Scotland's National Transport Strategy (NTS) Review: What the evidence tells us about transport governance

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Executive summary

Transport governance takes many forms across and within countries, meaning comparative study of it can be informative, but also challenging to conduct. The challenge arises due to differing organisational forms, institutional powers and availability of funding which can vary significantly between countries and regions of interest. However, the literature on transport governance identifies certain features that are common to 'best practice' examples. There are also common barriers to the effective operation of a transport system at a national and regional level. Due to limitations in the literature found in this review, the cases discussed in this report feature mostly metropolitan areas, as few examples were found that analysed the experience of rural areas.

Overall, findings from the evidence review suggest that institutional fragmentation (many separate authorities being involved in decision-making) and deregulated transport markets can lead to inefficiencies within a transport network, resulting in relatively more expensive journeys and longer journey times due to poor interconnectivity of services. The existence of a governance body or transport authority that coordinates the transport system are common in all cases reviewed that are considered as best practice.

However, the review has also shown that having such structures in place does not necessarily lead to improvement in transport governance but are likely to have a supportive effect for policy implementation. Policies *can* be implemented without having such transport governance structures in place. However, there are not many cases where this is documented - South Korea is one of the few examples found in this literature review.

Policies that foster integration of tickets, timetables and services are seen to be most effective for improving the quality of the transport system as a whole. These can have positive effects for the transport network overall, resulting in higher ridership, reduction of urban sprawl and higher customer satisfaction rates. Policies must also be coherent as implementation of policies with conflicting aims are unlikely to deliver desired outcomes.

Financial sustainability of respective transport governance models is a key challenge. The best practice models identified by the literature require high expenditures to keep their public transport systems running, with financial pressure leading to reduction or removal of services, particularly in rural or low demand areas.

The evidence base on transport governance models is limited by the coverage and quality of the available data, which varies greatly between countries and cases. Hence, further research is necessary to inform what governance models are appropriate in a Scottish context.

Introduction

Purpose of the NTS Review

1.0 The aim of this rapid evidence review is to inform the current review of Scotland's National Transport Strategy currently being undertaken by Transport Scotland. This review of international evidence on transport governance looks at the features shared by 'best practice' case studies as well as the barriers that hamper implementation of such governance structures. This report provides an overview of recent literature on transport governance and examples of international transport governance models. The rapid review of evidence provided here is intended as a starting point for further, more in-depth, research on this topic.

Background

1.1 Transport plays a key role in achieving national and local strategic policy objectives but there is a lack of understanding of which institutional arrangements and forms of governance are best suited in order to meet these goals. State intervention in transport is often a result of correcting for (real or perceived) market failures and/or because outcomes are not deemed to be socially or politically desirable. The assumption is that governance determines the relationships of the agents that interact with each other in the transport system (Christodoulou and Finger: 2012).

1.2 It is generally acknowledged that transport acts as an enabler to economic development in various ways. An efficient transport system provides: opportunities through accessibility to employment and markets; and plays a role in tackling congestion, improving air quality and reducing accidents, thus increasing overall quality of life. (UN-Habitat: 2013; UNDP: 2009). While it is difficult to quantify a direct relationship between transportation investment and economic development, it is generally accepted that transport indirectly facilitates such development.

Structure of this report

1.4 This report reviews general literature and provides an overview of the latest research on transport governance. Case studies are used to highlight the common features evident in good practice examples of transport governance as well as demonstrating examples where governance creates barriers to the implementation of transport policies. Finally, although the literature on the relationship between transport governance and outcomes outside of metropolitan areas is limited, evidence found on rural areas will be discussed briefly.

Limitations of the evidence

1.5 It is important to be aware of the limitations of the evidence base reviewed in producing this report. A key issue is the availability of up-to-date data that offers the ability to conduct comparable analysis of transport governance structures. Some of the literature referenced is therefore dated.

1.6 In addition, the majority of studies that look at transport governance – with the exception of the OECD metropolitan governance study – are predominantly based on single country analysis which also hinders the ability to carry out comparative analysis e.g. the European Metropolitan Transport Authorities analysis. However, the review of the evidence does highlight common factors across the transport governance systems featured that act as an enablers and barriers to a well-functioning transport system.

