

Guest Editorial: **Cities for People: Reclaiming the City**

Authors:

Peter Jones¹, Becky P.Y. Loo^{2,3} and Pengjun Zhao⁴

¹ University College London, UK

² The University of Hong Kong, Hong Kong SAR, China

³ Jiangxi Normal University, China

⁴ Peking University, China

Background

The impetus for this special issue arose from a successful application for a collaboration between the University of Hong Kong (HKU) and University College London (UCL), to each university's Strategic Partnership Fund. This supported two one-day workshops in 2018, one at each institution, under the theme of 'The role of transport in transitioning to liveable and sustainable cities in Europe and China'.

The intention was to build on the best papers from those workshops and compile a special issue in a leading internationally journal, on the more focused theme of 'People in Cities'. Frank Witlox, Editor in Chief, kindly agreed to provide space in the *Journal of Transport Geography*. So, this special issue includes selected papers drawing from both workshops, plus several others solicited from an open call. Collectively, they provide new knowledge and insights into addressing three key questions:

- City evolution and travel behaviour – how are they related?
- Walking – the neglected mode?
- Equity and (in)equality – a missing dimension?

The workshops drew extensively on previous European research on city policy evolutions, including insights developed in the EU 'CREATE' project. Some of these findings are summarised first, to give a historical context to the papers presented in this special issue. The commissioned papers addressing the three key questions listed above are then summarised, in turn, drawing out their relevance for examining 'Cities for People'; and this paper ends with some general conclusions and recommendations, for further research and for policy application.

Historical context

Cities across the world have been strongly affected by a global wave of motorisation, starting in the 1930s in the USA, reaching Western Europe and Australasia in the 1960s, much of Asia in the 1980s and yet to be fully experienced through much of Sub-Saharan Africa.

In most cases, the reaction of city authorities – often with political and financial support from national governments - was to re-engineer the city, by building new or upgraded road networks, so that car owners could enjoy the benefits of their investments. This often resulted in major disruption to city fabrics, as had the building of urban railway lines in previous centuries; but was initially introduced with general public support, both among the richer car owners and among less wealthy groups who aspired to owning a car of their own, one day. Being a 'modern' city was associated with being a car-friendly city.

However, over time, citizens and politicians in many older, pre-car cities (where car infrastructures had been retrofitted into the urban fabric), started to question the desirability – or feasibility – of accommodating high levels of daily car use. In the UK, for example, the Buchanan Report (HMSO, 1963) raised the alarm over the likely consequences of high levels of car ownership and use in urban areas, noting the incompatibility between high traffic levels and high-quality living environments; and argued that cities would either need to be fundamentally rebuilt to accommodate high levels of car use, or cars would need to be restrained. With the exception of Singapore, which introduced the world’s first road pricing scheme in 1975, and new cities that were built around the car (e.g. Milton Keynes in England), most established cities did neither. They typically attempted to increase road capacity through a combination of limited new road building and re-engineering the existing network (through one-way streets, co-ordinated traffic signals, etc.), while leaving urban structures largely unchanged. But, for many cities, this compromise resulted in a situation that was unacceptable, both for urban movement (heavily congested, vehicle-dominated streets) and the street environment and urban liveability (poor air quality, severance, etc).

The EU ‘CREATE’ project (www.create-mobility.eu) investigated the evolution of transport policy in five Western European capital cities (Berlin, Copenhagen, London, Paris and Vienna) over a period of half a century, from the 1960s to 2010s. It identified a series of sequential changes in policy mindsets (and associated changes in car use), which can be summarised as:

- Stage 1 - Car-oriented city: road building, car parking provision
- Stage 2 - Sustainable mobility city: promotion of public transport and walking & cycling, with some roadspace reallocation
- Stage 3 - City of places: active traffic restraint and supporting better public spaces and street activities

Figure 1 illustrates schematically these policy transitions and their consequences:

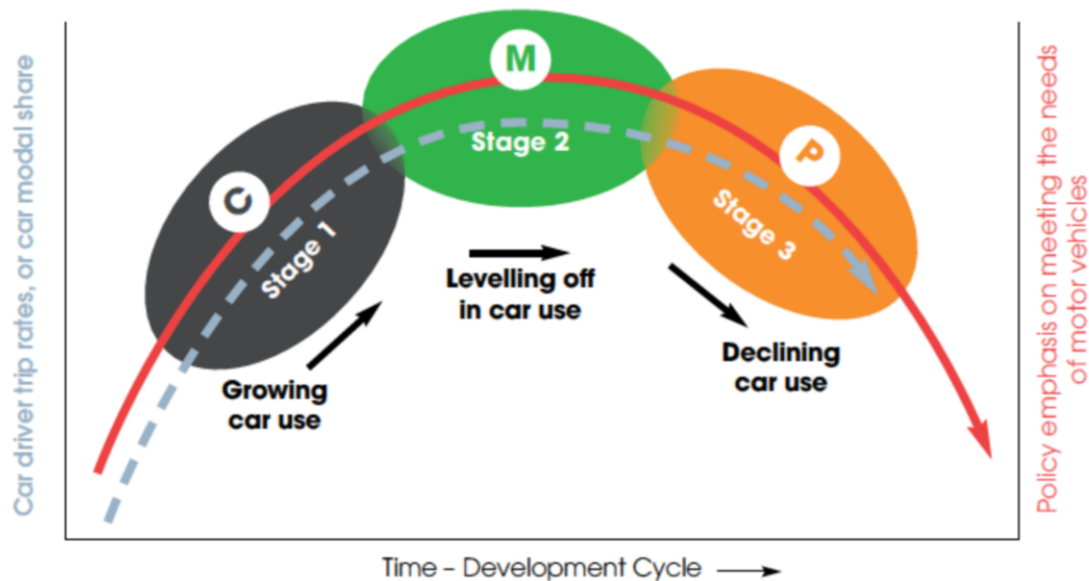


Figure 1: Policy mindset evolution and consequential impacts on car use
Source: Jones et al (2018)

Adapting to becoming a car-oriented city (Stage 1) was accompanied by increased levels of car use, initially using spare capacity on the road network and through some reallocation of space to car traffic (e.g. narrowing of footways and the removal of street tram systems), and then through new road building and through squeezing additional capacity from historical road networks.

The CREATE cities quickly realised the limits of this approach, both technically and politically, as they experienced backlashes against the construction of major new roads in established built environments, and the unattractiveness of cities 'choked' by slow moving road traffic. The oil crisis in the 1970s also highlighted the dangers of becoming over-reliant on a transport system dominated by private cars.

The response was to re-think the objective of urban transport planning: from a focus on moving vehicles, to one of moving people, in more efficient and environmentally sustainable ways – a sustainable mobility city (Stage 2). This was associated with greater promotion of public transport and cycling, partly through reallocating space from general traffic to bus/tram and cycle lanes; and was accompanied by a levelling off in the growth of car traffic.

But, this still left cities with streets that were dominated by vehicles, and by the turn of the century, the CREATE cities were redefining themselves as Cities of Places (Stage 3) – bringing back life to the streets - and actively restricting levels of car use, in some areas, while encouraging walking. This has resulted in reduced levels of car use; in London, for example, the modal share of residents' trips by car reduced from 45% in the late 1990s, to 32%, twenty years later.

Currently, the prevailing policy paradigm in most more advanced cities around the world is to focus on moving people not motor vehicles, and on creating attractive, liveable spaces that support healthy living.

One big change since the CREATE project concluded in 2018 has been the rapid rise in concern about the climate crisis and the commitment of many cities to meet (net) carbon zero targets. Several studies have shown that electrification of the vehicle fleet alone will not deliver the carbon reduction targets within the needed time scale, and that this will need to be accompanied by reductions in car traffic levels. Scotland, for example, has declared a national target of reducing car kilometres by 20% by 2030; and its two largest cities, Edinburgh and Glasgow, have set themselves 30% car kilometre reduction targets by 2030. This has strengthened political resolve to move from Stage 1, to Stages 2 and 3.

