Transport Planning: applying European good practice to UK regions?

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Abstract

Investment in high quality public transport infrastructure has been severely lacking in the UK for many years, and particularly in the smaller urban areas, and their hinterlands, beyond the main cities. These areas often have poor public transport services, residents have quite poor levels of accessibility to employment, services and activities, and in response have become significantly more car dependent. Public transport provision, including Light Rapid Transit, is much more effectively provided in smaller urban areas in France and Germany, providing examples of how services might be developed in the UK. This chapter examines public transport provision in the UK, and the problems of providing funding for projects. In comparison, two cases are explored where high quality networks have been developed: Valenciennes' single-track tramway system and Kassel's RegioTram system. The opportunities and barriers concerning the development of these types of systems in the UK are explored.

1. Introduction

Transport planning faces many challenges over the coming decades. Projected population growth in many areas of the UK need to be reconciled with the need to reduce car-based travel on multiple grounds, including energy depletion, carbon dioxide emissions, traffic casualties, local air quality, obesity and health impacts of inactivity and the loss of street space to the car (Hickman et al., 2017). In the UK, urban public transport often suffers from large under investment, certainly relative to practice found in countries such as France, Germany, the Netherlands and Switzerland. Yet an even larger problem is found in public transport provision beyond the main cities – connections tend to diminish considerably at the metropolitan boundary, which is described by Sloman (2003) as a 'cliff edge'. Investment in public transport is difficult to justify in many contexts, but particularly in dispersed rural populations, market towns and small, former industrial urban centres (Hickman, 2017). In many of these areas, depopulation, economic decline, low incomes, and high levels of social deprivation are combined with relatively high levels of private car usage. Smaller urban centres of under 250,000 inhabitants and their regions struggle to attract funding for public transport. In these areas car usage often follows a self-reinforcing spiral of diminishing public transport supply compounded by slackening demand. Car use is 'forced' when it becomes the only realistic means of access to employment, education, health and other opportunities necessary to achieve basic living standards and lifestyle quality. If left unchecked then transport under-investment can become a major social equity issue (Lucas, 2012, Mattioli et al., 2017). Recently, however, developments in Light Rapid Transit (LRT) systems across mainland Europe have created high quality rail-based transport services that attract high levels of ridership, and at lower capital and operating costs – meaning that there are stronger cases for investment.

This chapter examines the problems of providing public transport services in the UK, comparing this to the provision of innovative LRT systems in mainland Europe. Two case studies are explored –the Valenciennes Line 2, single-track tramway system in France[i]; and the Kassel RegioTram, an integrated, regional tram-train system in Germany. Both cases serve low income areas, are associated with urban regeneration, and help create a positive image of city and region. There appear to be many lessons to be learnt for smaller urban and regional centres in the UK, where high quality rail-based public transport systems could provide many benefits, but seem very difficult to justify and

implement. The lessons for transferring good practice are considered, including how the integrated territorial planning and transport approaches, transport appraisal and funding approaches in France and Germany support the provision of public transport services.

2. Providing public transport services in the UK

For many people in smaller urban areas and rural areas in the UK, the provision of public transport is critical to accessing employment, services and activities. A quarter of the UK population have no access to a private car, and this is disproportionately concentrated on low income households. Yet the key problem is that funding for public transport has been woefully inadequate over recent decades, and in recent years has suffered from major budget cuts. The private sector delivery of bus services (outside London), supplemented by public funding for 'socially necessary' services has not worked – it doesn't provide the quality and extent of services necessary to attract high mode shares (Sloman, 2003; Campaign for Better Transport, 2016). In some areas, public transport has ceased entirely, leaving people unable to access essential facilities and activities. Since 2010-11, funding for supported bus services in England has been reduced by over £70 million, a reduction of 25 per cent, and similar reductions have been experienced in Wales and Scotland. Beyond London, the bus system is essentially in crisis (Campaign for Better Transport, 2016).

In parallel, the current inadequacy of rail provision in the UK can be traced to decisions made during the 1960s and 1970s, notably with the publication of 'Reshaping of British Railways' (Beeching, 1963). This led to the closure of approximately one third of Britain's rail network, predominantly across rural areas, ostensibly justified through declining passenger ridership and the loss of coal freight with the advent of domestic central heating – but implemented largely as a result of the aspiration to support the growth in private car ownership. Although some of the closed railway alignments were safeguarded and have since been reutilised, many were subsequently destroyed with cuttings used for development or landfill refuse. Some of the protected alignments, including the Borders Railway between Edinburgh and Melrose, have been reinstated as a consequence of the recent rail revival. Similarly, funding to reinstate part of the abandoned 'Varsity Line' between Oxford and Cambridge has been announced (BBC, 2016). Yet the extent of the rail network still remains very inadequate relative to coverage in the 1950s and earlier.

