Rethinking transport finance and funding

Where will the money come from?

london transport museum
GOWLING WLG
THALES Together • Safer • Everywhere
ARUP

Published as part of London Transport Museum's Interchange programme

About this report

This Rethinking Transport Finance and Funding report has been produced by Arup in collaboration with London Transport Museum as part of its thought leadership programme, Interchange. Interchange is sponsored by international law firm Gowling WLG and global transportation company Thales.

The report draws on a series of five Interchange events held between July 2019 and January 2020. These brought together leading thinkers and decision makers to debate the challenges and opportunities facing cities, transport and infrastructure, today and tomorrow.

London Transport Museum

London Transport Museum is the world's leading museum of urban transport. Using our collection, exhibitions and events we tell the story of London's journey to ignite people's curiosity to shape the future. The Museum offers unforgettable experiences that help get the most of our city and provides excellent networking, thought leadership and business opportunities for our corporate supporters.

Arup

Arup is an independent staff-owned firm working across every aspect of today's built environment. We are guided by our founder Sir Ove Arup's spirit and principles. Together we help our clients solve their most complex challenges – as we strive to find a better way and shape a better world.

Gowling WLG

Gowling WLG is an international law firm with more than 1,500 legal professionals in global offices. We provide our clients with in-depth expertise in key global sectors and a suite of legal services at home and abroad. We see the world through our clients' eyes, and collaborate across countries, offices, service areas and sectors to help them succeed, no matter how challenging the circumstances.

Thales

Transport networks around the world rely on Thales technologies and expertise to ensure safer and more efficient passenger journeys. Thales is a global leader in rail, road and urban transport solutions that meet the infrastructure needs of tomorrow. Whether it's increasing the capacity of a network, improving the safety of passenger journeys or helping operators to save costs, we work as a trusted partner to solve our customers' biggest challenges.

Foreword

Sam Mullins OBE
Director, London Transport Museum

Adequate funding and financing have long been a challenge for the development, operation and maintenance of public transport infrastructure.

In Victorian London, private financiers carried the costs and risks of investing in innovative new transport, their eyes firmly on the promise of profits.

But as the Capital's transport network expanded during the twentieth century, growth has been underpinned by a combination of government funding, passenger revenue and private investment.

Today, new technologies, changing working practices and concerns for the environment are disrupting how and why we move around and the modes of transport we choose to use.

Now, more than ever, opportunities exist to develop new transport infrastructure that embraces emerging technologies, maximises public benefit and drives economic growth in our towns and cities.

But one question remains the same: where will the money come from?

As the global trend toward urbanisation continues, and demand for efficient, flexible and sustainable modes of transport grows, so will competition for funding and finance.

And, it is not just competition for capital which must be considered.

Our traditional models of financing transport infrastructure are changing too, with global cities such as London, New York, Paris and Toronto recently experiencing fluctuations and even decline in ridership and farebox revenue.

The latest in our series of Interchange thought leadership events, hosted in partnership with Arup, Gowling WLG and Thales, brought together transport industry professionals, academics and policy makers to grapple with these challenges and opportunities.

What has emerged is an overwhelming sense that now is the moment to radically rethink funding and financing models to cope with a disruptive future.

This report brings together insights from these debates and offers an overview of the key issues and solutions.

We hope you find it both informative and thought-provoking.

Introduction

Arup, Gowling WLG and Thales are delighted to have worked with London Transport Museum on its latest Interchange report. This time we looked at the vexed issue of transport infrastructure finance and funding[1].

The global trend towards urbanisation and associated demand for urban travel has been a phenomenon for many years. As a result, major transport schemes exist in a world where they compete against each other (and other infrastructure types) for investment.

For transport, there are some complex changes afoot. New technologies, changing working practices and business models for 'Mobility as a Service[2]' are disrupting how and why we move around. All this will have an impact on demand levels and the economic and commercial cases underpinning projects. A well-thought-out financial strategy linked with long-term land use planning can help to ensure there is sufficient demand to justify investment. We know transport projects are 'greedy' for capital. As a result, city governments and others are looking for additional ways to help pay for schemes – for example, by tapping into the 'windfall' value generated via land or property owners.

