

MaaS, MaaF and Beyond:

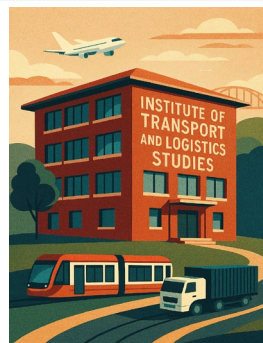
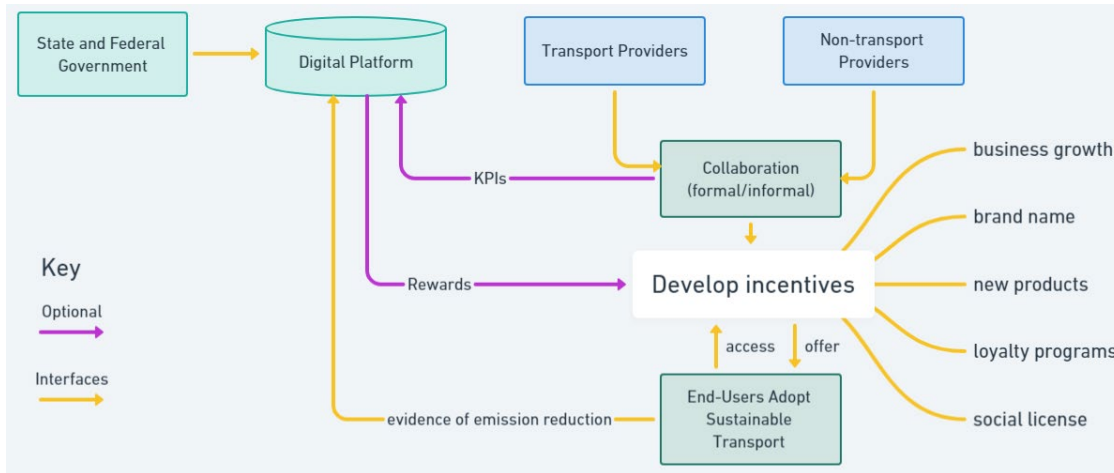
Do Integrated Modal Mobility Services have a Future?

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<https://www.sydney.edu.au/business/about/our-people/academic-staff/david-hensher.html>

<https://mobilitaetsfunk.de/multiservice-statt-multimodal-wie-mobilitaetsverhalten-wirklich-veraendert-werden-kann>

‘Sustainable Mobility Initiatives of Business (SMIB)’.



Understanding Mobility as a Service (MaaS)

Past, Present and Future

David A. Hensher, Institute of Transport and Logistics Studies, The University of Sydney Business School, Australia; Corinne Mulley, Institute of Transport and Logistics Studies, The University of Sydney Business School, Australia; John D. Nelson, Institute of Transport and Logistics Studies, The University of Sydney Business School, Australia; Chinh Ho, Institute of Transport and Logistics Studies, The University of Sydney Business School, Australia; Göran Smith, Institute of Transport and Logistics Studies, The University of Sydney Business School, Australia and Chalmers University, Sweden and Yale Wong, Institute of Transport and Logistics Studies, The University of Sydney Business School, Australia

THE SYDNEY MOBILITY AS A SERVICE (MaaS) TRIAL
 DESIGN, IMPLEMENTATION, LESSONS AND THE FUTURE
 MARCH 2021

1st in Australia
8th globally
 Transportation Science & Technology

2026 ShanghaiRanking Global Ranking of Academic Subjects



This research is funded by iMOVE CRC and supported by the Cooperative Research Centres program, an Australian Government initiative.

New mobility
services

New mobility
technologies

Mobility as a Service (MaaS)

New mobility
businesses

Hensher, D.A., Mulley, C., Ho, C., Nelson, J., Smith, G. and Wong, Y. (2020) *Understanding Mobility as a Service (MaaS) - Past, Present and Future*. Elsevier.