In terms of LRT, the UK remains frustratingly behind mainland Europe in developing projects. The high point of initiative was in the late 1990s, when John Prescott envisaged 25 new LRT lines (Department of Transport Local Government and the Regions, 2000), but ultimately few were given funding to progress implementation. In the UK, there are only nine operational tramway networks, compared with 25 in France and over 50 in Germany. In the UK, we cannot seem to move beyond very poor bus provision as the only public transport offer beyond the large cities.

There are a number of reasons for this intransigence. At the most basic level, too much money is spent on highway schemes and too little on public transport. A contributory issue here is the way that funding is prioritised. The centralised appraisal system used in the UK means that projects are dependent on funding from the Department for Transport (DfT). Investment is prioritised using cost benefit analysis (CBA), emphasising the economic aspects of the case presented, within which travel time savings are strongly valued. CBA is carried out within multi-criteria analysis (MCA), as part of the Department for Transport's (DfT) WebTAG process (Web-based Transport Appraisal Guidance). Proposed projects are assessed against national transport objectives – and decisions often made with only limited knowledge of the local context. There is much debate on the limitations of this approach and the need to give greater weight to social and environmental objectives, and indeed local policy

priorities (Hickman and Dean, 2017). Here are large questions on the legitimacy of this centralised approach – why should the decisions on investment be made in this way? The current CBA-based approach makes expenditure on regional transport infrastructure around smaller cities and more rural regions difficult to justify for a number of reasons: there are often few time savings to be found as there are limited patronage levels, certainly when compared to investment in public transport in larger urban areas or in highway schemes; and the social and environmental benefits of regional public transport are given little weight in CBA or in WebTAG. Many of the benefits of tram-based systems are difficult to quantify, and are ignored in project appraisal. Hence, the estimated project 'benefits' compare poorly relative to the perceived high capital costs. An alternative project appraisal approach is, of course, not straightforward to develop, but a step forward would be to test projects against multi-criteria, locally-derived, and to incorporate multi-actor views – hence a wider range of project impacts could be considered, against local policy priorities. This would better incorporate views beyond those of the project promotor and Whitehall (Dean et al., 2018).

Funding also remains a significant obstacle to project delivery – not simply because of budget constraints and available public funds – but also arrangements and responsibility for budget control. There are some interesting moves towards devolution such as through City Deals (O'Brien and Pike, 2015). For example, Greater Manchester has gained significantly more influence over the allocation and control of transport funding in recent years, and hence an increase in freedom to spend against local policy priorities – the continuing extension of its tramway network being a visible symbol of its relative power (Coleman *et al*, 2015). However, Manchester remains an exception in its relative autonomy in its control of transport investment.

The administrative boundaries between urban areas and their surrounds present further barriers to the development of integrated strategies and projects at the regional level, particularly when little effective support for regional and sub-regional planning exists, and the mechanisms to develop cross-border strategies are limited. Very few regional public transport projects are currently being progressed in the UK. The South Cambridgeshire busway and South Hampshire bus rapid transit are rather conspicuous exceptions, but have been built to very modest specifications, and present very limited networks overall. There are a host of other areas that would benefit from tram or bus-based public transport schemes, including the West of England, Blackpool-Preston, Cambridge, Hampshire, Manchester-East Lancashire, Merseyside, Oxford, Sheffield-Rotherham-Doncaster, suburban London, and many others. But, as yet, there is no real impetus to invest in a significant new series of public transport projects in the UK. By far the better practice in developing public transport is found in mainland Europe, and two case studies are considered which offer much potential for the UK.

3. Case Study 1: Valenciennes' single-track tramway system

Located in the northeast of France, close to the Belgian border, Valenciennes is a small city of 42,000 inhabitants serving a relatively built-up former industrial metropolitan region with a population of 400,000. Building on the success of the Line 1 tramway, a conventional double-track system that opened in 2006, Valenciennes planned to upgrade transport links to the north-east of the metropolitan area into the Pays de Condé. The only feasible route for a new Line 2 was to use an arterial street corridor that also formed a major traffic route out of the city (Figure 1).