Concerns about the impact of traffic on our towns and cities – and indeed the environment more generally – are more pronounced now than at any time since road pricing was first mooted in the 1960s. Tackling climate change at a global level, alongside concerns about air quality more locally, represent major policy challenges that will not go away.

Given these themes, this latest Interchange report centres around the following topics:

- **Can we take growth for granted?**
- **Public and private finance**
- **Harnessing innovation**
- **Road user charging**

[1] The terms financing and funding are sometimes used interchangeably, although there are important differences. Funding refers to the eventual payer of the costs that are incurred in building and operating the scheme. That is, the sources of revenue for a project that will be used to satisfy the capital and operating costs. The funders are those that pay for the asset in the end, and unlike financiers, do not expect their money back. Instead they receive a service in exchange for their contribution. Financing refers to the financial arrangements put in place to provide the capital and sometimes renewal resources. This can be in the form of debt (e.g. bank loans), or through more complicated structures such as equity investment in special delivery vehicles. The cost of financing will need to be met from funding sources. In this way, financiers are distinct from funders as they expect their money back, often with a risk and/or interest premium.

[2] Mobility as a Service is the integration of various forms of transport into a single mobility service, accessible on demand.

[3] The sharing economy is an economic system in which assets or services are shared between private individuals, either free or for a fee, typically by means of the Internet.

This series of events involved a wide range of speakers and guests who were able to draw on their experiences from across the world. We learnt how securing financing can create major headaches for cities and the corporations trying to get schemes going, but well-thought-out investment strategies can unlock the wider value which projects bring to the economies and communities they serve. We saw that *how* value is captured is a balancing act – take too much and projects will stall or perhaps lead to over development; too little and there is a missed opportunity to deliver investment.

Generating revenue and securing borrowing is only one side of the equation. The other is harnessing the strengths of the public and private sectors to deliver projects on time and budget. But getting incentives right is a balancing act. It may involve the use of tried and tested technologies, modular design, innovative techniques and, of course, well-thought-out contracting structures. These can make the difference between projects staying in the black or going bust. While private finance has proved controversial in the UK and elsewhere with concerns over value for money, closing the door on private sector involvement would also appear premature.

The themes of technology, innovation and pricing – the third and fourth areas that our series touched upon – revealed how the advent of new technologies and the sharing economy[3] means there is perhaps a window of opportunity to get more efficient pricing mechanisms in place on our roads and railways.

Ultimately, transforming a transport project from the drawing board into a service demands an almost alchemy like mix of political skill, technology, resources, foresight and luck. But arguably, it should all start with answering the question of how we finance and fund whatever it is we are trying to build and the sorts of cities we want to create. This short report attempts to explore some of these challenges and opportunities.

Can we take growth for granted?

With increasing urbanisation, there is a need for investment in public transport to allow our cities to grow sustainably and also to accommodate changing patterns of demand.

New high quality, sustainable and efficient public transport schemes are imperative to strengthen and improve the resilience and competitiveness of our cities. This includes their economies as well as protecting the environment and contributing to wider social objectives. Funding and financing transport improvements are therefore essential to secure our cities' sustainable development.

The traditional way of funding transport infrastructure in the UK, through government grants, has given way over the years to an approach where the main beneficiaries are increasingly expected to pay[4]. But even though population, employment and economic growth has taken place, demand for transport has been stalling at an OECD level (see figure 1). London, Paris, Toronto and New York have all experienced these trends (as illustrated in figure 2) although others, such as Hong Kong, have seen continued growth over the last 10 years.

> "Public transport systems can support our cities and the environment whilst boosting good growth. Funding and financing mechanisms need to be brought together in a way that creates lasting value for everyone with a stake in our cities."
>
> **Alexander Jan**, Chief Economist, Arup

[4] Funding and Financing – National Infrastructure Assessment, National Infrastructure Commission (2018).

