Triple Access Planning and Appraisal

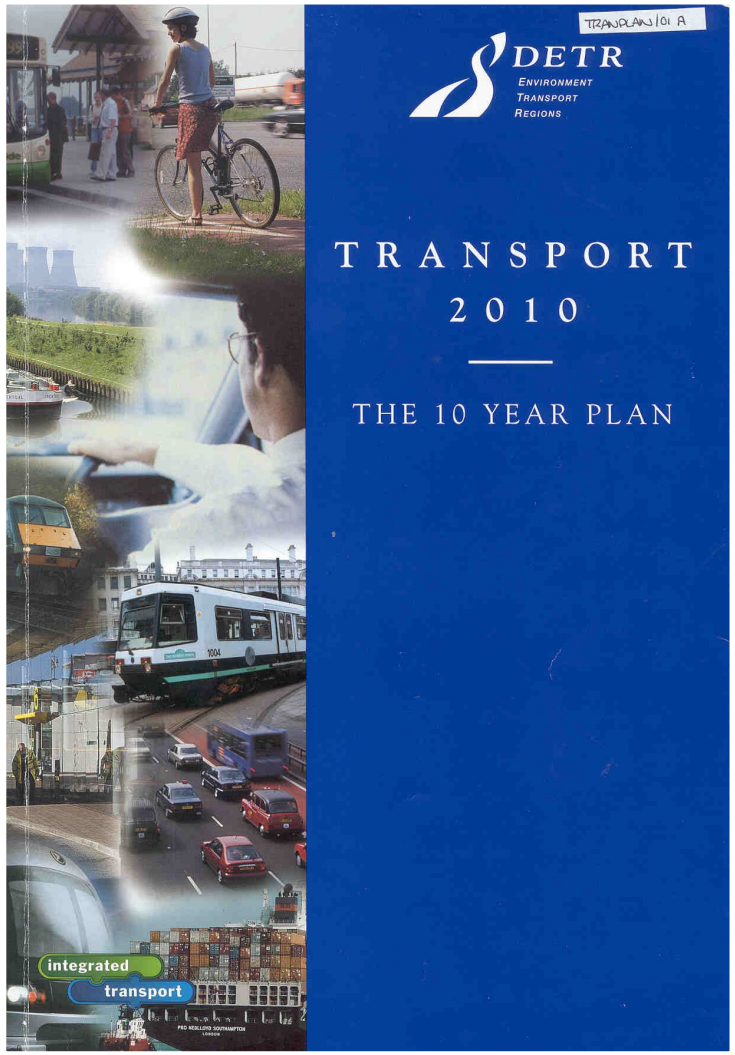
The role of digital substitution of activities within the modelling and appraisal framework.
For example, if an intervention encourages some activities to become digital,
how do we value the benefits (and disbenefits) of this within appraisal?

Glenn Lyons

And with thanks to Stephen Cragg and Kiron Chatterjee from the TAP project

Triple Access Planning for Uncertain Futures

Too big to ignore?



"social and technological changes will also alter patterns of behaviour in unforeseen ways"

"the likely effects of increasing Internet use on transport and work patterns are still uncertain, but potentially profound, and will need to be monitored closely"

Triple Access Planning
for Uncertain Futures

Digital accessibility is **everywhere** in society and almost **nowhere** in transport planning and appraisal

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What does 2050 have in store? That's 27 years away.
So imagine being in 1996 (27 years ago)…

The world wide web had been invented 7 years earlier. Less than 10% of the UK population had Internet access - which was a 56k modem. Bill Clinton was President of the United States. The second UN Climate Change Conference (COP 2) took place in Switzerland.

and being asked what you thought 2023 was going to look like…

Well over 90% of the UK population will have Internet access with most homes able to get gigabit broadband (equivalent to 19,000 x 56k). Business tycoon Donald Trump, having been US President will be indicted by the Department of Justice. Russia will start a war in Europe, triggering an energy crisis. A pandemic will have resulted in around 7 million deaths globally creating economic shockwaves and leading to **huge numbers of people working from home**. COP 28 will take place in Dubai, with an oil company CEO as its president. **The world will be facing a climate emergency with intensifying extreme weather and increasing temperatures. Artificial Intelligence 'chatbots' can be asked almost any question and give a credible answer.**