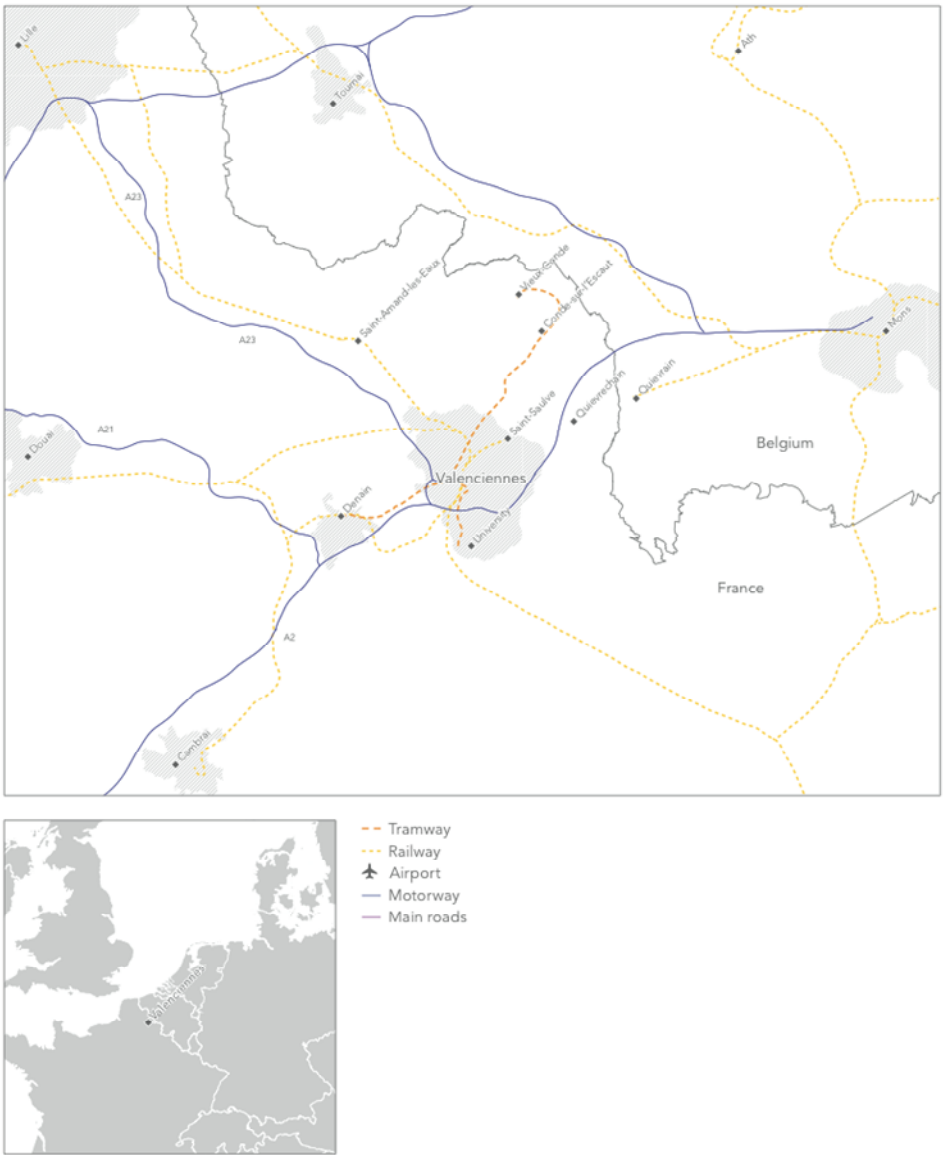

Figure 1: Valenciennes – the region and location in France
(from Hamiduddin et al., 2015)

The concept for a single-track tramway system emerged as a solution to reducing land take on a route with limited space and to serving a limited potential patronage. The Valenciennes Line 2 tramway runs for 15.5 km of single-track and 2.5 km of conventional double-track tramway. It is unique in becoming the first new tramway to be designed and operated almost entirely as a single-track, bi-directional system over a significant length in an urban context, making it the longest single-track tramway system in Europe. The passing loops at stations allow trams to cross, and advanced signalling and control technology has enabled bi-directional operation of urban tram services with high frequency (Figure 2). A conventional, double-track tram system would typically require a 20m wide street corridor, whereas only an 18m corridor was available for most of the extent of Line 2. The single-track option required a clear routeway in the region of 4.2m, outside of the stations, compared with an average of approximately 6.6m for a conventional double-track system.

Figure 2: Valenciennes, tram double-tracking at stations, and single track beyond

The key technical and planning features of the Valenciennes tramway Line 2 (single track) relative to to Line 1 (double track) are summarised below:

- Design characteristics: the cross-sectional footprint of the single-track is usually considerably less than a conventional double-track system, at 6.6m relative to 11.5m; except where island style stations are used in a double-track system, where the land take is the same at 10.6m. Between stations, the single-track route occupies 4.2m in width, compared to 6.6m for a double-track.
- Operating performance: both systems achieve similar maximum performance speeds, at 70 kmph, and average speeds across the route at around 30 kmph. But the average commercial speed of the Line 1 Phase 2 (regional running) is significantly higher than Line 2 Phase 3C (regional running) at 32 kmph against 18.7 kmph. This reflects the higher operating speed of the double track system in the regional running phase. Both lines operate a peak time service interval of 10 minutes.
- Capital costs: those for the single track system are approximately one third less than the double track system, at €10 million/km, compared with €15 million/km. Costs indicated do not include the preparatory relocation of utilities away from the track bed[ii].