Figure 1: Decoupling of economic growth and growth in passenger kilometres in OECD countries

Indexed growth OECD GDP (US $ per capita), road and rail transport (million passenger kilometres (1990=100)

Source: OCED, Arup analysis

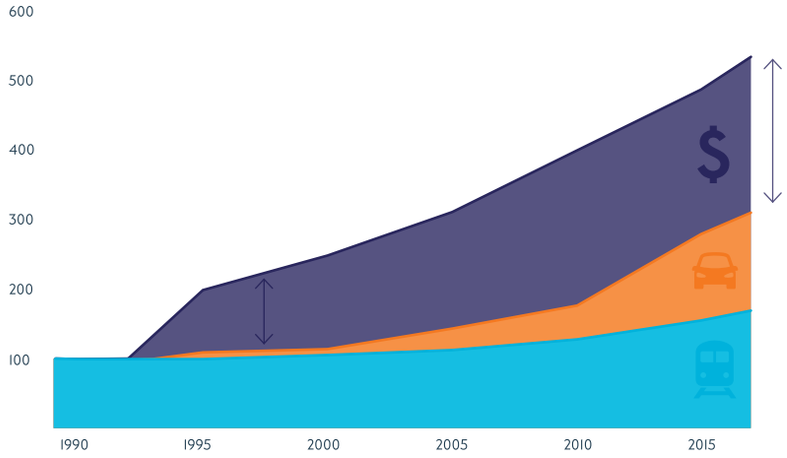
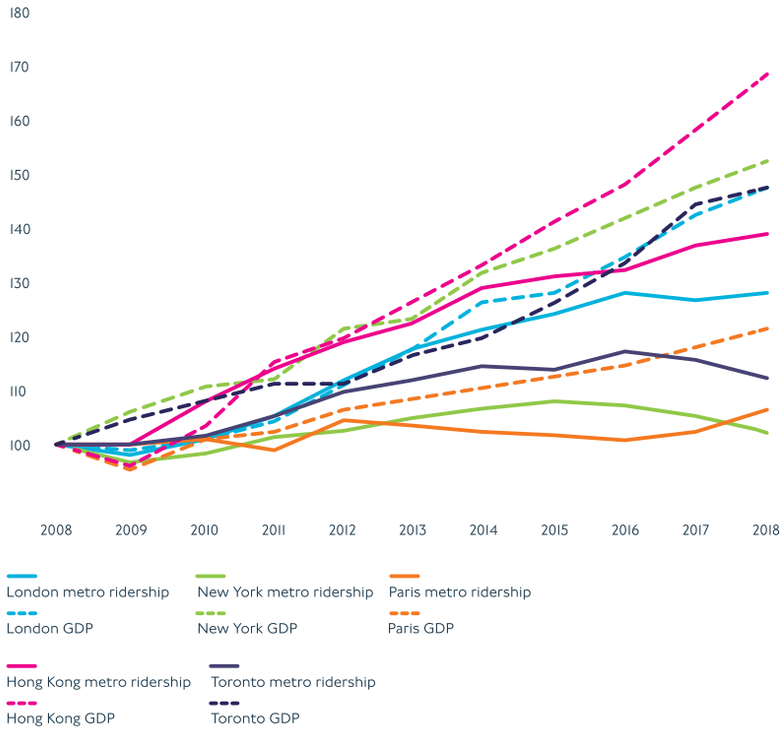


Figure 2: GDP and ridership growth for global metro systems (underground)

Source: TfL; MTR; RATP; MTA; TTC; UN; Arup analysis



So why is this? In some parts of the world, notably North America, increasing car ownership levels and falling costs have been important factors[5]. More generally, a range of other factors may have been at play. Analysis by Arup[6] has found that long-term disruption from engineering works and industrial action, changing working patterns, digital lifestyles (home working and shopping, ordering in and film streaming) and competition from new transport service providers (for example, ride-hailing companies) have affected demand for public transport. Importantly, stagnant household incomes have also been a factor (see figures 3 and 4).

Perhaps paradoxically some of these trends mean that trying to generate value from transport orientated development is becoming increasingly important. Not only does this approach generate resources for capital investment, but it also helps to 'lock in' demand. For example, station car parks can be re-developed for housing, as is increasingly the case in London[7], to allow higher density accommodation to be built. In the future, some travel patterns might well change because of disruptive technology and changing lifestyles. But it is hard to imagine a world in which people just stay at home. By aligning new transport routes with real estate development, we can help to secure long-term sustainable demand for public transport and help to pay for projects by capturing some of the wider real estate value (in the form of higher rents and capital values) that is created.