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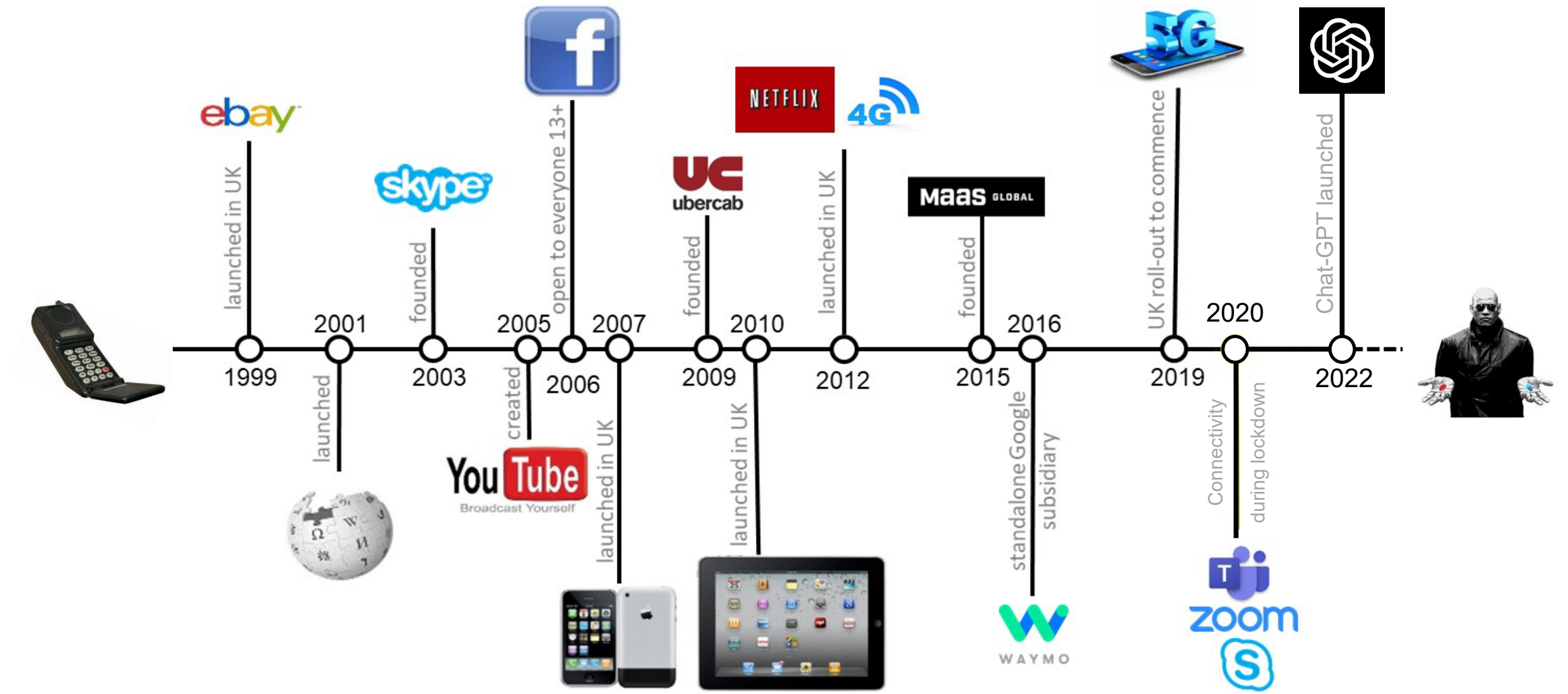
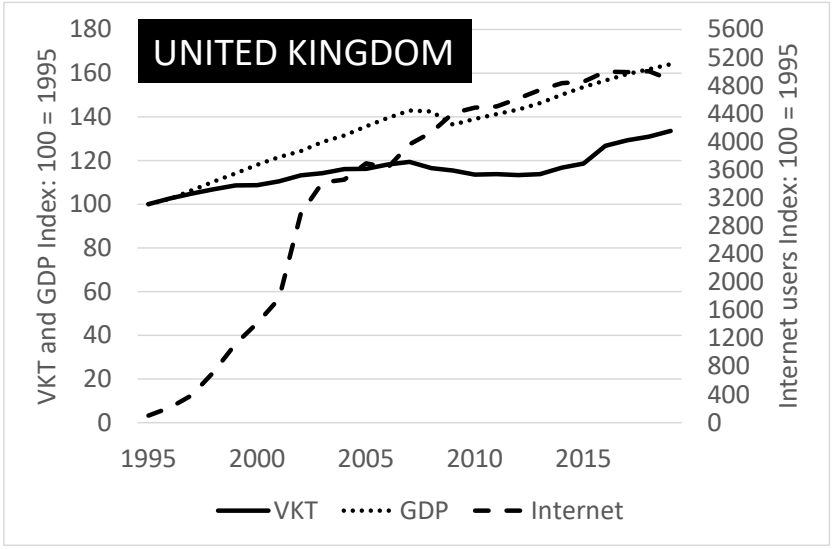
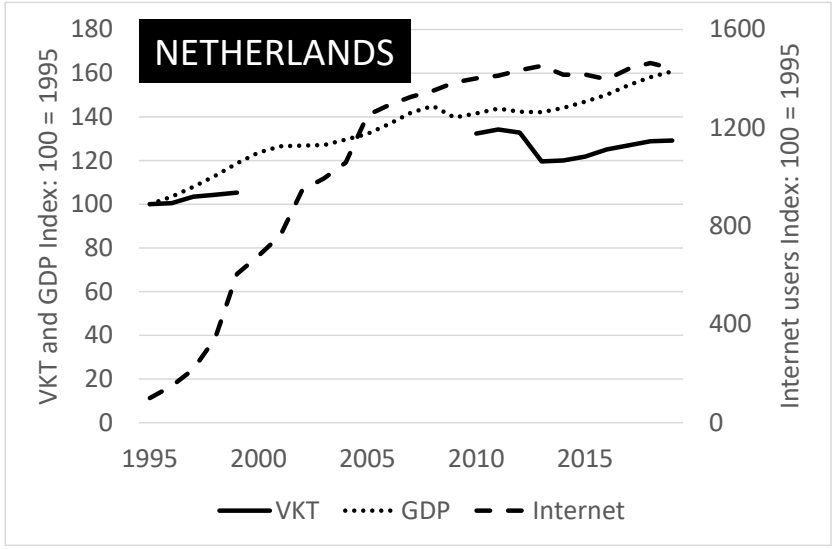
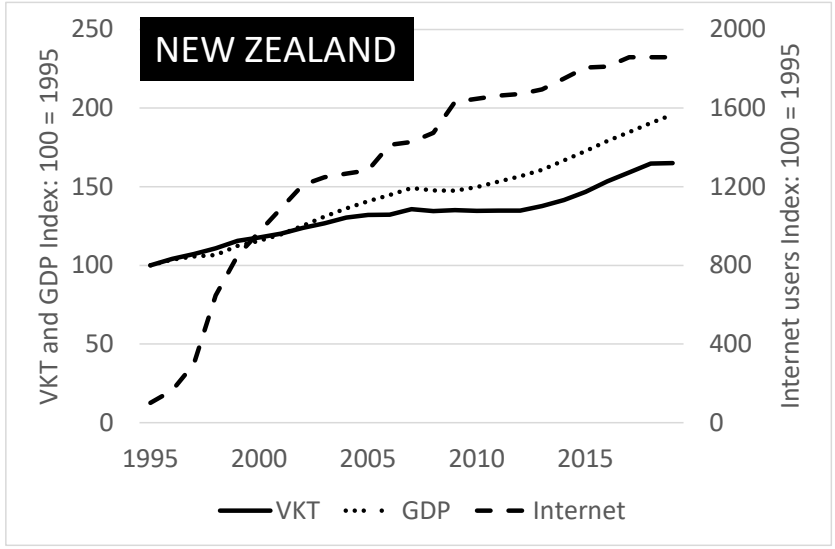
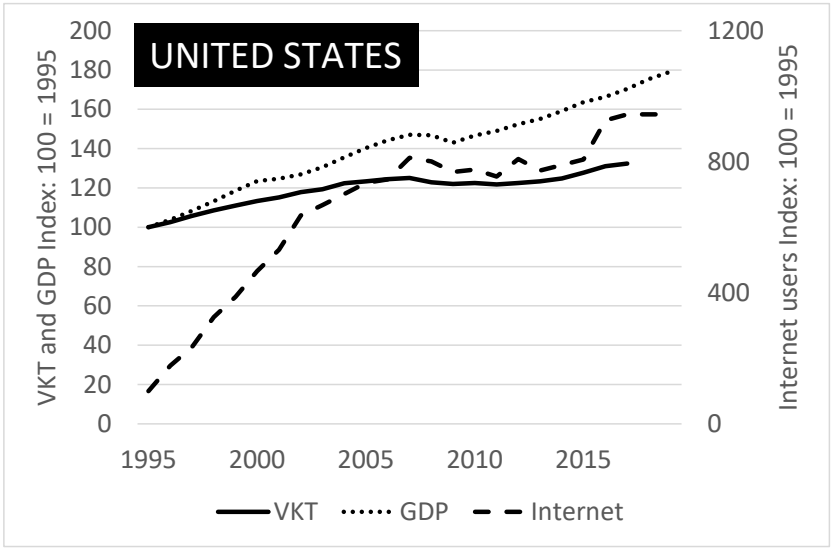