In the UK, a number of tramway systems such as Croydon (in London) and Nottingham include extended sections of single-track line, but there is limited use of passing loops to maintain bi-directional services, and none approaches the 15.5 km system created in Valenciennes. The Valenciennes system should be of significant interest to smaller urban areas and their regions in the UK. The project has been very important in helping to improve public transport accessibility in a former coal mining region, linking and helping to regenerate the centre and region of Valenciennes,

The system has strong social objectives, with investment in high quality public transport not prioritised in terms of economic efficiency, but for wider urban planning goals, seeking to help residents access employment and other activities by public transport rather than the private car, and to help redevelop the region. The tramways have been introduced into a spatially constrained physical setting, with the design modified to reflect the narrow street widths. The potential savings in capital costs over comparable double-track systems are also attractive, although it is not yet clear (because of the recent commencement of operations) whether any increase in operating and maintenance costs have been introduced due to the operation of points at each of the passing loops. The reliance on points to direct tram vehicles into passing loops does carry a risk of failure compared with conventional double-track systems, although there have been no significant incidents reported in the first year of full service operation.

Much of the Valenciennes Line 2 tramway lies beyond the city boundary. It was designed to be a regional transport system, serving a predominantly peri-urban settlement pattern outside of the city and larger rural settlements beyond, with a primary objective of encouraging mode shift away from the private car, and therefore reducing the impact of traffic entering the city. An important element of the plan has been the reorganisation of some regional bus routes away from providing direct services into the urban area and instead into feeder services for the tramway. Whilst this has reduced bus traffic and added tram ridership it has also, somewhat contentiously, increased journey times on some routes and introduced the requirement for those passengers to interchange between transport modes. However, the overall effect is positive and although there is not yet an ex-ante evaluation of the scheme, ridership levels have exceeded original projections.

4. Case Study 2: Kassel's RegioTram system

Karlsruhe was the first city in the world to deploy tram-train vehicles capable of interoperability between heavy and urban light rail networks, but Kassel can also claim a pioneering role in the development of regional light rail, having developed an extensive tram-train system linking Kassel to neighbouring towns and villages. The system includes a fleet of diesel-electric tram-train vehicles capable of using unelectrified regional railway lines. The objectives of tram-train include extending the reach of the urban light rail network into the surrounding region, reducing urban traffic through regional mode shift towards public transport, improving the regional economy through improved urban-regional accessibility, and enhancing mobility for all social groups. In Kassel and Karlsruhe, the regional tram-train services are known as RegioTram.

Kassel RegioTram began operating in 2007, after almost two decades of preparation and development. The first and perhaps crucial stage of this was the creation of a single transport authority for the Kassel region to develop and manage regional transport operations – the Nordhessischer VerkehrsVerbund GmbH (NVV) was created in 1995. The new transport authority began to take an interest in Karlsruhe's newly established RegioTram network and the success this was having in attracting modal share from traffic by offering direct rail connections from outlying villages to the city. Several important factors made tram-train a potentially viable option for the Kassel region. First, the key components were already in place in the form of an established urban tram network within Kassel and regional rail lines passing through outlying settlements. Secondly, a pilot project to use tram vehicles on a seldom-used freight line – the Kurhessenbahn – had established a working relationship between the urban tram operator and Deutsche Bahn, the owner of Germany's railway infrastructure; and had proved the principle of sharing track infrastructure between light tramway and conventional heavy rail vehicles. Thirdly, Kassel had a pattern of regional settlements that created

sufficient demand for RegioTram regular services, directly into the urban tramway network, but not such a high demand that would cause capacity problems[iii] (Figure 3).