[5] Trends in Public Transportation Ridership, Congressional Research Service (2018).
[6] Understanding the drivers that impact travel behaviour, RSSB; Arup; Future Thinking (2018).
[7] Tomorrow's Living Station, Arup & Network Rail (2019).

Figure 3: Trend in average trip rate per person per day (annual average), by journey purpose, London residents

Source: TfL; Arup analysis

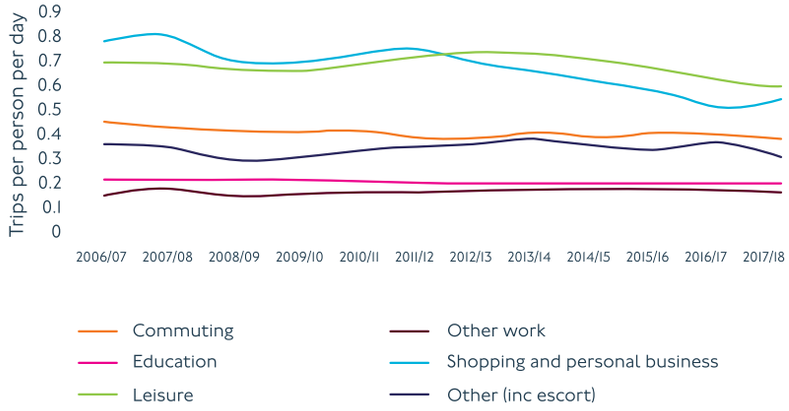
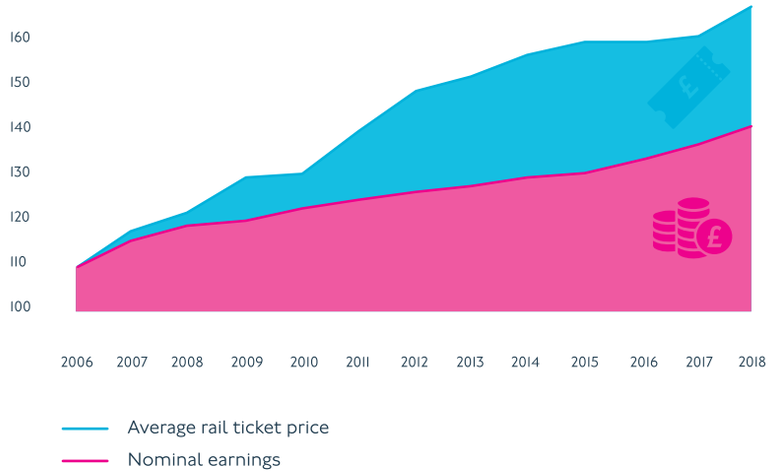


Figure 4: Increase in average rail ticket fares and earnings, Great Britain

Average rail ticket fares and average nominal earnings

Source: ORR; ONS; Arup analysis



Can we take growth for granted?

Securing private funding and finance

Attracting private capital into transport projects can ease the pressure on public finances and help to deliver positive outcomes for a whole range of stakeholders.

London has benefitted from private capital through direct contributions, value capture mechanisms, bond issues and investment in kind to help pay for flagship projects. A range of UK and international projects are illustrated in figure 5.