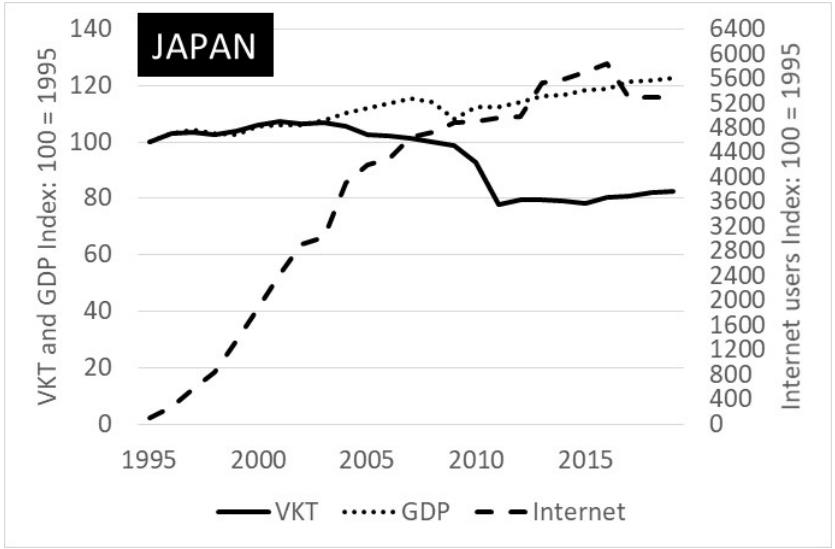
The Digital Age has collided and is merging with the Motor Age

