/S, under the name of the Bornholm Line, or *Bornholmslinjen* (see https://www.bornholmslinjen.dk/). Indeed, since 2018, when it acquired the 50%-state-owned Danish Ferries (*Danske Færger*), Molslinjen A/S has become Denmark's largest passenger ferry company, and now operates a number of the country's other major domestic routes, under subsidised public service contracts, namely Fynshav—Bøjden, Kalundborg—Ballen, and Spodsbjerg—Tårs (Danish Competition and Consumer Authority, 2018).

It would also appear that the municipalities, and the operating companies they own, continue to provide many of the smaller, island ferry services. Indeed, in 2015, the 18 Danish municipalities that contain island communities combined to form the Ferry Secretariat (*Færge Sekretariatet*), with a view to enabling more efficient and cost-effective island ferry services (see https://faergesekr.dk/). It should be noted, however, that the six regional PTAs appear to play no part in the ferry service procurement processes.

Also worthy of mention here is Copenhagen's small fleet of 'harbour buses', or *Havnebusser* (Cheemakurthy *et al.*, 2017, pp.43-44; DSB *et al.*, 2020), also occasionally described as 'water buses' (Urban Transport Group, 2017, p.13). With three routes and 10 terminals along the waterfront, the harbour buses are integrated in the city's public transport system. As such, the procurement process is handled by the PTA Movia, on behalf of the Municipality of Copenhagen. The most recent competition, in 2018, was won by the existing incumbent, Arriva, based partly on the existing vessels being replaced by all-electric boats. To prepare for the tendering process, and its focus on procuring low- or zero-emission vessels,

Movia received financial support from the European Investment Bank, as part of the EU's ELENA programme (Epinion, 2019, pp.49-56; Movia, 2019).

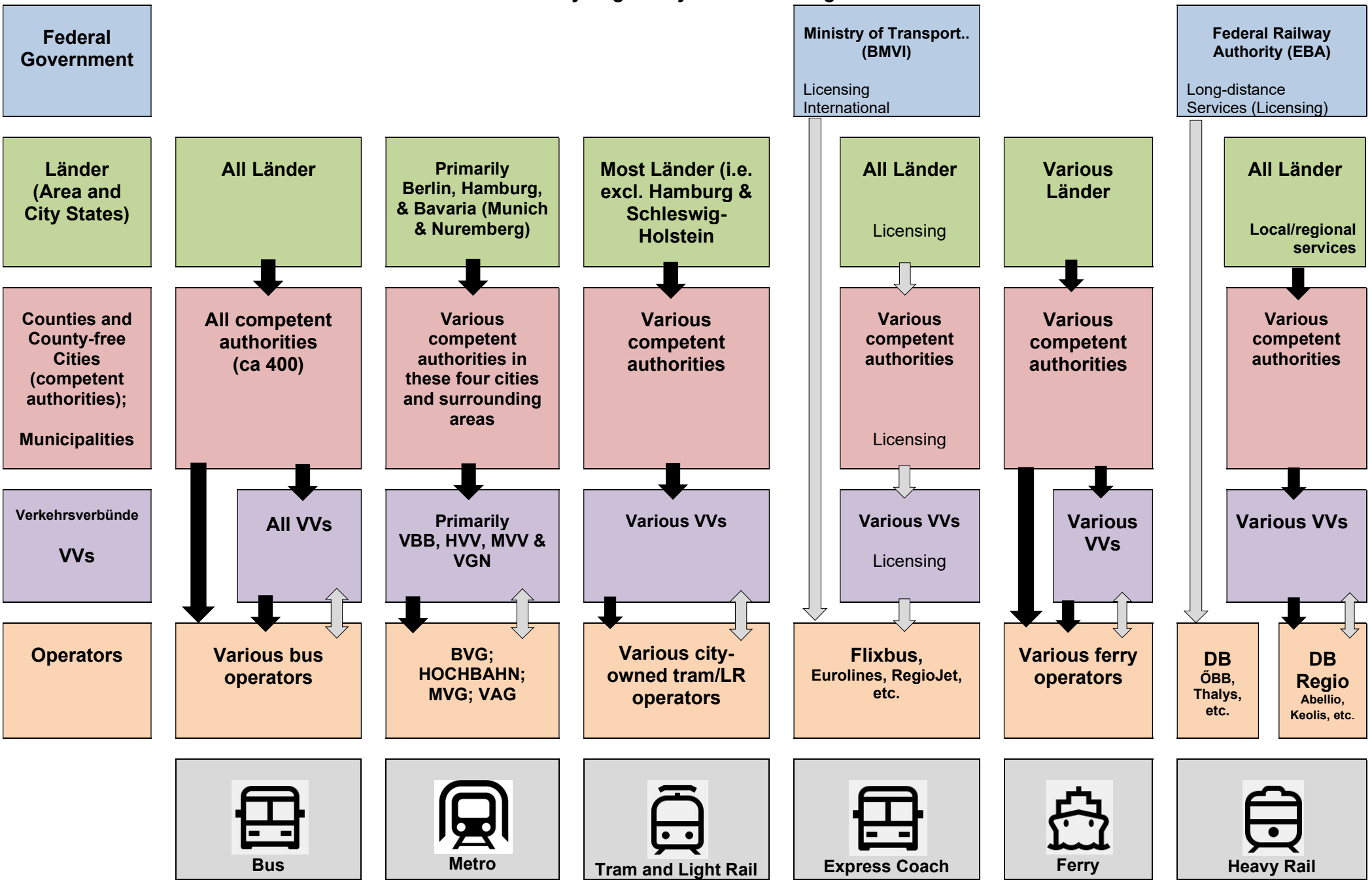
National and regional rail services

As has already been noted, the rail network in Denmark is largely state-controlled, with the TBST being responsible for the procurement of most passenger services. The main rail operator is *Danske Statsbaner* (*DSB*), an independent public corporation owned by the Danish Ministry of Transport. A separate state-owned enterprise, Rail Net Denmark (*Banedanmark*), is responsible for the maintenance and development of the rail network infrastructure (Urban Transport Group, 2017; Sørensen, 2018). DSB operates on a negotiated contract with the state (currently for the period 2015-2024) and provides intercity and regional services, as well as the high frequency suburban S-train (*S-tog*) services in Greater Copenhagen. The S-train system (see https://www.dsb.dk/kampagner/s-tog) consists of 84 stations on seven lines (most of which follow the five 'fingers' of the 'Finger Plan'), and is a crucial part of the Copenhagen public transport network, with almost 112 million journeys (i.e. almost 60% of all DSB journeys) being made on S-trains in 2019 (DSB, 2020, p.17).

The Urban Transport Group (2017, p.20) notes that competitive tendering in the Danish rail sector has been rare, identifying only two examples to date. Firstly, services in Mid and Western Jutland have been the subject of three rounds of tendering since 2003, with Arriva Tog A/S winning on each occasion. This has been a net contract, with built-in incentives based on punctuality and customer satisfaction (see also Christensen, 2018; Danish Ministry of Transport, 2019). Secondly, the Danish section of the Coast Line (*Kystbanen*) in Eastern Zealand was put out to tender in 2004, with DSBFirst Danmark A/S (a joint venture between DSB and FirstGroup) winning the contract. However, this was a troubled venture, with questions raised over DSBFirst's financial management (see Rigsrevisionen, 2011; Christensen, 2015); and when the contract expired in 2015 the services were reintegrated into DSB's national negotiated contract.

Denmark also has a small number of local, private railways (*privatbaner*), which are owned by the PTAs, municipalities, and/or small private owners. For example, Movia is the main shareholder in Lokaltog A/S, which operates ten local routes in eastern Denmark (Sørensen, 2018); while the infrastructure on these routes is, in turn, provided by two companies wholly or largely owned by Lokaltog (Urban Transport Group (2017, p.25). The Urban Transport Group (p.17) notes that such 'in-house' operational arrangements are typical in the *privatbaner*. Another private railway worthy of mention here is North Jutland Railways (*Nordjyske Jernbaner A/S*), which is 89% owned by the regional PTA , NT (*Nordjyllands Trafikselskab*). It has taken over large parts of the regional train operation from DSB, and is regarded as something of a local success story (see https://nj.dk).

4. Germany: regulatory framework diagram



Germany: notes and commentary

Government in Germany

Like neighbouring Belgium (see Section 2 of this report), Germany is a federal state and has a complex governmental structure. In this federal system there are three levels of government: the national, Federal Government (*Bundesregierung*); the Federal states (*Bundesländer* or *Länder*), of which there are 16; and the local level (also sometimes known as the communal level), which comprises counties (*Landkreise*), 'county-free cities' (*Kreisfreie Städte*), and municipalities (*Gemeinden*). This structure, Kuhlmann *et al.* (2021) argue, ensures that German public administration is regarded as "a prime example of multilevel governance and strong local self-government" (p.2), which is shaped by "a peculiar mix of strong decentralisation and a high degree of autonomy at lower levels of government" (p.4). In essence, while the central (Federal) level develops and adopts the majority of Germany's public programmes and legislation, which are then implemented at the state and local levels, the subnational levels of government retain significant, independent roles as public administration bodies (p.6).

Of the 16 Federal states, 13 generally encompass large geographic areas, consisting of counties, county-free cities and municipalities, and are sometimes known as 'area' or 'territorial' states (*Flächenländer* or *Flächenstaaten*). The remaining three (Berlin, Bremen and Hamburg) are known as 'city states' (*Stadtstaaten*), which are smaller but more densely populated metropolitan areas that simultaneously have Federal state status. At the local level, each county consists of several municipalities: 37, on average, according to Kuhlmann *et al.* (2021, p.127). The county-free cities, meanwhile, are larger cities that act both as a county and a municipality, thus giving them a stronger role (Heinelt and Zimmerman, 2021, p.15).

There would appear to be differing views on the number of local public authorities that currently exist throughout Germany. While most commentators are in broad agreement that there are 107 county-free cities, and either 294 or 295 counties (OECD, 2016a; Eurydice, 2021; Heinelt and Zimmerman, 2021, p.15; Kuhlmann *et al.*, 2021, p.124), the suggested number of municipalities ranges from just over 11,000 (Eurydice, 2021; Kuhlmann *et al.*, 2021, p.124) to around 12,000 (Rye *et al.*, 2018, p.199; Heinelt and Zimmerman, 2021, p.15).

Transport governance in Germany

Most observers are in agreement that there are three pieces of Federal legislation that have been of key relevance to the current regulatory framework for public transport provision in Germany.

Firstly, the *Personenbeförderungsgesetz*, or PBefG — translated variously as the Passenger Transport(ation) Act, or the Law on Passenger Transport(ation) — was first enacted in 1961, and amended most recently in April 2021 (see https://www.gesetze-im-internet.de/pbefg/). It provides the principles for the provision of local *road-bound* public transport (*Öffentlicher Straßenpersonennahverkehr*, or ÖSPV), including buses, trolleybuses, trams, and (perhaps surprisingly) underground or elevated railways (see §4). Stein (2013, slide 5) claims that the PBefG also covers ferry travel; however, the text of the PBefG makes no reference to any form of waterborne transport. In contrast, Gorter and Kunst (2017, slide 7) believe that the regulation of ferry services is the subject of "Other" (unspecified) legislation. The PBefG stipulates that the responsibility for providing adequate public transport lies with "competent authorities", to be designated by the Länder (§8, article 3). ICF Consulting Services (2016, p.54) note that the counties and the county-free cities are generally entrusted with these tasks, and estimate that there around 400 competent authorities in Germany with responsibility for bus services, and almost 70 with responsibilities for tram, light rail, and/or metro services.

Secondly, the *Allgemeines Eisenbahngesetz*, or AEG — usually translated as the General Railway Act (see https://www.gesetze-im-internet.de/aeg_1994/) — was first introduced in 1951. As Koch and Newmark (2016, p.48) point out, the AEG established a distinction between 'long-distance' rail services and 'local' rail services (i.e. urban, suburban and regional services) that was to form the basis of later liberalisation and

regionalisation. Indeed, in the mid-1990s, a major package of rail reforms (*Bahnstrukturreform*) was introduced in Germany. These reforms were in response not only to the EU Directive 91/440/EEC on the development of the Community's railways (Lalive *et al.*, 2015, p.6; CER and ETF, 2016, p.88), but also to the precarious financial situation of the then West German state railway, Deutsche Bundesbahn (DB). This was particularly the case following German reunification and DB's resultant merger with its East German equivalent, Deutsche Reichsbahn (DR), to form the new state-owned enterprise, Deutsche Bahn AG (Deville and Verduyn, 2012, p.74). Two key aspects of these rail reforms were that long-distance passenger services were to operate on a purely commercial basis and would not be tied to any concession contracts; and that responsibility for the procurement and organisation of local and regional rail services was to be devolved to the Länder, from 1 January 1996 (see Deville and Verduyn, 2012, pp.74-101, for a detailed account of these reforms).

Thirdly, as part of the rail reform package, the *Gesetz zur Regionalisierung des öffentlichen Personennahverkehrs* — usually translated as the Law on the Regionalisation of Local Public Transport — was enacted in 1996 (see https://www.gesetze-im-internet.de/regg/). Frequently referred to more simply as the Law on Regionalisation, or the Regionalisation Act (*Regionalisierungsgesetz*, or RegG), it stipulated (in §3) that the planning, organisation and financing of local public transport was now to be regulated by the Länder. To finance these services, the Länder receive financial compensation annually from the Federal Government's tax revenues, in the form of regionalisation funds, or *Regionalisierungsmittel*. Some authors (e.g., Link and Merkert, 2010; Buehler and Pucher, 2011; Hunold and Wolf, 2013) indicate that this money comes specifically from fuel tax revenues. The Act requires that these funds should be used "in particular" to finance local *rail* passenger transport (§6). This means that the Länder *can* use these funds to finance other forms of public transport, such as buses or trams; but "to a lesser extent", as the Association of German Transport Companies (2021) points out.

Germany's largely decentralised approach to public transport regulation, procurement, and provision has resulted in a framework that has been described as "extremely complex" (van de Velde, 2019, p.185) and "initially incomprehensible" (Beck, 2012a, p.27). This is partly because the competent authorities can take a number of different forms. In this regard, a number of authors (e.g., Walter, 2010; Beck, 2012a; Gorter and Günthel, 2016) highlight the distinction between what are known as *Genehmigungsbehörden*, and what are known as *Aufgabenträger*. Translated variously as "approval", "authorising", "licensing", or "regulatory" authorities, the *Genehmigungsbehörden* are responsible for granting licences to operate public transport services. In contrast, the *Aufgabenträger* (usually translated as Public Transport Authorities, or PTAs) are responsible for the tendering, contractual, and financial issues associated with securing an adequate level of local public transport provision. As the European Commission (2010, paragraphs 199-200) points out, the Genehmigungsbehörden are generally established at the level of the Länder, while the PTAs are typically devolved to the county and county-free city level. Thus, depending on the situation within the individual Länd, the licensing process and the tendering/contractual processes can be carried out by completely different entities.

To add to the complexity, Germany also has a network of what are known as *Verkehrsverbünde*, or VVs (occasionally VBs or VVBs). There appears to be no standard English translation for VVs: they are described variously as "integrated public transport organisations" (Karl, 2018, p.322), "integrated transport authorities" (Federal Ministry of Transport and Digital Infrastructure, 2019), "regional public transport(ation) associations/alliances" (VDV, 2010, p.iii; Beck, 2012a, p.28; Koch and Newmark, 2016, p.45; Buehler *et al.*, 2019, p.36), or "regional transit authorities" (Buehler and Pucher, 2011, p.136). The Association of German Transport Companies (*Verband Deutscher Verkehrsunternehmen*, or VDV) defines them as:

> "…legal or organisational associations with the aim of a joint and coordinated implementation of public transport and to facilitate the use of any public transport mode – be it a bus, a rail based service or even ferries – available in a city or region to reach one's destination." (VDV, 2010, p.iii)

In many respects, then, they might be regarded as the equivalents of the PTAs, or the regional transport companies or partnerships, that exist in the other G-PaTRA partner countries discussed in this present report. However, Buehler *et al.* (2019; also citing the VDV, 2010), argue that the approach in Germany (as well as in Austria and Switzerland, where VVs are also to be found) differs from that in many other countries, in that VVs are *alliances/associations* and not public authorities (p.38); and that VVs include both public transport operators *and* government representatives in the process of making policy decisions about services and fares (p.36). Furthermore, a number of authors (e.g., VDV, 2010, p.8; Buehler *et al.*, 2019, p.41; Lönnroth, 2019, p.11) note that there are three broad types of VV:

- ***Company alliances*** (*Unternehmensverbünde*, or UVs), which are a group of transport companies operating in a region and which are governed by company law. In UVs, the transport operating companies lead the decision making in the alliance, but government jurisdictions provide funding.
- ***Responsible authorities alliances*** (*Aufgabenträgerverbünde*, or AVs), which, as the name suggests, are alliances of public transport authorities. Here, the government bodies have the leading role, but transport companies provide important input relating to operations.
- ***Mixed alliances*** (*Mischverbünde*, or MVs), in which the responsible authorities and the transport operating companies have comparable influence.

Given the differing structures of VVs, it is perhaps unsurprising that they can have different functions (Zatti (2011, p.42). However, as Buehler *et al.* (2015, p.29) point out, VVs typically have seven main tasks: (1) ticketing, including discounted tickets for special groups; (2) marketing and branding; (3) customer information and service; (4) drawing up and overseeing service contracts with public transport agencies [i.e. operators]; (5) quality control and tracking of quality standards; (6) planning of coordinated public transport services; and (7) the coordination and distribution of fare revenue. The oldest VV in Germany — *Der Hamburger Verkehrsverbund*, or HVV, established in 1965 — has recently provided a useful, German- and English-language overview of its structure and responsibilities (HVV, 2021). It should be noted here that a minority of authors use an alternative term, *Zweckverbände* ('special purpose associations'), to describe those alliances that have multiple public transport functions; and instead define *Verkehrsverbünde* either as "tariff unions", with responsibilities relating largely to timetable coordination and integrated ticketing (Rye *et al.*, 2018), or as the "operating areas" in which the coordinated public transport services run (Seidel and Vakkuri, 2015, p.602).

There are conflicting views on the number of VVs that currently exist. Werner (2019, slide 22), puts the number at 58, while Buehler *et al.* (2019, p.36) suggest that there were 61 in 2017. The Federal Ministry of Transport and Digital Infrastructure (2019), however, has the number at "approximately 75". Although there is a national umbrella body for the 27 VVs or other competent authorities with responsibilities for organising local *rail* services — the Federal Association of Local Rail Transport (*Bundesverband SchienenNahhverkehr*, or BAG-SPNV; see https://www.schienennahverkehr.de/) — there does not appear to be a similar collective organisation for the VVs that also (or only) coordinate *road-bound* public transport services. The definitive number of VVs, therefore, could not be established. It is estimated, however, that 85% of the German population live in areas that are served by local passenger transport services that have been acquired and/or administered by VVs (Buehler *et al.*, 2019, p.36); and that 90% of all public transport journeys in Germany are on VV-provided services (Koch and Newmark, 2016, p.47). Buehler *et al.* (2019, p.40) suggest that it is unlikely that VVs will spread to the remaining rural areas of Germany, because public transport demand and supply in those areas are too low.

With regard to the types of public transport contracts awarded by the competent authorities, Link (2019, p.286) argues that these can be difficult to ascertain, because of Germany's decentralised institutional framework, a lack of general standards for contractual procedures, and a lack of centrally collected (and publicly available) information. Much of the literature that has explored contract types has focused on *regional rail* services. Here, it has been found that net cost contracts have dominated. Indeed, the Community of European Railway and Infrastructure Companies (CER) puts the proportion of net contracts at around 80% (CER, 2017, p.78); Link (2016, p,.5) has it at 72%; while Lalive *et al.* (2015, p.8) estimate it

to be 67%. Over the last decade, however, there has been an apparent move towards more gross contracts, incentive-based gross contracts, or other 'hybrid' arrangements (Link and Merkert, 2010, p.5; Lalive *et al.*, 2015, p.8; Link, 2016, p.6; CER, 2017, p.78). A smaller body of work has explored the types of contract used in the procurement of *local/regional bus* services. Here, in contrast to regional rail services, gross cost contracts have dominated, and the use of net cost arrangements has been rare (Augustin and Walter, 2010, p.38; Beck, 2012a, p.32 & 2012b, p.49; Scheffler *et al.*, 2013, p.375).

As is the case in the other G-PaTRA partner countries, Germany offers free or discounted travel to a range of user groups. In some cases, these concessionary fares have been prescribed by Federal law, with the transport operators being reimbursed (at least partly) by the Federal Government. For example, §45a of the PBefG has traditionally provided for reduced fares for school pupils, trainees and apprentices; although, since 2007, §64a of the PBefG has permitted the Länder to replace these arrangements with their own state laws (Karl, 2018, p.322). Furthermore, §228 of Book IX of Germany's Social Code (*Sozialgesetzbuch*, or SGB, see https://www.gesetze-im-internet.de/sgb_9_2018/), which provides for the rehabilitation and participation of persons with disabilities, prescribes free transport (except on long-distance coach or rail services) for "severely disabled persons", on presentation of a valid ID and an associated 'token' purchased (either six-monthly or annually) from their pension office (Ellner *et al.*, 2020, p.35). At the more local level, it was noted earlier that one of the key roles of Germany's VVs is to introduce discounted tickets for special groups. With this in mind, Buehler *et al.* (2015 & 2017) provide overviews of some of the "deeply discounted" ticketing programmes available across the country, aimed at students, senior citizens, and other disadvantaged groups, such as unemployed people.

A number of authors (e.g., Voss, 2015; Müller, 2016) focus on the concept of the *Semesterticket*. First introduced in the city of Darmstadt in 1991, most German universities now operate such a scheme. Indeed, Voss, 2015, p.265) notes that, in 2014, 2.2 million of Germany's 2.6 million students were studying at a university or college with a Semesterticket. The Semesterticket is a 6-monthly public transport ticket which is mandatory for *all* students at participating universities, regardless of whether or not the student plans to use public transport during their period of study. The price and the scope of the ticket is negotiated between student representatives and the local VV or other competent authority, and is then approved by a student referendum. At some institutions, this provides only for bus usage in the university city, but at many other universities it can cover much more, including regional train services, or sometimes the state's complete public transport network. There are two models of Semesterticket: the first, described as a "solidary" (Müller, 2016, p.8) or "one-component" (Voss, 2015, p.266) model, allows unrestricted access on all applicable public transport services; the second, described as a "base" or "two-component" model, generally provides more restricted access, for example only in off-peak travel times.