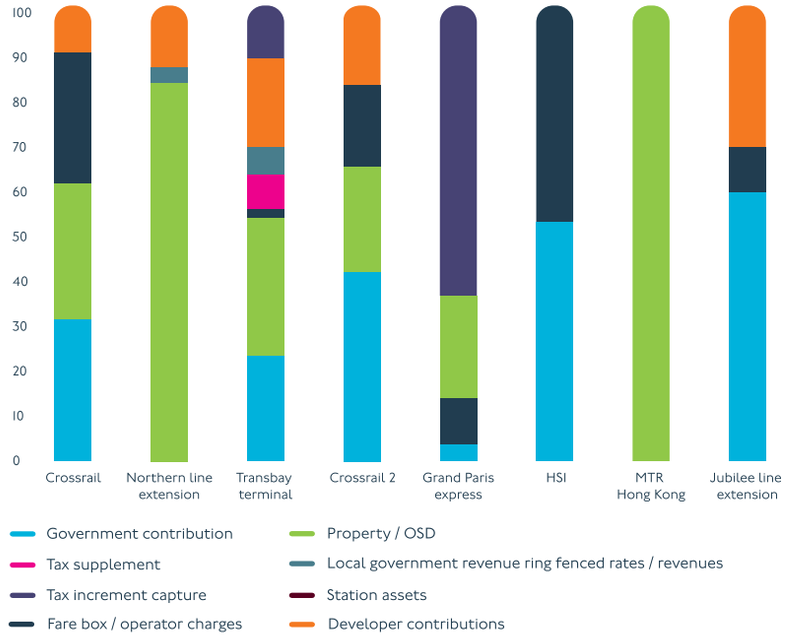
Models promoting the use of private capital into infrastructure need to ensure that contracts are not overly inflexible and achieve fair risk transfer to the private sector. Successful projects demonstrate a unified approach, enabled by good governance, with clarity and alignment on an agreed set of objectives and positive outcomes for all stakeholders. There is often a need for the public sector to take a flexible approach to participation. Upfront investment from the private sector with a 'patient capital' philosophy is frequently required to deliver the best outcomes. As highlighted earlier, aligning transport and commercial or housing development can be a powerful way to ensure lasting value creation.

"To cover the shrinking public budget and find sustainable, long-term solutions, we need to look at ways of balancing passenger contributions with all the other indirect beneficiaries, while putting local authorities in a driving seat."

Jerome Pourbaix, Senior Director Global Growth, UITP

Figure 5: Funding composition of selected transport projects (%)

Source: Arup research & analysis



The 'Property / OSD' for Crossrail 1 and Crossrail 2 includes the Business Rate Supplement levy

Finally, innovation is key to unlocking efficiency improvements. If innovation is stifled, the allocation of risks down the supply chain may not allow for successful collaboration and partnering between public sector clients and private sector suppliers, reducing the likelihood of on time and on budget delivery. Controlling costs can be achieved through procurement models that harness the strengths and capabilities of the private sector. Getting the incentives right in using tried and tested technologies, modular and standardised design, sensible innovation or solid contracting set-ups can make the difference between projects staying in the black or going bust.

Stable central government funding will always be essential for major projects. But key to any successful involvement of the private sector will be giving back city authorities the fiscal powers to allow them to borrow and retain at least some of the property taxes they are able to generate; often as a result of the project in question. Doing so creates a virtuous circle of economic growth; an ability for authorities to fund projects; and attractive financing opportunities for the private sector. Local control should also help to enhance accountability and trust in government institutions and help improve the quality of decision making.

Harnessing innovation

In 2020, flying cars, drones, self-driving vehicles, solar roadways, on-demand buses and a myriad of other technological evolutions are no longer entirely science fiction.

For transport authorities to shape and prepare mobility networks for the future, they must increasingly find ways to embrace and manage the uncertainty that disruptive technologies bring, and to allow the benefits from them to be enjoyed by citizens. On the one hand, this will mean having rules and enforcement in place to avoid problems such as streets littered with dockless bikes. On the other, it might involve adjusting existing rules and regulations to allow consumers to use new means of getting around safely and securely – such as electric scooters and even air taxis.

'Big data' also means transport authorities can understand and plan for mobility needs in greater detail and with a higher degree of accuracy than ever before. The opportunity to understand detailed real-time information about every mode of transport that is taken by an individual across the day and across the week can help to inform better urban space and transport service design for citizens of our major cities. Users could be empowered to explore more efficient multi-modal journeys involving a mix of 'old' and new modes of transport.

Many new technologies will be desirable from a public policy perspective. But they often face demand-side risks. For example, in the early stages of electric vehicle uptake there was an underutilisation of public charging points[8]. Technology and innovation is also disrupting existing models of taxing and paying for transport. For example, by some measures, road fuel duty in the UK has been in decline as vehicle fuel efficiency has increased substantially.