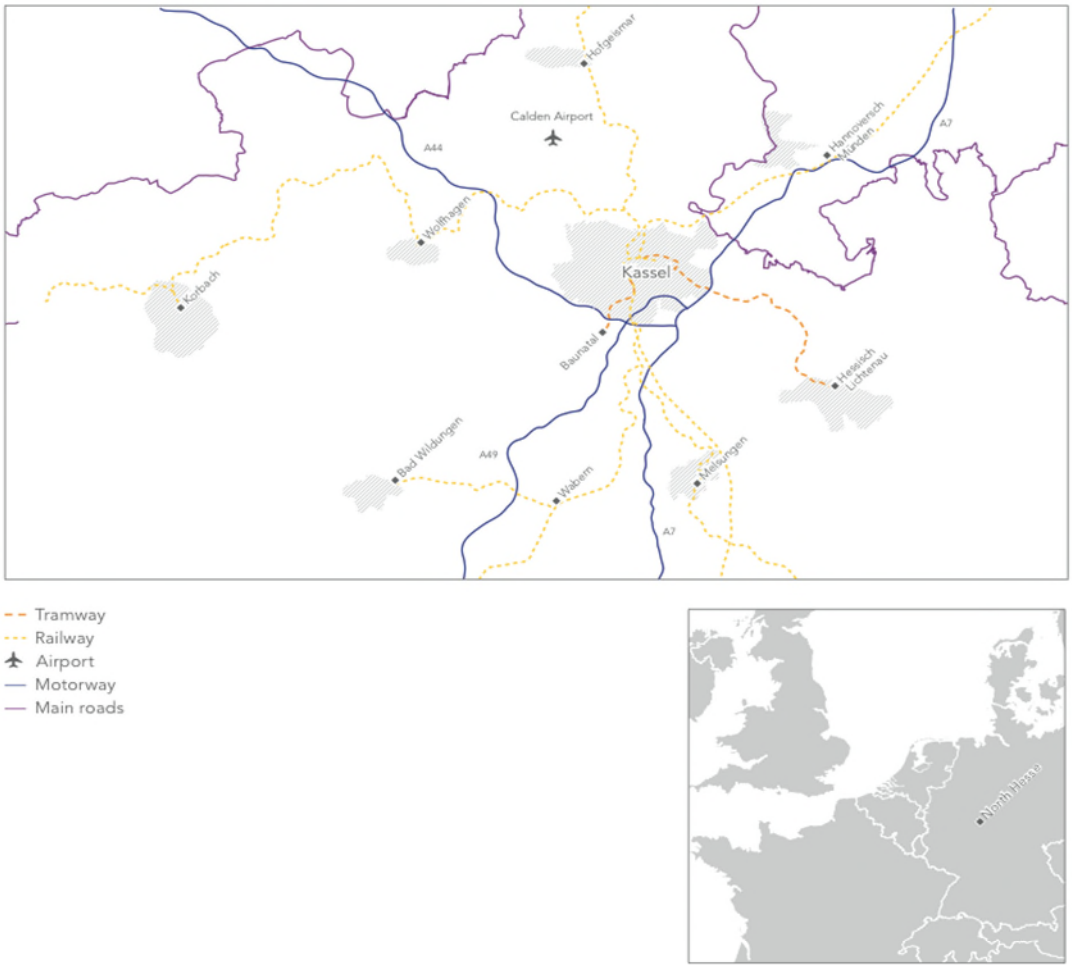

Figure 3: Kassel – the region and location in Germany
(from Hamiduddin et al., 2015)

One of the key challenges confronting Kassel was the low Wolfhagen tunnel on the regional line proposed for RegioTram, where overhead electrification was not deemed to be viable. Options included using a third rail system or to attempt to lower the tracks to provide sufficient overhead clearance, but both were very costly. Instead, diesel-electric tram-train vehicles were commissioned from Alstom to use on the Wolfhagen line at a cost of approximately €6 million per vehicle. This was nearly double the cost of a standard tram-train vehicle and had a greater operating overhead, offset against capital cost savings as the entire line remained unelectrified.

An important section on the network is Kassel Hauptbahnhof (the central rail station) where the connection between the urban tram network and regional railway lines has been made to allow the tram-train vehicles to interoperate between both systems. This required a tunnel under the Hauptbahnhof and the station was also refurbished as a 'cultural' station, with two cinemas, art gallery, exhibition space, architectural centre, restaurants and retail facilities. Regional trains still operate on lines served by the RegioTram to provide express services, while RegioTram provides a greater stopping frequency and services onto the urban tram network. In 2017, RegioTram covers over 120 km and is marketed as a regional network, operating routes RT3 (to Hümme), RT4 (to

Wolfhagen), and RT5 (to Melsungen). The tram-train project cost €180m, with federal and state governments funding 90 per cent of the total.

Although the improvement of the city and regional economy formed one of the aims for RegioTram, more specific objectives were not specified at the outset. Nevertheless, Holzapfel (2012: 138) argues that:

> "There is no question that the Regiotram and the overall expansion of the Kassel tramway system have had a major influence on the city's economic development and these economic benefits have been felt across the region too. This is a by-product of a regional economy that has grown over the years, with a 43 per cent overall growth in a five-year period between 2008 and 2013."

In other words, the RegioTram has helped to strengthen the urban economy of Kassel by improving accessibility from the surrounding region. The tram-train network has also been responsible for some positive economic effects across regional settlements, including:

- Station improvements, new retail units and employment opportunities;
- Patronage of retail and services in the vicinity of RegioTram stations;
- New housing and commercial developments in the proximity of stations;
- Support to businesses and local retail economies in regional settlements, with improved population and employment catchments.