Other authors have focused on "job tickets" (e.g., Busch-Geertsema and Lanzendorf, 2017; Busch-Geertsema *et al.*, 2021), sometimes also described as "company tickets" (Buehler *et al.*, 2015, p.9). Generally available to medium-sized and large companies only, who negotiate the price conditions with the relevant VV or competent authority, the discounts offered by the job ticket are smaller in comparison to the Semesterticket, and their purchase by company employees is not mandatory. Haubold (2014, p.23) notes that, since there is no obligation for VVs to offer a job ticket, and since the precise arrangements and terms and conditions may vary, there are no comprehensive statistics on their use. However, where figures are available, there would appear to be a high demand for such schemes, with Haubold citing a three-fold increase in the use of job tickets in the Dresden region over the previous four years. In the state of Hesse, Busch-Geertsema *et al.* (2021) observe that the state government has taken the job ticket concept "one step further" (p.249) by introducing a cost-free public transport ticket, the Hesse StateTicket, for all state employees (around 145,000 individuals), as an additional supplement to their salary. It is believed to be the first time in Germany that a state government has introduced such a policy (p.250).

With the exceptions of long-distance *coach* services, which operate on a fully commercial basis (e.g., Grimaldi *et al.*, 2017), and of long-distance *rail* services, for which "subsidies are generally not paid" (Bundesnetzagentur, 2021, p.38), public transport in Germany is heavily subsidised. However, estimates

of the extent of these public subsidies can vary widely; due, it is argued, to the complex, "spaghetti financing" systems (Buehler and Pucher, 2011, p.130) and "different ways of accounting" (Lönnroth, 2019, p.13) employed by the various competent authorities. These can result in statistics that Lönnroth describes as "treacherous" (p.11), "very difficult to compare and almost impossible to understand" (p.13). When discussing Germany as a whole, for example, recent estimates of the proportion of operating costs covered by farebox revenues have ranged from around 36-37% (BSL, 2015, slide 3; Transport Scotland, 2019a, p.16) to 76% (Schönberg *et al.*, 2019, p.4). While Gremm (2017, p.3), discussing only *regional rail* services across Germany, puts the ticket sales revenue at 44% of the operating costs; thereby requiring 56% of the overall costs to come from subsidies. There would also appear to be geographical differences in the levels of subsidies required. For example, Lönnroth (2019) estimates that fare revenues cover around 63% of operating costs in the Stuttgart region (p.12), around 56% in the Rhein-Main region (p.13), and "slightly less than 50%" (p.14) in the Berlin-Brandenburg region (although the farebox recovery rate for Berlin only is significantly higher). In the Greater Munich area, meanwhile, Werner (2019, slide 22) suggests that over 80% of operating costs are met by fare revenues. Interestingly, several authors (e.g., van de Velde, 2014, p.36; Lönnroth, 2019, p.10; Petkov, 2020, p.101) note that it is has been customary for public transport services in the larger German cities to be "cross-subsidised" using surpluses from municipal utilities (*Stadtwerke*) companies.

With regard to transport planning policy, the situation in Germany is also complex. Every 10-15 years, the Federal Government develops its *Bundesverkehrswegeplan*, or BVWP, which provides a framework for project-based infrastructure investment planning, for the country's Federal highways, waterways and rail network. The BVWP is most frequently translated as the Federal Transport Infrastructure Plan, or FTIP (e.g., Frey, 2014; Walther *et al.*, 2015; Schenk, 2019). However, other authors translate it as the Federal Transport(ation) Plan (e.g., Buehler *et al.*, 2013; Hammerschmid and Wegrich, 2016), the Federal Transport Investment Plan (Ehreke *et al.*, 2015), the Federal Transport Network Plan (Sack, 2011), or even the Plan for Federal Traffic Routes (Zhou *et al.*, 2018). The most recent BVWP/FTIP, published in 2016, covered the planning horizon to 2030, and allocated 269.6 billion Euros to over 1,000 infrastructure projects, with 49.3% of funds being allocated to road projects, 41.6% to rail, and 9.1% to waterways (Federal Ministry of Transport and Digital Infrastructure, 2016, p.6).

While there is a national, Federal plan for transport *infrastructure*, and a recent *rail* transport masterplan has been published (Federal Ministry of Transport and Digital Infrastructure, 2020; discussed in more detail later), there is no such country-wide policy or strategy for the provision of public transport services more broadly. A number of authors have traced Germany's failed historical efforts to introduce a national, integrated transport policy, which began in the 1920s (Schöller-Schwedes, 2010; Sack, 2011, citing Schöller, 2006), and were revived in the 1960s and 1970s (Schwedes, 2011; Fichert, 2017). Here, a key (and relatively recent) policy document was the *Verkehrsbericht 2000* (Transport Report 2000), published by the then Federal Ministry of Transport, Building and Housing.[3] It set out ten key areas for future German transport policy development, including greater integration between land use and transport planning, and more environmentally friendly transport provision. Fichert (2017) points out, however, that changes to the composition of the Federal Government, and its policy priorities, have resulted in the Transport Report 2000 having had "rather limited" effects (p.10). Indeed, in recent years, there have been renewed, and urgent, calls for an integrated mobility strategy, including from the German Environment Agency (Bergk *et al.*, 2017), the Association of German Cities (2018), and Germanwatch (Donat, 2020). Interestingly, in an earlier appeal for the introduction of a national mobility strategy, the German Environment Agency (Bracher *et al.*, 2014, p.28) discusses, as an exemplar, Norway's National Transport Plan (see section 6 of this present report).

In expressing a desire to see a national, integrated transport policy, a number of commentators make a connection with the rapidly emerging concept of *Verkehrswend*e. Typically translated as "transport(ation)

[3] A copy of this document (in German only) can be found on the Internet Archive at https://archive.org/details/ger-bt-drucksache-14-4688

transition", "transport(ation) turnaround", or "mobility transition", Verkehrswende refers to the process of moving towards more sustainable, environmentally friendly modes of transport across Germany (e.g., Laconde and Lah, 2019; Schindler and Held, 2020). It is frequently described as being complementary to the concept of *Energiewende*, or "energy transition/turnaround", which dates back to the 1980s and focuses on a shift from the use of fossil fuels and nuclear energy towards renewables (e.g., Association of German Cities, 2018; Hass, 2021). Here, too, the national approach to the transport transition appears to be regarded as deficient. For example, Laconde and Lah (2019) are critical of "insufficient national policies" (p.6) and the lack of "a clear direction towards the decarbonation of the transport sector" (p.2); Scheiner and Mattioli (2019) report "widespread dissatisfaction with German transport policy" amongst the country's transport and mobility research community; and Haas talks of the "failure to transform transport" (2018, p.10), caused in part by policymakers' "timid approaches" (2021, p.661).

While transport planning at the national, Federal level may be viewed as lacking, Durlin *et al.* (2018, p.112) note that Germany has a long tradition of strategic traffic and transport planning throughout the other levels of government. And while Stone (2013, p.3) suggests that the techniques and processes of public transport planning in Germany are generally not well documented, a relatively significant body of literature can be found, which discusses such planning at the state and local/communal levels. The PBefG (§8, article 3) states that all competent authorities should produce a "local transport plan" (*Nahverkehrsplan*, or NVP), which "defines the requirements for the scope and quality of the transport offer, its environmental quality and the requirements for the cross-modal integration of transport services". The Nahverkehrsplan, the PBefG continues, "forms the framework for the development of local public transport". In the literature, however, translation inconsistencies are again encountered. While some authors do adopt the PBefG translation of "local transport(ation) plan" (e.g., Jung and Buehler, 2013; ICF Consulting Services, 2016), the NVP is described in other cases as a "(local) public transport plan" (May *et al.*, 2017; Schmitz, 2017) or "passenger transport plan" (Zatti, 2011), or even a "short and medium distance transport plan" (Baanders and Delahais, 2014). May *et al.* (2017, p.9) indicate that the production of an NVP is obligatory for local authorities in all Länder, except for the city state of Hamburg. This, it would appear, is due to Hamburg not having introduced its own provincial public transport legislation following the enactment of the Regionalisation Act in 1996 (Buehler *et al.*, 2015, p.9). It is suggested by some authors (e.g., Gorter and Kunst, 2017, slide 29; Rye *et al.*, 2018, p.201) that the NVP is typically renewed every five years. However, it would appear that, in some cases at least, revisions are less frequent. In Frankfurt, for example, the recently-adopted NVP is only the city's third, since it adopted its first plan in 1997, and its second in 2005 (traffiQ, 2021).

While the NVP focuses very much on *public transport*, the *Verkehrsentwicklungsplan*, or VEP, (usually translated as the "transport development plan") has a much wider scope. The VEP has its origins in the earlier "general transport plan" (*Generalverkehrsplan*, or GVP), which, beginning in the 1950s, focused more on road infrastructure planning (Böhler-Baedeker *et al.*, 2014, p.39). Since then, however, the VEP has gradually adopted a more comprehensive and integrated approach to transport, traffic and mobility planning issues; one in which other relevant local plans (e.g., NVPs, land use plans, clean air plans, and noise action plans) are considered and incorporated into an overall transport planning strategy (German Partnership for Sustainable Mobility, 2015, p.32). Now often referred to as "mobility master plans" (German Partnership for Sustainable Mobility, 2015, p.7) or "urban mobility plans" (May *et al.*, 2017, p.9), VEPs are generally produced, or commissioned, by the same competent authorities responsible for the NVPs (German Partnership for Sustainable Mobility, 2015, p.33), and typically have a duration of 10-15 years (Durlin *et al.*, 2018, p.111). And while Rye and Hrejla (2020, p.7) claim that transport development plans are statutory, the majority of observers are in agreement that the VEP is a more "informal", "voluntary" plan, which, although well established in Germany, has no legal obligation attached to its publication (e.g., May *et al.*, 2017, p.9; Durlin *et al.*, 2018, p.112; Theißen and Louen, 2019, p.286). Some authors observe that the VEPs in German cities are increasingly oriented towards, or comparable to, the concept of the Sustainable Urban Mobility Plan, or SUMP (e.g., Association of German Cities, 2018, p.27; Durlin *et al.*, 2018, p.112). Indeed, in a series of guidelines for mobility master planning, developed by the German Road and Transport Research Association, the terms Mobility Master Plan (MMP) and SUMP are

sometimes used interchangeably (see German Partnership for Sustainable Mobility, 2015, p.12). A number of papers provide brief details of the transport planning processes and outcomes in particular cities in Germany, including: Berlin, Hamburg and Munich (Buehler *et al.*, 2017); Bremen and Dresden (Laconde and Lah, 2019); and Dortmund and Hannover (Levin-Keitel and Reeker, 2021). In this regard, the southwestern city of Freiburg im Breisgau is frequently discussed in the literature, as an exemplar of sustainable transport planning and provision (e.g., Kronsell, 2013; Gössling *et al.*, 2016; Marletto *et al.*, 2016); one that promotes and enables the concept of *Umweltverbund*, or "ecomobility" (Beim and Haag, 2011, p.7).

In common with its neighbouring G-PaTRA partner countries, Belgium and the Netherlands, Germany has recently turned some attention to the concept of mobility hubs. Since it introduced the first of its *mobil.punkte* in 2003, the city of Bremen has been at the forefront of this movement. Translated variously as "(intermodal) mobility hubs" (Schreier *et al.*, 2018, p.5; CoMoUK, 2021, p.2), "mobility points" (Nadkarni, 2020, p.9), "intermodal mobility stations" (Zwicker-Schwarm, 2014, p.157), or "transport stations" (Laconde and Lah, 2019, p.14), these hubs take two forms. The larger *mobil.punkte* are in central locations — often at public transport stops — and provide bicycle racks and spaces for 4-12 car-share vehicles. The smaller *mobil.pünktchen* are typically located in residential neighbourhoods and provide bicycle racks and spaces for 2-3 car-share vehicles. Bremen now has a network of 45 hubs across the city (see https://mobilpunkt-bremen.de/mobil-punkte/). The Bremen mobility hub model has now been introduced, or adapted, in other German cities. In Hamburg, for example, there are now 17 "hvv switch points" located at metro and suburban rail stations, plus more than 70 smaller switch points in residential areas across the city (see https://www.hvv-switch.de/en/hvv-switch-points/).

In considering mobility hubs in Germany, it would be appropriate to also mention here the concept of the mobility centre, or *mobilitätszentrale*. Mobility centres are of particular interest to the G-PaTRA project, as the very first one — the Weserbergland Mobility Centre, established in 1990-91 — is located in the Leine-Weser region; which is, of course, the region for which the G-PaTRA project partner, Amt für regionale Landesentwicklung Leine-Weser (ArL LW), is responsible. The Weserbergland Mobility Centre provides up-to-date information and advice on all aspects of public transport in the Hameln-Pyrmont area (see https://www.oeffis.de/service/mobilitaetszentralemitfeiertagen.htm). The Weserbergland Mobility Centre model was subsequently adopted in several other areas of Germany and Austria, and in other countries in Western Europe. However, as Franke (2018, p.3) points out, very few new Mobility Centres have been opened since the early-2000s; and, indeed, he argues that the original, call-centre-based model now seems "outdated". He instead suggests a "more modern" definition of the Mobility Centre (p.4), which can be applied to three different types: 1) the "Traditional Mobility Centre", which comprises a central physical facility or telephone hotline; 2) the "Advanced Mobility Centre", which consists of a virtual facility or smartphone app; and 3) the "Local Mobility Centre", which he equates to the Mobility Hub concept (p.5).

Local and regional bus services

The situation with local and regional bus services in Germany is complicated by the fact that the PBefG differentiates between *gemeinwirtschaftliche Verkehrsleistungen* and *eigenwirtschaftliche Verkehrsleistungen* (Karl, 2013). The former, translated variously as "non-commercial", "non-profitable" or "public" services, have had to be tendered since the regionalisation of public transport in 1996. The latter, translated variously as "commercial", "commercially viable", "market-initiated", "cost covering" or "self-economic" services, can be awarded without a tendering process. However, this distinction has been described as "ambiguous" (Zatti, 2011, p.82) and "artificial" (van de Velde, 2014, p.36), and led to a situation where very few services were submitted to competitive tendering, and where the incumbent operators (in the urban areas, usually publicly-owned companies) retained a preferential position (e.g., van de Velde, 2014, p.36). This dichotomous system has been the subject of much legal and academic debate, and led to an amendment of the PBefG in 2013, which narrowed the definition of commercial services (Karl, 2018, p.320). It is beyond the scope of this present report to discuss the differences between commercial

and non-commercial services in any detail, but Beck (2012a & 2012b) provides extensive accounts of the situation prior to the 2013 PbefG amendment; while Karl (2018) discusses the post-amendment situation, providing a case study of its impact on the bus services in the city of Pforzheim.

With regard to the current situation across Germany as a whole, details are lacking in the literature. ICF Consulting Services (2016) note an increasing trend towards tendering in the bus market, and a slight reduction in the market share of long-standing, municipally owned operators (p.53). However, there is a clear difference here between bus services in the larger cities and urban conurbations, and those in the smaller towns and rural areas (p.55). While competitive tendering is more common in smaller towns and rural locations, the services in the largest cities continue to be dominated by direct award contracts to internal operators, owned and controlled by the competent authorities. These bus services often form part of an integrated public transport system, along with metro, tram, and/or light rail services. ICF (p.64) note that BVG (*Berliner Verkehrsbetriebe*) in Berlin, KVB (*Kölner Verkehrs-Betriebe*) in Cologne, and HOCHBAHN in Hamburg are the largest of these operators. ICF (p.57) also observe a significant trend towards the subcontracting of bus service operations, with around 35% of services being delivered by private companies (Steer Davies Gleave, 2016a, p.337, puts this figure at 30%). ICF (p.57) note that some subcontracting of 'daughter' companies of municipally owned companies also takes place. They estimate that there are between 350-500 operators active in the German bus sector, but more than twice that number if all subcontracted companies are taken into account (p.63).

Trolleybus systems

Germany has three trolleybus systems, in the cities of Eberswalde, Esslingen am Neckar, and Solingen (e.g., Połom, 2021, p.7). The systems in Eberswalde and Esslingen each consist of two lines only; while the Solingen system has 6 lines. In each of the three cities, the trolleybus lines are considered as part of the wider bus network, and are operated by the municipally-owned transport companies, respectively BBG (https://bbg-eberswalde.de/), SVE (https://www.sve-es.de), and SWS (http://www.sobus.net/).

Metro

Germany has four 'true' metro/underground (U-Bahn[4]) systems, in the cities of Berlin, Hamburg, Munich, and Nuremberg (Petkov, 2020, p.96). The word 'true' is used here to indicate that these four networks are 'heavy rail' systems, segregated from other traffic, and to be distinguished from tram, light rail, or tram-train systems that have (sometimes extensive) underground sections of track (see Petkov, 2020, p.107). It should be noted, for example, that Frankfurt has a system, styled as a 'U-Bahn' (see https://www.vgf-ffm.de/en/tickets-fares-plans/timetables/route-plans/), but which is regarded widely as a Statdtbahn (e.g., Norley, 2010, p.8; van der Bijl *et al.*, 2019, p.67; Petkov, 2020, p.70).

Berlin's U-Bahn system was first opened in 1902, and currently has nine lines. Hamburg's U-Bahn opened in 1912 and has four lines, with a fifth currently under construction. Munich's system is more recent, first opening in 1971, and has eight lines. Nuremberg's is the newest of the four, first opening in 1972, and has three lines. All four U-Bahn systems are run by municipally-owned operators, respectively BVG (https://www.bvg.de), HOCHBAHN (https://www.hochbahn.de), MVG (https://www.mvg.de), and VAG (https://www.vag.de). As with Germany's tram and light rail services (see below), U-Bahn contracts are obtained through direct awards, rather than competitive tendering (ICF Consulting Services, 2016, p.55; Steer Davies Gleave, 2016a, p.337). And as has already been mentioned, these internal operators typically deliver U-Bahn services as part of an integrated city transport system, together with bus and tram services (although it should be noted that the city of Hamburg no longer has a tram system).

[4] While some authors (e.g., Merrill, 2015, p.76) claim that the 'U' in U-Bahn represents the word *Untergrundbahn* (underground), others (e.g., van der Bijl *et al.*, 2019, p.48) insist that it stands for *Unabhängig* (independent).

Tram and light rail services

Germany has a long and rich tramway history. As Schmucki (2012) and Petkov (2020) explain, tramways (*Straßenbahnen*) were the major means of public transport in German cities until the early 1960s, when they began to be replaced by buses. Since the late 1980s, however, Germany has experienced something of a tramway 'renaissance', with existing networks being extended, and systems that had been scrapped in the 1960s and 1970s being reintroduced. Petkov (2020, p.113) indicates that there are now 55 tram or light rail (*Stadtbahn*) systems across Germany. Other sources (e.g., UrbanRail.Net, 2021) suggest that there are 56 or 57, but this discrepancy may simply be down to definitional differences. Petkov (2020, p.107) notes that a number of these systems have underground sections; and several are hybrid systems that operate partly on the tracks of S-Bahn heavy rail networks. In this last regard, a number of authors observe that Germany has been a pioneer of hybrid, "tram-train systems; with Kassel's *RegioTram* system and, particularly, Karlsruhe's Statdtbahn being cited as exemplars (e.g., Renner and Gardner, 2010; Naegeli *et al.*, 2012; Hickman and Osborne, 2017; Petkov, 2020).

With regard to contracts and operators, Petkov (2020, p.100) believes that the liberalisation of the public transport sector in Germany has had *no* effect on tramway and light rail operations. This is largely supported by ICF Consulting Services (2016) who indicate that *all* tram and light rail operators in Germany are internal companies, owned by the cities (p.68); and that the contracts are invariably obtained through direct awards, rather than any competitive processes (p.55). The one exception identified by ICF was of the tram system in the eastern city of Görlitz, where the operating company is *partly* privately owned, by Transdev (p.64).

Suspension railways in Wuppertal and Dortmund

Perhaps worthy of a brief mention here are two suspension railways. Wuppertal's *Schwebebahn* is a suspended monorail system, first opened in 1901. It has 20 stations along its 13km route. While the Schwebebahn is promoted as a tourist attraction, it is also regarded as a key element of the city's public transport network, carrying over 80,000 passengers each day (see https://schwebebahn.de/en). Meanwhile, in Dortmund, the *Hängebahn* (or *H-Bahn*) is a driverless monorail system, around 3km long, which carries up to 8,000 passengers per day. While primarily connecting the north and south campuses of the University of Dortmund, it also connects with an S-Bahn station, and is therefore regarded as an integral part of the city's public transport network, as well as forming part of the Rhein-Ruhr district's tariff union (see https://h-bahn.info/en/).

Long-distance coach services

The 2013 amendment of the PBefG, mentioned above, was perhaps most notable for the deregulation of the interurban bus market. Prior to 2013, Federal legislation was designed to protect the national rail network, and therefore long-distance coach services were limited. These largely consisted of routes to and from the former West Berlin (operated by Berlin Linein Bus, a subsidiary of Deutsche Bahn AG), some international routes, and some other services, such as airport shuttles. Since 1 January 2013, however, the amended PBefG (specifically, §42a) has permitted long-distance coach services to operate between two stops, provided that the distance between the two stops is no less than 50km; and where, if scheduled local/regional rail services operate between these two stops, the travel time by rail is no less than one hour. Exceptions to these conditions may be granted if there is no sufficient local transport service, or if there will be no "significant" detriment to existing public transport services (e.g., de Haas and Schäfer, 2017; Dürr and Hüschelrath, 2017; Guihery, 2019).

This deregulation saw a rapid increase in the number of interurban coach services operating across Germany, from 62 lines in the first quarter of 2013, to 328 by the end of 2015 (Guihery and Gremm, slide 4). However, this was followed by a period of consolidation that saw a number of market exits and mergers; the most notable merger being between the then two largest operators, FlixBus and MeinFernbus, in 2015 (e.g., Grimaldi, 2016; Dürr and Hüschelrath, 2017). By the third quarter of 2018, the number of lines had fallen to 287, with FlixBus (the name retained, following the merger) commanding a 95% share of

the market (Guihery, 2019, p.6). The website of the Federal Association of German Bus Operators (*Bundesverband der Deutschen Omnibusunternehmer*, or BDO), citing figures from mid-2018, indicates that the remaining 5% of the market is occupied by companies such as Eurolines, RegioJet, and DeinBus.