While these changes present a threat as to how transport has been traditionally funded, they also open up the opportunity for new charging models. These could be used to generate vital resources for major projects and help to reduce congestion and the environmental damage of some modes. And as we increasingly move towards a world of 'Mobility as a Service', the opportunity to introduce dynamic pricing into what people pay for transport becomes an ever-increasing possibility.

[8] Making the Connection: The Plug-In Vehicle Infrastructure Strategy, Office for Low Emission Vehicles, Department for Transport & Department for Business, Energy & Industrial Strategy (2011).

"The route to net carbon zero will change the types of transport projects being brought forward. Our approach to their funding and financing should galvanise stakeholders into collaborative working to contribute to a wider policy agenda of environmental sustainability."

Matthew Dillon, Associate Director, Arup

Road user charging

Cities have grappled with the negative impacts of motor vehicles for many years. With the advent of new technologies and mobility solutions, road user charging might finally be about to take off.

Global warming means that phasing out internal combustion engines is now seen as a policy priority in many countries. But this brings challenges with it. In the UK, fuel excise duty, accounted for some £28.4 billion or 3.5% of all UK tax income in 2018/19[9]. But because of increasing fuel efficiency and take up of hybrid and electric vehicles, fuel duty is projected to be in long-term decline. User charging could fill this gap but there are political risks around introducing road pricing. For example, users might see it as 'just another tax'. Drivers don't necessarily believe that 'things will get better' in return for payments. In the case of London, some of the road space that was freed up with congestion charging has been used to provide cycle lanes and pedestrian crossing capacity. However on occasions traffic speeds are slower and delays are higher than would otherwise have been the case.

With the advent of 'Mobility as a Service', there may be a chance to introduce user charging in a manner that is more socially acceptable. The charge could be one of a series of payments that are made when booking a journey. The user may get to choose the type of vehicle, a guaranteed journey time, a reduced environmental impact level and so on. This makes it easy for the user to mix and match modes of transport and with appropriate pricing signals, minimise the negative impacts on the city and environment more generally.

Road pricing can provide a more targeted approach by drawing on advances in dynamic pricing as part of an integrated way of managing demand and raising resources for transport investment across modes. However any road pricing scheme must be 'sold' to the public and this requires identifying the problems that different users may experience and responding to them positively. Cities may have to move quickly if they want to retain new revenues, as sooner or later central government may be tempted to introduce a national scheme and keep the money raised for itself.

[9] https://obr.uk/forecasts-in-depth/tax-by-tax-spend-by-spend/fuel-duties/

> "People want to use their car less, but it might not be possible for them to do so."

Lilian Greenwood, Member of Parliament for Nottingham South and Out-going Chair, Transport Select Committee

Stockholm: congestion tax

How to secure public support, Swedish Transport Agency

The basics

- The congestion tax began as a seven-month pilot in 2006
- Post-pilot referendum on permanent implementation of tax received majority support
- 20 ANPR control points cover most of the city centre (30 sqkm)
- Initially excluded low-emission and alternative fuel vehicles however exemption has been removed as fleet mix has shifted
- Operates a variable tax rate with specific charges at specified times of the day
- Charge applied each time a control point is passed. Each charge is between £~1 and £~4 with a maximum daily charge of £~9.50

The impact

- The Stockholm scheme caused a dramatic impact during the initial trial period reducing traffic by 22% in the charging zone compared to the previous year
- During the period post-trial, before the tax was permanently imposed, traffic levels only partially returned
- This suggests that many Stockholmers had adopted and were comfortable with new travel behaviours
- Public transport usage increased by ~5%
- Peak hour travel times into the city centre declined by 50% in the first year of operation
- After permanent installation, traffic levels have remained below 2005 levels and were 22% lower in 2015
- This traffic reduction occurred despite a growing population in Stockholm

Takeaway

- A trial period of a road pricing scheme can demonstrate the validity, effectiveness and revenue potential to governments and the general public. A trial period also has the capacity to change citizen behaviour.