Literature review

Institutional fragmentation and transport provision

2.0 The literature on governance structures is inconclusive and does not provide a clear answer on which arrangements produce optimal outcomes in terms of the provision of services, accountability and the monitoring of policies. Some evidence points out that poly-centric structures - subnational units that provide services locally - provide better outcomes since they allow for local problems to be tackled and solved locally (Ostrom: 2010). Conversely, evidence supporting centrist approaches to governance argues that administrative and institutional fragmentation[1] leads to inefficiencies because it acts as a barrier to coordinated efforts (Orfield: 1997).

2.1 A number of studies provide evidence that administrative and institutional fragmentation hampers the establishment of an effective transport system (Plucher and Kurth: 1996; International Transport Forum: 2011: Ahrend et al. 2014a; Ahrend et al. 2014b; Low: 2005). Institutional fragmentation is a common feature of almost every metropolitan area within the OECD (the Organisation for Economic Co-operation and Development) and it naturally amplifies the existing complexity of coordination of service provision. This is specifically the case for the provision of transport services since many journeys are multi-modal and cross through multiple administrative boundaries.

2.2 This administrative fragmentation has the potential to negatively impact on both transport infrastructure investment and land use planning, which regularly results in planning and investment that follows an administrative jurisdictional logic[2]. This in turn often exacerbates existing problems of congestion and moreover, increases the likelihood of producing an inefficient public transport system due to poor integration of services, route planning and timetabling (Merk: 2014; Plucher and Kurth: 1996; International Transport Forum: 2011).

2.3 A study by the OECD on administrative fragmentation and productivity conducted in Germany, the United Kingdom, the United States, Mexico and Spain found a negative correlation between the two variables. It indicated that cities within the same country that exhibit a higher administrative fragmentation have productivity rates that are 3 to 4 percent lower compared to those that are less fragmented[3]. In addition, the study found that cities that do have a governance body in place are able to mitigate against the loss of productivity that is posed by such fragmentation (Ahrend et al.: 2014a).

2.4 The existence of a governance body is sometimes considered as the most important element for best practice in urban transport, outweighing finance, infrastructure and urban land-use planning (Kennedy et al.: 2005; Low and Astle: 2009). This is due to the argument that poor governance creates poor decision-making processes, compromising accountability and encouraging a public transport system that produces inefficient outcomes (Kennedy et al.: 2005). Therefore, transport institutions need to possess certain features in order to be able to fulfill their role: the ability to deliver public value; the legal authority to implement policies; and political support for their actions as well as a strong internal capacity (Kumar and Agarwal: 2013).

2.5 Multiple studies find that ‘best practice’ cases *do* have governance bodies or transport authorities in place. For example, Plucher and Kurth (1996) analysed three German metropolitan areas, one Swiss, and one Austrian case and all five have a transport authority in place that coordinates and organises public transport. Similar results were found in a report by the then Scottish

[1] Administrative fragmentation refers to the number of functional administrative units that can be found in a given region where more units would mean a higher fragmentation whilst institutional fragmentation refers to the number of distinct authorities being involved in the design or delivery of a particular service (for instance: national, regional and local transport authorities in Scotland)
[2] Planning and investment is tied to geographic or organisational boundaries that are designed for a different purpose than delivering transport.
[3] The comparison is between cities that are of the same size as well as of the same spatial expansion.

Executive that identified 11 best practice cases[4] and concluded that there appeared to be a link between the successful implementation of transport policies and the existence of a regional governance body, a structure all 11 best practice cases featured had in place (Scottish Executive: 2003).

2.6 The largest study found in this review that attempts to shed some light on how governance structures affect the functioning of metropolitan areas is by the OECD. The study examined 263 metropolitan areas from 27 OECD countries against a set of indicators, including field of operation of the governance body, staffing, budget, and the scale of regulatory powers of the governance body. The study found that 68 percent of all cases have governance bodies in place, with 27 percent of them being able to impose binding laws or regulations. (Ahrend et al.: 2014b).

2.7 The study found that the most common form of organisation is that of a transport authority. A transport authority has a specific mandate that focusses on transport service provision, in contrast to a more general governance body that deals with a number of different public policy fields such as regional economic development, waste management, water management, spatial planning, and so on. Such transport authorities existed in 60 percent of the metropolitan areas included in the OECD study but are more often found in cities that have a governance body in place (60 percent with versus 40 percent without) (Ahrend et al.: 2014b).