In terms of obtaining a licence to operate a regular, long-distance coach service, §13 of the PBefG stipulates that operators need to meet minimum standards regarding safety, performance, and professional competence, and that the company must be registered in Germany. Authorisation is granted by licensing authorities defined by the Länder; these would appear to be the *Genehmigungsbehörden* mentioned earlier (see Augustin *et al.*, 2014a, p.249). The authority responsible for granting authorisation for long-distance coach services is always the one at the starting point of the proposed service, even if the service is to pass through the territory of other authorities. However, all municipalities, road authorities and competent authorities that will be affected by the proposed service are involved in the authorisation process (Augustin *et al.*, 2014b, p.21; Steer Davies Gleave, 2016b, pp.151-2). While the state-defined licensing authorities have the key task in authorising *domestic* interurban coach services, it would appear that the Federal Ministry of Transport and Digital Infrastructure also has a role in authorising *international* coach services, and in the overall coordination of Germany's domestic licences. Indeed, Steer Davies Gleave (2016b, p.152) reports that the Ministry employed 10 full-time equivalents (FTEs) in the administration of domestic and international coach services; and when authors provide Germany-wide figures for long-distance coach services, these have invariably been provided by the Ministry (e.g., Augustin *et al.*, 2014b, p.3; Steer Davies Gleave, 2016b, pp.152)

Ferry services

As has been the case with the country reports for Belgium, Denmark, and the Netherlands, very little literature can be found on domestic and inland waterway ferries in Germany. While there are brief mentions of "ferry services" and "river boats" in Berlin (Zatti, 2011, p.83; Steer Davies Gleave, 2016a, p.339), "river taxis" and "public transportation ferries" in Hamburg (Cheemakurthy *et al.*, 2017, p.47; Sepe, 2013, p.608), ferries operating in the port of Kiel (Liebreich *et al.*, 2021, p.22), and ferries crossing the Rivers Elbe and Wesser (Brambilla and Martino, 2016, p.97), details are generally lacking. With this in mind, and in order to gain at least a broad perspective on German domestic ferry services, a further Web-based search was conducted, focusing on these specific geographic areas.

In Berlin, six ferry routes operate within the city boundaries. These are all operated by the city-owned company, BVG; and, together with the city's U-Bahn, bus and tram services, form part of an integrated network (see https://www.bvg.de/de/verbindungen). They are also part of the common tariff zone of VBB, the Verkehrsverbünde of the Berlin-Brandenburg region. In the city of Kiel, two ferry services (one on the Kiel Fjord, the other on the River Schwentine) are operated by a city-owned company, SFK (https://www.sfk-kiel.de). These are included in the common tariff area of the Schleswig-Holstein Verkehrsverbünde, NAH.SH. In Hamburg, eight ferry lines operate in the Port of Hamburg and on the River Elbe. These are operated by HADAG, a company owned by the City of Hamburg, and are integrated into the network and tariff zone coordinated by HVV (see https://hadag.de). Over 200 miles away, the city of Dresden also has three ferry lines on the Elbe. These are run by DVB, the city-owned transport company that also operates the city's bus and tram services. They also form part of the tariff zone of the Verkehrsverbünde for the Upper Elbe, the VVO (see https://www.dvb.de/en-gb/excursions/elbe-ferries). On the River Wesen, the service between Bremerhaven and Nordenham is operated by Weserfähre GmbH, a company owned by the City of Bremerhaven (https://www.weserfaehre.de). In the city of Rostock, a ferry service crosses the Warnow River to connect the city centre with the district of Gelhdorf; and although the service comes under the banner of the municipal transport company RSAG (who operate the city's bus and tram services), the ferry service is subcontracted to a private company, Antaris GmbH (see https://www.rsag-online.de/en/timetable/ferry-to-gehlsdorf). Away from the larger cities, ferry services crossing the Elbe between Glückstadt and Wischhafen, and between Brunsbüttel and Cuxhaven, are operated by private companies — FRS (https://www.frs-elbfaehre.de) and ELBFERRY (https://elbferry.com), respectively.

With this small sample of German ferry services in mind, it would appear that those in the largest cities typically form part of an integrated public transport system, together with bus, tram and/or U-Bahn systems; and are run by city-owned companies that also operate those other modes. Elsewhere, the ferry operating companies may be either municipally-owned or private undertakings, or perhaps a private company subcontracted by a municipal transport operator. However, the extent to which ferry service contracts are awarded directly, or form part of any competitive tendering processes, is unclear.

National and regional rail services

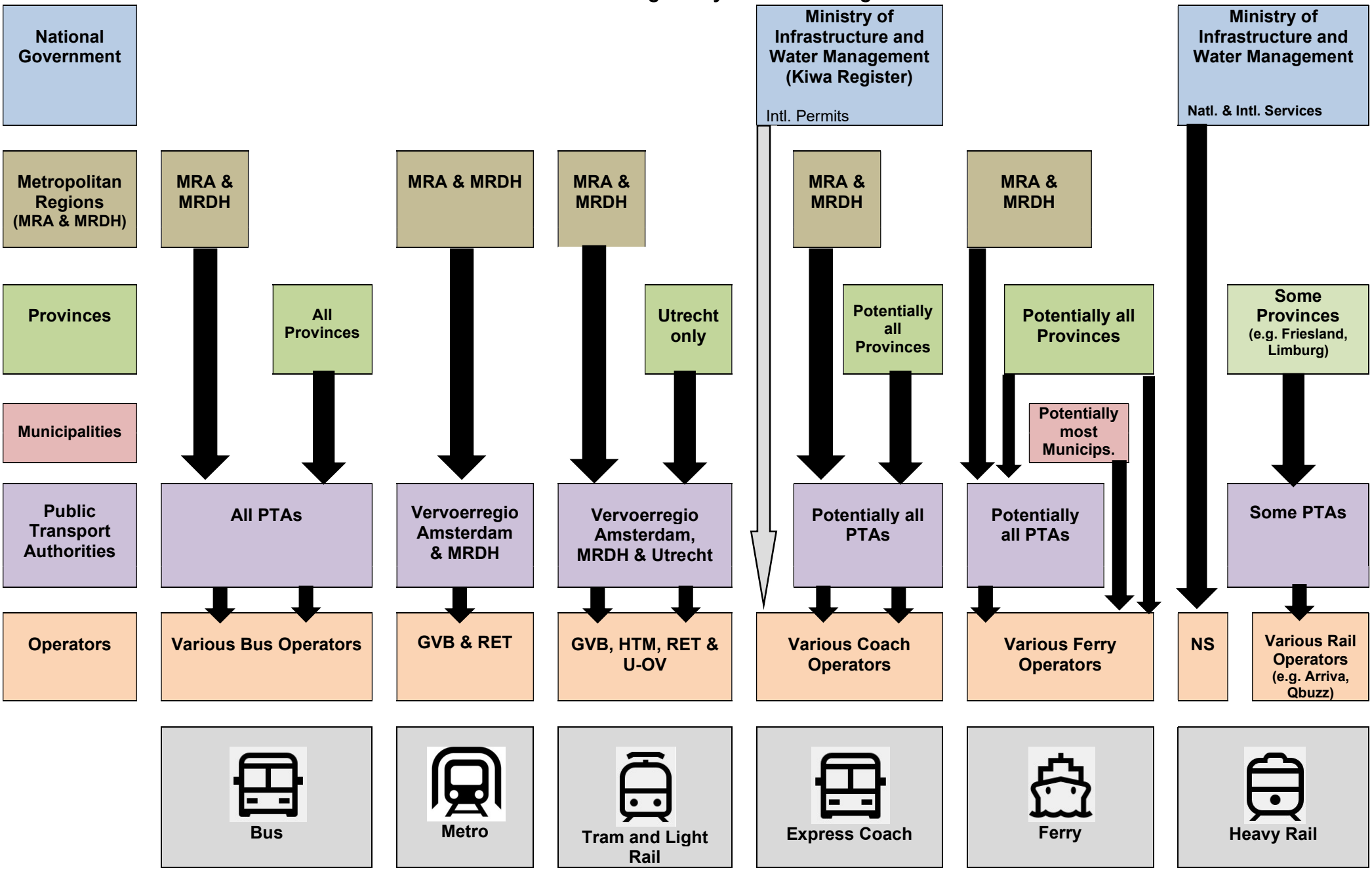
Germany has the most extensive rail network in the European Union, consisting of over 38,000 km of tracks (Eurostat, 2021). As has already been noted, the mid-1990s saw the country implement a major package of rail reforms, where long-distance rail services were opened up to competition, and where responsibility for the procurement and organisation of local and regional rail services was devolved to the Länder. The *Bundesnetzagentur* (the Federal Network Agency for Electricity, Gas, Telecommunications, Post, and Railways) provides an overview of the current market situation (Bundesnetzagentur, 2021). With regard to long-distance services, for which licensing is administered by the Federal Railway Authority (*Eisenbahn-Bundesamt*, or EBA) on behalf of the Federal Ministry for Digital and Transport (*Bundesministerium für Digitales und Verkehr*, or BMVI), the market remains dominated by the Federally-owned *DB Bahn Fernverkehr AG* (part of Deutsche Bahn AG), who have a 96% share of passenger kilometres (p.28); although this share has fallen in recent years, from 99% (CER and ETF, 2016, p.83; Gerrits and Schipper, 2018, p.16). Of the remaining 4% market share, around two-thirds of the passenger kilometres are operated by foreign, state-owned operators, namely ŐBB (Austrian Federal Railways) and Thalys, which is a partnership between the National Railway Companies of France (SNCF) and Belgium (NMBS/SNCB). The other one-third of the 4% 'non-Federal' market share is provided by private operators; most notably FlixTrain, a subsidiary of FlixBus (Bundesnetzagentur, 2021, p.28). Overall, the Bundesnetzagentur notes that there are around 30 operators involved in providing long-distance rail services throughout Germany (p.24).

Meanwhile, with local and regional rail services, the Bundesnetzagentur notes that 126 operators are active in the market (p.27). Again, however, with a 72% share of the market (in terms of passenger kilometres), Federally-owned operators dominate, in the form of *DB Regio Schiene* (the regional rail subsidiary of Deutsche Bahn AG) and its regional 'daughter' companies, such as *DB Regio Bayern* in Bavaria, and *DB Regio Südost* in Saxony (see also Seidenglanz *et al.*, 2014). These include the suburban-urban *S-Bahn* systems in the cities of Berlin, Frankfurt, Hamburg, Munich, and Stuttgart (see https://www.dbregio.de/schiene). The remainder of the local/regional rail market is occupied by subsidiaries of foreign, state-owned railway companies (13%), privately owned undertakings (9%), and operators owned by Germany's Länder and local authorities (6%) (Bundesnetzagentur, 2021, p.27). The CER (2017, p.76) and the Williams Rail Review (2019, p.8) identify Abellio, Keolis, National Express, Netinera, SBB, Transdev, and Vias as DB Regio Schiene's most significant competitors in the regional rail market.

With regard to both long-distance and regional rail services, it would perhaps be appropriate here to mention the Federal Ministry of Transport and Digital Infrastructure's vision of the *Deutschlandtakt*, which forms part of its most recent Federal Transport Infrastructure Plan (2016, p.41); as well as its Rail Transport Masterplan (2020), which aims to attract twice as many rail passengers by 2030. The Deutschlandtakt is to be a nationwide, integrated, regular interval timetable, based on Switzerland's *Taktfahrplan* model, and has the associated motto, "more frequently, faster, everywhere" (2020, p.11). Here, the largest German cities will be connected by regular long-distance passenger trains, at the same time, every 30 minutes; while the regional train connections will be synchronised to depart or arrive at 30-minute intervals in the nodal stations. In partnership with the transport ministries and other authorities of the Länder, representatives of the rail industry, passenger groups, and other relevant organisations, the Federal Ministry, in 2018, formed the *Zukunftsbündnis Schiene* (Alliance for the Future of Rail). The Alliance has produced a number of

“expert drafts” of the integrated timetable, which will eventually form the basis of the Federal Government’s future infrastructure planning for the rail network, and, of course, the competent authorities’ and operators’ rail service plans. The Deutschlandtakt is currently being implemented progressively and incrementally (see https://www.deutschlandtakt.de/).

5. The Netherlands: regulatory framework diagram



Government in the Netherlands

There are three levels of administrative government in the Netherlands: the national government; provinces, of which there are 12; and municipalities, of which there are currently 352 (Association of Dutch Municipalities, 2021).

Between 2006 and 2014, there also existed eight 'city regions' (*stadsregio*), an additional tier of government that consisted of collaborative groups of municipalities located close to the country's major cities. These were abolished on 1 January 2015, and their responsibilities (which included public transport) were transferred to the provinces. There were, however, two exceptions. Two new 'metropolitan regions' (*metropoolregio*) were created, namely Amsterdam (MRA) and Rotterdam-The Hague (MRDH); although in the case of Amsterdam a separate transport region entity (*Vervoerregio Amsterdam*) emerged. These two regions have retained central government funding and responsibility for regional public transport policy (see OECD, 2016b; Groenleer and Hendriks, 2020).

Transport governance in the Netherlands

The current regulatory structure for public transport in the Netherlands has its origins in the Passenger Transport Act 2000 (*Wet Personenvervoer 2000*), which came into force in 2001. Detailed accounts of the effects of the Act are provided by van de Velde and Eerdmans (2016), and in a longitudinal series of papers by Veeneman and colleagues at the Delft University of Technology (e.g., Veeneman, 2010; Veeneman and van de Velde, 2014; Veeneman, 2016 & 2018). van de Velde's doctoral thesis (2019) also provides an extensive, historical account of public transport regulation in the Netherlands.

The Passenger Transport Act 2000 had two main goals: to increase the attractiveness and usage of public transport, particularly in those urban areas most badly affected by traffic congestion; and to reduce government subsidies by attaining a higher proportion of operational costs coverage from passenger revenues. On this second point, van de Velde and Eerdmans (2016, p.21) indicate that, in 2000, the cost coverage was approximately 35%; and that the aim of the Act was to reach at least 50%. Amongst the key principles of the Act:

- Public transport 'concessions' were now required to operate public transport services, with these concessions conferring an exclusive right to operate the services within the concession area.

- With the exception of national rail services, and the public transport services in the four largest cities (i.e., Amsterdam, Rotterdam, The Hague, and Utrecht), competitive tendering of these concessions was to become mandatory.

- Public transport planning would be devolved from the national government to the provinces and the city regions (and, subsequently, the two metropolitan regions), each of which was to become a public transport authority with responsibilities for defining the public transport concessions, and for the procurement and administration of the operating contracts.

It should be noted here that the competitive tendering exemption granted to the country's four largest cities was originally intended to be temporary only, but this was ultimately replaced by a freedom of choice (van de Velde and Savelberg, 2016; Veeneman, 2018). Of the four cities, however, only Utrecht subsequently tendered all of its services. Amsterdam continues to directly award its bus, tram, metro and ferry contracts to its municipally-owned operator, *Gemeente Vervoerbedrijf* (GVB, see https://en.gvb.nl/). In the MRDH, meanwhile, both Rotterdam and The Hague have tendered their bus services; but metro (in Rotterdam) and tram and light rail contracts are awarded directly to the in-house, municipally-owned operators, respectively

Rotterdam Elektrische Tram (RET; see https://www.ret.nl) and HTM (from the former name, *Haagsche Tramweg Maatschappij*; see https://www.htm.nl).

With regard to the public transport authorities (PTAs) in the Netherlands, the abolition of the city regions has meant that these have reduced in number since the implementation of the Passenger Transport Act in 2001. In the literature, however, there would appear to be some disagreement over the precise number that currently exist. For example, Veeneman (2018, p.228) puts the number at 14; these being the 12 provinces, the Amsterdam Transport Region, and the MRDH. However, van de Velde and Eerdmans (2016, p.7) point out that while the provinces of Groningen and Drenthe had combined to form a common transport authority for *bus* services (the OV-bureau, see https://ovbureau.nl), both provinces continued to act as independent authorities for regional *rail* services in their respective areas; thus giving 15 authorities in total. As the website of the umbrella body for the Dutch public transport authorities, *Decentrale Openbaar Vervoer Autoriteiten* (*DOVA*; see https://www.dova.nu) currently lists 15 members, it would appear that van de Velde and Eerdman's calculations are correct. The PTAs are typically staffed by provincial/regional civil servants, who will be located alongside other civil servants and their departments in the authorities' general administration buildings. The one exception would appear to be the Groningen-Drenthe OV-bureau, where staff are in a separate location from colleagues in their constituent administrations (see van de Velde, 2019, p.191).

The contracts awarded under competitive tendering generally take one of three forms: gross cost; net cost; or what are named variously as 'supplementation', 'suppletion', or 'superincentive' contracts (Veeneman and van de Velde, 2014; van de Velde and Eerdmans, 2016; Veeneman, 2016; van de Velde, 2019). Described as being unique to the Netherlands (Steer Davies Gleave, 2016a, p.380), the superincentive contract grants the operator a significant level of service design freedom. Here, the PTA will specify some minimum service requirements, based on accessibility measures, but will not prescribe exact routes, nor timetable frequencies. van de Velde and Eerdmans (2016, pp.28-30) provide details of superincentive contracts, as used for bus services in the suburban area around Amsterdam City. Overall, though, net cost contracts have dominated in Dutch public transport. Indeed, Veenaman (2016, p.119) found that, of the 80 [sic] concessions tendered by PTAs between 2001 and 2015, 67 were awarded under a net cost contract, eight had a gross cost contract, and the remaining seven were superincentive contracts.

van de Velde and Eerdmans (2016, p.42), Veenaman (2018, p.231) and van de Velde (2019, p.172) note some additional trends in Dutch public transport tendering processes that have emerged in recent years. First, the concessions and contracts have grown larger in scope and scale, and therefore smaller in number overall. Second, the length of the contracts awarded has grown. On this point, Veenaman notes that most PTAs have moved towards the legal maximum of 10 years for their concessions; and that a number have moved towards 15-year contracts, which are only possible when investments are made by the operator (for example in introducing new, electric buses). Third, there has been some movement towards multi-modal concessions; for example, in combining regional bus and rail services in one contract. Fourth, there has been some movement towards new, 'hybrid' contractual approaches, which permit greater partnership and co-development of services between the PTAs and the operators. CROW-KpVV (2021) provides a useful, visual overview of the public transport concession situation in the Netherlands, as of January 2021.

As was mentioned above, one of the main goals of the Dutch Passenger Transport Act 2000 was to increase the proportion of operational costs that would be covered by passenger revenues. van de Velde and Eerdmans (2016, p.21) had indicated that, in 2000, the cost coverage was around 35%, and that the aim of the Act was to reach at least 50% coverage. Here, however, changes in government financial reporting have meant that public transport subsidies are not specifically identified within the block transfer (*brede doeluitkering* or *BDU*) that each PTA receives from central government. Indeed, van de Velde and Eerdmans (2016, p.40) point out that the last year for which accurate figures were available was 2004; at which point passenger revenues covered around 37% of operational costs. By 2016, however, they estimated that cost coverage was "about or above 50% on average" (thus apparently meeting the Transport

Act target); although they also observed that there were “significant variations” in cost coverage levels between urban and rural areas.

The Netherlands has had a largely integrated national fare and ticketing system since 1980. With the exception of most train journeys, passengers could use a *strippenkaart* (zoned multi-ride ticket) or a *sterabonnement* (zoned seasonal pass) to travel throughout the country using the same fare system, regardless of the public transport operator. From 2005 onwards, the *strippenkaart* was gradually replaced by a national public transport smartcard, the *OV-chipkaart*, and was ultimately abolished in 2011 (van de Velde and Eerdmans, 2016, pp.16-17). Unlike the old *strippenkaart*, the *OV-chipkaart* is also valid on the national railway network, although subject to a different fare system (see https://www.ov-chipkaart.nl).

As is the case in the other G-PaTRA partner countries, the Netherlands offers free or discounted travel to a range of user groups. Children under four years of age travel free; while passengers aged 4-11, or 65 and over, receive discounted fares, when in possession of an *OV-chipkaart*. The *Sentire* initiative allows blind or visually-impaired passengers to travel at a discounted rate on bus, metro, tram and waterborne public transport. While disabled passengers who cannot travel independently can apply for a carer’s travel pass (*OV-Begeleiderskaart*), which allows one travel companion to travel free of charge on most of the country’s train, metro, tram and bus services (Dutch Ministry of Infrastructure and Water Management, 2021a). Perhaps the most significant discount initiative, however, is that provided for tertiary education students throughout the Netherlands. First introduced in 1991, and also known variously as a ‘national student pass’, ‘student public transport card’, or ‘public transport student pass’, the *student travel product* (*studentreisproduct;* see https://www.studentenreisproduct.nl) is funded under a contract with the Dutch Ministry of Education, Culture and Science, and its Education Executive Agency, *Dienst Uitvoering Onderwijs* (*DUO*). It allows students to travel on Dutch public transport for free, or at a reduced rate, depending on the day and hour of travel. It actually forms part of student finance and is regarded as a loan, although it is converted to a gift if the student graduates within 10 years. van de Velde (2019, p.171) estimates that around 25% of all Dutch public transport operating costs are covered by the revenue received through this contract with the Ministry of Education.

The Netherlands has something of a tradition of strategic transport planning (OECD, 2001). The first coherent national transport strategy was set out in the late 1970s, in the First Transport Structure Plan (*Structuurschema Verkeer en Vervoer*, or SVV1), which was adopted by the Dutch Parliament in 1981. Its central concept, however, was addressing road network capacity (Geurs, 2012, p.150). In 1990, the Second Traffic and Transport Structure Scheme (SVV2), for the period 1990-2001, stressed the importance of a high-quality public transport system in safeguarding “amenity and sustainability”; but also affirmed that overall responsibility for transport planning resided with central government (see OECD, 2001, p.47). In 2000, the Netherlands then adopted an integrated transport strategy known as the National Traffic and Transport Plan (NVVP), for the period 2001-2020, which was revised with a Mobility Policy Document (*Nota Mobiliteit*) in 2004, and a Mobility Action Plan (*Mobiliteitsaanpak*) in 2008 (see Korteweg, 2007; Dutch Ministry of Transport, Public Works and Water Management, 2010; Alpkokin, 2012). In line with the Passenger Transport Act 2000, it moved towards a more decentralised approach, endowing the provincial, regional and municipal structures with greater responsibilities for transport planning (OECD, 2001; van der Loop, 2002).