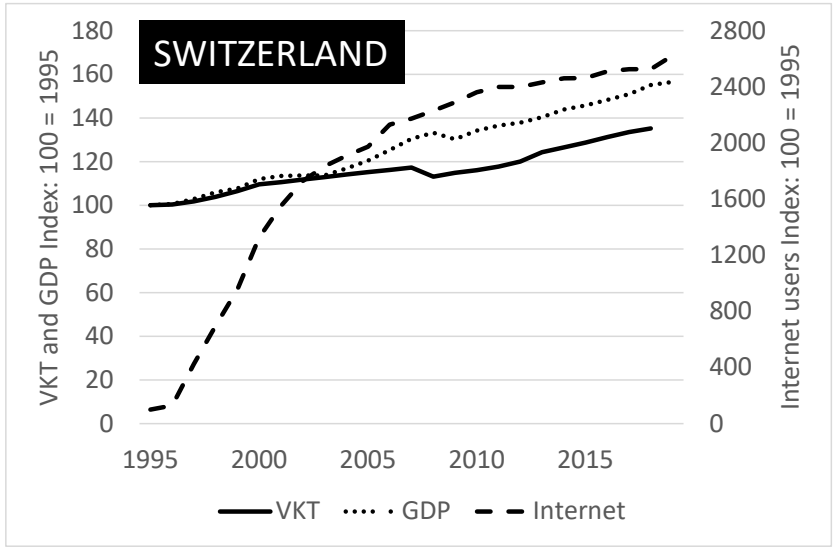








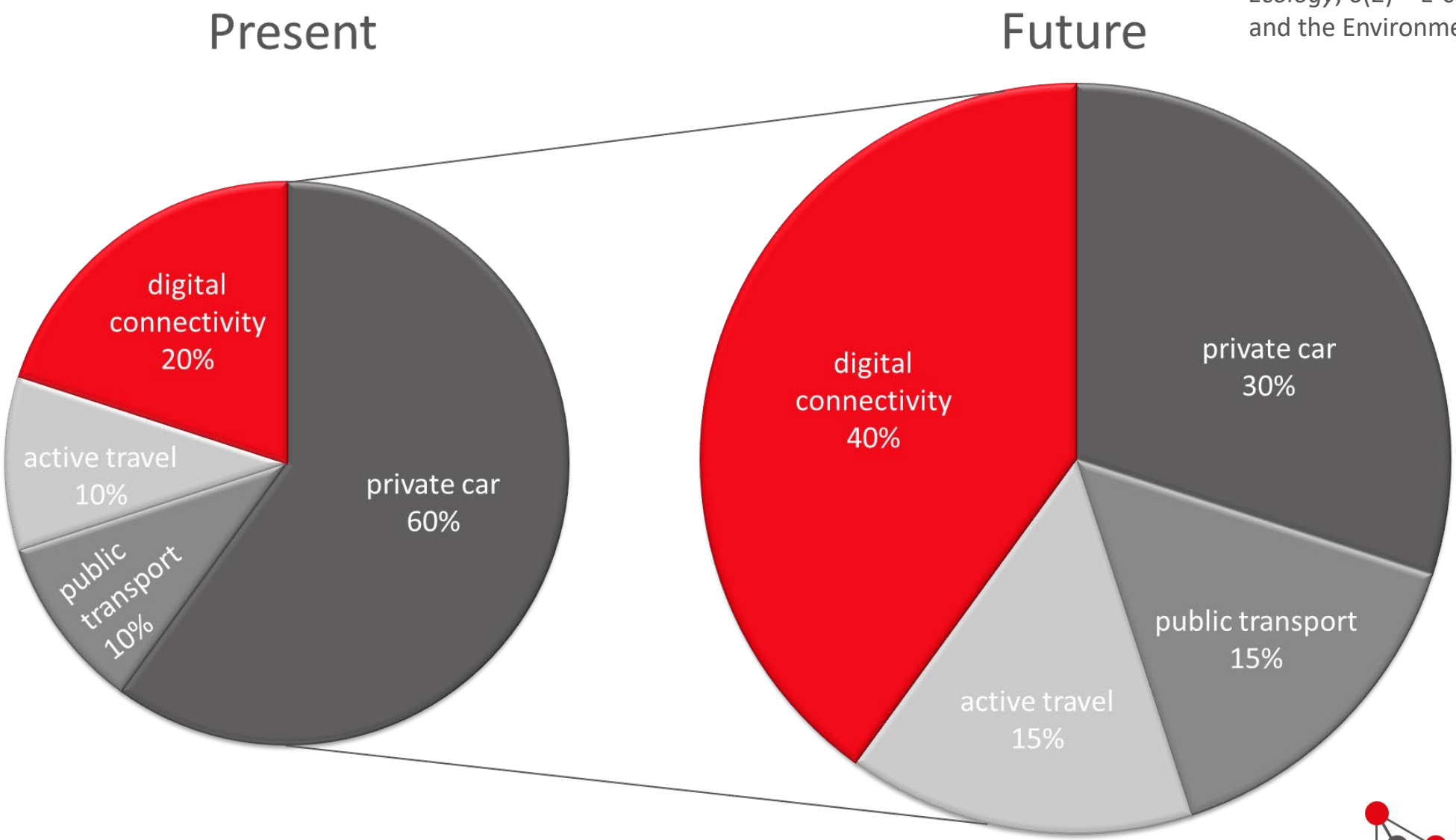




VKT (total road motor vehicle traffic) data – ITF (OECD), except for USA - Vehicle Technologies Office (2018)
GDP (constant 2010 USD) and Internet users (individuals using the internet as a percentage of population) data – World Bank