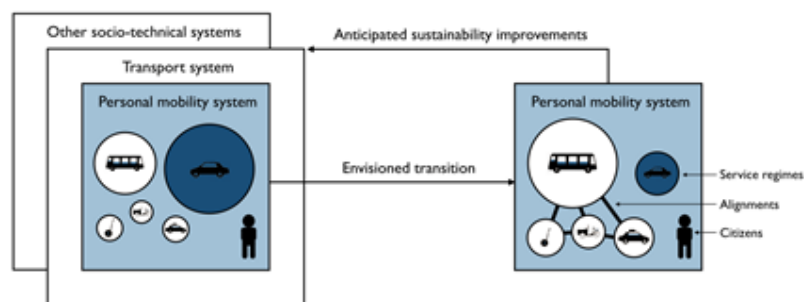
Hensher, D.A., Nelson, J. D., and Mulley, C. (2026) *Mobility as a Service: Challenges and Opportunities*, for *Handbook on Research Methods in Transport Economics and Policy*, edited by Andrew Smith and Chris Nash, Edward Elgar Publishers. (Abridged version presented at the 2005 ATRF, Auckland, November).

MaaS - A type of service that, through a joint digital channel, enables users to plan, book and pay for multiple types of mobility service. Simply put 'a one-stop travel management platform digitally unifying trip creation, purchase and delivery'

Principle visualisation of MaaS



Creating boundary-less modal choices complying with societal goals (Level 4)