Of these effects, the uplift in the regional real estate sector has perhaps been the most significant secondary effect of the RegioTram – with the region becoming more accessible to both employees and students alike, and hence becoming more attractive. As Holzapfel (2012: 138) notes:

> "The new network supports the development of trade and business in the metropolitan centre as well as connecting the University with the surrounding area. Without the expanded capability of the tram system, it would hardly have been possible for all of the 20,000 students and 2,800 employees of the University to reach their various destinations in the centre of the city. The Regiotram increases the attractiveness and the value of homes close to a line in the surrounding area, and improved overall regional accessibility has certainly had a positive influence on the Kassel area's growing economic success."

Figure 4: Kassel Königsplatz – the tram and tram-trains interchange in the city centre

The Karlsruhe region has recorded similar effects. In Bretten, a small town 30 km west of Karlsruhe, land prices have traditionally been low. With the introduction of RegioTram services, property prices in Bretten rose from €160 per m^2 in 1988 to €230 per m^2 in 2004, although still less pronounced than in other villages such as Gölshausen and Bauerbach that have experienced a doubling or tripling in real estate values over the same period. Other towns and villages in the region have not seen such property price increases, hence the tram-train appears to have significantly contributed to the uplift in land prices. This issue requires further research, in Kassel and elsewhere, identifying the impact of transport investment, alongside other factors, on property value increases. There are many dimensions to be explored, including issues of gentrification and affordability. In transport appraisal, development and land value increase is treated as a 'benefit' associated with transport investment, irrespective of the type of development – yet clearly, this is a position that can be challenged and requires further consideration (Hickman and Dean, 2017).

In Kassel, the tram-train has enabled a regional light rail system to be built with a modest capital cost. Of the 120+ km of RegioTram, only 3.7 km were entirely new sections of rail infrastructure to link the regional rail and urban tramway systems, modify routes and extend the tracks at a number of settlements. Other cities in Germany, Netherlands and France have recognised the potential cost-effectiveness of this approach, while the UK has begun trials of the vehicles between Sheffield and Rotherham in 2017. In general, the approach may be considered to be suitable for cities and regions with the following characteristics:

- An urban tramway system exists with an appropriate track gauge and a loading gauge sufficient to accommodate tram-train rolling stock; exclusive rights-of-way can maintain services with fixed schedules and designate access slots on regional rail lines;

- The regional rail network has existing and anticipated demand for conventional rail services (passenger or freight) which precludes conversion from heavy to light rail;
- Sufficient spare capacity is available on urban tramway and regional networks for additional tram-train services with a different operating profile compared to conventional heavy rail vehicles;
- Existing high levels of passenger interchange between regional rail and urban tram services are evident, caused by the separation of rail hub and central activity zone;
- Sufficient demand exists to and from regional destinations for direct rail access to the central activity zone and other key urban destinations which can be met within the vehicle capacity and scheduling limitations of tram-train.

The costs of introducing tram-train will depend both on the condition of existing heavy and light rail infrastructure and the type of rolling stock required. Some instances may require a trade-off between higher infrastructure expenditure (e.g. on electrification) but lower vehicle and operating costs, and vice versa. Tram-train vehicle costs can vary considerably, depending largely on power arrangements, including power sources (diesel-electric being most expensive), traction distribution (hilly terrain may require all bogies to be powered), internal specifications and overall order size. The small number of vehicles required for a limited system can create high vehicle costs, despite the large degree of commonality between tram-train and regular tram vehicles and recent efforts by manufacturers to encourage coordinated purchases. This requires strong levels of cooperation between a range of different agencies including urban tramway operator, regional rail track owner, local and regional governments, and the national licensing body. The operating costs of tram-train can also be significantly higher than conventional tram or light rail services, because of tariffs charged for access onto heavy rail lines and the costs of training and employing dual tramway and railway qualified drivers (Hamiduddin et al., 2015 and Naegeli et al., 2012).

5. Conclusions: transferring good practice to the UK?

Public transport provision in the UK is suffering from major problems, particularly beyond London and the major cities. Bus provision is inadequate and LRT systems have not been developed to any significant degree. The EU Sintropher project (Hickman and Osborne, 2017) has examined these issues, seeking to make the case and to provide improved regional public transport networks. Blackpool is the smallest conurbation with a working tram system by a considerable margin, having retained its seafront tramway largely for tourist use using a fleet of heritage vehicles. Plans for new tramway systems have been largely restricted to expansions of existing networks, with an exception in Preston, which is currently pursuing plans for a new lightweight system. The current situation means that the scope for tram-train deployment in the UK, following the Kassel or Karlsruhe model remains very limited. Beyond the current Sheffield-Rotherham UK tram-train trial, only the following three areas have expressed an interest in operating the vehicles:

- Greater Manchester, for use on services to and from Stockport;
- West Midlands, for potential use on the Wednesbury- Stourbridge, Walsall-Wolverhampton and Walsall-Wednesbury routes;
- Blackpool, for use on the South Fylde line to Preston.