Digital age decoupling of road traffic and economic output

After Mokhtarian, P.L. 2003. Telecommunications and Travel – The Case for Complementarity. *Journal of Industrial Ecology*, 6(2) – E-commerce, the Internet and the Environment: 43-57.



(illustrative only, including percentages)

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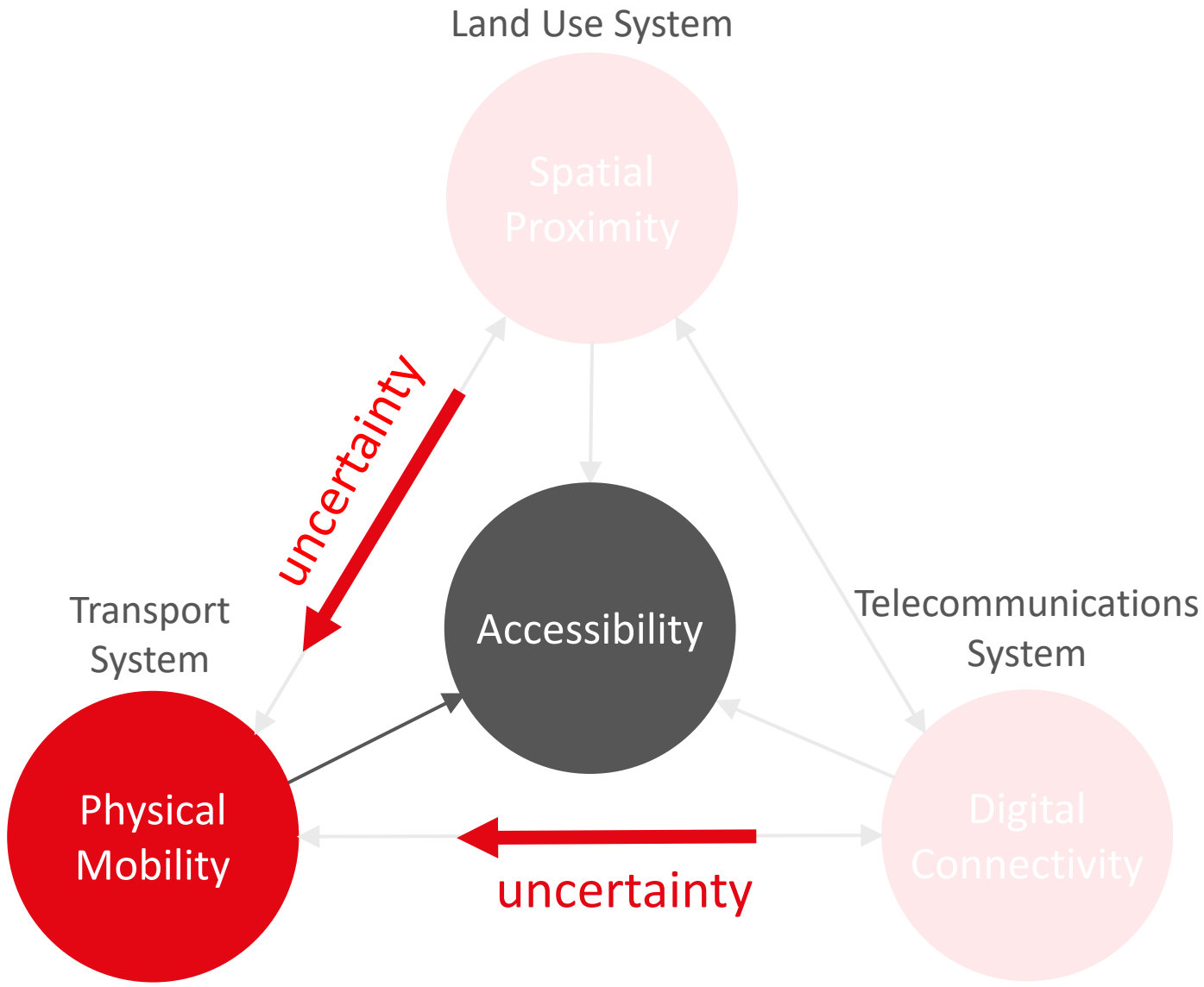