More recently, in 2015, central government (in the form of the Ministry of Infrastructure and Water Management) entered into a partnership with the 12 provinces, the metropolitan areas of Amsterdam and Rotterdam-The Hague, Dutch Railways (NS), the rail infrastructure company ProRail, and the Federation of Dutch Mobility Companies (*Federatie Mobiliteitsbedrijven Nederland*, or *FMN*), with the aim of arriving at a joint vision for public transport. In late 2016, all of the parties agreed that, by 2040, public transport in the Netherlands should be “fast, sustainable, safe, comfortable, reliable and affordable”. They subsequently produced their *Vision on the Future of Public Transport 2040*, which lists 46 ‘actions’ within three ‘pillars’, that aim to: 1) focus on the strengths of public transport; 2) ensure barrier-free, door-to-door transport; and

3) provide safe, sustainable and efficient public transport (Dutch Ministry of Infrastructure and Water Management, 2019).

The 1998 Traffic and Transport Plan Act (*Planwet Verkeer en Vervoer*) placed an obligation on the provinces and the then urban regions (*plusregio*) to produce their own provincial or regional transport plans, PVVPs or RVVPs, which were to be in accordance with national transport policy (McKibbin, 2012, p.7; May *et al.*, 2017, p.7; Veeneman, 2018, p.228). Although they were under no such legal obligation, a number of city municipalities also chose to produce their own municipal traffic and transport plan, or GVVP (European Commission, 2013, pp.305-6; Rye and Hrelja, 2020, p.7). The Traffic and Transport Plan Act is to be replaced by a new, and more far-reaching, Environment and Planning Act (*Omgevingswet*), which is expected to come into force in 2021 or 2022 (Dutch Government, 2021). And while the provinces and regions continue to produce transport policy documents, the terminology appears to have moved away from the 'traffic and transport plan' (VVP) concept. For example: the Province of North Holland has developed a Regional Public Transport Future Vision to 2040 (see https://www.noord-holland.nl/Onderwerpen/Verkeer_vervoer); the MRDH currently has an Implementation Agenda for Accessibility [i.e. mobility] for the period 2016-2025, and in 2020 introduced a regional Sustainable Mobility Programme (see https://mrdh.nl); while the MRA has produced numerous policy documents in recent years relating to accessibility and multi-modal mobility (see https://samenbouwenaanbereikbaarheid.nl). Many of these policy documents have been gathered together on the CROW-KpVV national traffic and transport knowledge platform (see https://www.crow.nl/kennis/bibliotheek-verkeer-en-vervoer).

Like its neighbour Belgium, the Netherlands has recently turned attention to the concept of mobility hubs. For example, in 2019 the Dutch Mobility Alliance (*Mobileteitsalliante*), which is a partnership of 25 operators and other transport-related organisations, produced its future vision of a transport system that will encourage flexible travel, 'Deltaplan 2030'. The Deltaplan (p.51) advocates the introduction of a series of hubs in a range of locations across the country, including city centres, suburban areas, rural communities, and business parks. It also considers temporary or seasonal hubs, that might be created at major construction sites, holiday resorts, or major event venues. Indeed, a number of mobility hubs already exist. For example, Kwantes and van der Hijden (2019), discuss existing hubs in the cities of Amsterdam, Rotterdam and Utrecht, as well as plans to create additional hubs in the Merwede Canal Area of Utrecht. Thirteen hubs (*mobipunten*) have been installed across North Holland, as part of the European Share-North project; with plans to have 40 in development by the end of 2021 (see https://mobipunt.net). And, of course, G-PaTRA partners, in the shape of the Provinces of Groningen and Drenthe, have, since 2017, been developing a network of hubs (currently 55) across the two provinces (see https://www.reisviahub.nl/).

Local and regional bus services

As was noted earlier, the city of Amsterdam has continued to directly award its bus contracts to its municipally-owned operator, GVB. The vast majority of the other local and regional bus services in the Netherlands are subject to competitive tendering. The dominant operators are Arriva, Connexxion (a company that evolved from the former state-owned operator, *Verenigd Streekvervoer Nederland*, or *VSN*), and Keolis Nederland; with other bus concessions being operated by Hermes, Qbuzz, and EBS (van de Velde and Eerdmans, 2016; van de Velde, 2019; CROW-KpVV, 2021).

Arnhem's trolleybus system

Another public transport network that should perhaps be mentioned here is Arnhem's trolleybus system, the only such service still operating in the Netherlands. Here, six lines are operated by the company Hermes (part of Connexxion), under the brand name Breng (see https://www.breng.nl).

Metro

There are two metro networks in the Netherlands, in Amsterdam and Rotterdam. The Amsterdam network currently consists of five lines, with 39 stations, covering almost 43km of track; although there are proposals for expansion, including a southern extension to Schiphol Airport (Cuenco, 2020). The Rotterdam network consists of five lines, with 70 stations, on over 100km of tracks (as is noted below, line E of the Rotterdam metro shares track with the 'hybrid' RandstadRail services). As was mentioned earlier, neither the Amsterdam nor the Rotterdam metro service is subject to competitive tendering. Instead the contracts are awarded directly to the municipally-owned operators, respectively GVB and RET.

Tram and light rail services

The four largest cities in the Netherlands (Amsterdam, Rotterdam, The Hague, and Utrecht) all have tram networks. In Amsterdam, the tram system covers the entire city, with the exception of Amsterdam-Noord. The Amsterdam network consists of 14 lines and around 500 stops, and is run by the municipally-owned operator GVB (GVB, 2021). The Rotterdam tram system comprises nine lines with 322 stops, and is run by that city's in-house operator, RET (see https://corporate.ret.nl/). In the Hague, the city's municipally-owned operator HTM operates 12 lines with over 240 stops (see https://www.htm.nl/over-htm/ons-vervoer). Utrecht, meanwhile, has been the only one of the four cities to tender its tram services; although the infrastructure is the responsibility of a provincial entity, Regiotram Utrecht (see https://regiotramutrecht.provincie-utrecht.nl/). Utrecht's three tram lines are currently operated by Qbuzz, under the brand name U-OV. Two of these lines, known collectively as the *SUNIJ-lijn*, have recently been renovated in order to accommodate new, low-floor vehicles. The third line, known as the *Uithoflijn*, opened in 2019 (see https://www.uithoflijn.nl). While some observers (e.g., van der Bijl and van Oort, 2014, pp.32-36; Steer Davis Gleave, 2016a, p.43; Vosman, 2021) regard the Utrecht system as a light rail network, the operator U-OV clearly describes the three lines as 'tram' services (see https://www.u-ov.info).

Definitional inconsistencies also occur when authors discuss the *RandstadRail* network, which operates in the southern part of the MRDH, and which connects the city centres of The Hague, Rotterdam and Zoetermeer. It, too, is sometimes described as a light rail system (e.g., Koppenjan *et al.*, 2011; van der Bijl and van Oort, 2014, pp.24-26), whilst others (e.g., Giezen *et al.*, 2015) regard it more as a 'hybrid' system, as it operates partly on the lines of the Hague's tram network, and also shares some of the tracks of the Rotterdam metro line E (see below). The RandstadRail services are run by the in-house operators of both the Hague and Rotterdam regions, i.e. HTM and RET (see https://www.htm.nl/ons-vervoer/randstadrail).

Reference should perhaps also be made here to two, relatively recent, *failed* tram/light rail projects in the Netherlands. The Groningen RegioTram project was to consist of two city tram lines radiating from the main station; with a second phase that would see regional trams running from the city to the surrounding area using existing railway lines. However, following opposition from citizens and from Groningen municipality officials, the project was abandoned in 2012 (van der Bijl *et al.*, 2020). Meanwhile, in the province of South Holland, the *RijnGouwelijn* was to be a light rail project connecting Leiden with Gouda, using a combination of new and existing tracks. Although construction work had started, political and financial issues resulted in it, too, being abandoned in 2012 (Stoop and Baggen, 2014; van der Bijl and van Oort, 2014, p.39).

Long-distance coach services

Steer Davies Gleave (2016b, p.313) note that the market penetration of regular, long-distance coach services has been limited in the Netherlands, due to the existence of a fast and frequent medium- and long-distance rail network, the relatively small surface area of the country, and various regulatory and competition issues caused by the introduction of the Passenger Transport Act 2000. Steer Davies Gleave (p.315) go on to explain that long-distance coach services in the Netherlands can be managed in one of two ways: 1) where services are operated by one concession operator, from its own concession area toward one or more neighbouring concession areas (which requires a degree of cooperation between

concession holders); or, more rarely, 2) where an intercity line is tendered as a separate concession, with the operation of that specific line being granted to one operator.

At the time of their report, Steer Davies Gleave (p.316) also noted that the German operator FlixBus had commenced procedures to apply for permission to operate two inter-regional, long-distance coach services between Eindhoven and Groningen, and between Eindhoven and Enschede. As a non-concession holder, this required FlixBus to seek an exemption to the Passenger Transport Act (under Article 29), and to request permission to operate these services from the PTAs that regulate the concession areas along the proposed routes, on the understanding that the new services would not compete with existing public transport services. A Masters thesis by Kuipers (2020, p.36) notes that the province of Noord-Brabant refused to grant exemptions; but that after a legal challenge the trade and industry appeals board (*College Beroep voor het bedrijfsleven*, or *CBb*) found that the province's decision was ill-founded and ruled that they must reconsider the FlixBus application.

At the end of the 20th century, the former state-owned company VSN operated 30 intercity coach services, known as 'Interliners' (Dutch Ministry of Transport, Public Works and Water Management, 2010, p.67). However, the introduction of the Passenger Transport Act 2000, and the resultant decentralisation of public transport planning, meant that the national Interliner brand disappeared. The basic Interliner concept does remain, though. For example, Arriva operates 'Qliner' coaches, between the northern provinces of Friesland, Groningen and Drenthe (see OV-bureau, 2017). The operator Bravo uses the name 'Brabantliner' for its intercity (and cross-province) Oosterhout-Utrecht, Breda-Utrecht, and Breda-Gorinchem services (see https://www.bravo.info/brabantliner). And, indeed, Connexxion (who, of course, emerged from VSN) still uses the Interliner name to describe its service between Rotterdam and Zierikzee (see https://www.connexxion.nl).

Permits for international, cross-border coach services are issued by the quality authority, Kiwa Register, on behalf of the Ministry of Infrastructure and Water Management (Steer Davies Gleave, 2016b, p.316). The register (see https://www.kiwaregister.nl/productpagina-bus) indicates that FlixBus is the dominant operator, holding three of the six current international permits.

Ferry services

In 1996, the Dutch Ministry of Transport, Public Works and Water Management, published a policy memorandum, *Samen werken aan bereikbaarheid* ('Working together on accessibility'), aimed at addressing the country's road congestion. In this document, the Ministry suggested that alternatives to the car should be encouraged, including 'public transport by water'. It went on to suggest that particular routes (e.g. between Rotterdam and Utrecht, and between Almere/Huizen and Amsterdam) should be explored (p.4). As a result, the late 1990s saw a small number of pilot services being established across the country (see Rispens's 2011 thesis, pp.13-15, for an overview of these).

The Ministry appears to have had a very firm (if somewhat contradictory) definition of what constituted "water-based public transport", or "public transport over water". In 2010 it stated:

> "Water-based public transport does expressly not include the many ferries that transport cars, cyclists and pedestrians from one side of the river to the other throughout the Netherlands.[5] The ferries to the West Frisian Islands are not classed as water-based public transport either. Public transport over water cannot go faster than 30 km/h,[6] the capacity must exceed 12 persons and it

[5] Hoekstra (2017, p.13) indicates that there are over 300 ferry services throughout the Netherlands, the majority of which (around 240) are bicycle and/or pedestrian-only services. These are owned and/or operated by a range of bodies, including provinces, municipalities, private operators, or non-profit foundations (p.9)

[6] To add to the confusion, Rispens (2011, p.13) suggested that 30 km/h was a *minimum* speed for public transport vessels

must not carry cars. Public transport over water must also be put out to tender." (Dutch Ministry of Transport, Public Works and Water Management, 2010, p.60)

Curiously, this definition was accompanied by an image of a ferry crossing the IJ in Amsterdam, on precisely the type of journey that the Ministry excluded from its definition of water-based public transport. Indeed, GVB Veren (part of the municipally-owned operator GVB) currently operate nine free ferry services across the IJ, for pedestrians, cyclists and mopeds; and a further three services that can also carry cars and trucks (for a charge) across the North Sea Canal. None of these services would appear to meet the Ministry's definition of 'public transport over water', yet they are clearly regarded as part of the city's integrated public transport network by GVB (see https://reisinfo.gvb.nl/nl/lijnen?boat&show) and by other commentators (e.g. Steer Davies Gleave, 2016a, p.383; Cheemakurthy *et al.* 2017, p.15). Instead, as examples of water-based public transport, the Ministry (2010, p.60) looked to: the 'waterbus' services in the Rotterdam-Drechtsteden region; the 'fast flying ferry' service between Amsterdam and Velsen (which again contradicted the Ministry's speed-related definition); and various other 'fast ferry' services, such as that between the Hook of Holland and Maasvlakte Rotterdam.

The Amsterdam fast flying ferry service, then operated by Connexxion, was discontinued at the beginning of 2014. This followed subsidy cuts and the introduction of speed and sailing frequency restrictions (and therefore a fall in passenger numbers), after the hydrofoil vessels were involved in a number of accidents (*Classic Fast Ferries*, 2014; Hoekstra, 2017, p.28; Fernández Orviz, 2020, p.2). As a result, there now appear to be just three concessions that meet the Dutch Government's definition of 'public transport over water', and which are subject to competitive tendering processes. These are: the eight Rotterdam-Drechtsteden waterbus lines, operated by Aquabus (see https://www.waterbus.nl/); the Vlissingen-Breskens ferry, operated by Westerschelde Ferry BV; and the RET-operated Hook of Holland-Maasvlakte service (CROW-KpVV, 2021).

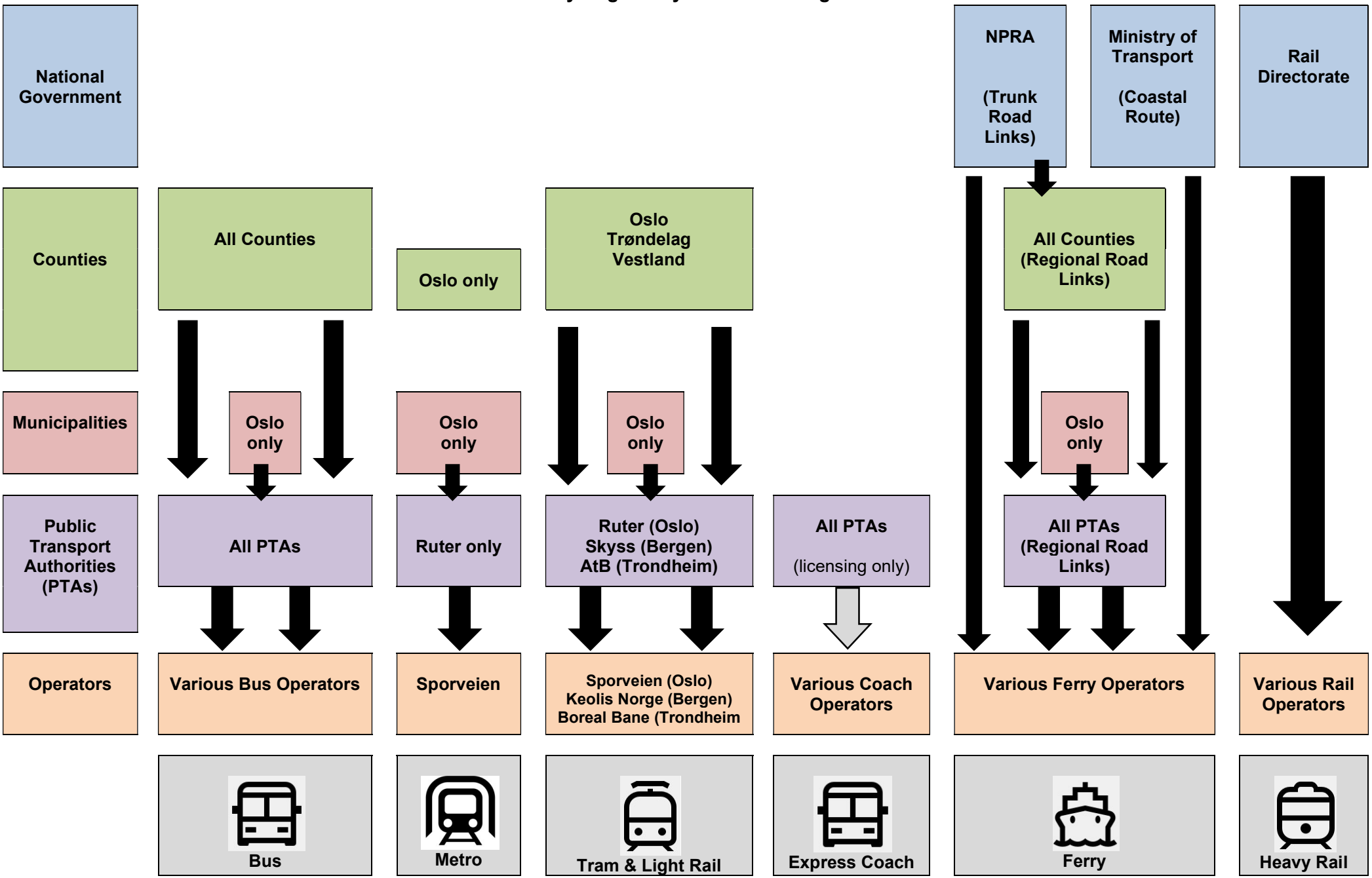
National and regional rail services

As was mentioned earlier, national mainline railway services in the Netherlands are not subject to competitive tendering; the concession instead being awarded directly by the Ministry of Infrastructure and Water Management to the state-owned company Dutch Railways (*Nederlandse Spoorwegen* or *NS*). The current concession is for the period 2016-2025, and comes with a series of obligations, relating to the frequency, punctuality, cleanliness, and social safety of the service (Dutch Ministry of Infrastructure and Water Management, 2021b). In 2016, NS was responsible for around 95% of all train passenger kilometres in the Netherlands (Netherlands Institute for Transport Policy Analysis, 2016, p.28). The rail infrastructure is managed by a separate state-owned company, ProRail. Both NS and ProRail have to submit an annual management plan to the Ministry of Infrastructure and Water Management. Furthermore, NS publishes its own strategy, the most recent being for the period 2020-2025 (see https://www.ns.nl/en/about-ns/strategy).

The NS concession also includes most international trains in the Netherlands. However, the Dutch Cabinet recently indicated that it would be open to more competition on international rail from 2025; and that it would hold a consultation to identify which operators would be interested in gaining access to this market. However, there are no such plans to open up the domestic mainline concession to competitive tendering, as it is believed that this would be "very complex and risky" and could be disadvantageous for travellers and taxpayers (Geerts, 2021). Other operators have launched a legal challenge to the decision to award the next concession directly to NS, with the case due to go to the European Court of Justice (Chatham Partners, 2021; van Gompel, 2021).

While mainline passenger rail services are not subject to competitive tendering, there is a small number of *regional* rail services throughout the Netherlands where competition does exist, and for which the (provinces') PTAs are responsible for the regulatory and tendering processes. Arriva is currently the dominant operator in regional rail. Other companies responsible for operating regional services include NS/Abellio, Connexxion, Keolis Nederland and Qbuzz (see CROW-KpVV, 2021).

6. Norway: regulatory framework diagram



Government in Norway

Norway has three levels of administrative government: the national government; counties (*fylker*); and municipalities (*kommuner*). Recent reorganisation, which came into force on 1 January 2020, has resulted in Norway currently comprising 11 counties and 356 municipalities (Norwegian Government, 2020). The capital city Oslo is considered both a county and a municipality (Norwegian Ministry of Local Government and Modernisation, 2014). It should also be noted that the counties are frequently described in the literature as *regional* authorities (e.g., Tennøy and Øksenholt, 2018; Krogstad and Leiren, 2019).

Transport governance in Norway

The key actors, in terms of public transport, are the 11 counties, who are responsible for most of the local bus, light rail/tram, metro and ferry services across the country. Indeed, around 80% of Norwegian public transport passengers travel on services operated on behalf of county governments (Aarhaug and Rødseth, 2019, p.36). According to the Urban Transport Group (2017, p.36), funding for the public transport services provided by the counties comes from five main sources: county taxes; block grants from central government; central government reward/incentive schemes designed to encourage sustainable public transport provision; toll roads income; and income from ticket sales.

Public transport services are largely procured and administered through county public transport authorities (PTAs). Aarhaug and Rødseth (2019, p.36) note that these PTAs can take one of three forms: they can be 1) an integrated part of the county authority; 2) a corporation fully owned by the county authority; or 3) organized as a separate, non-corporate entity within the county government. The website of the Norwegian Public Transport Association suggests that there are currently 13 PTAs throughout Norway (see https://kollektivtrafikk.no). Gross cost contracts dominate in the Norwegian public transport sector (e.g., Mathisen, 2016, p.46 ; Urban Transport Group, 2017, p.41), although numerous hybrid arrangements between gross cost and net cost contracts also exist (e.g., Aarhaug *et al.*, 2018a, p.98).

Every four years, each county is responsible for producing a regional area and transport strategy and plan (*Regional areal- og transportplan*), that should demonstrate links between land-use planning (which is largely the responsibility of the municipalities) and transport planning (Urban Transport Group, 2017, p.41; Tennøy and Øksenholt, 2018, p.94). It should be noted here, however, that such regional plans are rarely, if ever, produced in English. At the more local level, while some aspects of transport planning occur, often in preparation for urban growth agreement negotiations (see below), these rarely, if ever, manifest themselves in the form of an overarching city or municipality transport or mobility plan (e.g., Tønnesen *et al.*, 2019; Bardal *et al.*, 2020; Westskog *et al.*, 2020).