2.8 There is great variation in transport authorities across and even within countries, with authorities at one end of the spectrum employing just a handful of employees covering work on strategic public transportation planning, while at the other end, they can employ thousands of people who not only plan but also run the entire public transportation system. These circumstances make a meaningful comparison across countries on such a scale difficult due to limitations in the availability of data, differing organisational structures and legal frameworks. However, a study by Ahrend et al. (2014b) found that[5]:

- That the size of the metropolitan area is positively correlated to the existence of a governance body.
- Urban sprawl is negatively correlated to the existence of a governance body.
- The existence of a transport authority is positively correlated to both better air quality and higher customer satisfaction on the public transport system.

2.9 Institutional fragmentation and poor coordination of services can pose severe challenges for any metropolitan area with regard to: the interconnectivity of services; the coherence across different modes of transport; accountability; and the ability to implement overarching objectives covering planning and transport (Merk: 2014). Chicago, Mexico, Melbourne, South Korea and Athens provide valuable insights that illustrate this, discussed briefly in the section that follows.

<u>Barriers to the implementation of transport policy</u>

Chicago

2.10 Chicago is one of the most institutionally fragmented metropolitan areas in the OECD study (comprising of the City of Chicago and some 270 municipalities) with dozens of subnational authorities exercising power in matters of transportation. Two governance bodies, a planning agency (CMAP) and a regional transport authority (RTA)[6] organise the metropolitan transport system. Although Chicago has transport governance structures in place, its transport system suffers from poor interconnectivity of services and lacks coherence across different modes of transportation.

[4] Madrid, Barcelona, Sundsvall, Berlin, Copenhagen, Helsinki, Stockholm, London, Munich, Zurich and Vancouver.
[5] Based on a regression analysis that controlled for country specific effects.
[6] RTA has taxing powers in its jurisdiction and is responsible for the development, implementation and enforcement of plans for the public transport of the metropolitan area.

2.11 End-to-end journeys, especially from the suburban areas to the city centre and vice versa, are time consuming and expensive. This is due to the fact that transport provision follows an administrative jurisdictional logic and does not reflect traffic flows as well as commuter demand. In addition, the transport system faces the obstacle that various levels of government policy incentivise car use, even though the RTA promotes policies in support of modal shift. These policies include generous parking policies, with parking fees being extremely low or absent in most parts of the city, and a low gas tax making car use a cheap alternative to public transport. (Merk: 2014).

2.12 A factor that hampers coordination in the case of Chicago is that the suburban areas are under political control of one party whilst the city centre is in hands of another. Since representatives of both are board members of the governance bodies, decisions are in some instances politicised. A Scottish Executive report found that political support was essential for the success of the transport system in the cases of London, Stockholm and Barcelona (Scottish Executive: 2003).

Mexico City

2.13 Mexico City shares similarities with Chicago in that the metropolitan area is highly fragmented from an institutional and transport operator point of view despite transport being organised by a governance body (CDMX). Overall, 15 service providers operate in the metropolitan area but their operations are restricted to administrative boundaries. As in the case of Chicago, transport in Mexico City is planned along an administrative jurisdictional logic which does not take into account where people live and where they work.

2.14 For example, the State of Mexico, a largely suburban area, has approximately 11 million inhabitants, more than half of the metropolitan population, but it only operates 35 miles of mass transportation; while the Federal District, a largely metropolitan area, operates 186 miles for 9 million people[7]. As in Chicago, this fragmentation is present across all aspects of transport governance, from planning to the actual provision of transport.

South Korea

2.15 South Korea has a well-developed transport system but transport in its metropolitan areas is not governed by a transport authority. Despite this, Korea has been able to implement policies such as a countrywide single mobility and smart card which allows travellers to use buses and subways throughout all metropolitan areas.

2.16 However, although the transport system is well-developed, transport planning follows, as in the cases before, an administrative jurisdictional logic with little to no coordination between jurisdictions which results in services terminating at administrative boundaries which do not reflect desired journey patterns (OECD: 2017). South Korean cities also suffer from congestion and poor air quality, with 4 out of 5 OECD metropolitan areas with the highest air pollution being South Korean (Ahrend et al: 2014b).[8] This may affect the well-being of South Korea's citizens which ranks among the lowest on the work-life balance index within the OECD Better Life Index (OECD: 2016). Moreover, it is believed that the economic costs of congestion and air pollution equated to around 2% of South Korean GDP in 2015.

Athens

2.17 Athens has a single transport authority (OASA) which operates directly under the Ministry of Infrastructure. OASA sets fares and allocates fare revenues to the three operators according to passenger numbers. The operators are direct subsidiaries of OASA and include a bus network, a trolley bus network, a metro network and a suburban rail system (OECD: 2015).