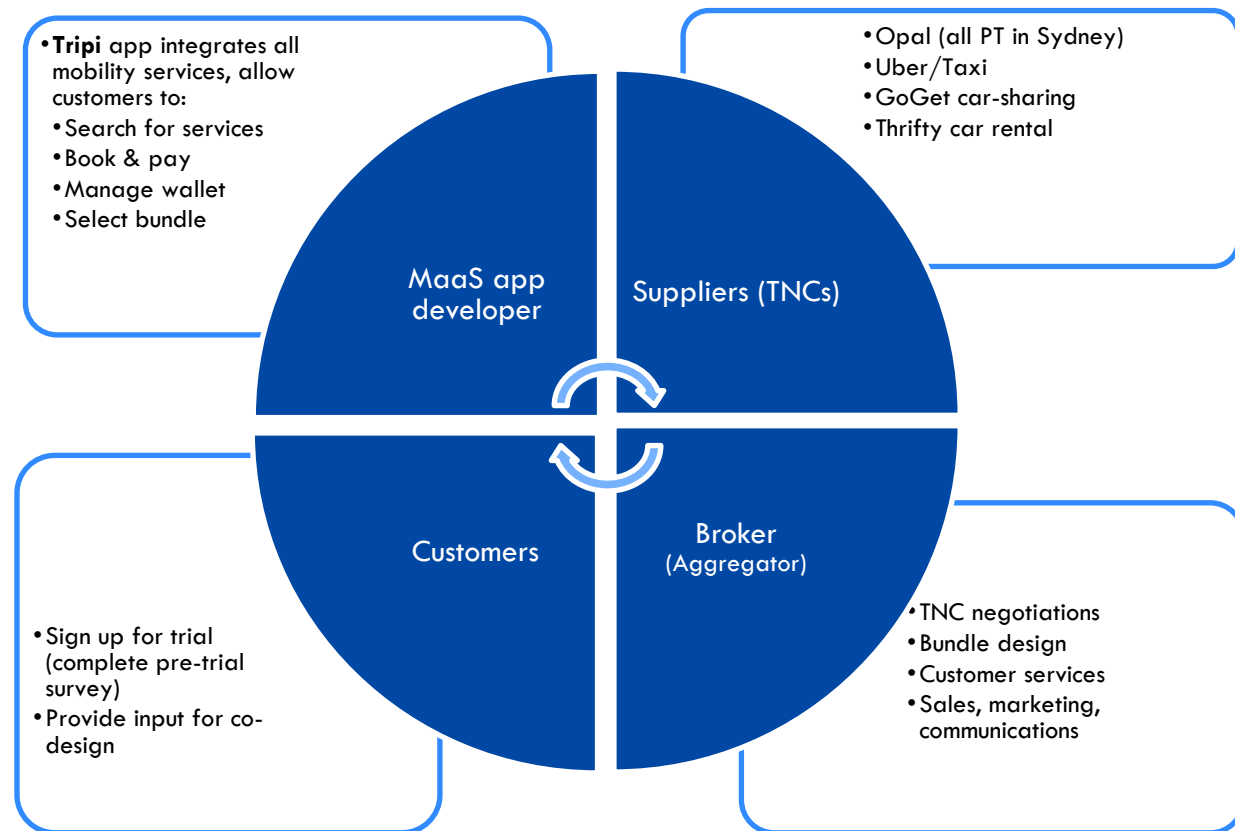
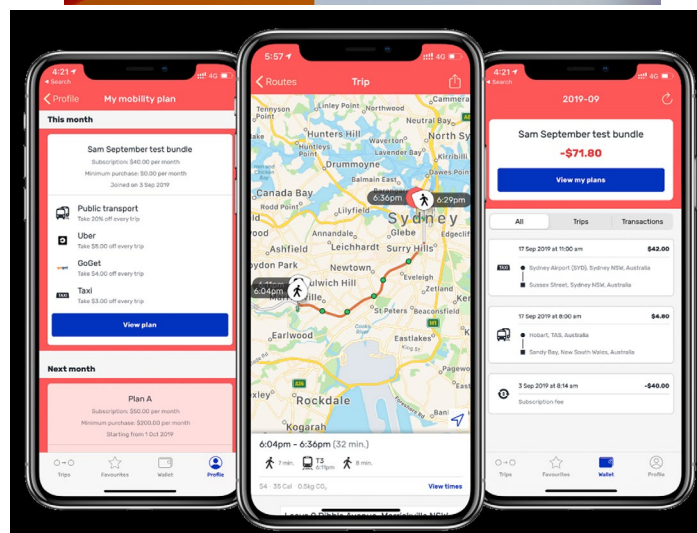
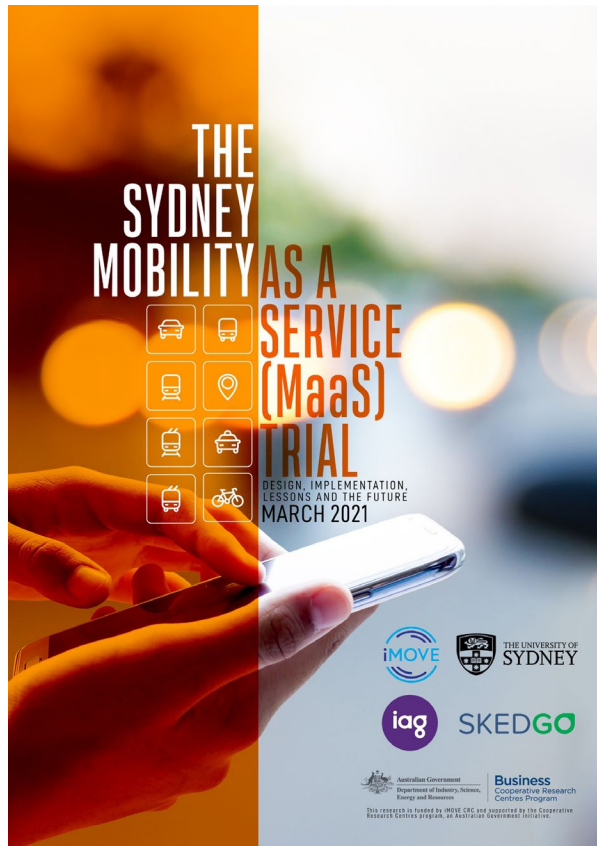
Level	Features	Example app
4	Integration of societal goals	 MaaS
3	Integration of services	
2	Integration of booking & payment	
1	Integration of information	
0	No integration	

Hensher, D.A., Ho, C. and Reck, D. (2021) Mobility as a Service and private car use: evidence from the Sydney MaaS trial, *Transportation Research Part A*, 145,17-33.