This provides the context for the papers that appear in this special issue. They can be grouped into three categories. First, city policy evolutions, as a means of supporting changes in travel behaviour towards sustainable mobility and liveable cities. Second, a greater recognition of, and support for, walking as a major urban mode of transport. And third, a larger group of papers dealing with aspects of equity - a component of policy that can be found in political rhetoric, but has largely been missing during policy appraisal and implementation. This becomes of increased importance, in the context of introducing the – sometimes contentious - mitigation and adaptation changes needed to deal with climate change.

City evolution and travel behaviour – how are they related?

Three papers explore further the notion of city evolution and changing patterns of travel behaviour. The first, by **Teoh et al (2020)**, adapts the CREATE urban transport policy development characterisation, summarised above in Figure 1, by using the economic development of each city (GDP per capita) at the same point in time as its primary metric, rather than evolution of behaviour over time. It analyses data from 100 cities around the world, and finds that the share of residents' trips by private motorised modes (car and motorcycle, driver and passenger), tends to be higher in cities with a greater GDP, but that this relationship shows a clear bifurcation. An upper line shows the motorised modal share increasing consistently with cities of higher GDP per capita, rising to 80% - 90%; while a lower line shows a peak of around 50% modal share at a GDP of US\$30,000 (1995 prices), thereafter reducing in cities with higher levels of GDP (up to US\$60,000).

The paper investigates what characterises the cities that display these two distinct relationships with GDP, and finds that there are several notable differences, in terms of: car ownership per capita, urban density, level of provision of roads and parking, degree of public transport provision and relative speeds. Broadly speaking, the difference between a modern North American city and a traditional European one. The previous analysis is based on cross-sectional data. Finally, the paper looks at a small subset of cities for whom similar data is available for 2012; and from visual inspection observes that as individual cities increase in wealth, they acquire the characteristics of cities with that higher wealth level in 1995 (e.g. a drop in motorised modal share with increasing wealth, on the lower trajectory). This supports and generalises the CREATE findings, and demonstrates that city structures and transport investment patterns can significantly influence car modal shares.

The theme of factors affecting car use, and potential future trajectories, is taken up in the second paper by **Cavoli (2021)**. She uses another part of the data collected during the CREATE project; this focussed on five cities from Eastern Europe and the Middle East (Adana, Amman, Bucharest, Skopje and Tallinn), where car ownership is still growing rapidly. She looks at factors that are contributing to rising levels of car use and dependency in these cities, and poses the question of whether they might be modified or reversed, to support reductions in levels of car use.

She finds that most of the five cities have grown rapidly, but in a largely uncontrolled way, resulting in low density urban sprawl. During the first two decades of this century, car owning and running costs have been decreasing, due to an influx of cheap second-hand cars, and a general decline in fuel prices. Car ownership carries status, and rising GDP per capita brings ownership within reach of a wider population. At the same time, public authorities have supported these developments with 'Stage 1' policies that have invested heavily in new road capacity and parking facilities, while neglecting active modes and providing poor quality and unsafe walking and cycling environments.

The paper concludes by setting out a challenge for cities in places in which car ownership levels are still relatively low, such as in Sub-Saharan Africa, which are just entering Stage 1 of the CREATE cycle: can such cities 'leapfrog' to Stage 2 (Sustainable Mobility) and Stage 3 (City of Places)? There are many examples of cities that invested in costly elevated road infrastructure (e.g. Birmingham, Rio de Janeiro,

Seoul) during their Stage 1 phase, only to remove it decades later at considerable further cost, in favour of sustainable mobility and place-making policies.

The third paper, by **Charreire et al (2021)** focuses in more detail on a range of factors, both individual and contextual, that account for the decisions taken by travellers to use sustainable modes in preference to private cars, both for commuting and non-commuting purposes.

Data was collected in an on-line survey from over 6,000 residents in twelve administrative neighbourhoods from each of five city regions across Western and Central Europe (Budapest, Ghent, London, Paris and the Randstad, in the Netherlands). As well as reporting on their behaviour, respondents were asked about their main reasons for using particular modes, and this was linked to data on their socio-demographic and neighbourhood characteristics.