[7] Mass transportation refers to modes of transport such as commuter trains, metro and BRT (Bus Rapid Transit).
[8] The level of atmospheric PM2.5 – air pollutant particles that cause damage to the lungs – in South Korea is 27.9 micrograms per cubic meter. This value is the highest level measured within OECD countries, which on average exhibit levels of 13.9 micrograms per cubic meter (OECD: 2016).

2.18 Athens is a good example that demonstrates that a governance body alone does not guarantee the implementation of an efficient transport system. The share of public transport declined from 45 percent in 1983 to 32 percent in 2004, with the overall modal share of transport being in favour of cars. Additionally, over the last 12 years, travel time has increased by 26 percent due to congestion caused by one of the highest car ownership ratios in the EU (Gritzka et al.: 2011).

2.19 In the case of Athens, suboptimal policies and planning have led to the current situation. Policies that were designed to restrict car use in the city centre backfired (OECD 2015) while competition between transport operators has led to inefficiencies in the system (Gritzka et al.: 2011).

Melbourne

2.20 Melbourne, as with Chicago and Mexico City, is a dispersed city characterised by a fragmented rail service system where services are franchised to four providers. This fragmentation leads to time consuming journeys due to poor interconnectivity …something the other case study areas also exhibit.

2.21 The institutional capacity of the road planning agencies in Melbourne is strong compared to the public transport planning agencies. Road planning agencies pursue their own priorities and have the largest allocation from the infrastructure budget.

2.22 The transport planning agencies in Melbourne, and Sydney, show similar problems and a result is that both places have little to no integration of tickets or services (Low and Astle: 2009). Furthermore, Low (2005) finds that a major barrier for the implementation of integrated land-use and transport planning in Australia in general is poor transport governance. Hence, the Australian evidence suggests that transport governance requires a holistic approach, involving all stakeholders, which brings together the process of designing, planning, delivering and managing.

Best practice cases – System Integration

2.23 German speaking metropolitan areas are good examples of how intergovernmental co-ordination for urban transport can create a fully integrated transport system (OECD: 2017; International Transport Forum: 2011). This system is considered best practice for coordinating such efforts.

2.24 All German, as well as Swiss and Austrian metropolitan areas, have set up transport authorities. These are called Transport Alliances ('Verkehrsverbund') and bring together all players in their respected alliance area (Länder[9], local government, operators etc.). In Germany alone, there are 60 alliance structures which cover about 85 percent of Germany's population (BMZ: 2010). Alliance structures can vary considerably in size, form of organisation, competences and level of integration.

2.25 Different studies (Scottish Executive: 2003; Plucher and Kurth: 1996, OECD: 2015) find that all the metropolitan areas in German speaking regions that have opted for the transport alliance model have significantly increased the ridership on their network.

2.26 Within an alliance model, operators still provide the service and competition between modes is mitigated through policies that help disadvantaged modes to compete. For example, trains and metros have an advantage over buses which have to deal with lower average speeds due to congestion. All aforementioned cases have therefore, over time, expanded their network of dedicated bus lanes and implemented traffic control systems that give buses and trams priority at intersections with normal traffic. As a result, on-time performance of buses increased due to higher average speeds (Plucher and Kurth: 1996).

[9] Refers to the federal subdivisions of Germany where 16 federal states (Länder) have exclusive powers in the domains of culture, education, universities, local authority matters as well as the police. They have overlapping powers with the federal government in regards to justice, social welfare, civil law, criminal law, labour law and economic law (European Committee of the Regions: 2012).

2.27 Zurich's transport authority (ZVV) is operated as a holding that finances the transport companies and the network in the metropolitan area. Operators are not driven by profit since income is predetermined by contract (Christodoulou and Finger: 2012). An essential component of Zurich's system has been to further deepen the integration of services and above all, the coordination of timetables within the alliances network. Although there are limits to the synchronisation of timetables of different modes, operators were able to design route schedules that minimise transit times (Plucher and Kurth: 1996). This is achieved through pulse timetabling ('Taktfahrplan'), which is used in Germany, Switzerland and the Netherlands amongst others. Within such a network, several 'pulse points' exist at which services converge at the same time making transfers for travellers less time consuming (Petersen: 2016).