The tram-train pilot in Sheffield-Rotherham is spending £70m for the trial of the system, and it is hoped this leads to much greater use of this technology. The low levels of funding, given over a trial period, shows the limited aspiration at the national level in the UK. Much greater ambition, and

funding, is required. There are some opportunities – the potential impact of the High Speed 2 north-south rail link means that Birmingham, Manchester, Preston and Sheffield will become important hubs. A considerable challenge will be to ensure that positive economic impacts are distributed for the benefit of the wider region, and it is here that wider tram-based networks can be used to 'irrigate' the region (Hickman et al., 2013). Without this, the benefits of HS2 are likely to fall to the larger cities, and in particular to London. Indeed, it should be noted that both Kassel and Valenciennes introduced RegioTram and the regional tramway as part of a regional development programme that included connections to the high-speed rail network. The Blackpool tramway perhaps offers much potential to be developed as a tram-train system, and was recently modified so as to be able to accept tram-train vehicles as part of its upgrade project in anticipation of Preston becoming a hub on HS2. Feasibility studies have also been undertaken as part of the EU Sintropher project, with options assessed to connect Blackpool tramway to the South Fylde Line, and beyond to Preston and Manchester. However, blockages remain in the limited powers for transport decision-making at the local level and availability of funding.

A related aspect is the on-going devolution in sub-national transport governance, with support for local funding priorities to be developed. This is part of a more widespread reform of sub-national and local transport management that, from 2015, has seen the devolution of powers and budgetary responsibilities to new Local Transport Bodies (LTBs). These organisations now co-exist with Local Enterprise Partnerships (LEPs) to shape spatial strategy over functional economic areas. In some areas of the country, the advent of combined authorities has placed further emphasis on the reinforcement of local and regional transport connections by enhancing rail services. As yet, however, the devolution of powers has not been matched with suitable levels of funding, even in the more progressive regions such as Manchester. As ever, transport planning is intensely political – developing an effective public transport system requires sufficient local autonomy, power and funding. Without these, the public transport system will remain inadequate in reducing transport energy consumption, carbon dioxide emissions and traffic casualties.

In terms of potential regional tram systems, including single-track variants, the combination of capital cost-effectiveness, high level of service frequency, and suitability to constrained urban environments, as demonstrated by Valenciennes' tramway Line 2, ought to be of great interest in the UK. Some discussions continue in historic, congested smaller cities, such as in Oxford and Bath, over the merits of different public transportation schemes – but very little progress is being made. There has been recent interest in the use of bus-based systems to provide lower cost high quality public transport in smaller cities and regions. In some circumstances a high quality bus service can provide an optimal approach, or even an intermediate step prior to the introduction of a tramway, as some smaller French cities have developed, such as Nantes. However, bus systems alone generally struggle to attract or convey levels of ridership, generate development impacts, or offer as high an image quality as tramway systems do (Hall, 2012; Hensher and Mulley, 2015). Again, the story from the UK is of little progress – there is too little resource available for strategic planning and the development of new public transport projects.

In both Valenciennes and Kassel, rising car use and the overall decline of public transport from the 1970s onwards has led to innovative approaches being developed, each focused on radically improving the public transport network. Both cases used devolved governance arrangements and budgetary responsibilities to open the potential for innovative public transport investment. Projects have been appraised against local policy objectives, rather than relying on CBA to prioritise funding

in a centralised manner. Subsequently, it has been found that the projects developed have much wider impacts than envisaged, as other developments have been used to capitalise on the investments. The process of project development has been both iterative and incremental.

Lastly, it is often stated that an influential advocate or 'champion' is required to help define and implement the project. This, of course, is self-evident, but doesn't really help us in understanding how more innovative tram-based systems can be developed across more of the UK. We cannot simply wait for our champion to arrive. The intriguing issue is how advocates appear in some countries, cities and regions, and not others. The conditions for leadership appear easier in some contexts relative to others. Usually it is the technical experts who develop the strategy and sell this to the politicians – hence there is an important role for a competent technocracy. But many problems remain: where institutional structures are fragmented, where different organisations are required to co-operate to facilitate progress; where funding is limited and prioritised on a competitive basis; where funding is centralised; where appraisal is carried out largely against notions of economic efficiency, and not against wider-ranging, local policy objectives. All of these issues mitigate against the development of innovative public transport projects. This framing of the decision-making process can be revised – but involves quite radical changes to the decision-making process. As Wolmar (2016) reminds us: it is the investment given to the private car that has been the great story of transport subsidy over the last 100 years. It is time for us to switch the investment priority given to different modes, and to include the city region and peripheral areas in a huge increase in public transport spending. To do this requires quite fundamental changes in our approaches to transport planning – Valenciennes and Kassel offer us a glimpse of what is possible and what the process might entail.