The study found that people who made greater use of sustainable travel modes often took network availability into account when selecting their residential location. In the case of walking and cycling, for most people this was an active preference to use these modes, both for enjoyment and health reasons. In low density neighbourhoods, with few local facilities and limited public transport services, car use dominated – supporting the conclusions from the two previous studies.

Walking – the neglected mode?

Two papers address the importance of walking in the city, both as a means of transport and as a contributor to wider urban policy goals, and how this might be encouraged through a better quality and quantity of infrastructure provision.

Loo (2021) focuses on the role of walking, both as a key form of sustainable mobility and as a contributor to a healthy and happy lifestyle. She contrasts the historical neglect of walking under the vehicle/car dominated paradigm – where it was viewed as an impediment to vehicle movement - to its prominence under the current policy paradigms outlined above, where the focus is on people movement and liveability.

Accommodating and encouraging walking, as part of promoting a happy city, requires better information both about walking travel patterns and about current levels and quality of provision – is it ‘fit for purpose’? Providing a walkable environment requires attention to detail, and the author illustrates this detail by presenting and discussing a Street Walkability Test audit tool, which has been developed and applied in Hong Kong. This has six components and is assessed on three core experience dimensions: safety, comfort and convenience.

She emphasises the importance of walking to city life, both as a main mode and a key stage in vehicle-based trips, and the need to improve the walking experience – not just the physical infrastructure – if cities are to become happier and healthier places.

Yeh and Zhong (2021) contribute to the provision of better infrastructure to support the growth of walking, proposing a method that will increase the reliability of pedestrian navigation systems, by automatically updating pedestrian centre-line data, as new information becomes available.

Particularly in complex and multi-level pedestrian environments, such as are found in Hong Kong, navigation between and within buildings can be challenging and confusing, and may discourage people from making journeys on foot. Up-to-date navigation systems can therefore make a significant contribution to encouraging people to make new journeys on foot.

Navigation paths can be constructed by connecting a series of navigation polygons, using four polygon construction methods. The paper sets out a polygonization method for the automatic generation of pedestrian navigation paths, both for outdoor networks, and for navigating complex environments within buildings (e.g. large shopping malls, linked to metro stations). It illustrates an application using available GIS and BIM (Building Information Model) data sets.

Equity and (in)equality – a missing dimension?

Half the papers in this special issue deal with the topic of equity and inequality in urban transport provision.

The first paper, by **Zhang and Zhao (2021)**, provides a very comprehensive review of the growing, but disparate, literature on urban transport equity in China, as the country increasingly moves from a planned to a market economy. It identifies three major strings of work, at the nexus of people, mobility and transport.

The Chinese literature has focused on three perspectives, each of which is critically reviewed: (a) spatial variations in travel behaviour, mainly associated with built environment characteristics; (b) transport disadvantage arising from social market reforms, mainly in terms of the implications for daily commuting; and (c) more recently, socio-spatial variations in mobility and accessibility, using big data (with its inherent sampling biases). None really answers the question “what is transport equity?” so the paper then turns to Western literature, and considers how these insights might be applied to Chinese research. Among other issues, it highlights the tensions between adopting a profit-oriented land auction system, with delivering outcomes that are socially equitable, and the challenges posed by a rapidly ageing population.

The paper concludes by supporting a shift in research emphasis, away from quantifying mobility inequalities, to examining accessibility distributions.

This theme is taken up in the second paper by **Cohen (2020)**, who proposes a modification of the conventional ways of measuring accessibility – the more complex of which appear to be a ‘black box’, to potential users - to provide a workable measure of (in)equality, which he calls the ‘Index of Personal Travel Impact’ (IPTI). Being a measure of accessibility, it takes into account both realised and potential travel.