2.28 For some case studies, the increase in ridership has not always accomplished the envisaged mode shift away from car towards public transport and active travel. Madrid, which is highlighted as one of the best practice cases in increasing public transport ridership[10], did not experience a mode shift as car's modal share increased by 0.6 percent annually compared to 0.2 percent per year for public transport (Scottish Executive: 2003). One reason for this might be that accompanying policies are missing; for example, only 0.5 percent of Madrid's bus network exhibited dedicated bus lanes or other forms of priority for buses in 2006 (Scottish Executive: 2003).

2.29 This suggests that policies need to be coherent if modal shift towards public transport and active travel is to be achieved. The case of Chicago has shown how contradicting policies can hamper the establishment of an efficient sustainable transport system by incentivising car use.

2.30 The integration of services and timetabling had positive effects on ridership in the German speaking country cases. However, another important factor can be found in the fare structure. Integrated tickets and substantial discounts on monthly tickets, for students and school pupils, combined with aggressive marketing campaigns have helped to increase ridership.

2.31 However, the low fares policy has implications for the financial sustainability of the entire network in German speaking countries and the role subsidies play is discussed in more detail below. Ultimately, the alliance model has been able to provide an integrated public transport service that attracts passengers and can increase or stabilise public transport's share of the modal split, respectively[11]. However, the challenge this model faces is financial viability due to the likely fall in subsidy level during times of fiscal consolidation and budget cuts (Plucher and Kurth: 1996; International Transport Forum: 2011).

Best Practice Cases - Funding of transport systems

2.32 Countries or regions identified in the literature reviewed as best practice cases in terms of transport governance systems usually display a medium to high percentage of subsidy. Research from 2000 showed that countries such as the Netherlands, Austria, Belgium and Italy subsidised 60 to 70 percent of passenger bus transport operating costs at that time. Denmark, France, Sweden, Iceland, Greece and Germany subsidised 40 to 50 percent, and Spain 20 to 40 percent in 2000. More recent data shows that German subsidies for concessionary travel make 8 percent of total subsidies, which are estimated to be between 30 and 60 percent depending on the source (VDV: 2016; Hans-Böckler-Stiftung: 2015; Friedrich Ebert Stiftung: 2015).

2.33 The level of funding does not necessarily mean that these places provide better outcomes: funding can be used inefficiently. A Swedish study suggests that trips in Sweden could have been increased by around 2 percent without any additional funding provided if decision-makers had opted for innovative measures in low-demand areas instead of trying to maintain a minimum service level (Holmgren: 2010). Chicago allocates funding according to an eligibility procedure that is now 20 years old and does not reflect the current realities of travel demand (Merk: 2014). Nevertheless, a high level of funding is usually found in cases that exhibit best practice. For example, Copenhagen, Berlin, Rotterdam, Oslo, Stockholm, Madrid, Barcelona, London and Helsinki subsidised their public

[10] Ridership increased by 56 percent between 1986 and 2000 since the inception of its transport authority (CRTM)
[11] Cases such as Rhein-Ruhr or Hamburg exhibited a falling share of the modal split, which stabilised after the inception of the alliance system.

transport systems between the level of 40 to 60 percent in order to cover the operating costs in 2015 (EMTA: 2015).

2.34 Frankfurt is one of the cities in Germany that generates almost 60 percent of its operating costs through revenues, a best practice case within Germany (OECD: 2015). A reason for the overall relatively low coverage of operating costs from fares in Germany can be found in the fares policy which provides one ticket for all modes in a network comprising relatively low ticket prices. This is accompanied by large discounts on yearly and monthly tickets (Plucher and Kurth: 1996).

2.35 Although the financial data on subsidy level is often complex, dated, and therefore limited, some observations can be made. First, subsidy level increased in the years after a transport authority was implemented (for the cases where data was available). Second, current data from the German speaking regions and from cases across Europe suggests that the majority of cases[12] exhibit subsidy levels of between 40 and 60 percent.

2.36 OECD countries show substantial variation in financial models adopted since financing schemes incorporate local conditions. Hence, it is difficult to apply a financial model from one OECD country to another. However, research finds some evidence on how to make transport financing more sustainable. These include the strengthening of economic appraisal procedures as well as applying eligibility criteria for subsidies (OECD-ITF: 2013; Merk et al.: 2012). Some research has also tried to evaluate the use of workplace parking levies (WPL) as a source of funding for transportation. Australia has had positive experiences with the scheme in terms of raising funds but less so with tackling congestion through the WPL. Nottingham is the only place in the UK so far that uses WPL to finance its public transport network and although it is too early to evaluate the scheme in full, it consumes just 10 percent of the revenues to cover operating costs, while the London congestion charge consumes almost 50 percent of revenues in order to cover its costs (Dale et al.: 2014).