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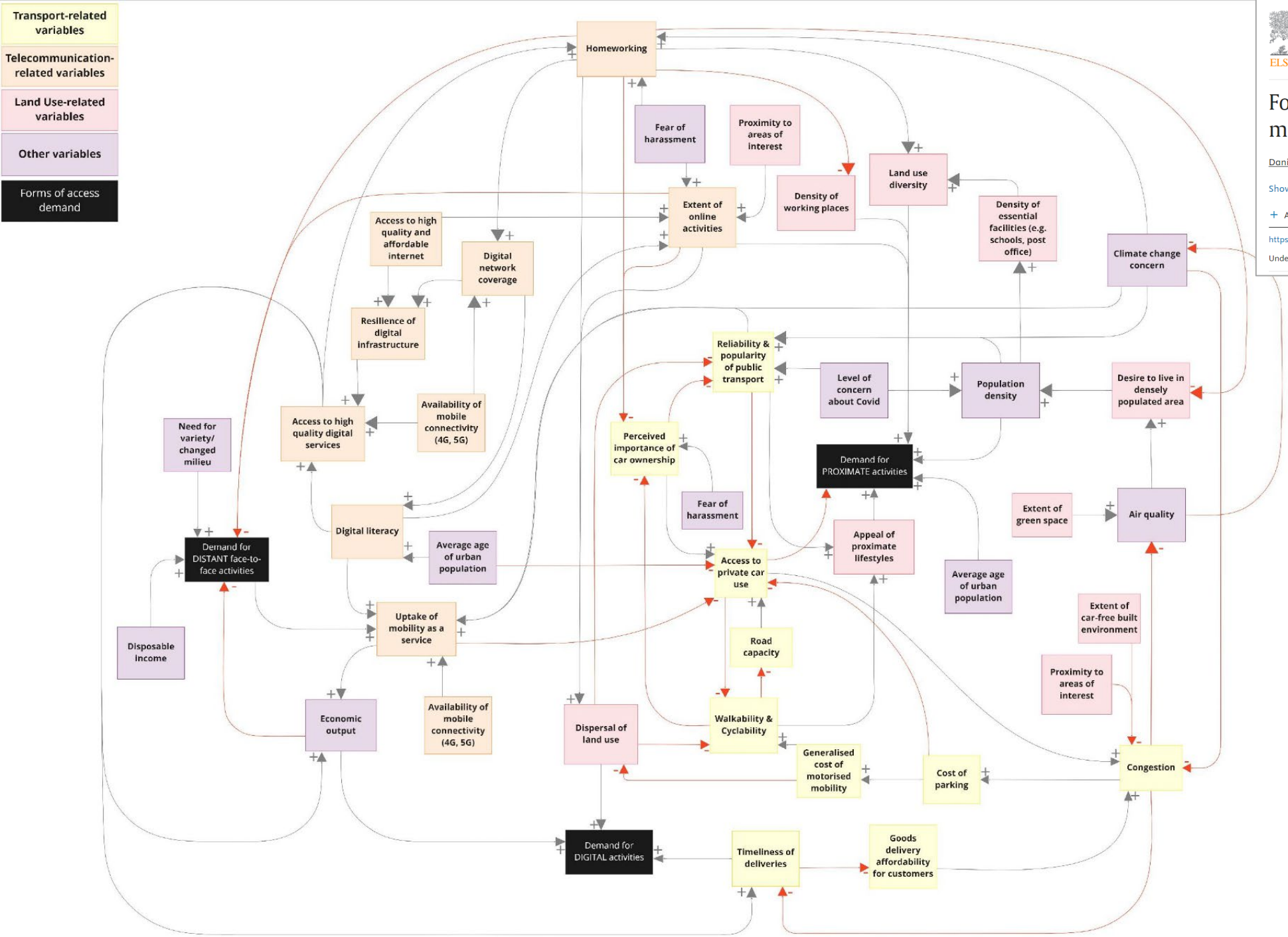
Digital connectivity –
the equivalent to the roads existing and cars being available to purchase and drive

Digital accessibility –
the equivalent to having the means to afford to own a car, knowing how to drive and having somewhere to go for worthwhile economic or social activity

Too hot to handle?