The Index combines door-to-door travel times, from home to different types of destination, with a weighted measure of cost that takes into account the relative income of a particular population group. Cost is converted to equivalent minutes (using a local ‘value of time’) and added to the travel time – so the output is in weighted minutes. Rather than measure access to all possible destinations, the user is encouraged to select a set of potential feasible journeys relevant for a population subgroup; these weighted minutes are added and divided by the total crow-fly distance required to make those trips, to obtain a weighted score per unit distance.

The method effectively takes out the effects of density and directness of travel routes – which the author argues is outside the control of individuals – and instead gives an indication of the resource per unit distance that needs to be expended by a population group, thereby defining (in)equality in terms of the required intensity of resource use (both time and weighted cost).

The third and fourth papers report on empirical studies, looking in detail at spatial accessibility, with a focus on public transport deserts and access to public parks, respectively.

Aman and Smith-Colin (2020) provide a USA perspective, through an equity analysis of public transport accessibility deserts in the City of Dallas. They do so by quantifying and comparing transit accessibility (supply) and transit dependency (demand), through an enhanced ‘vertical equity’ lens.

The method first identifies the potential demand for transit, at a census tract level, by summing ten socio-demographic indicators that described residents’ characteristics; combined scores are grouped into quartiles. Transit service levels are measured by developing and applying a Comprehensive Public Transit Accessibility (CPTA) score, using various indicators grouped into four characteristics: access to the network, connectivity to destinations, service frequency, and flexibility and time efficiency’; again, data is analysed at census tract level and total scores grouped into quartiles.

The authors are then able to identify ‘transport deserts’ in Dallas, by overlaying the two scores to identify areas with a high transit-dependency score and a low transit supply score. They provide a rich and insightful analysis, by not simply measuring access to bus stops, but by taking into account destinations and the timing of services. They find that the main transit deserts are located on the southern fringes of the city.

Li et al (2021) focus on China, and examine the spatial equity of access to public parks, large and small (recognising their major health benefits), in part of the Nanjing region, taking into account network characteristics and the performance and availability of four transport modes. The analysis was conducted at the spatial level of the community, and considered access to nearby parks.

The method combines data on park entrance locations, network configurations and distances from homes to parks by mode, average travel speeds by mode, and city-wide modal share percentages. A threshold level of 10 minutes was selected, for assessing accessibility to parks by mode from each residential area, and then converted into equivalent distances. The total area of parks is taken into account, giving an indication of the available space per resident. Results are estimated for each mode separately, together with a combined one based on weighted modal split averages.

By using network-based distances and taking into account the reported availability of different transport modes to various population groups, the study provided a much more nuanced analysis of spatial inequities in park access. It found that such inequities were most severe in suburban districts, due in large part to poor public transport provision, and confirmed findings from previous studies in other Chinese cities. It,

therefore, alerts planners to pay greater attention to providing local parks as part of major new housing developments, to ensure equitable access.

Finally, the paper by **Hickman et al (2021)** takes a different approach, looking at how major transport investments can stimulate local land use changes, and considers their potential equity implications. The authors use the planned redevelopment of Euston station in London, as part of the construction of the High Speed Two line to the north of England, as their case study. They set out to explore, predominantly through a structured interview, whether expectations are that the new building developments surrounding the station will help to regenerate the area in ways that benefit the local communities, or are likely to lead to gentrification and the displacement of local businesses and residents.

A Q-analysis methodology was applied; a total of 58 statements were developed, that covered economic, social and environmental perspectives regarding HS2 and Euston station redevelopment. Respondents were asked to rate them, in terms of their level of agreement (up to +4), or disagreement (down to -4), with each statement. 28 stakeholders took part in the study, carefully selected to include residents, employers, local government representatives, transport organisations and academics.

Three distinct discourses emerged, providing different perspectives. The 'rail promoters' were very positive about the core station scheme and about the wider regeneration benefits that the investment would trigger. The 'community activist' and 'optimistic practitioner' groups were much more concerned about potential detrimental effects on local residents and businesses – but often their views are hardly heard in the decision-making process. The authors recommend that the interests of all groups are fully taken into account in transport project appraisal, and that this appraisal should explicitly consider the wider land use impacts.