The counties are also informed by, and provide input to, Norway's National Transport Plan (*Nasjonal transportplan*), which is produced every four years by the Ministry of Transport (formerly the Ministry of Transport and Communications). The national plan has its origins, in the 1990s, in the Norwegian Road and Road Traffic Plan (*Norsk veg-og vegtrafikkplan*) which, as its name suggests, concentrated on road investments (Sager and Sørensen, 2011; Sager, 2016). While the focus of the current National Transport Plan (for the period 2018-2029) is very much on developing the infrastructure for which central government has direct responsibilities (i.e., the rail network, ports, airports, and the trunk road system), it does also highlight the budget allocated to its 'urban growth agreements' and its 'reward scheme for public transport' (Norwegian Ministry of Transport and Communications, 2017, p.23). These initiatives are designed to assist Norway in achieving its 'zero growth goal' (*nullvekstmålet*) or ZGG. Initiated in 2012, the ZGG is a cross-party climate policy agreement intended to halt the growth of personal car use (and, of course, vehicle emissions) in urban areas, and to instead facilitate active travel and increased public transport use (e.g., Tønnesen *et al.*, 2019; Christiansen, 2020; Hammes, 2020). On this last note, it is perhaps worth

noting here that Norway, like most of the other G-PaTRA partner countries, has begun to introduce mobility hubs, in an effort to increase car sharing and bicycle use, as well as improve access to public transport services. Directly inspired by Bremen's network of *mobil.punkte* (see Section 4 of this present report), the city of Bergen has, since 2018, led the way in Norway by introducing its own small network of *mobilpunkt* stations. Each station has the basic components of car-sharing spaces, bicycle parking, and, where possible, a close proximity to public transport stops (Bergen Kommune, 2021). The cities of Oslo and Stavanger, and the county of Viken, are also considering the introduction of similar mobility hubs (Ruter, 2021; Stavanger Kommune, 2021).

Public transport is heavily subsidised in Norway. Indeed, focusing on services in the Greater Oslo area, studies have found that almost 60% of the average costs per trip are met by subsidy (Urban Transport Group, 2017, p.45; Fearnley and Aarhaug, 2019, p.9). Fearnley and Aaurhaug (2019, pp.1-2) further note that Norway provides a number of social rebates/concessionary fares on public transport. Typically, these consist of: free travel for children under the age of six; half fares for children aged 6-17; reduced season ticket prices for students; and half fares for elderly passengers (i.e. aged 67 or over) and individuals with a disablement pension. Some of these concessions are national, mandatory schemes, while others (e.g. for children and for dogs) can vary by county (Aarhaug *et al.*, 2018b, p.89).

In common with most of the other G-PaTRA partner countries, Denmark has begun to introduce mobility hubs, albeit on a modest scale. As part of the European project *cities.multimodal* (2020), two "very simplistic" (p.7) mobility points have been introduced in the city of Aarhus (p.44), and another in the inner city of Nykøbing Falster in the municipality of Guldborgsund (p.48).

Local and regional bus services

Fearnley and Aarhaug (2019, p.4) note that, in terms of passenger numbers, the bus is the most prominent mode of passenger transport in Norway. Aarhaug *et al.* (2018a) have conducted a longitudinal study of the Norwegian bus industry since competitive tendering was first introduced, on a limited scale, in 1995. They note that the large-scale implementation of competitive tendering took place in the early 2000s; and that, by 2005, 28% of all bus routes in Norway were based on tendered contracts, accounting for almost 40% of bus passengers. By 2017, "most" local bus transport was subject to competitive tendering (p.98). This competition has seen the structure of the bus industry change from one with many small actors, to one with fewer, larger operators. By 2017, gross cost contracts dominated, with 87.1% of contracts having been awarded on this basis (p.99). The dominant operator in 2017 was the state-owned *Nettbuss AS* (now *Vy Buss AS*), who had won 20.7% of all contracts (p.99). The contracts are largely awarded and administered by the county PTAs (p.98).

Environmental factors and standards have increasingly become part of the tender criteria, with the Urban Transport Group (2017, p.33) observing that bus service contracts are now based on "ensuring the bus fleet becomes as environmentally friendly as possible in as short a time as possible in order to reduce carbon and toxic emissions". This is reflected in the strategies and policy statements of the contract-awarding bodies, the PTAs. For example, the most recent public transport strategy (entitled 'M2016') of *Ruter*, which is the PTA for Oslo and the surrounding area of Akershus (now part of Viken county), included the goal that all buses in the area should run exclusively on renewable energy by the end of 2020; and that by 2025 the entire bus fleet will consist of either zero- or low-emission vehicles (Ruter, 2016). These aims would appear to be in line with Norway's National Transport Plan, which included a target that "all new urban buses sold in 2025 shall be zero emitters or use biogas" (Norwegian Ministry of Transport and Communications, 2017, p.30).

Bergen's trolleybuses

Brief mention should also be made here of Norway's only remaining trolleybus service, in Bergen. Operated as part of the city's bus network by *Keolis Norge*, the Norwegian subsidiary of the French multinational

Keolis, the previous 7km route has recently been expanded to 13km. New electric rolling stock, that utilise 'in motion charging' technology, were introduced in 2020 (*Automotive World*, 2020; Potter, 2021).

Metro

The Oslo metro (the *Tunnelbane* or *T-bane*) consists of five lines serving 101 stations. Like Oslo's tram services, the T-bane is operated by a Sporveien subsidiary, in this case *Sporveien T-banen AS*. And like the trams, the contract to operate the metro is awarded by *Ruter*, by direct procurement. Along with that of the tram network, ownership and maintenance of the T-bane infrastructure is the responsibility of *Sporveien Oslo AS* (Ruter, 2014).

Tram and light rail services

Oslo currently has a 6-line tram network, although there are plans to extend the network and to develop some of it to light railway standard (Ruter, 2012, p.12; Sporveien, 2020). The tram services are operated by *Sporveien Trikken AS*, which is a subsidiary of the municipally owned company *Sporveien Oslo AS*; with the municipality's ownership being managed within the City Council's Department of Transport and Environmental Affairs (Hellesjø, 2014). The contract to operate Oslo's trams is awarded, through direct procurement, by *Ruter*. The infrastructure of the Oslo tram network is the responsibility of the Sporveien parent company (Ruter, 2014). Norway's third city, Trondheim, also has a tram service — the 5½-mile, single-line *Gråkallbanen* — which is now the world's northernmost tram system. *Boreal Bane AS*, a subsidiary of *Boreal Norge AS*, operates the service on behalf of *AtB*, the PTA for Trøndelag county (Boreal n.d.).

Norway's second largest city, Bergen, introduced the country's first completely new light rail system, Bergen Light Rail or *Bybanen*, in 2010 (Olesen, 2014; Olesen and Lassen, 2016). It currently consists of a single 20km line, with 27 stops, which operates between the city centre and the regional airport. A new line, from Bergen to Fyllingsdalen in the south-west, is currently under construction, with completion due in 2022-23; while a further route, north to Åsane, is also planned (Engebretsen *et al.*, 2017). The construction of the lines has been the responsibility of *Bybanen Utbygging*, an agency within Hordaland county (now part of Vestland county); while ownership and maintenance of the physical infrastructure and the vehicles is the responsibility of a county-owned company, *Bybanen AS*. The operator of the *Bybanen* service is selected by public tender, which is administered by the county's PTA, *Skyss*. *Keolis Norge* was awarded both the original contract in 2010, and a renewed contract effective from July 2019 (Keolis, 2018b).

Long-distance coach services

In Norway, bus services that cross county borders are typically described as "express coaches" (Aarhaug *et al.*, 2018b). The express coach market has been fully deregulated since 2003. Route licences are dealt with at the county level, but these are generally issued freely if operators demonstrate key standards on safety and operational control, and if they also accept any 'closed door' operational conditions on the route(s), which are designed to protect locally subsidised bus services (Leiren and Fearnley, 2008, p.6; Reynolds, 2018, p.138). While the express coach market thrived in the early years of liberalisation (Leiren and Fearnley, 2008; Alexandersson *et al.*, 2010), recent years have seen it stagnate and, in some cases, decline. Aarhaug *et al.* (2018b) observe that long-distance coach routes have faced significant competition from low-cost air carriers; while on shorter routes, improved road and rail infrastructure has resulted in increased competition from private cars and rail services. In 2017, the market was dominated by two companies: *NOR-WAY Bussekspress* or *NBE* (actually a marketing cooperative of several operators), and *Nettbuss Ekspress* (now *Vy Buss*), which had previously been the largest company within *NBE*, but which withdrew in 2013 and started operating under its own brand (Aarhaug *et al.*, 2018b, p.85). As has already been noted, *Vy Buss* is actually a government-owned company, part of the Norwegian State Railways, *Vygruppen* or *Vy* (previously *Norges Statsbaner* or *NSB*).

Since deregulation, long-distance coach services in Norway have operated on an almost exclusively commercial basis, "with no or close to no public subsidies" (Aarhaug et al., 2018b, p.85). A few routes receive support for serving local markets and accepting local fares in agreement with the county governments (p.89). However, Aarhaug *et al.* also observe a recent trend whereby commercial coach lines have been replaced by lines operated by the county governments. Here, the county will include a service, similar to an existing commercial one, in its gross contract tenders for local public transport, and which is then offered to the public, with subsidised fares, as part of the local PTA's service network. Typically, the PTA fares are significantly cheaper than the commercial fares and offer better transfer possibilities to other routes or travel modes. Consequently, the PTA service will be preferred by passengers, and the commercial service will be rendered unprofitable. By these means, five commercial express coach services were replaced by county-operated equivalents between 2015 and 2017 (p.86).

Ferry services

In Norway, ferry links are regarded as integral parts of the roads network, with the national trunk roads network (and ferry links) being regulated at the national government level by the Norwegian Public Roads Administration (NPRA), or *Statens vegvesen*; and the remaining 'regional' roads and ferry links being the responsibility of the counties (Odeck and Høyem, 2020). In the early years of the 21st century, the majority of Norwegian ferry services were regarded as trunk road links and therefore regulated by the state (Jørgensen *et al.*, 2011). However, the Norwegian Reform of Government Administration, implemented on 1 January 2010, saw the government transfer 80% of the national road network (including the ferry links) to regional control (Krogstad and Leiren, 2019, p.80); although Odeck and Høyem (2020, p.2) put this figure at around 40%. It should also be noted that recent years have seen a number of ferry services being replaced by fixed links, i.e. road bridges or tunnels (Urban Transport Group, 2017, p.28; Odeck and Høyem, 2020).

All ferry services are procured by competitive tendering, with those services connecting trunk roads being administered by the regional offices of the NPRA, and those connecting regional roads being handled by the counties and their PTAs, with some assistance from the NPRA (Bjerkan *et al.*, 2019). The contracting authority may invite tenders on either a gross cost or net cost basis (Jean-Hansen, 2010; Fjord1, 2020, p.103). The operators of Norwegian ferry services bring their own vessels — none is owned by the state. The largest operators include Bastø Fosen AS, Fjord1 ASA, Norled AS, and Rødne AS (Pedersen, 2015; Visit Norway, 2021).

In recent years, environmental factors have been introduced as criteria in the ferry service tendering process (Odeck and Høyem, 2020, p.3). Damman and Gjerløw (2019, p.5) and Bjerkan *et al.* (2019, pp.5-6) suggest that this move is related to three key national policy aims: 1) that 40% of all local shipping be run on biofuels, or be low- or zero-emission vessels, by 2030 (see also Sollie, 2017); 2) that all cruise ships and ferries in the waters of the UNESCO World Heritage fjords, Geirangerfjord and Nærøyfjord, be emission-free from 2026 (see also UNESCO, 2018); and 3) that development contracts for hydrogen ferries be encouraged, in line with a parliamentary resolution (No. 873) of 13 June 2016 (see also Aarskog *et al.*, 2020). More recently, the Norwegian Government, in its *Action Plan for Green Shipping*, has encouraged counties to include requirements for zero- and low-emission solutions in their ferry service procurement processes (Norwegian Ministry of Climate and Environment, 2019).

Some mention is made in the literature of 'water buses' serving small Norwegian island communities (Pedersen, 2015; Tannum and Ulvensøen, 2019), and of 'city' or 'urban ferries' in the likes of Oslo, Trondheim and Fredrikstad (Cheemakurthy *et al.*, 2017; Fearnley and Aarhaug, 2019; Tannum and Ulvensøen, 2019). While details of these services are sparse, it would appear that they are procured and administered on the same basis as the regional road link ferries, i.e. by the counties and their PTAs.

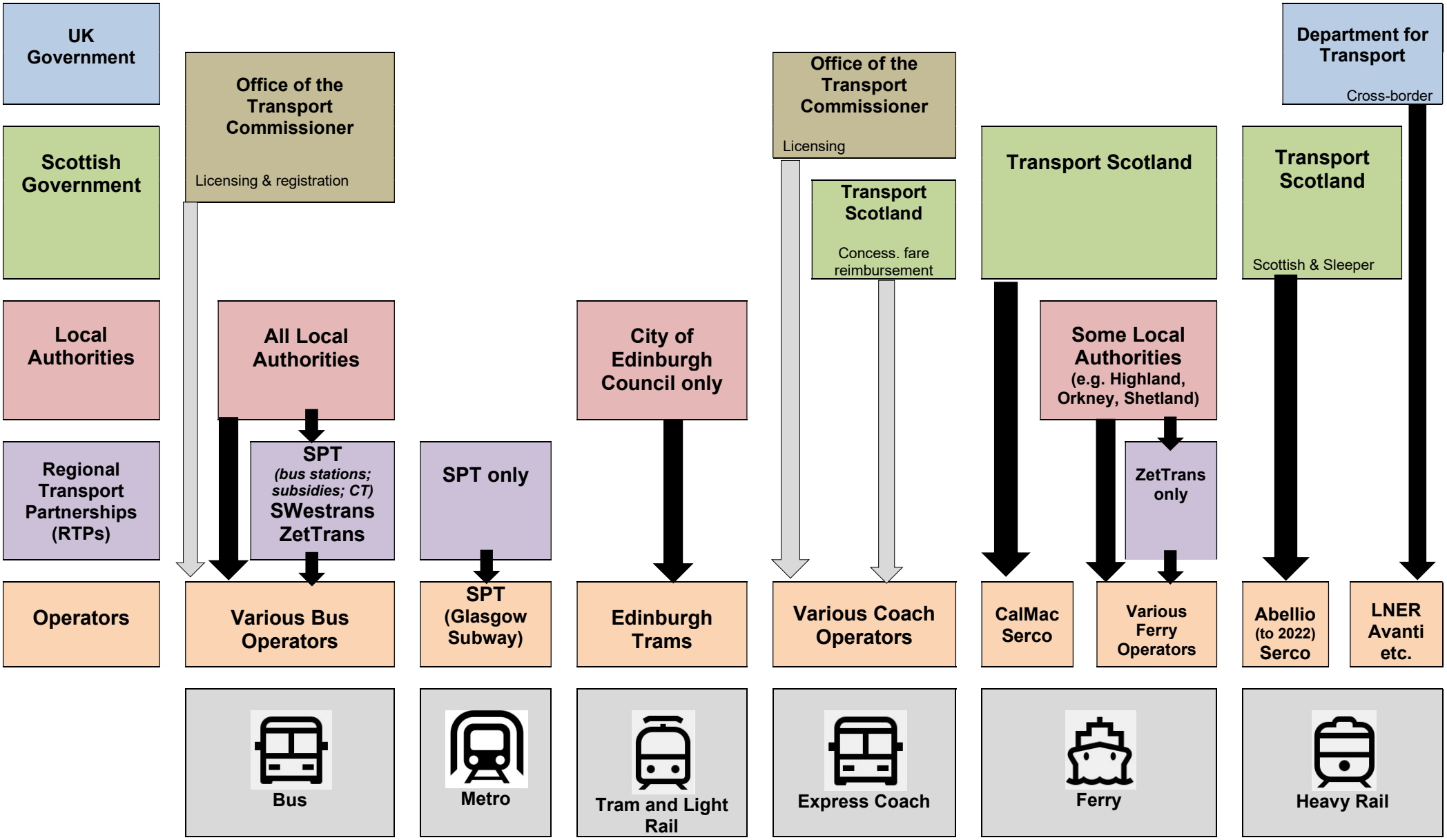
The Bergen—Kirkenes coastal route (or *Hurtigruten*) should also be mentioned here. This route has over 30 ports of call along its 2,400km. And while the *Hurtigruten* is popular for round-trip tourist cruises, it is

also regarded as important for passengers travelling locally and regionally between the many ports of call. Here, the public procurement process is administered by the Ministry of Transport. The most recent competition, for services in the period 2021-2030, was based on the service being sub-divided into three 'packages', with a total of 11 routes (Norwegian Ministry of Transport, 2018). Two of the packages were awarded to the incumbent company Hurtigruten AS, the other to Havila Kystruten AS (Berglund, 2018). Environmental requirements formed part of the competition, and the Norwegian Ministry of Climate and Environment (2019, p.20) notes that the two companies will largely be using vessels that run on a combination of natural gas and batteries.

National and regional rail services

In Norway, rail services are state-controlled. Following reforms first announced in 2015 (Norwegian Ministry of Transport and Communications, 2015), a new Norwegian Railway Directorate (*Jernbanedirektoratet*) became the coordinating agency for Norway's railway sector, as of 1 January 2017. The Directorate advises the Ministry of Transport on all matters involving rail transport, and is authorised to purchase passenger rail services from train operating companies, and infrastructure services from the state infrastructure manager, *Bane NOR SF* (Norwegian Ministry of Transport, n.d.). Prior to these reforms, the vast majority of rail passenger services were purchased by the Norwegian Government through a net service contract with the Norwegian State Railways, *Norges Statsbaner* or *NSB* (now *Vygruppen* or *Vy*) (Aarhaug and Rødseth, 2019). The one exception was the Gjøvik railway line (*Gjøvikbanen*), which had operated on a competitive tendering contract since 2006 (Aarhaug and Fearnley, 2016). However, a significant element of the 2015 railway reforms was a desire to introduce a greater level of competition to the rail passenger transport market. With this in mind, in 2018 the Railway Directorate introduced a competitive tendering system, largely on a net cost contract basis (see Berge, 2016), where various train operators were able to compete for the right to operate passenger services within defined geographic areas, along with the incumbent operator *NSB/Vy*. To date, three of the five 'Traffic Packages' (for south, north and west Norway) have been awarded, the first two to 'new' operators, respectively Go-Ahead Norge and the Swedish state railway SJ. At the time of commencing this present report, the tendering process for Traffic Package 4, for the central area of eastern Norway, had been delayed, due to the Covid-19 situation; while details of Package 5, for the remainder of eastern Norway, had yet to be announced (Burroughs, 2020; Norwegian Railway Directorate, 2020). However, the recent Norwegian election has resulted in a change of government, who have announced plans to stop tendering the country's rail services, but without confirming what approach is to be adopted in the future (Burroughs, 2021).

7. Scotland: regulatory framework diagram



Scotland: notes and commentary

Government in Scotland

Together with England, Wales and Northern Ireland, Scotland forms part of the United Kingdom. As such, it has three levels of administrative government. The UK Government in London has responsibility for 'reserved matters', which include, for example, foreign policy, defence and national security, employment legislation, and *some* aspects of transport, including licensing and safety legislation (Butcher, 2017, pp.6-9). Since 1999, Scotland has had its own devolved legislature (the Scottish Parliament) and administration (the Scottish Government), based in Edinburgh, and has a wide range of devolved powers, including on: agriculture and fisheries; education and training; health and social services; housing; justice and policing; and (importantly here) transport (e.g., Scottish Government, 2021a). The third level of government consists of 32 unitary, 'local authorities', each one governed by an elected council. These local authorities are responsible for providing a range of public services, including education, social care, roads and transport (e.g., Campbell and Burrowes, 2016). Of particular relevance to this present report is the responsibility of local authorities to ensure that bus services in their area meet local needs.

Transport governance in Scotland

Over the last 40 years, both pre- and post-devolution, there have been numerous pieces of UK-wide or Scotland-specific legislation that have shaped the current profile of public transport governance in Scotland. The key legislation, identified by the likes of Butcher (2010 & 2018), Transport Scotland (2017a), and Rehfisch (2021), includes:—

> ***Transport Act 1985*** (https://www.legislation.gov.uk/ukpga/1985/67/contents), which deregulated and privatised local bus services across the UK (outside Greater London), and which expressly prohibited a local authority from providing passenger services directly (although, in Section 66, Scotland's three islands councils were exempt). Sections 57 and 63 of the Act gave local authorities the power to secure and subsidise bus services that meet local social and welfare needs, that would otherwise not be provided commercially. Sections 93-94 gave operators the right to participate in concessionary fare schemes, and local authorities the powers to compel participation in such schemes; with the operators then being reimbursed by the local authorities for the net financial losses incurred.
>
> ***Transport (Scotland) Act 1989*** (https://www.legislation.gov.uk/ukpga/1989/23/contents), which authorised the break-up of the state-owned Scottish Bus Group into regional companies, which were then privatised.
>
> ***Railways Act 1993*** (https://www.legislation.gov.uk/ukpga/1993/43/contents), which privatised the UK's railway network, which had been under state ownership since 1948.
>
> ***Transport (Scotland) Act 2001*** (https://www.legislation.gov.uk/asp/2001/2/contents), which established systems for setting up formal Bus Quality Partnerships and Contracts.
>
> ***Railways Act 2005*** (https://www.legislation.gov.uk/ukpga/2005/14/contents), which devolved further powers, on rail franchises and infrastructure, to the Scottish Government.
>
> ***Transport (Scotland) Act 2005*** (https://www.legislation.gov.uk/asp/2005/12/contents), which established Scotland's national transport agency, Transport Scotland, together with seven Regional Transport Partnerships (RTPs), and which also provided the legislative basis for a national concessionary fares scheme for older and disabled people.
>
> ***Transport (Scotland) Act 2019*** (https://www.legislation.gov.uk/asp/2019/17/contents), which had a number of bus-related provisions (including increased scope for local authorities to run their own

bus services), and which made it a statutory requirement for Scottish Ministers to prepare a national transport strategy. It also gave Scottish Ministers the powers to introduce a national technical standard for smart ticketing.

These, and other legislative instruments, will be discussed in more detail throughout the sections that follow.