Source: Centre for London and Arup analysis

Singapore: electronic road pricing

Dynamic price, electronic cordon charging scheme, Land Transport Authority – Singapore Government

The basics

- World's first successful congestion charge known as 'Area Licensing Scheme' in 1975
- Manually enforced scheme
- Converted to 'Electronic Road Pricing' (ERP) in 1998
- Cordon based scheme with 93 gantries
- Operates Monday to Saturday from 08:00-20:00
- Fares deducted automatically by interfacing with passenger car units (PCUs)
- Foreign drivers may rent a PCU and non-compliant drivers receive penalty by mail
- Notably ERP employs variable pricing, charging higher amounts during the peak
- Drivers are charged each gantry passed
- 50% discounts for motorcycles, 50% surcharge for HGVs and mini buses
- Revenue in 2014 was S$152 million

The impact

- ERP improved public transport market share in Singapore, from 59% (2008) to 63% (2012)
- Prior to ERP public transport ridership was in decline
- In the first decade of operation estimated reduction in carbon by 103 kilo-tonnes
- Significant and consistent income stream for government – £86 million in 2010
- 40% of revenue goes into the maintenance and operation of the ERP system
- Remaining 60% used to fund road and transport improvement projects
- Due to the city-state structure of Singapore, implementation of road pricing was perhaps more politically feasible
- The electronic variable pricing model used in Singapore has been studied and admired by many cities around the world

Takeaway

- By using intelligent technology it is possible to create dynamic road pricing systems that are barrier free and can drive more targeted behavioural shift ambitions. However, the cost of operations for the ERP system is quite significant and may not be replicable in smaller cities.

Conclusion

Transport is a means of delivering economic growth, jobs, homes, and a better quality of life for citizens. If that is not our focus, and integral to a funding strategy, then we are falling at the first hurdle.

Increasing urbanisation and environmental pressures mean that demand for sustainable urban mobility projects are increasing. At the same time the need for other forms of public infrastructure in energy, water and communications are also on the up. This means schemes may end up chasing the same sources of capital to secure finance. Transport projects therefore need to be as attractive as possible to secure the resources they need in order to get built and to be attractive to private financing as well as public sector backing.

The world of transport is being further disrupted by technology, changing working habits and how people choose to spend their leisure time, meaning that we can no longer take growth in demand for granted. Projects that 'lock in' demand by building homes and office space on transport hubs and interchanges may be one way to tackle this challenge. Disruption also extends to how people pay for transport and the taxes that flow from using motorised transport. As fuel efficiency has grown and fuel diversity has increased, some tax revenues have declined as a proportion of GDP.

The local and global environmental impacts of carbon-intensive transport are also part of a broader set of complex challenges facing governments as they try and chart a course to a net zero carbon future. There is therefore a need for local and national governments to embrace new ways of paying for transport investment, including tapping into more of the value generated for land or property owners and embrace schemes such as road user charging.

Central government funding has long underpinned transport infrastructure projects in the UK. But to cope with increased competition as new projects get off the ground, a central vision and timeline for public funding is needed, and must be coupled with the harnessing of new financing opportunities.

This offers an exciting opportunity for the public and private sectors to come together to harness the opportunity that new technologies can bring to create new solutions to meet citizens' mobility needs. 'Mobility as a Service' provides a chance to deliver transformational change by allowing charging for road space to become an everyday part of the cost of moving around. Cities would then be able to harness more of the resources they need to tackle their transport problems and secure continued economic growth.

But the political risks associated with road user charging are not insignificant. If charges are to be acceptable to voters, those who pay for them may need to receive something in return such as improved journey times or increased reliability. And city governments would be wise to move quickly. Faced with a long-term decline in fuel related taxes, national governments will soon be looking actively to find ways to close the fiscal gap this fall off has created.

Securing long-term funding and financing levels and mechanisms, would allow transport authorities the opportunity to plan and deliver strategically and efficiently. It is important to remember, that ultimately how we pay for projects – whether through sharing gains with developers or by placing charges on users – will have a long-term impact on the shape, density and attractiveness of our cities as places to live and work. The sort of cities we are creating is therefore just as important a consideration as securing the long-term financial security of our transport authorities and service providers.