2.37 Overall, it can be observed that certain factors appear essential for best practice in these cases. These are:

- A governance body or transport authority that organises and coordinates public transport which mitigates risks posed by fragmentation in institutional and transport arrangements.
- Integrated land use and transportation planning which produces better outcomes compared to scenarios where efforts are not coordinated.
- Integration of services, tickets and timetables, which positively influences ridership.
- Mode shift from car to public transport and active travel is not guaranteed through the implementation of the above; evidence suggests that this requires accompanying policies that restrict car use.

Rural transport provision – Case Study Examples

2.38 This report has focused on metropolitan areas due to the relative scarcity of evidence on transport governance outside of these areas. Nevertheless, this section will attempt to provide a brief overview on what the literature reviewed says about how public transport is organised in lower-demand areas.

2.39 Rural areas often suffer from poor connectivity due to low frequency of services, poor interconnectivity between modes and limited hours of operation (Petersen: 2016). There is consensus in the literature reviewed that it is not financially feasible to have the same transport service provision for rural areas as exists for metropolitan areas (Leiren and Skollerud: 2015; BMZ: 2010; Nelson et al: 2010). This has to do with the fact that distances in rural areas are usually longer with lower capacity resulting in greater net losses (Petersen: 2016).

2.40 Three cases will be looked at briefly: Germany, Switzerland and Norway.

[12] Cases that were identified as best practice within the literature.

Germany

2.41 Germany's transport alliances cover many rural and low density areas. Trains build the backbone of the network and due to the integration of timetables, buses feed into the rail links and connect them with towns and villages within the alliance network. The challenges regarding the provision of such services lie in high expenditures for a low demand service (BMZ: 2010). As a result, services are constantly cut back. In order to maintain a certain service level, on-demand services were introduced to serve as a supplementary to regular services for rural communities and suburban areas (Nelson et al: 2010; BMZ: 2010).

2.42 Over recent years it can be observed that the alliance networks have expanded in metropolitan areas but have withdrawn from rural areas due to financial constraints (BMZ: 2010). Moreover, there is a lack of integration between different alliance networks because the integration of services, timetables and tickets is limited to the area of each alliance operating. This has particularly negative effects for inhabitants of rural areas living at the border of a network which can make travel to the next town across that border a long and complicated journey.

Norway

2.43 Norway has a very good long distance bus network. Buses connect cities with each other as the rail network is not as extensive (Alexandersson et al.: 2010). Norway is testing several on-demand services that operate next to the coach service and feed into the medium/long distance coach network. The on-demand network is financed through government transfers to the counties that are responsible for transport service provision.

Switzerland

2.44 Switzerland is using demand responsive solutions for reaching its rural population but has also introduced 'pulse timetabling' as a way to reach the inhabitants of rural or semi-rural areas. The timetable in Switzerland, similar to Germany, is planned around the national rail service and when trains arrive at one of the pulse points, buses are already waiting to guarantee a smooth transit (Petersen: 2016). It is estimated that the rural areas around Zurich support a mode share of journeys to work of around 22 percent. This is high for areas such as these that are usually car dependent (Petersen: 2016).

Conclusion

3.0 This report identifies features that are common in best practice cases in transport governance and can be generally distinguished as being either structural or policy focused.

3.1 The existence of a governance body or transport authority that coordinates the transport system are common in all cases reviewed that are considered as best practice. Nevertheless, the review has also shown that having such structures in place does not necessarily lead to improvement in transport governance but are likely to have a supportive effect for policy implementation. Policies *can* be implemented without having such transport governance structures in place. However, there are not many cases where this is documented (South Korea is one of the few examples found in this literature review).

3.2 Policies that foster integration of tickets, timetables and services are seen to be most effective for improving the quality of the transport system as a whole. Policies must also be coherent; policies that support mode shift from car to public transport are less likely to be effective when simultaneously policies are implemented that promote car use.

3.3 The biggest challenge identified in most best practice cases centre around the financial sustainability of their respective models. Overall, best practice cases require high expenditures to keep their public transport systems running and cut backs of services are usually observed in rural or low demand areas. However, financial consolidation, new ways of funding, and an efficient use of existing funding could help here.

3.4 This literature review found only limited evidence on rural areas, and further research is likely to be necessary to determine what learning can be taken from the examples here to be used in a Scottish context.

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