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Foresight through developing shared mental models: the case of Triple Access Planning

Daniela Paddeu, Glenn Lyons

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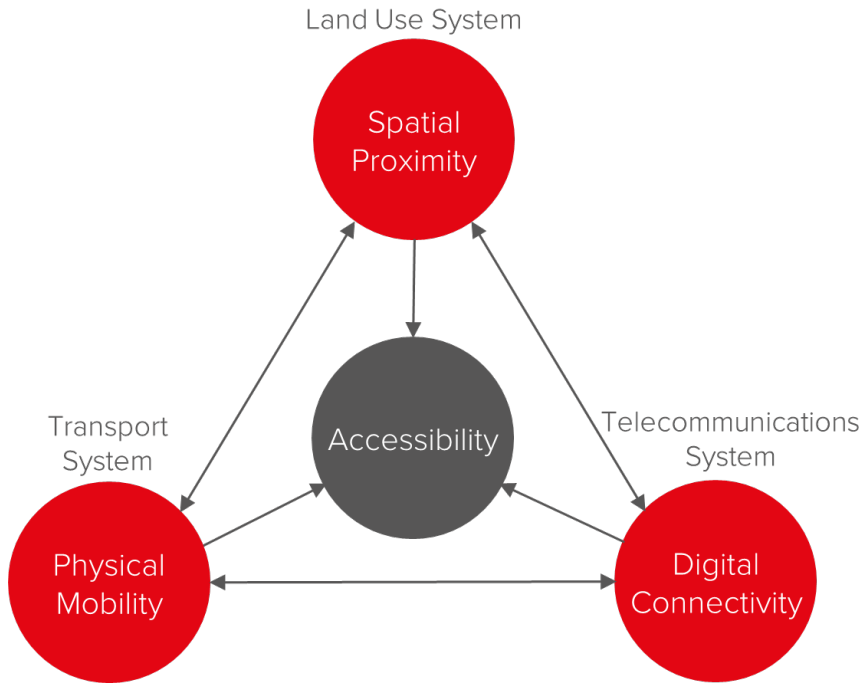
Use of digital connectivity can…

- **substitute for travel—an activity is undertaken without the individual needing to make a trip**
- stimulate travel—information flows encourage the identification of activities and encounters at remote locations that individuals then choose to travel to (this can sometimes be a second order effect of substitution)
- supplement travel—increasing levels of access and social participation are experienced without increasing levels of travel
- redistribute travel—even if the amount of travel does not change at the level of the individual or at the aggregate, when and between which locations travel takes place can be changed
- improve the efficiency of travel—data and information flows can enhance the operation and use of the transport system (commonly considered under the heading of 'intelligent transport systems')
- enrich travel—whereby opportunities to make worthwhile use of time while travelling are enhanced, helping generate a "positive utility"
- indirectly affect travel—technologies can enable or encourage changes to social practices and locational decisions over time that in turn influence the nature and extent of travel



Lyons, G. (2015). Transport's Digital Age Transition. *Journal of Transport and Land Use*, 8(2), 1-19. http://dx.doi.org/10.5198/jtlu.v0i0.751

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- How do you define it, or how many variations to keep in play?
- How well understood are the variables affecting working from home?
- How well understood are the effects of working from home?
- How heterogenous is the experience and attractiveness of working from home across the population?
- What simplifications in modelling terms are tenable and what assumptions would be relied upon?
- How will the nature of work and the labour market change over time?
- What happens when we apply digital age implications to all current journey purposes we consider?
- If only we'd put in more effort over the last 25 years to make sense of travel as a derived demand!

Commuting
Business
Education
Escort education
Shopping
Other escort
Personal business
Visiting friends at private home
Visiting friends elsewhere
Entertainment / public activity
Sport: participate
Holiday: base
Day trip

Complex and continuously evolving phenomena – e.g. working from home

How limited are we by our imagination, and what will 2030 look like?

2010 The future's already here, its just unevenly distributed ?

2022 The future's already here, its just unevenly distributed ?

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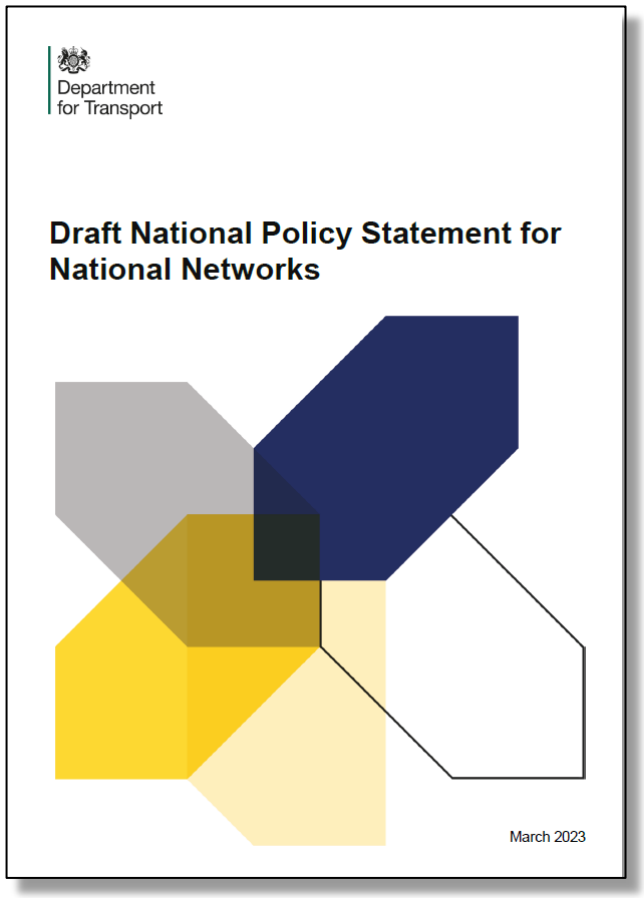
The digital accessibility shadow?