Participants and contributors

London Transport Museum, in collaboration with Arup, Gowling WLG and Thales, would like to thank all the participants who took part in this Interchange series for their insights and contributions.

ABM, Nicolas Nothard

ABM, David Donovan

Angel Trains, David Jordan

Angel Trains, Steve Lowery

Arup, Patrick Andison

Arup, Matthew Dillon

Arup, Victor Frebault

Arup, Alexander Jan

Arup, Victor Lanel

Arup, Ros Vose

Atos IT Services UK Limited, Theo Quick

BAI Communications, Steve Barney

BDB Pitmans, Solicitors, Mark Challis

BMW Group, Ian Robertson

Capita, Antony Lain

Centre for London, Silviya Barrett

Chartered Institution of Highways & Transportation, Andrew Hugill

Citymapper, Damian Bown

Clear Channel UK, George Manns

Clear Channel UK, Salvatore Viola

Cognizant, Ken Greenwood

Costain, Rob Taylor

Cubic Transportation Systems, David Wear

Cubic Transportation Systems, Dave Roat

Deloitte, Justine Bornstein

Deloitte, Charlie Hamilton

Department for Transport, Heidi Smith

Department for Transport, Mark Wagstaff

DLA Piper, Laura Gordon

East West Rail Company, Simon Blanchflower

Engie, John Dearing

Engie, Simon Woods

Estates and Infrastructure Exchange, Mark Worrall

First Class Partnerships, Ian Horseman Sewell

First Class Partnerships, Geoff Smith

First Group, John Dowie

Fujitsu UK & Ireland, Rabih Arzouni

Fujitsu UK & Ireland, Steve Kenny

Fujitsu UK & Ireland, Jessica Robson

GBV Amsterdam, Alexandra van Huffelen

Gowling WLG, Heledd McBride

Gowling WLG, Dawn Beddard

Gowling WLG, David Brennan

Gowling WLG, Giles Clifford

Gowling WLG, Dominic Richardson

Gowling WLG, David Lowe

Highways England, Paul Williamson

Hyperlocal Cities, Linda Chandler

Independent Transport Commission, Matthew Niblett

Independent Transport Commission, Steven Norris

International Association of Public Transport, Jerome Pourbaix

J Murphy & Sons, William Reddaway

Jacobs, Elaine Seagriff

Jacobs, John Siraut

Jacobs, Alexia Rogers-Wright

Jacobs, Daniel Hall

Jacobs, Thomas Darcy

Jacobs, Kevan Weaver

KPMG LLP (UK), Lewis Atter

London First, Daniel Mahoney

London First, Adam Tyndall

London School of Economics, Tony Travers

Marston Holdings, Pamela Mulcahy

Microsoft UK, Philip Rowland

Mott MacDonald, Neil Henderson

National Infrastructure Commission (NIC), Anesu Bwawa

NG Bailey, Alex Searle

PTV Group, Paul Speirs

PwC, Laura Glover

RAC Foundation, Steve Gooding

Siemens, Graeme Clark

Skanska, Alex Winchester

SMBC Leasing, Tony Mitton

Taylor Woodrow, Jez Haskins

Telefonica UK Limited, Carolyn McKnight

Thales, Richard Catterson

Thales, Mark Garrity

Thales, Steve Ayers

Thames Clippers, Liam Hather

Transport for London, Simon Adams

Transport for London, Geoff Hobbs

Transport for London, Matthew Hudson

Transport for London, Rikesh Shah

Transport for London, Shashi Verma

Transport for London, Julian Ware

Transport for London, John Williams

Transport Select Committee, Lilian Greenwood MP

Trapeze, Peter Bell

Zhuzhou CRRC Times Electric UK Innovation Center, Vincent Li

Between July 2019 and January 2020, London Transport Museum in collaboration with Arup, international law firm Gowling WLG and global transportation company Thales, brought together transport industry professionals, academics and policy makers to grapple with the challenges and opportunities facing the financing and funding of future transport infrastructure projects.

What emerged is an overwhelming sense that now is the moment to radically rethink existing revenue and capital models to cope with future disruption. This report brings together insights from these debates and offers an overview of some of the key issues and solutions.

ltmuseum.co.uk
Registered charity number 1123122