Conclusions and reflections

This set of papers has added considerably to the literature, in several areas and in different ways; from new literature syntheses, to adding conceptual understandings, presenting new qualitative and quantitative findings, and providing fresh policy insights. From this, we can draw several conclusions.

First, there is strong evidence that cities can have a major influence on urban travel patterns, through the nature of their transport investments, traffic regulations and land use planning controls. Drawing on this experience will give cities greater confidence to adopt policy packages that will help them to achieve their carbon reduction targets and liveability aspirations.

While sustainable mobility and active travel are key components of such packages, it is evident that walking is the most neglected mode of urban transport. Yet it is the mode that is most widely available, cheapest to use, contributes to healthy lifestyles and facilitates informal social interactions. Infrastructure investment costs are low and provide very good value for money – but it is not politically 'sexy'.

There is a now substantial and insightful academic literature on transport equity; but very little of this has yet fed into practical transport planning. This is mainly due to a lack of consensus on the precise definitions of equity and equality, in forms that can

be translated into practical applications. However, transport-triggered civil unrest is increasing, from the fares protests in Santiago, to the ‘yellow vests’ protests across France. Financial and environmental pressures are growing worldwide, so it is vital that this subject is given urgent attention and fully incorporated into transport policy decision making.

Linking equity back to the three-stage policy evolution framework presented at the start of this paper, Figure 2 (derived from workshop discussions in Hong Kong and London) summarises the kinds of equity issues to be found in each type of city. It suggests some possible solutions, all of which require a set of ‘enabling factors’ - such as funding, technology, political will and suitable governance arrangements – for them to be successfully implemented.