Transport Scotland is the key national transport agency in Scotland. When it first began operating in 2006, as an executive agency of the then Scottish Executive (rebranded as the Scottish Government in 2007), its role was to "deliver [Scotland's] major road and rail schemes, and to deliver the national concessionary fare scheme" (Scottish Executive, 2006a, p.5). However, in August 2010, its remit was expanded significantly when it merged with the Scottish Government's Transport Directorate, thus bringing all of the Scottish Government's transport responsibilities together under a single body (see Transport Scotland, 2011). In describing its current role, Transport Scotland states that:

> "Transport Scotland is the national transport agency, delivering the Scottish Government's vision for transport and accountable to Parliament and the Public through the Scottish Ministers. We oversee the operation and improvement of the trunk road, ferry, canal and railway networks in Scotland; Highlands and Islands and Prestwick airports; the provision of rail and ferry services; and are responsible for securing air routes for Scotland, the national concessionary travel schemes and the provision of network traffic and travel information services." (Transport Scotland, 2021a, p.5)

As has already been noted, Transport Scotland was created following the implementation of the Transport (Scotland) Act 2005, together with seven RTPs (although these largely pre-existed, on a voluntary basis). When first established formally, the aim of RTPs was to "focus on the strategic approach to transport across their regions" (Scottish Executive, 2006a, p.5); although it was envisaged that, as they matured and evolved, they would "take on further functions and strengthen the regional capacity to plan and deliver services" (p.7). This might give the impression, then, that RTPs are the equivalent of the likes of Denmark's *Trafikselskaber*, or Germany's *Verkehrsverbünde*, discussed elsewhere in this report. However, as a number of observers point out, a change of Scottish Government and policy, in 2007, left the RTPs "somewhat emasculated" (Marsden and Rye, 2010, p.675) and "marginalised" (Shaw and MacKinnon, 2011, p.27), and therefore relatively weak, when compared with similar regional bodies throughout continental Europe (e.g., Transport Research Institute, 2016; Gray *et al.*, 2017).

There are, though, some exceptions. RTPs are described as functioning like "joint boards" (Transport Scotland, 2021b), bringing local authorities together to perform transport functions collectively and strategically over a larger geographic area. Theoretically, they can take one of three forms: 'Model 1' RTPs have a statutory responsibility to produce a regional transport strategy, but have *no* public transport powers transferred from their constituent local authorities; 'Model 2' RTPs must also produce a regional strategy, and will have *some* public transport powers; while 'Model 3' RTPs produce a strategy, and also have *significant* public transport powers (see Transport Research Institute, 2016, pp.2-4; Jacobs, 2019, pp.8-10). Of the seven RTPs in Scotland, four are classed as Model 1; there are no Model 2 RTPs; and the remaining three are regarded as Model 3 RTPs that are also responsible for the delivery of transport services that have been transferred to them by, or that are operated concurrently with, the relevant local authorities. Of the three Model 3 RTPs, two — the Shetland Transport Partnership (ZetTrans) and the South-West of Scotland Transport Partnership (SWestrans) — consist of one local authority only, respectively Shetland Islands Council and Dumfries and Galloway Council. The third Model 3 RTP is the Strathclyde Partnership for Transport (SPT), which consists of 12 local authorities and is therefore of a much greater scale than the others. SPT owns and operates the Glasgow Subway system (of which more is discussed later), and also a number of major bus stations across the west of Scotland (see https://www.spt.co.uk/).

In 2017, as part of its preparation for Scotland's second national transport strategy (see below), Transport Scotland's specially convened Research and Evidence Group launched a call for evidence on various aspects of transport, including governance (see Transport Scotland, 2018a, pp.35-42). Identifying a lack of evidence on what governance and institutional arrangements have or have not worked well in achieving transport outcomes (p.41), Transport Scotland then commissioned a more extensive assessment of current transport governance in Scotland and the rest of the UK, as well as internationally, focusing on Scandinavia and New Zealand. The resultant report (Jacobs, 2019) led Transport Scotland's short-life Roles and Responsibilities Working Group to conclude that current transport governance arrangements in Scotland are "unsustainable" and that "change needs to happen" (Transport Scotland, 2019b, p.17). It recommended that the change to transport governance in Scotland should be on the basis of some form of regional model, which involves aligning and/or combining the roles and responsibilities of Transport Scotland, the seven RTPs, and the 32 local authorities. Furthermore, it recommended that "further detailed work" be conducted, to "determine the exact form of a regional model and to develop a proposal capable of implementation". The current status of this work is unclear; although, having been impacted by the Covid pandemic, it was suggested that Transport Scotland and its partners were hoping to turn their attention "more fully" on transport governance over the summer of 2021 (Scottish Government, 2021b, p.9).

Like its fellow G-PaTRA partner countries, Norway and the Netherlands, Scotland has a national transport strategy. The strategy has its origins in a 2004 white paper, *Scotland's Transport Future* (Scottish Executive, 2004), which identified a need for a transport strategy "for the whole of Scotland which would consider the needs of all travellers and all modes" (p.51). Consequently, Scotland's first national transport strategy was published in 2006. It set out a 20-year vision for transport in Scotland, with the three key objectives of: improving journey times and connections; reducing emissions; and improving quality, accessibility and affordability (Scottish Executive, 2006a, p.6). It was complemented by two mode-specific strategy documents, on buses (Scottish Executive, 2006b) and railways (Scottish Executive, 2006c). Two years later, Transport Scotland published the results of its first ever Strategic Transport Projects Review (STPR), which set out its transport infrastructure investment priorities for the period 2012-2032 (Transport Scotland, 2008). The national transport strategy was "refreshed" in 2016 (Transport Scotland, 2016a), but remained broadly the same document (Rye and Wretstrand, 2019, p.9). Scotland's second national strategy and delivery plan was then published in 2020 (Transport Scotland, 2020a & 2020b). Covering the period to 2040, this current strategy has four interconnected priorities, to: reduce inequalities; take climate action; help to deliver inclusive economic growth; and improve health and wellbeing (p.5). Like the Dutch and Norwegian equivalents, Scotland's national strategy also calls for better integration between transport planning and spatial and land use planning (p.7). Meanwhile a second (draft) STPR has recently been published (Jacobs and AECOM, 2022). It makes 45 recommendations that focus investment on sustainable transport options, 28 of which are described as providing benefits for "individuals, families, communities and businesses across most parts of Scotland" (p.17). Interestingly, one of these recommendations (Recommendation 22, p.28) is for the development of best practice guidance and a delivery framework for the introduction of mobility hubs across Scotland, similar to those introduced, to varying degrees, in most of the other G-PaTRA partner countries.

While both national transport strategies have touched upon ferry travel, 2012 saw the publication of Scotland's first, national, 10-year ferries plan (Transport Scotland, 2012a). This plan is discussed in more detail later in this report. Other national, mode-specific policy and strategy documents, worthy of mention here, include the Scottish Ministers' High Level Output Specification (HLOS), and the associated Statement of Funds Available (SoFA). These are statutory requirements of the Railways Act 2005, and set out what 'outputs' (e.g., reduced journey times, improved timetabling, better integration with other modes) the Scottish Ministers wish to deliver on the Scottish rail network over a five-year control period, as well as the funds that will be made available to support these outputs. The most recent HLOS and SoFA cover the period 2019-2024 (Transport Scotland, 2017b & 2018b). Looking beyond this five-year planning cycle, Transport Scotland has also published a rail enhancements and capital investment strategy, which set out its new approach to planning and funding rail projects (Transport Scotland, 2018c). More recently, Transport Scotland (2020c) has produced a rail services decarbonisation action plan, which focuses on the

removal of all diesel passenger trains from the Scottish network by 2034, and on encouraging a modal shift from private vehicles (and heavy goods freight vehicles) to rail. As ensuring the adequate provision of local bus services is largely the responsibility of the 32 local authorities, Scotland-wide documents on bus services have generally consisted of *guidance* on how local authorities, RTPs, and bus operators might work together on improving services within the current regulatory regime (Transport Scotland, 2021c).

As has already been noted, each of the seven RTPs is responsible for producing a regional transport strategy, which is to be supported by a delivery plan in which RTPs set out when and how transport projects and proposals will be delivered. This is a statutory requirement, as prescribed by Section 5 of the Transport (Scotland) Act 2005; and, as well as addressing regional transport needs, must also have regard to the current National Transport Strategy. While Marsden and Rye (2010, p.675) indicate that regional strategies are delivered quinquennially (i.e. every five years), the Scottish Executive's initial guidance on preparing a regional strategy suggested that it should cover a time horizon of 10-15 years and be reviewed, revised and refreshed every four years, in line with the usual local government electoral cycle in Scotland (Scottish Executive, 2006d, p.22). In practice, though, revisions have been less frequent. If we take the regional transport strategy for the Highlands and Islands as an example (which was prepared by G-PaTRA partner HITRANS), the region's first strategy, for the period 2008-2021, was published in 2008 (HITRANS, 2008). Its first (and to date only) refresh was published in 2017, following stakeholder consultation in 2016 (HITRANS, 2017). Meanwhile, in the Tayside and Central Scotland region, the first strategy also appeared in 2008, covering the period 2008-2023 (TACTRAN, 2008); and a refresh, for the period 2015-2036, appeared in 2015 (TACTRAN, 2015).

Since the implementation of the Transport (Scotland) Act 2001, each of the 32 local authorities has also produced a *local* transport strategy (although some were already producing such plans). These have been non-mandatory, non-statutory documents, but their production has been considered good practice in Scottish local government; and essential in planning for, and justifying, any new transport funding bids, projects, or interventions (Spear and Lightowler, 2005; Marsden and Docherty, 2019, p.57). In preparation for the introduction of the Transport (Scotland) Act 2005, the Scottish Executive (2005) published guidance which recommended that local strategies reflect the emerging national and regional transport strategies (p.4). The guidance also advised that local transport strategies cover a three-year period, whilst recognising that individual strategies may need to reflect the longer periods required for large-scale transport projects (p.1). As a result, the time periods covered by local strategies have varied. In Edinburgh, for example, the local transport strategy has typically covered a five-year period (City of Edinburgh Council, 2014a), but has recently been replaced by a 10-year 'City Mobility Plan' (City of Edinburgh Council, 2021a). In Aberdeen, meanwhile, five-year strategies have remained the norm (Aberdeen City Council, 2021); ten-year plans have been adopted by the likes of the Western Isles Council (Comhairle nan Eilean Siar, 2021); while Fife is currently coming towards the end of a 20-year strategy, with a view to replacing it with a 10-year vision (Fife Council, 2021).

With regard to the public transport services in Scotland that are subject to competitive tendering processes, it would appear to be a mixed picture, in terms of the types of contract awarded by Transport Scotland, the Model 3 RTPs, and the local authorities. With local bus services, it is estimated that around 20% are subsidised (Transport Scotland, 2017a, p.14), and therefore require to be tendered, as per Section 89 of the Transport Act 1985. Here, however, information on contract types is rather sparse. Discussing the situation in the UK as a whole (i.e. outside London), White (2018, p.337) notes that "most of the contracts are on a 'net cost' basis", where the operator takes on both the cost and revenue risk. Meanwhile, KPMG (2016, p.18), citing earlier research by the Competition Commission, indicated that 58% of UK local authorities invite local bus tenders on a net cost basis only, 15% on a gross cost basis only, and 25% invite tenders using either contract type. From what little information is readily available, this slight dominance of net cost bus service contracts would appear to be reflected in Scotland. For example, the Western Isles Council expresses a preference for net cost contracts, while also observing that Shetland Islands Council opts for gross cost arrangements (Comhairle nan Eilean Siar, 2019, p.23). And SPT's most recent monthly

report of "live contracts" (2021a, p.1) indicates that only *one* of its many local bus contracts has been awarded on a gross cost basis.

In terms of rail services, while UK rail contracts have typically been awarded on a net cost basis (Smith, 2016, p.3; Nash *et al.*, 2019, p.18), Transport Scotland's franchise contracts with Abellio ScotRail and Serco (of which more is discussed later) have taken more of a 'hybrid' form (e.g., Campaign for Better Transport, 2013, p.16; Salveson, 2013, p.10; Ford, 2018),[7] and have been part of a growing move towards risk-sharing contractual arrangements between train operators and government in the UK (Powley and Bounds, 2020; Department for Transport, 2021a, p.54). With regard to ferries, the procurement of those services for which Transport Scotland is responsible (i.e. the Clyde and Hebrides services and the Northern Isles services) also appears to have moved to a hybrid arrangement, with more financial risk having been transferred from Transport Scotland to the operators. Here, for example, if an operator has underestimated its running costs, or overestimated its fares revenue, Transport Scotland will not increase its subsidy payments to reflect this (Audit Scotland, 2017, p.42).[8] As is discussed later in this present report, however, Transport Scotland's ferry service procurement processes are currently under review, so this situation may well be subject to change in the near future. Some Scottish local authorities are responsible for procuring ferry services from (usually small) external operators; but here, too, the situation regarding contract types is not particularly clear. However, in examining one particular Highland Council example (of the Cromarty-Nigg ferry service), it would appear that local authorities can have a degree of flexibility in addressing any fare revenue shortfalls by providing additional public subsidy as an alternative to fare increases by the operator (Dalton, 2021a; Highland Council, 2021).

On the subject of subsidies, public transport in Scotland, like that in the other G-PaTRA partner countries, is heavily subsidised. The level of government support can vary, depending on the transport mode. It should also be noted that estimated levels of subsidy for a particular mode can also vary, even within official, government sources. For example, in considering local *bus* services, Rehfisch (2018, p.5) indicates that 43% of the operators' revenue in 2016-17 was provided by local authorities or the Scottish Government. Transport Scotland (2017a, p.16) puts the figure at 45% in 2017, and at 48.9% for the period 2018-20 (2021d, p.68); while Rye and Wretstrand (2019, p.9) suggest that it is "around 50%". Across most bus routes, this subsidy will include reimbursements from Transport Scotland for operators providing free travel to passengers as part of the National Concessionary Bus Travel Scheme (see below). It can also include a Bus Service Operators Grant (BSOG), which is a discretionary grant paid under Section 38 of the Transport (Scotland) Act 2001. The BSOG is an annual subsidy — aimed at maintaining service networks and supporting operators to keep fares at affordable levels — which consists of a core payment plus incentives for the operation of environmentally friendly buses (Transport Scotland, 2019c).

For rail services in Scotland, subsidy estimates can vary quite dramatically: the Transport Salaried Staffs' Association (TSSA) and Common Weal (2017, p.9) suggest that it is 45.6%, noting that the ScotRail franchise is "one of the most highly subsidised in the UK"; the UK Government's rail regulator, the Office of Rail and Road (2020, p.19), puts it at 56%; the Scottish National Party (2017) claims that it is 60%, comparing it with a figure of "about 20%" in England; while Transport Scotland (2021f) puts the subsidy level at "two thirds", also noting that Scotland's railway "receives some of the highest public subsidy anywhere in the UK". Scotland's ferry service subsidies, meanwhile, have been described by Baird both as "probably the highest in Europe" (Baird, 2020, p.5) and "the highest ferry subsidies in the world" (cited in Dalton, 2021b). Transport Scotland (2021d, p.166) puts the precise figure at 62.5% of operating costs.

Scotland's public transport operators, in common with those in the other G-PaTRA partner countries, typically offer a range of concessionary fares to children, students, older people, and/or people with a disability. Significantly, though, the Transport (Scotland) Act 2005 provided the basis for Scotland's

[7] The contracts documentation can be found at https://www.transport.gov.scot/public-transport/rail/public-register#50714

[8] The contracts documentation can be found at https://www.transport.gov.scot/public-transport/ferries/ferry-services/

National Concessionary Bus Travel Scheme for Older and Disabled People, which was introduced in 2006 (prior to 2006, most local authorities in Scotland operated a local concessionary travel scheme, or a joint scheme with neighbouring authorities). The national scheme provides eligible participants with a National Entitlement Card (issued by individual local authorities) which permits free travel on nearly all registered local and long-distance scheduled bus services, including cross-border buses to Berwick-upon-Tweed and Carlisle. Only a few services, such as premium-fare night buses and city sightseeing buses, are excluded from the scheme. Cardholders in Orkney, Shetland and the Western Isles can also receive two free return ferry journeys to the Scottish mainland each year (see https://www.transport.gov.scot/concessionary-travel/). On 31 January 2022, the scheme was extended to all residents in Scotland under the age of 22 (Transport Scotland, 2021f).

Part 4 of the Transport (Scotland) Act 2019 gave Scottish Ministers the powers to introduce a national, technical standard for smart public transport ticketing. This was coupled with the publication, in 2018, of the Scottish Government's 10-year strategy for delivering a smart and integrated electronic ticketing and payment service that could be used across all modes (bus, rail, ferry, Glasgow's subway, and Edinburgh's trams) and on all services, including those provided by the smallest operators (Transport Scotland, 2018d). However, this strategy, and its delivery timeline, have come in for some criticism (e.g., Watson, 2021), not least because an earlier strategy and the launch of a Scotland-wide travel smartcard (the 'Saltire Card') had been announced back in 2012 (e.g., Macnab, 2012; Transport Scotland, 2012b), albeit with no firm delivery date attached.

Local and regional bus services

The UK-wide Transport Act 1985 effectively permitted any bus operator to start a commercial bus service, and to determine its route, fares and timetable, provided that they undertake a simple administrative process (e.g., White, 2018, p.337; Alston *et al.*, 2021, p.11). This process has two elements: 1) the licensing of the operator, which is a reserved matter and therefore the responsibility of the UK Government; and 2) the registration of the bus service(s), which is a devolved matter, and subject to the Public Service Vehicles (Registration of Local Services) (Scotland) Regulations 2001 (see https://www.legislation.gov.uk/ssi/2001/219/contents/made). Both elements are administered by the Office of the Traffic Commissioner for Scotland, which is a 'cross-border public authority' with reserved *and* devolved functions (Transport Scotland, 2016b; Transport Scotland, 2017a, p.18).

Transport Scotland (2017c, p.15) indicates that there around 200 licensed bus operators in Scotland, which vary greatly in size, from those with just a few vehicles to those with several hundred. The five largest operators are regarded as: Stagecoach,[9] who operate numerous interurban and rural services across the country; First Bus, who operate the city services in Aberdeen and Greater Glasgow; Lothian Buses, who serve the city of Edinburgh and West, Mid and East Lothian; McGills, who operate largely in the west of Scotland; and Xplore Dundee, a subsidiary of McGills, who run the city bus network in Dundee (Transport Scotland, 2017c, p.11). The vast majority of these operators are private sector companies. The one notable exception is that of Lothian Buses, which is municipally owned (91% by the City of Edinburgh Council; the remaining 9% by East Lothian, Midlothian, and West Lothian Councils) but which operates on a commercial basis, at arms length from its owners (Rehfisch, 2021, p.18). Together with Edinburgh Trams (of which more is discussed later), Lothian Buses forms part of a parent holding company, Transport for Edinburgh (TfE), which was created so that the two transport systems could operate without competing with each other, but still comply with competition law (Transport Research Institute, 2016, p.22); although this structure is currently under review (City of Edinburgh Council, 2021b).

It should also be mentioned here that, in addition to these 200 licensed bus operators, a number of bus services in Scotland are operated by 'community transport' (CT) providers (usually third sector organisations) in areas where there is no, or limited, public transport (Transport Scotland, 2017a, p.15).

[9] Stagecoach is expected to be merged with National Express in 2022 (BBC News, 2021).

Around one-quarter of these providers hold a 'Section 22' permit (i.e. in terms of Section 22 of the Transport Act 1985) and can carry fare-paying members of the general public on a not-for-profit basis. These services are registered as local bus services with the Traffic Commissioner, and are also eligible services under the National Concessionary Bus Travel Scheme for Older and Disabled People (Transport Scotland, 2020d).

It has already been noted that the Transport (Scotland) Act 2001 established processes for setting up Bus Quality Partnerships and Bus Quality Contracts. Bus Quality Partnerships allowed local authorities to use investment in infrastructure in a specified geographical area to secure service improvements. This was done by setting quality standards that bus services using the infrastructure had to satisfy. They could be formal, *statutory* partnerships (sQPs) or *voluntary* arrangements (vQPs). Bus Quality Contracts were a form of local franchising arrangements, where local authorities could specify a wide range of standards (e.g., routes, frequency, fares, vehicle types, customer service), and where exclusive 3-7 year contracts could be awarded by competitive tender (Transport Scotland, 2017a, p.19). However, Transport Scotland (2017a, p.26) noted "a disappointing level of uptake" in this quality framework: only four sQPs had been put in place, with limited success in improving bus services; while a number of vQPs had begun "with good intentions", but had "petered out with little or no evaluation of outcomes". Meanwhile, there had been "no instance of a Quality Contract Scheme being introduced or even attempted in Scotland", with local authorities and operators deeming the system "too burdensome even to attempt". With these points in mind, the Transport (Scotland) Act 2019, drawing on elements of the UK Bus Services Act 2017 (https://www.legislation.gov.uk/ukpga/2017/21/contents), paved the way for Bus Quality Partnerships to be replaced with Bus Service Improvement Partnerships (BSIPs), and for Bus Quality Contracts to be replaced with Local Service Franchises. BSIPs are to give operators a greater collaborative role (and level of accountability) in attaining service improvements (Transport Scotland, 2021g, p.16-17); while Local Service Franchises are to operate under a new franchising model that recognises the "limitations" of the previous Quality Contracts scheme (pp.38-40). The precise manner in which BSIPs and Local Service Franchises will be administered has been the subject of a recent public consultation; as have the ways in which local authorities might operate their own bus services, as per the Lothian Buses example (Transport Scotland, 2021g, pp.13-15). There may, therefore, be some significant changes to the local bus service landscape in Scotland in the years to come.

Metro

Scotland's only underground railway is in Glasgow. Opened in 1896, the Glasgow Subway is widely regarded as the world's third oldest underground system, behind only London and Budapest (e.g., Glickenstein, 2019; Fung *et al.*, 2021); although, as Barták (2021) points out, this is disputed, with some observers believing the Athens and Istanbul systems to also be older than the one in Glasgow. The Glasgow Subway system is publicly owned and operated, by STP (see https://www.spt.co.uk/travel-with-spt/subway/). It has 15 stations situated along a 10.5km circular, twin-tracked route, with each track occupying a separate tunnel. Travelling under the city centre, and the western and southern suburbs, the Glasgow Subway is unusual in that it has a narrower gauge (4 feet; or 1.22m), smaller tunnel diameter (11 feet; or 3.4m), and smaller rolling stock than most other underground railways around the world (SPT, 2017, pp.5-6). As such, it is sometimes described as a light rail network (e.g., Tetlaw, 2020, p.9; Transport Scotland, 2020b, p.13). Many other observers, however, regard it very much as a 'metro' system (e.g., Darroch *et al.*, 2016; Chen *et al.*, 2021; Department for Transport, 2021b). Given that it meets many of the criteria of a metro system, as discussed in Section 1 of this present report, the Glasgow Subway is categorised here as a metro.