Smith, G. and Hensher, D.A. (2020) Towards a framework for Mobility as a Service policies, (presented at the 16th International Conference on Competition and Ownership of Land Passenger Transport (Thredbo 16), Singapore August 2019) *Transport Policy*, 89, 54-65. <https://doi.org/10.1016/j.tranpol.2020.02.004>

Key Components of the Sydney Trial

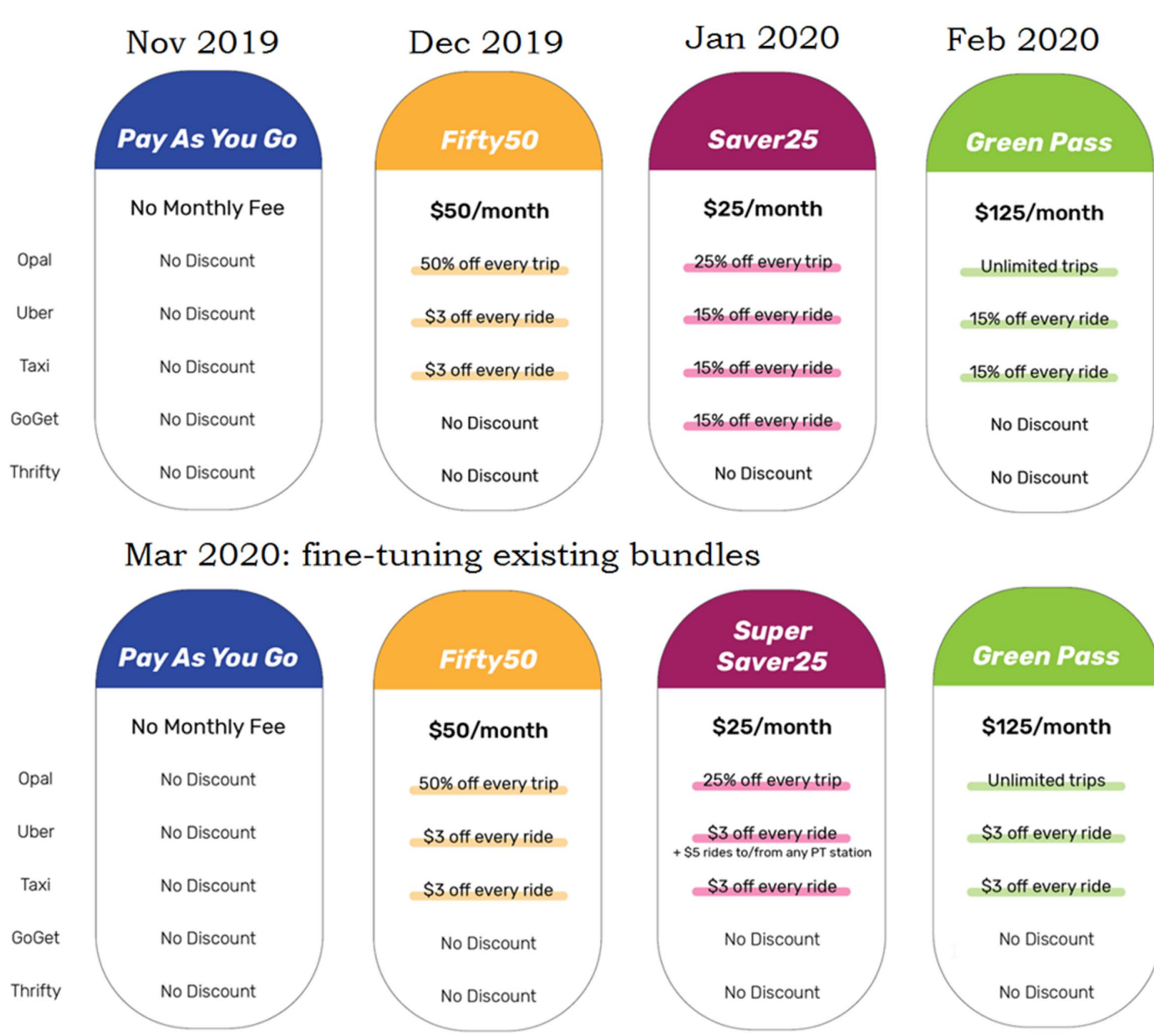
<https://imoveaustralia.com/project/project-outcomes/sydney-maas-trial-final-report/>