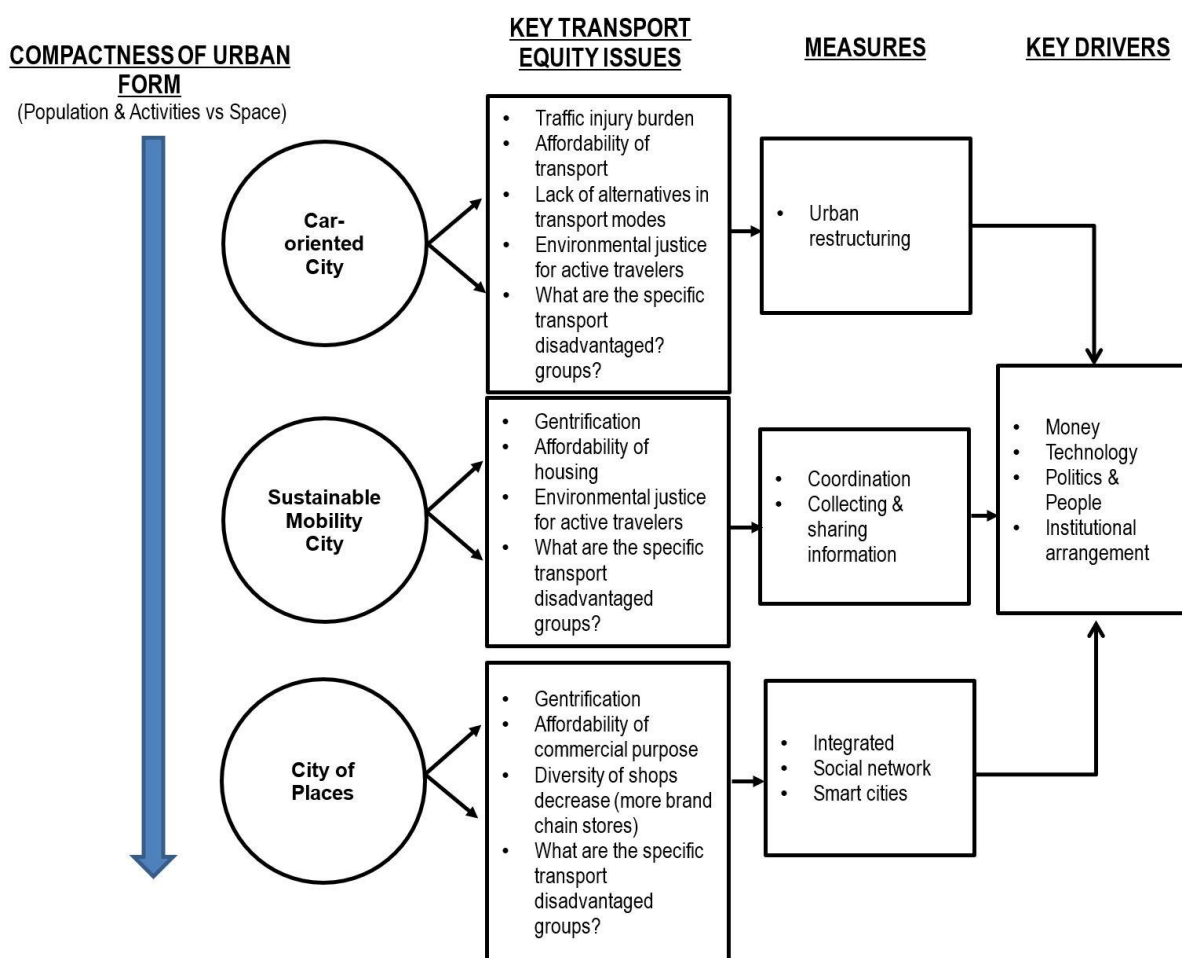


Figure 2 Challenges of transport equity and key measures of addressing it
Source: Prepared by Becky P.Y. Loo based on the HKU-UCL Workshop (2018)

Looking towards the future, cities will continue to adapt and evolve, as they always have, whether in response to short-term shocks such as COVID-19, or to long-term challenges - notably climate change and the need for carbon mitigation. To assist cities in developing effective strategies and policy packages, several international organisations (e.g. European Investment Bank, World Bank) are championing the use of the ‘Avoid-Shift-Improve’ framework, which for passenger travel involves:

- Avoid the need for travel, by reducing the number and length of trips
- Shift trips, away from cars to more sustainable travel modes
- Improve, for remaining car trips, fuel efficiency and the electrification of the fleet

To face the eminent urban challenges, integration needs to be applied at two levels: within the transport sector, and between transport and other economic sectors. The former is taking shape primarily through the development of 'MaaS' (Mobility-as-a-Service), which aims to provide a one-stop shop for door-to-door, multi-modal journeys (information, booking and payment, and on route support), that it designed to encourage drivers to Shift from private car to sustainable forms of mobility.

Cross-sector integration can help to support a range of Avoid, Shift and Improve policy measures. This has been very difficult to achieve historically, as each sector has its own objectives and priorities; however, increasing numbers of organisations are conducting 'phase three' carbon audits, in which they identify and take responsibility for the transport carbon emissions generated by their activities¹. This provides a unique opportunity for cross-sector collaboration and should be grasped.

Since travel is largely a derived demand, most trips that people make – in terms of their timing, frequency, destination and mode options – are heavily influenced by way that other sectors provide their goods and services (Jones and Smeds, 2021). For example, whether health care is centralised or decentralised has a major influence on trip distances and mode choice options. Hence, effective Avoid strategies can be introduced by encouraging other sectors to think about how to deliver their intended outcomes, with less transport inputs. The COVID-19 pandemic, for example has shown how many activities can be switched from physical to 'virtual' mobility – such as by working from home.

Such cross-sector collaborations can also support Shift and Improve policies. Sectors can encourage their staff, customers and visitors to use non-car modes, where possible, when travelling to their sites; and active co-operation with electricity-distribution companies is essential for Improve strategies to roll-out electric vehicle charging points across urban areas, at minimum cost.

So, there is plenty of scope for further academic research; but also, a plea from the editors to translate more of this academic knowledge into forms that can be applied by transport policy makers and practitioners, to assist them in tackling the major and urgent challenges of climate change and social inequalities, in particular.

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¹ For example, The National Health Service in England found that 14% of all its carbon emissions derive from transport (NHS 2020).

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