In addition to its unique specification, the Glasgow Subway is unusual in that it is one of the few underground systems worldwide (if not the only one) never to have been expanded since its opening (e.g., Williams, 2021). While there have been various plans, since the 1930s, to extend the system (SPT, 2017), none has come to fruition. However, with the assistance of £246m capital funding from the Scottish Government (BBC News, 2012) its most recent (and currently ongoing) modernisation programme (see

SPT, 2021b) includes a move towards Unattended Train Operations (UTO). Here, a delayed introduction of new rolling stock and control systems is now expected in 2022 (Dalton, 2020; Gilmour, 2021).

Tram and light rail services

Like many cities in the other G-PaTRA partner countries, Scotland's four largest cities of Aberdeen, Dundee, Edinburgh and Glasgow withdrew their tram systems in the late-1950s and early-1960s. To date, however, Scotland has not really experienced a tram 'renaissance', such as those witnessed in Denmark and Germany. Currently, Scotland only has one tram system, in the capital city of Edinburgh. Opened in 2014, it consists of a single 14km route, with 16 stops, that runs from the city centre to Edinburgh Airport, to the west of the city. It is operated by the company Edinburgh Trams (see https://edinburghtrams.com), which is wholly owned by the City of Edinburgh Council and forms part of the same parent company (Transport for Edinburgh) that runs the aforementioned Lothian Buses network.

The Edinburgh trams project has been a controversial and contentious one (e.g., Lowe, 2011; Desjardins *et al.*, 2014; McCrone, 2018). First proposed in 2000, as part of the City of Edinburgh's local transport strategy, three tram lines were originally envisaged: one to Newbridge, to the west of the city; one to Danderhall, in the south-east; and a north Edinburgh 'loop' that would take in Granton and Leith (see Transport Initiatives Edinburgh, 2002, p.48). Subsequently, the plans for the south-eastern line were shelved; and, in 2004, two Bills were submitted to the Scottish Parliament, with a view to authorising the construction and operation of the northern loop line (Line One), and the western route (Line Two).[10] When these Bills became law, in March-April 2006, plans were then announced to construct the two lines in four phases: Phase 1a, from Newhaven to the airport, via the city centre; Phase 1b, from Haymarket in the city centre to Granton; Phase 2, from Newhaven to Granton, completing the northern loop; and Phase 3, extending the western line from Ingliston to Newbridge (see Edinburgh Trams, 2006). However, the final business case, submitted to the Scottish Government in December 2007 by the City of Edinburgh Council and its then project management company, Transport Initiatives Edinburgh (tie), included only Phases 1a and 1b. Then, in April 2009, the Council decided to postpone Phase 1b, because of the economic downturn (see Audit Scotland, 2011, pp.39-40; Karou and Hull, 2014, p.3).

Prior to the approval of its final business case, the City of Edinburgh Council had been advised that the Scottish Government (via Transport Scotland) would be willing to commit up to £500m to Phase 1a of project, on the understanding that the business case showed that: the capital costs would not exceed £545m; the project would deliver more benefits than costs; and the tram service, once operational, would not require any ongoing subsidies (Audit Scotland, 2011, p.3). The Council's business case costed Phase 1a at £498m (Audit Scotland, 2011, p.23). However, various contractual disputes and other difficulties resulted in delays, rising costs, and the Phase 1a line being terminated in the city centre at York Place, instead of continuing to Newhaven in the north (Audit Scotland, 2013, p.19). When Edinburgh's tram system eventually opened in 2014, three years behind schedule, the final costs of the curtailed Phase 1 were reported as being £776m (City of Edinburgh Council, 2014b); although some observers indicate that when loan interest payments are also taken into account, the eventual cost will be over £1 billion (e.g., Love *et al.*, 2017, p.32). Edinburgh, therefore, took delivery of "half a line at double the cost" (Miller, 2011). The circumstances behind the introduction of the Edinburgh tram system have been the subject of a public inquiry, which opened in 2015 (see https://www.edinburghtraminquiry.org/). However, at the time of writing this present report (December 2021), the findings have still to be published: a situation that has caused its own controversy (e.g., Swanson, 2021).

Despite these ongoing difficulties, in 2019 the City of Edinburgh Council approved and commenced work on the outstanding section of Phase 1a, from York Place in the city centre to Newhaven, observing that "a

[10] Details of the Edinburgh Tram (Line One) Bill, and the subsequent legislative Act, can be found at https://archive2021.parliament.scot/parliamentarybusiness/bills/25121.aspx; those for the Edinburgh Tram (Line Two) Bill can be found at https://archive2021.parliament.scot/parliamentarybusiness/Bills/25156.aspx

number of lessons had been learned" from its earlier experiences (City of Edinburgh Council, 2019, pp.12-13). This section is expected to be operational in Spring 2023 (see https://www.edinburgh.gov.uk/tramstonewhaven/).

In terms of light rail, it is perhaps worth mentioning here that "Intervention 9 - Development of Glasgow 'Metro' and Edinburgh Mass Transit strategies", is one of the 20 interventions recommended for further consideration as part of the second STPR (Jacobs and AECOM, 2021, pp.50-52). The Edinburgh Mass Transit proposals include the possibility of a cross-Forth light rail transit system to and from Fife; while the Glasgow Metro plans may include tram and/or light rail services that would complement, and become integrated with, the existing bus and heavy rail networks within the Glasgow conurbation. With these points in mind, Scotland's tram and light rail offering may be set to increase in future years.

Long-distance coach services

In 1980, almost 20 years before devolution, the express coach market across the UK was deregulated by the Transport Act 1980. In England and Wales, National Express (a subsidiary of the National Bus Company, a state-owned holding company) was able, "literally overnight", to recast its express coach services, before smaller competitors could gain a substantial foothold in the market. In Scotland, though, the equivalent state-owned Scottish Bus Group (SBG) was slower to develop long-distance services within Scotland, and thus independent companies made a greater impact on the market (White and Robbins, 2012, p.32). In England and Wales, the Transport Act 1985 then required the sale of the National Bus Company's subsidiaries (including National Express) to the private sector, but did not place a similar obligation on the SBG. It was not until the introduction of the Transport (Scotland) Act 1989 that the SBG was restructured into ten separate (and largely regional) operating companies before being privatised. These included Scottish Citylink, a company formed in 1985 to coordinate the long-distance express services offered by the other SBG subsidiaries (Butcher, 2010, p.6; Rehfisch, 2021, p.18).

Scottish Citylink was bought out by its management in 1990 (Duberga, 2021, p.378), but was then acquired by National Express in 1993. When National Express then also acquired the ScotRail franchise, the UK's Monopolies and Mergers Commission forced it to divest itself of the Scottish Citylink operations in 1997. Scottish Citylink was then acquired, in 1998, by Metroline, formerly a subsidiary of the publicly-owned London Buses Limited (Sinclair, 1999). Following the sale of Metroline to the Singapore based investment company DelGro (later Comfort DelGro), Scottish Citylink, in 2005, became part of a joint venture, with 65% of the company now being owned by Comfort DelGro, and 35% by one of its earlier competitors, Stagecoach (White and Robbins, 2012, p.32). Throughout its various manifestations, Scottish Citylink has been regarded as the dominant player in the Scottish express coach market (e.g., White and Robbins, 2012, p.36; Steer Davies Gleave, 2016b, p.260; Schneider, 2017, p.1). Other express coach operators in Scotland include: Megabus; other Stagecoach subsidiaries, such as Stagecoach West Scotland, Stagecoach Highlands, and Express City Connect (the branded Stagecoach East Scotland network); and, for cross-border services to and from England, National Express.[11] As some observers point out, however, quantifying the Scottish express coach market share is difficult, because operators are not required to submit all ridership data to government (White, 2018, p.337); and when statistics *are* available, these are generally combined with other, local bus services (Schneider, 2017, p.1). Like those for local buses, operator licences for long-distance coach services are administered by the Office of the Traffic Commissioner (Steer Davies Gleave, 2016b, p.250).

While long-distance, express coach services in Scotland are generally regarded as operating on a purely commercial basis, most bus and coach journeys that begin and end in Scotland (or just over the border with

[11] As has already been noted, however, Stagecoach and National Express are expected to merge in 2022. The merger agreement specifies that Stagecoach will sell off its Megabus operations, as well as its 35% stake in Scottish Citylink (BBC News, 2021). This will result in a significantly different bus and coach operator landscape from the one presented here.

England, at Carlisle or Berwick-upon-Tweed) fall under the Scottish Government's National Concessionary Bus Travel Scheme; therefore operators can claim reimbursement from Transport Scotland for providing free travel to passengers aged 60 and over, and to passengers with a disability. This is in contrast to the situation in England and Wales, where no government-funded concessionary travel is available on express coach services (BBC News, 2011; Butcher, 2020, p,22).[12]

Ferry services

Scotland has an extensive ferry network, with an estimated 66 routes connecting the mainland and the country's islands (Audit Scotland, 2017, p.55). These services are managed by a range of public and commercial operators. Transport Scotland manages and subsidises 33 of these routes, through two main ferry contracts: the Clyde and Hebrides Ferry Services (30 routes), operated by the publicly owned company, CalMac Ferries; and the Northern Isles Ferry Services (three routes), run by the commercial operator, Serco NorthLink Ferries. Twenty-two of the 66 routes are subsidised by local authorities (i.e. Argyll and Bute, Highland, Orkney Islands, and Shetland Islands), with some of the routes being operated by publicly-owned companies (most notably, Orkney Ferries and Shetland Islands Council Ferry Services), and the others being contracted out to commercial operators. The private sector directly operates eight routes without any public funding, and one route subsidised by Transport Scotland and Argyll and Bute Council. Meanwhile, two routes are operated by community groups, one of which receives public sector subsidy from Argyll and Bute, and Highland Councils (Audit Scotland, 2017, p.11).

With regard to ferry subsidies, the Scottish Government, in 2008, introduced its Road Equivalent Tariff (RET) scheme, to deliver "cheaper fares for islanders, tourists and businesses", with the ultimate aim of boosting the economies of Scotland's "remote and fragile communities" (Stevenson, 2008). The principle of the RET scheme is that fares are set (and reviewed annually) on the basis of travelling an equivalent distance by road, plus a fixed fare element to cover costs such as maintaining the vessels and harbour infrastructure (Transport Scotland, 2021h). The RET scheme was rolled out on the Clyde and Hebrides network between 2008 and 2015. A recent evaluation of its impact (Stantec, 2020) observed a "broad consensus" that RET "has been a good thing for the islands" (p.5). But it also found significant dissatisfaction with the scheme amongst particular island communities, largely in relation to the pressure placed on vessel capacities by the increased tourist traffic during the summer months, with the result that islanders can find it increasingly difficult to make their own vehicle bookings (p.3). Frustration has also been expressed by Northern Isles communities, in that the RET scheme has not been introduced on the three routes managed by Transport Scotland (e.g., BBC News, 2018; Munro, 2019; *Orcadian*, 2021). While Orkney and Shetland residents currently receive a 30% "islander fare" discount on Serco NorthLink services (see https://www.northlinkferries.co.uk/islander/), the introduction of a "variant of the RET scheme", slated for 2018 (Transport Scotland, 2017d), has not yet materialised. While further discounts have been applied to services to and from Shetland (Grahame, 2018), work on introducing RET on *all* Northern Isles routes was "continuing", as of September 2021 (Scottish Parliament, 2021a)

As has already been noted, Scotland has a ferries plan, which sets out strategic guidance for the provision of ferry services for the period 2012-2022 (Transport Scotland, 2012a). It is to be succeeded by an Islands Connectivity Plan, that will consider island connectivity more broadly, in terms of not only ferries, but also fixed links and aviation (Transport Scotland, 2020b). However, the overall governance of Scotland's ferry services has been the subject of considerable controversy and debate in recent years. Much of the discussion has centred on the legal position regarding the necessity or otherwise of Transport Scotland conducting competitive tendering exercises for its subsidised ferry routes (see Fraser of Allander Institute, 2017). Indeed, in 2017, the Scottish Government announced that a policy review would be undertaken, to consider the legal and financial implications of ferry service procurement (see Scottish Parliament, 2017).

[12] Northern Ireland, meanwhile, has a concessionary scheme similar to that in Scotland, but which also allows free cross-border travel to and from the Republic of Ireland for passengers aged 65 or over (see https://www.translink.co.uk/usingtranslink/ticketsandtravelcards/concession)

While the emerging findings of this review appeared in late 2017 (Transport Scotland, 2017e), the final results have not yet been published. The Scottish Government has recently insisted that the review "remains on track", and hopes to publish the provisional outcomes of the review at the end of 2021 (see Scottish Parliament, 2021b).

Also in 2017, a review by Scotland's spending watchdog, Audit Scotland, acknowledged that Scotland's ferry services were "performing well" in terms of timeliness and passenger satisfaction (p.5), but was critical of the "complicated operational and funding arrangements" surrounding these services (p.11), as well as the fact that the national ferries plan focused only on the Clyde and Hebrides network (p.5). It recommended that Transport Scotland "develop a Scotland-wide, long term strategy for its network of subsidised ferries" (p.6), "improve its approach to procuring ferry services" (p.7), and "strengthen its contract management arrangements" (p.7). In a report on the impact of its recommendations, Audit Scotland (2019) subsequently observed that while progress was being made in developing the long-term strategy, its finalisation was "still some way off" (p.8). It urged Transport Scotland to "prioritise its efforts in this area" (p.8).

Controversy has also surrounded Transport Scotland's procurement of *vessels*, with much of this relating to a disputed contract, for two new ferries, between Caledonian Maritime Assets Ltd (CMAL; a company wholly owned by the Scottish Ministers) and the commercial shipbuilding company, Ferguson Marine Engineering. This dispute resulted in the contract being "materially behind schedule and over budget". Consequently, Ferguson went into administration, and was then taken into public ownership (e.g., BBC News, 2019). A resultant parliamentary inquiry concluded that there had been a "catastrophic failure in the management of the procurement" of these two vessels, and that the procurement processes and structures "are no longer fit for purpose" (Scottish Parliament Rural Economy and Connectivity Committee, 2020, p.1). In a recent parliamentary debate, criticism of this "ferry crisis" (Scottish Parliament, 2021c, column 88) has continued, with the situation being described (at least by opposition Members of the Scottish Parliament, or MSPs) as "dismally poor" (col. 92), "long past being an emergency" (col. 102), "shambolic and a disgrace" (col. 106), and "a mess and dysfunctional" (col. 106). It is perhaps fair to conclude, then, that the governance of ferry services in Scotland might not be regarded by G-PaTRA partners as an exemplar of good practice.

National and regional rail services

As was noted earlier, the framework for the regulation and administration of Scotland's rail services has been influenced mostly by two pieces of legislation: the Railways Act 1993, which privatised the UK's railway network; and the Railways Act 2005, which devolved some additional rail powers to the Scottish Government, largely on franchises and infrastructure. Transport Scotland, acting on behalf of the Scottish Ministers, has absorbed these rail powers, and is responsible for the letting and management of Scotland's two rail franchises (ScotRail and the Caledonian Sleeper); as well as being responsible for specifying and funding the maintenance, renewal, or expansion of the rail infrastructure in Scotland, which is owned and managed by Network Rail (an arms-length public body, part of the UK Government's Department for Transport).

The ScotRail franchise operates around 2,400 train services each day (Docherty, 2021, p.1), which equates to around 95% of all rail services in Scotland (TSSA and Common Weal, 2017, p.13; Rehfisch, 2021, p.7). These include intercity routes, as well as suburban services, particularly in the West of Scotland, which has the largest suburban rail network in the UK outside of London (Jacobs and AECOM, 2021, p.51). The current ScotRail franchise holder is Abellio, a company wholly owned by the Dutch state-owned railway company, *Nederlandse Spoorwegen*. When the ScotRail contract was awarded to Abellio in 2014, at a total value of around £7.7 billion over 10 years, it was described as the highest value contract ever let by the Scottish Government (Transport Scotland, 2019d, p.6). However, following constant and extensive public and political criticism of Abellio's performance levels and customer service (e.g., Dalton, 2016; Bussey, 2018; King, 2019), the Scottish Government has decided to terminate the contract three years

early, in March 2022 (Transport Scotland, 2019e), and to instead deliver the ScotRail services through a company wholly owned and controlled by the Scottish Government, in line with its 'Operator of Last Resort' duty as specified in Section 20 of the Railways Act 2005.

The other franchise managed by Transport Scotland — the Caledonian Sleeper franchise — covers the overnight passenger services travelling between London Euston and the Scottish towns and cities of Aberdeen, Edinburgh, Fort William, Glasgow and Inverness. Previously part of the overall ScotRail franchise, the sleeper services have been awarded separately since 2015. The current holder of the (15-year) contract is the British company Serco, who, as has already been seen, also hold the Northern Isles ferry services contract.[13] In addition to the two Scottish rail franchises, there are a number of cross-border services that operate between Scotland and England. These franchises are awarded by the UK Government's Department for Transport; and the current operators are London North Eastern Railway (LNER), Avanti West Coast, CrossCountry Trains, and First TransPennine Express (Rehfisch, 2021, pp.7-8; Unity Consulting, 2021, p.17).

It should be emphasised here, though, that these current franchise-based arrangements for rail services in Scotland, and the rest of the UK, are to end in the near future. From 2023, a new public body, Great British Railways, will exist, that will run and plan the UK rail network, own the infrastructure, and receive the fare revenue. It will also set most fares and timetables. Franchising will be replaced by 'Passenger Service Contracts', that are expected to attract far greater competition, and will include strong incentives for operators to "run safe, high-quality, punctual services, manage costs, attract more passengers and innovate" (Department for Transport, 2021a, p.7). It is also noted, however, that "existing devolved administrations and authorities across Great Britain will continue to exercise their current powers and to be democratically accountable for them" (p.30); and that "they will continue to award contracts and set fares on their services" (p.41). Furthermore, the UK Government is to "explore options with Transport Scotland to enable the railway in Scotland to benefit from the reforms on the wider network of Great Britain" (p.42). With these points in mind, the future regulatory landscape for rail passenger services in Scotland is likely to look somewhat different from the current situation described above.

[13] Full details of the two Scottish rail franchises can be found at https://www.transport.gov.scot/public-transport/rail/

8. Comparative discussion of the situation in the six G-PaTRA partner countries

As has been seen throughout the preceding sections of this report, each of the six G-PaTRA partner countries has its own distinct and complex system of public transport regulation, administration and operation. While there are some similarities between certain aspects of the countries' approaches, there are also some notable distinctions. In this final section of the report, the key similarities and differences across the six countries are summarised and discussed: firstly in terms of the key aspects of public transport policy and administration; and secondly in terms of the six main modes of transport, and the ways in which these services are procured and delivered. To aid the reader in this regard, two comparative tables have been created, each one containing brief summaries of the situation within each country. Table 1 overleaf focuses on national, regional and local transport policy and governance, and on various financial aspects of public transport provision; Table 2, on page 67, focuses on the procurement and operation of the various public transport modes.

National, regional and local transport strategies

If we consider firstly the existence of a *national* integrated transport strategy, three of the six partner countries — the Netherlands, Norway and Scotland — have such a plan. Of the three, Scotland's is the most recent, first appearing in 2006. The Dutch and the Norwegians can trace the origins of their national strategies to the 1970s and the 1990s, respectively; albeit that these earlier versions concentrated very much on *road* capacity and investment.

While the other three countries — Belgium, Denmark and Germany — do not have a national integrated strategy, each one does produce a national plan for its rail services (as does Scotland). In addition, Germany produces a country-wide transport *infrastructure* plan.

Integrated transport strategies or mobility plans are far more common at the regional or county level. Indeed, in five of the six countries, the production of such plans would appear to be a statutory obligation. The one exception is Denmark, although there is evidence there of at least two of the five regions having produced a strategy on a voluntary basis.

At the more local level, none of the six countries has introduced a *statutory* requirement for transport or mobility plans to be produced by cities, towns, municipalities and other smaller area authorities. Despite this, the production of such plans is largely considered to be good practice, and, in five of the six countries, numerous examples can be found. The one exception is Norway, where there is little evidence of mobility plans being produced at the municipality level.

Regional transport bodies

With the exception of Belgium (where public transport is, in any case, dealt with at the regional government level), the formation of some form of regional transport body or public transport authority (PTA), to procure and/or coordinate public transport, is commonplace throughout the G-PaTRA partner countries. At first glance, these bodies may appear very similar, in terms of their roles and responsibilities; however there are some significant differences. In Germany, the Verkehrsverbünde can take a number of forms, and are regarded as unique in that they include public transport operators in policy-making processes. In Scotland, meanwhile, four of the seven Regional Transport Partnerships have no procurement powers, and the network as a whole is therefore considered much weaker than its equivalents throughout continental Europe.