References

BBC News, 23rd November 2016. Oxford-Cambridge Rail Link gets £110m funding. Available at: http://www.bbc.co.uk/news/uk-england-38082338 (accessed 21 April 2017).

Beeching, R. (1963) The Reshaping of British Railways. London, British Railways Board.

Bett, W.H. and Gilham, J.C. (1976) The Tramways of South-East Lancashire. Light Rail Publishers.

Campaign for Better Transport (2016) Buses in Crisis. A report on bus funding across England and Wales, 2010-2016. London: CBT.

Coleman, A., Segar, J., & Checkland, K. (2015). The Devolution Project in Greater Manchester: Introduction to the Special Issue. *Representation*, 51 (4), 377-384.

Dean, M., Hickman, R. and Chen, C.-L. (2018) Testing the Effectiveness of Participatory MCA: The Case the South Fylde Line. Transport Policy, submitted.

Department of Transport Local Government and the Regions (2000) Transport: 10 Year Plan. London: TSO (http://www.railwaysarchive.co.uk/documents/DTLR_10YearPlan.pdf) [accessed May 2017].

European Commission (2010) Europe 2020: A Strategy for smart, sustainable and inclusive growth. European Commission: Brussels.

Eurostat (2013) Rural development statistics by urban-rural typology. Available at: http://ec.europa.eu/eurostat/statistics-explained/index.php/Rural_development_statistics_by_urban-rural_typology [accessed 12 November 2016].

Hall, P. (2012) Lifestyle lines and dynamic decentralisation. Town and Country Planning, 81 (3), 114-115.

Hall, P. (2013) Good Cities, Better Lives: How Europe Discovered the Lost Art of Urbanism. Routledge, Abingdon.

Hamiduddin, I., King, C. and Osborne, C. (2015) Connecting European Regions Using Innovative Transport: Investing in Light Rail and Tram Systems – Technological and Organisational Dimensions. EU Sintropher Project Report, Interreg IVB, London, UCL.

Hensher, D. A. and Mulley, C. (2015) Modal image: candidate drivers of preference differences for BRT and LRT. Transportation, 42(1), 7-23.

Hickman, R. (2017) Transport appraisal: thinking beyond the CBA? In: Docherty, I. and Shaw, J. (Eds.) The Inside Track: Why Transport Matters and How We Can Make It Better. Bristol: Policy Press.

Hickman, R. and Dean, M. (2017) Incomplete cost-incomplete benefit analysis in transport appraisal. Transport Reviews, in review.

Hickman, R., Hamiduddin, I., Hall, P., Jones, P. and Osborne, C. (2013) S-MAP 2030. North West of England Case Study: Irrigating the Region. London, UCL: EU Interreg IVB, Synaptic Project.

Hickman, R. and Osborne, C. (2017) Sintropher Executive Summary, Interreg IVB. London: UCL.

Hickman, R., Smith, D., Moser, D., Schaufler, C. and Vecia, G. (2017) Why the Automobile Has No Future: A Global Impact Analysis. Hamburg: Greenpeace Germany.

Holzapfel, H. (2012) The city that came out of the shadows. Town and Country Planning (March 2012), pp. 135-138.

Lucas, K. (2012) Transport and social exclusion: Where are we now? Transport Policy, 20, 105-113.

Mattioli, G., Philips, I., Anable, J. and Chatterton, T. (2017) Developing an index of vulnerability to motor fuel price increases in England. UTSG Conference. Dublin.

Naegeli, L., Weidmann, U. and Nash, A. (2012) Checklist for successful application of tram-train systems in Europe. Transportation Research Record, 2275(1), pp. 39-48

O'Brien, P., & Pike, A. (2015). City deals, decentralisation and the governance of local infrastructure funding and financing in the UK. *National Institute Economic Review*, *233*(1), 14-26.

Sloman, L. (2003) Rural Transport Futures: Transport Solutions for a Thriving Countryside. London, Campaign for Better Transport.

Transport Technologie-Consult Karlsruhe (TTK) (2014) Karlsruhe RegioTram [Presentation]. TTK, Karlsruhe

Wolmar, C. (2016) Are Trams Socialist? Why Britain Has No Transport Policy. London, London Publishing Partnership.

[i] This chapter draws on work carried out in the EU Sintropher project (Hickman and Osborne, 2017; Hamiduddin et al., 2015), part of the Interreg IVB programme, see http://sintropher.eu/.

[ii] In France the utility providers are expected to cover the cost of relocating services – a significant expense that can account for much of the discrepancy in capital costs between UK and French tramway systems.

[iii] Tram-train services are constrained by a unique set of circumstances that include the availability of slots on feeder regional railway lines, the capacity of the urban tram network itself, and limitations on the vehicles themselves. It is often not possible to attach multiple vehicles together because of the short urban tramway platforms and out of consideration for other street users.