"Think of your climate shadow as a dark shape stretching out behind you. Everywhere you go, it goes too, tallying not just your air conditioning use and the gas mileage of your car, but also **how you vote, how many children you choose to have, where you work, how you invest your money, how much you talk about climate change, and whether your words amplify urgency, apathy, or denial**." *Emma Pattee*



The Core scenario "*represents a world in which deviation from historic trends in the key drivers of demand and current Government policies is minimal*"

Between 2025 an 2060: "Increases in the number of seconds of time lost due to congestion on motorways also varies under the Core scenario; **from 81.8% in one region to 215.5% in another**"

"These projections are not definitive predictions of what will happen in the future"

Do we even have the right mindset to come to terms with the complexity?

What’s to be done?

A way of thinking

"A seemingly simple idea, that goods and services and other activities should be easy to reach, is somehow difficult to implement in practice"

"I also worry that the intense focus on accessibility measures might be distracting us from the power of the concept of accessibility itself"

"Even if we have trouble defining it in a generally comprehensible way, everyone knows it when they see it and especially when they experience it"

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journal homepage: www.elsevier.com/locate/trd

Is accessibility an idea whose time has finally come?

Susan Handy

Institute of Transportation Studies, University of California, Davis, United States

https://doi.org/10.1016/j.trd.2020.102319

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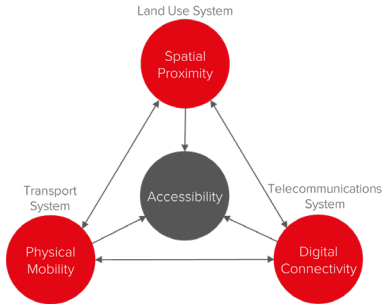
But this is looking very complicated, how are we going to measure and model all of this?



It helps us think differently about how we make sense of future mobility and plan for it

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What's in scope for transport appraisal in terms of interventions encouraging digital substitution?

- Interventions that enhance attractiveness of digital accessibility
- Interventions that diminish the attractiveness of one or more means of accessibility through physical mobility
- Unplanned interventions such as extreme weather and transport network disruption or activity-centre disruption

What considerations may be of significance?

- The potential extent of difference in BCRs for interventions related to digital accessibility versus those related to physical mobility (lower or displaced scheme delivery costs and lower disutility of travel)
- Both option value (from increased digital accessibility) and loss of option value (from adverse effects of digital accessibility on other means of access)
- Implications for agglomeration if we were to move closer to the 'death of distance'
- The changing externalities of digital access
- Impacts of digital accessibility for mobility business models and taxation
- Shift in balance of emphasis between people movement and goods movement

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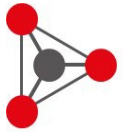
Economy	Business users & transport providers
	Reliability impact on Business users
	Regeneration
	Wider Impacts
Environmental	Noise
	Air Quality
	Greenhouse gases
	Landscape
	Townscape
	Historic Environment
	Biodiversity
	Water Environment
Social	Commuting and Other users
	Reliability impact on Commuting and Other users
	Physical activity
	Journey quality
	Accidents
	Security
	Access to services
	Affordability
	Severance
	Option and non-use values
Public Accounts	Cost to Broad Transport Budget
	Indirect Tax Revenues

Which impacts are most affected by digital accessibility and are these still counting everything that counts?

Do transport improvements matters so much when we rely less on physical transport?



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Possible next steps

- Don’t let the best be the enemy of the good and focus on being approximately right rather than precisely wrong
- Consider insights from creating the Common Analytical Scenarios and qualitatively explore future possibilities for digital accessibility and the possible nature and extent of (dis)benefits (across the AST impacts)
- Consider the scope within current modelling tools to represent digital accessibility by proxy and in turn explore example transport and non-transport interventions in a light-touch way to make more sense of how to handle the black elephant
- Review the potential implications for existing and emerging modelling results of continuing to partly or largely ignore digital accessibility effects
- Developed some preliminary guidance on accounting for digital accessibility or a ‘TAG green paper’
- Recognising in the above the (growing) significance of goods movement

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