Table 1: Key aspects of public transport policy and administration: cross-country comparison						
Aspect	**G-PaTRA Partner Country**					
	Belgium	**Denmark**	**Germany**	**Netherlands**	**Norway**	**Scotland**
National Integrated Transport Strategy	No, but national plan for rail services.	No, but national plan for state railway. Also some national strategies on sustainable public transport provision.	No, although there is a national transport infrastructure plan, as well as a national rail masterplan.	National transport strategies have existed since the late 1970s; most recently the *Vision on the Future of Public Transport 2040*.	National Transport Plan produced every four years by Ministry of Transport. Current plan covers period 2018-2029.	Second National Transport Strategy published in 2020, covering period to 2040. Also national plans for ferries and railways.
Regional Transport Strategies	Three regions each produce a mobility plan.	Evidence of PTA-produced regional mobility plans in North Jutland and the Capital Region, with the latter cited as a long-standing exemplar.	Not at the state (Länder) level, but counties and county-free cities are obliged to produce a public transport plan (NVP).	The 12 provinces and two metropolitan regions are obliged to produce their own traffic and transport plans (PVVPs/RVVPs).	Every four years, each county is responsible for producing a regional area and transport strategy and plan.	Regional strategies are the statutory responsibility of the Regional Transport Partnerships (RTPs). Periods covered can vary.
Local Transport Strategies	Municipalities, and wider groups of municipalities, encouraged to produce mobility plans.	The majority of large cities, and many smaller cities, have mobility plans.	Many German cities now also (voluntarily) produce a transport development plan (VEP), that is wider in scope than the NVP.	Although under no legal obligation, several city municipalities produce their own plans (GVVPs).	No statutory requirement for municipalities to produce mobility or transport plans. Little evidence of any voluntary arrangements.	Each of the 32 local authorities produces a local plan. These are non-statutory but considered good practice.
Regional Transport Bodies	Not as such: the three regional governments act as transport authorities.	Six 'transport companies', (Trafikselskaber), collectively owned by regions and municipalities	Verkehrsverbünde (VVs). Number unclear, with estimates ranging from 58-75.	15 public transport authorities (PTAs), representing 12 provinces and two metropolitan regions	13 public transport authorities (PTAs), largely at the county level.	Seven RTPs, but only three have any procurement powers.
Contract Types	Largely direct awards to three publicly-owned companies: MIVB-STIB, De Lijn, and TEC. Some bus services sub-contracted in Flanders and Wallonia, traditionally on gross cost basis.	Gross cost contracts dominate, except for ferry services. Larger operators are advocates of net cost contracts.	Mode-dependent. Net cost contracts dominate with regional rail services, but move towards hybrids. Gross cost contracts dominate for bus services.	Net cost contracts dominate. But some movement towards hybrid approaches, and multi-modal concessions.	Gross cost contracts dominate, but numerous hybrid arrangements also exist. Since 2018, rail service tendering has largely been done on a net cost basis.	Mode-dependent. Net cost contracts dominate with bus services, but rail and ferry contracts are more hybrid in nature.
Subsidy Levels	Estimates range from 54% in Brussels, to 65% in Wallonia, to 80-85% in Flanders.	For local bus services, estimates range from 55-61%. For public transport as a whole, 50% is estimated.	Country-wide estimates vary significantly, from 24% to 63%. Evidence of geographical differences in subsidy levels across the country.	Estimated at around 50%, but significant differences between urban and rural areas.	Country-wide figures are lacking. In the Greater Oslo area, a 60% subsidy level is estimated.	Mode-dependent. For bus services, estimates range from 43-50%. For rail, they range from 46-66%. For ferries, 62.5% is estimated.
Concessionary Fares	Largely regional schemes, but also federal govt. free travel scheme for almost all public sector employees.	National scheme, set out in Joint National Travel Regulations. Express coach concessionary fares reimbursed by national govt.	A range of schemes, some prescribed by Federal law, some by the Länder. Job tickets and student Semestertickets increasingly common.	Various national concessions apply. The student travel product, funded by the Ministry of Education, is prominent here.	Some mandatory national concessions (e.g. for elderly people, students and military personnel) and some regional variations.	National scheme for bus travel (incl. express coaches) for older and disabled people; recently extended to those aged under 22. Plus Road Equivalent Tariff scheme on some ferries; and various operator-specified concessions on other modes.

Contract types

With regard to the types of contracts awarded to public transport operators through competitive tendering processes, the situation across the six countries is decidedly mixed, and is often dependent on the mode of transport being procured. With local bus services, for example, gross cost contracts are favoured in Belgium, Denmark, Germany, and Norway; but net cost contracts are preferred in the Netherlands and in Scotland. With rail services, net cost contracts dominate in Germany and Norway, in contrast to the gross cost approach preferred in Denmark. Meanwhile, throughout most of the partner countries, some movement is observed towards the use of risk-sharing, 'hybrid' contracts.

Subsidy levels

The situation regarding subsidy levels is complex, with (sometimes widely) varying estimates being reported in the literature — a situation that is compounded by what appears to be a lack of readily available, and comparable, data on the subject. For instance, in considering public transport as a whole, a subsidy level of around 50% is estimated for Denmark and the Netherlands; whereas estimates range from 24% to 63% in Germany. It should also be noted that estimated subsidy levels can vary widely, depending on the mode of transport being discussed. In Scotland, for example, estimated subsidies for bus services range from 43-50%, those for rail services range from 46-66%, while a subsidy level of 62.5% is reported for ferry services. There can also be regional differences within particular countries. In Belgium, the subsidy level in the Brussels-Capital region is reported at around 54%; but this rises to 65% in Wallonia, and to 80-85% in Flanders.

Concessionary fares

All six partner countries have a range of concessionary fares that are applicable to specific passenger groups, or on particular modes of transport. Generally speaking, these are a mixture of country-wide schemes prescribed by the national or federal government; more locally-focused schemes, coordinated by regional governments and their transport authorities; and non-statutory, commercially-driven concessions provided by the operating companies. In terms of *national* schemes, for example, Belgium's 'third payer' approach provides free travel for almost all public sector employees; Denmark's Joint National Travel Regulations set out the concessions applied to young children, students, older people, and disability pension recipients; the Dutch Ministry of Education's student travel product is prominent in the Netherlands; Norway has national mandatory concessions for students, elderly people and military personnel; while Scotland's National Concessionary Bus Travel Scheme for Older and Disabled People has just been extended to all residents of Scotland aged under 22.

With the more local schemes, meanwhile, each of the three Belgian regions prescribes its own arrangements; with Flanders, for example, offering free travel for children under six, disabled people, and jobseekers, and discounted fares for families and older citizens. Many of the German Länder have replaced national concessionary arrangements with their own schemes, in which the Verkehrsverbünde have negotiated and introduced discounted ticketing arrangements for "special groups", such as students, senior citizens and unemployed people. While in Norway, concessions for children can vary between counties.

Table 2: Responsibilities for procurement and operation of various travel modes: cross-country comparison						
Travel mode	**G-PaTRA Partner Country**					
	Belgium	**Denmark**	**Germany**	**Netherlands**	**Norway**	**Scotland**
Local and Regional Bus Services 	***Procurement:*** Regional govts. Flanders and Wallonia obliged to subcontract some services. ***Operators:*** Publicly-owned MIVB-STIB, De Lijn, TEC. Plus Hansea, Keolis, etc.	***Procurement:*** By Trafikselskaber and competitive tender. ***Operators:*** Arriva and Keolis dominate, but also numerous small companies. Municipal operator BAT on island of Bornholm.	In largest cities, direct awards to municipally-owned operators are typical. Tendering more common in smaller towns and rural areas. Overall, 30-35% of services delivered by private companies.	***Procurement:*** by PTAs and competitive tender, with exception of Amsterdam, who make direct award to municipal operator GVB. ***Operators:*** Arriva, Connexxion and Keolis dominate.	***Procurement:*** by PTAs and competitive tender. ***Operators:*** The dominant operator is the state-owned Vy Buss. Others include Tide, Nobina, and the municipally-owned Unibuss.	Largely commercial. ***Licensing:*** Office of Traffic Commissioner. ***Operators:*** Various; largest are Stagecoach, First Bus, Lothian Buses, and McGills
Metro 	Brussels only. Direct award to MIVB-STIB.	Copenhagen only. ***Procurement:*** The state- and municipally-owned company Metroselskabet. ***Operator:*** Private company Metro Service	Four systems, in Berlin, Hamburg, Munich and Nuremberg. All directly awarded to municipally-owned operators.	Two systems, in Amsterdam and Rotterdam. Both contracts awarded directly to municipal operators (GVB and RET).	Oslo only. Direct award, by the PTA Ruter, to the municipally-owned Sporveien.	Glasgow only. Owned and operated by the RTP, Strathclyde Partnership for Transport.
Tram and Light Rail 	Five systems. ***Procurement:*** Regional govts., by direct awards. ***Operators:*** MIVB-STIB, De Lijn, TEC.	One light rail system in operation; two more under construction. ***Procurement:*** Special municipal companies, with support from PTAs. ***Operators:*** Keolis (two systems) and Metro Service.	Over 50 systems. ***Procurement:*** Direct awards by authorities (including VVs) defined by Länder. ***Operators:*** Vast majority operated by city-owned companies. One exception in Görlitz – operator partly owned by Transdev.	Four tram systems and one 'hybrid'. ***Procurement:*** All except Utrecht's tram system were direct awards to municipal operators. ***Operators:*** GVB, RET and HTM (all municipal companies), plus Qbuzz in Utrecht.	Three systems. ***Procurement:*** By the relevant PTAs. ***Operators:*** Oslo's system operated on direct award basis by the municipally-owned Sporveien. Bergen and Trondheim systems operated by private companies - Keolis and Boreal.	Edinburgh only. Operated by Edinburgh Trams, a company wholly owned by the City of Edinburgh Council.
Express Coaches 	Limited market. ***Procurement:*** Regional govts. for domestic services, usually by direct award; Federal govt. for intnl. licences. ***Operators:*** De Lijn, TEC, Eurolines, Flixbus, etc.	Largely commercial network; not well developed. ***Licensing:*** Danish Transport, Construction & Housing Auth. (TBST) ***Operators:*** Gråhundbus, Abildskou, etc.	Deregulated since 2013. ***Licensing:*** For domestic services, by authorities defined by Länder. Intl. services by Fed. Ministry of Transport. ***Operators:*** FlixBus (95% of market), Eurolines, RegioJet, etc.	Limited market. ***Procurement:*** By PTAs and competitive tender for domestic services. Intl. licences issued by national quality authority Kiwa Register. ***Operators:*** Arriva, Bravo, FlixBus, Connexxion, etc.	Deregulated since 2003, but a few routes subsidised. **Licensing:** By the counties. ***Operators:*** Market dominated by NBE (a marketing cooperative of several operators) and the state-owned Vy Buss.	Deregulated since 1980, but included in national concessionary fares scheme. **Licensing:** Office of Traffic Commissioner ***Operators:*** Scottish Citylink, Megabus, Stagecoach, etc.
Ferries 	Some free services, some fare-based. ***Procurement:*** Agencies of the three regional govts. ***Operators:*** Unclear, but appears to be a mix of publicly-owned (e.g. VLOOT) and private operators.	***Procurement:*** TBST for regional services. Municipalities for local services. ***Operators:*** 50%-state-owned Danish Ferries dominate. But numerous private and municipal companies also operate.	Overall situation unclear, but it *appears* that services in the largest cities are operated by city-owned companies; while those elsewhere are delivered either by municipal or private operators.	Some definitional idiosyncrasies as to what constitutes waterborne public transport. Very few services subject to competitive tender. Services delivered by a mix of private and municipal companies.	***Procurement:*** For national trunk road links, regional offices of NRPA. For regional road links and water buses, etc., the PTAs. For coastal route, Ministry of Transport. ***Operators:*** Various, on competitive tender basis.	Services largely subsidised, but some commercial. ***Procurement:*** By Transport Scotland and by some local authorities. ***Operators:*** Mix of publicly-owned (e.g. CalMac) and private (e.g. Serco) companies.
National and Regional Rail 	***Procurement:*** Fed. govt. (Fed. Public Service for Mobility and Transport) ***Operators:*** Of domestic services, the state-owned NMBS-SNCB. Of intl. services, DB, SNCF, Eurostar, etc.	***Procurement:*** TBST, except for some private railways. ***Operators:*** State-owned DSB dominate, plus Arriva in Mid and West Jutland. Various municipal or private companies operate the private railways.	***Procurement:*** For national, Fed. govt (licensing); for local/regional, authorities defined by Länder. ***Operators***: State-owned DB has 96% share of national services. DB Regio has 72% share of local and regional services. Others include Abellio and Keolis.	***Procurement:*** For national mainline services, direct award by Ministry of Infrastructure to state-owned Dutch Railways (NS). Small number of regional services tendered by PTAs. ***Operators:*** NS has 95% share of passenger km. Others include Abellio and Keolis.	***Procurement:*** Norwegian Railway Directorate. ***Operators:*** Most services still operated by state-owned Vy. But since tendering was introduced in 2018, some now operated by Go-Ahead and by SJ (Sweden's state railway).	***Procurement:*** For Scottish services and sleepers, Transport Scotland. For other cross-border services, UK Dept. of Transport. ***Operators***: Abellio (to March 2022 only), Serco, LNER, Avanti, etc.

Local and regional bus services
With the exception of Scotland, where the local bus market is largely deregulated, and where operators simply go through a licensing and registration process, the procurement of bus services in the G-PaTRA partner countries is generally conducted at the regional, county, or major city level. The approaches used, however, can vary. In Denmark, Germany, the Netherlands, and Norway, most or all of the procurement processes are carried out by the appropriate regional transport bodies; while in Belgium, these are done by the three regional governments.

And while Denmark, the Netherlands (except in Amsterdam), and Norway typically open their bus services provision to competitive tender processes, Belgium and Germany use more of a mixed approach, where both direct awards and competitions are utilised. In Belgium, none of the bus services in the Brussels-Capital Region is outsourced; but Flanders has an obligation to subcontract up to 50% of its bus lines, while Wallonia must outsource a minimum of 29% of its services. In Germany, meanwhile, direct awards (usually to publicly-owned operators) are typical in the largest cities, with tendering being more common in the smaller towns and rural areas.

With regard to the operators themselves, state- or municipally-owned companies dominate the local bus markets in Belgium, Germany, and Norway; whereas private operators are dominant in Denmark, the Netherlands (except in Amsterdam), and Scotland (excluding Edinburgh).

Metro
All six G-PaTRA partner countries have at least one metro system. Here, direct awards (by regional transport bodies or similar authorities) to municipally-owned operating companies are most common. Indeed, the only exception is Copenhagen's Metro service in Denmark, which is tendered by a specially-created franchising authority Metroselskabet I/S, but with the current incumbent being a private company, Metro Service A/S.

Tram and light rail
All six G-PaTRA partner countries also have at least one tram or light rail system, but the number and extent of these ranges from Scotland's sole tram line in Edinburgh, to the more than 50 tram, light rail, or 'tram-train' systems across Germany. As with metro services, the operational contracts are typically awarded by the regional transport bodies, or other similar authorities that have sometimes been created specifically to oversee the construction and operation of new light rail systems. Here, though, the picture becomes somewhat mixed. Scotland's single line, Belgium's five systems, three of the four networks in the Netherlands, and all but one of Germany's 50-plus systems, have been procured through direct awards to publicly-owned operators. In contrast, two of Norway's three systems are operated by private companies, as will be Denmark's three systems (two of which are currently under construction).

Express coaches
With regard to long-distance coach services, two themes emerge from the literature. Firstly, in three of the six partner countries — Belgium, Denmark and the Netherlands — the market is described as being limited and not particularly well developed. This is regarded as being due to the relatively small surface size of the countries (in Belgium and the Netherlands), and the existence of an extensive rail network (in Denmark and the Netherlands). Secondly, in four of the six countries — Denmark, Germany, Norway and Scotland — the market is almost entirely deregulated, with operators requiring only a licence to begin a service. In Denmark and Scotland, *domestic* coach service licences are issued by central government agencies; in Germany and Norway, these are dealt with at the county and (in Germany) the 'county-free city' level. Of the other two partner countries, Belgium (more specifically in Flanders and Wallonia) typically makes direct

awards for domestic coach services to the same municipally-owned companies (De Lijn and TEC) that operate most local bus services; although Flanders has plans to remove De Lijn's monopoly on long-distance coach services. In the Netherlands, meanwhile, domestic coach services are tendered by the public transport authorities, with the contract holders typically being private companies, including currently Arriva, Bravo, and FlixBus.

It should also be noted that, despite the long-distance coach services in Norway and Scotland being largely commercial in nature, they do still receive varying levels of public financial support. In Norway, a few routes receive support for serving local markets and accepting local fares; while in Scotland, domestic coach services are included in the National Concessionary Bus Travel Scheme for Older and Disabled People, therefore operators are reimbursed by government for lost fares revenue.

Ferries

As was noted in the introductory section of this present report, the one transport mode on which relatively little literature could be found (at least in English), was that of domestic, island, and/or inland waterway ferry services. As a result, the situation regarding the procurement and operation of ferry services in a number of the G-PaTRA partner countries is not entirely clear. Nevertheless, some similarities have been identified.

In Denmark, Norway, and Scotland, the procurement of ferry services is the responsibility of both central government agencies *and* local transport authorities. In Denmark, *regional* ferry services are procured by the Danish Transport, Construction and Housing Authority, while *local* services are the responsibility of the municipalities. In Norway, ferry services connecting *national trunk* roads are administered by regional offices of the national Norwegian Public Roads Administration (NPRA); those services connecting *regional* roads are procured by the counties and their PTAs, with some assistance from the NPRA; while the coastal route between Bergen and Kirkenes is the responsibility of the Ministry of Transport. In Scotland, around half of the country's ferry services are procured by the national agency Transport Scotland, with the others being administered by relevant local authorities in the Scottish Highlands and Islands.

In Belgium, ferry service procurement appears to be the responsibility of specific agencies within the three regional governments, namely: the Agency for Maritime Services and Coast, and Flemish Waterways, in Flanders; the Directorate-General for Mobility and Waterways in Wallonia; and the Port of Brussels in the Brussels-Capital Region. In Germany and the Netherlands, meanwhile, the procurement situation is not particularly clear. In Germany, 'urban' ferry services in the largest cities are typically operated by city-owned companies, they form part of the common tariff zone established by the local Verkehrsverbünde, and they are regarded as part of that city's integrated public transport network. They therefore presumably form part of a direct award process that encompasses the other transport modes (i.e. buses, trams, and/or metro). Away from Germany's larger cities, what little evidence could be found suggests that individual municipalities may be responsible for procuring local ferry services, but this is by no means certain. In the Netherlands, a small number of fare-based ferry routes were identified as being subject to competitive tendering (presumably by the relevant PTA), but many more free and fare-based services (the majority of which are for pedestrians and bicycles only) *appear* to be the responsibility of individual provinces or municipalities.

With regard to the operators of these ferry services, these would appear to be a mix of private operators (many of them very small businesses) and publicly-owned companies (e.g., VLOOT in Flanders, CalMac in Scotland).

National and regional rail

In five of the six G-PaTRA partner countries, the procurement of rail services is conducted largely at the national level. The main exception is Germany, where, although the *licensing* of fully commercial *long-distance* rail services is the responsibility of the Federal Railway Authority, the procurement of *regional* and *local* services is devolved to the Länder. Interestingly, although the German long-distance market has been liberalised since the 1990s, the state-owned rail operator Deutsche Bahn (DB) continues to dominate, with a 96% share of passenger kilometres. Deutsche Bahn's regional rail subsidiary, DB Regio Schiene, also dominates the tendered, local and regional services market, with a 72% share.

Elsewhere, a small number of regional rail services in the Netherlands are tendered by the provinces and their PTAs, but the vast majority of rail services are awarded directly to the state-owned Dutch Railways by the Ministry of Infrastructure and Water Management. In Belgium, the Federal Public Service for Mobility and Transport negotiates an operational contract with the National Railway Company of Belgium. In Denmark, with the exception of a small number of private railways (privatbaner), which are owned by municipalities, PTAs, or small private owners, the Danish Transport Construction and Housing Authority is responsible for procuring most services across the country. These are largely the subject of a negotiated contract with the state-owned Danske Statsbaner, although some competitive tendering has taken place for services in Mid and West Jutland. In Norway, the Norwegian Railway Directorate has traditionally purchased the vast majority of the country's rail services through a net service contract with the Norwegian State Railways, NSB. And while 2015 rail reforms saw the beginning of competitive tendering in Norway, with NSB losing two contracts to other operators, a new incoming government has recently announced that such tendering processes are to be scrapped, leaving future arrangements uncertain. In Scotland, meanwhile, Transport Scotland is responsible for the letting and management of the country's two rail franchises; while the franchises for cross-border services, to and from England, are awarded by the UK Government's Department for Transport.

In terms of the rail service operators, state-owned companies dominate in Belgium, Denmark, Germany, the Netherlands, and Norway; with other companies occupying small shares of the market (some of them the state-owned companies, or their subsidiaries, of other countries, e.g., Abellio, SJ). In Scotland, while the holder of the main rail franchise (ScotRail) is currently Abellio, the Scottish Government is about to take control of the network with a publicly-owned 'operator of last resort'. In a few months' time, then, the passenger rail networks of all six G-PaTRA countries will be dominated by state-owned operators.

Mobility hubs

Although not included in Table 2, the concept of the mobility hub is a common theme throughout all six partner countries, albeit that each country is at a different stage of development and implementation. Since 2003, Germany — particularly the city of Bremen — has been at the forefront of the movement, with larger *mobil.punkte* situated in central locations, and smaller *mobil.pünktchen* in residential neighbourhoods. In the Netherlands, hubs have been installed in the cities of Amsterdam, Rotterdam and Utrecht; at various locations in North Holland; and, since 2017, across the two G-PaTRA partner provinces of Groningen and Drenthe. In Belgium, the Flemish Government plans to introduce 1,000 mobipoints (*mobipunten*) in the period 2020-2024; while the Walloon Government proposes to have at least one in each of its 262 municipalities. In Norway, the city of Bergen has, since 2018, introduced a small network of *mobilpunkt* stations, with Oslo, Stavanger, and the county of Viken planning on following suit. Similar, more modest pilots have been introduced in Denmark, in the city of Aarhus and the municipality of Guldborgsund. In Scotland, meanwhile, the production of guidance and a framework for the introduction of mobility hubs across the country is currently being considered by Transport Scotland as part of its second Strategic Transport Projects Review.

Some concluding remarks

This final section of the report has highlighted some of the key similarities and differences between the regulatory and operational frameworks in the six G-PaTRA partner countries. To conclude, however, it should be emphasised that the overall situation is a fluid one, subject to (relatively sudden) change on the arrival of new governments or new policy directions.

In Belgium, for example, the National Railway Company's monopoly on domestic rail services will technically end in 2023; while the Flemish Government is to lift De Lijn's monopoly on long-distance coach services and instead introduce a tendering process. In Germany, the Federal Government's vision of an integrated, nationwide timetable, the Deutschlandtakt, may have significant impacts on the procurement and management of national and regional rail services.

In the Netherlands, the government is looking to increase competition in international rail services from 2025; and is facing legal challenges on Dutch Railways' continuing monopoly of domestic rail services. In Norway, the new government has recently ceased the competitive tendering of the country's rail services, but has yet to announce an alternative approach. And in Scotland, the country's entire transport governance system is currently under review, as are its ferry service procurement processes; while the Scottish Government is soon to take control of the operation of the main domestic rail franchise. The proposed merger of Stagecoach and National Express in 2022 will also result in a significantly different bus and coach operator landscape in Scotland.

With these points in mind, this report should be regarded only as a 'snapshot' of the situation, as of early-2022.

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