TNC = Transport Network Companies

Plus Post-Trial Evaluation – 12 months (to April 2021) of data analysis, insights, Reporting, talks (nationally and internationally) and assessment of commercial possibilities

Bundle Progression and Revision



Can MaaS Change Travel Behaviour?

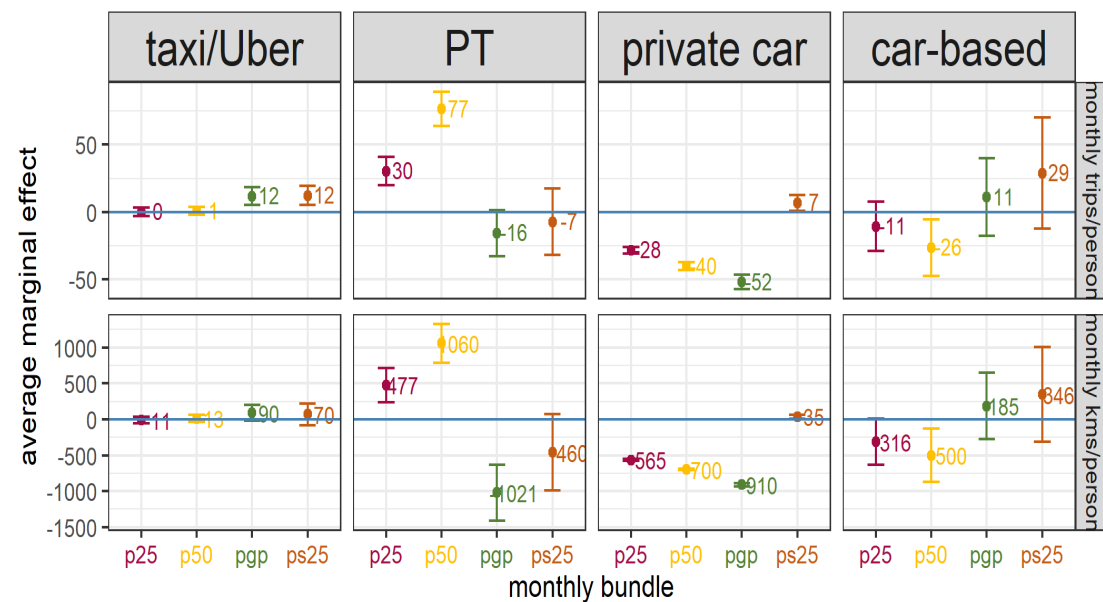
P25= saver25 (purple)

Ps25=supersaver25 (brown)

Pgp= greenpass (green)

P50= fifty50 (yellow)

– Use best models to assess MaaS impacts on travel behaviour



– The GreenPass bundle (offering unlimited PT) increased Uber and Taxi trips and kms (see taxi/Uber panel).

– The Saver25 and Fifty50 bundles (offering 25% and 50% discount for PT) increased PT trips & kms significantly (see PT panel)

– All monthly bundles but Supersaver25 reduced private car trips and kms (see private car panel)

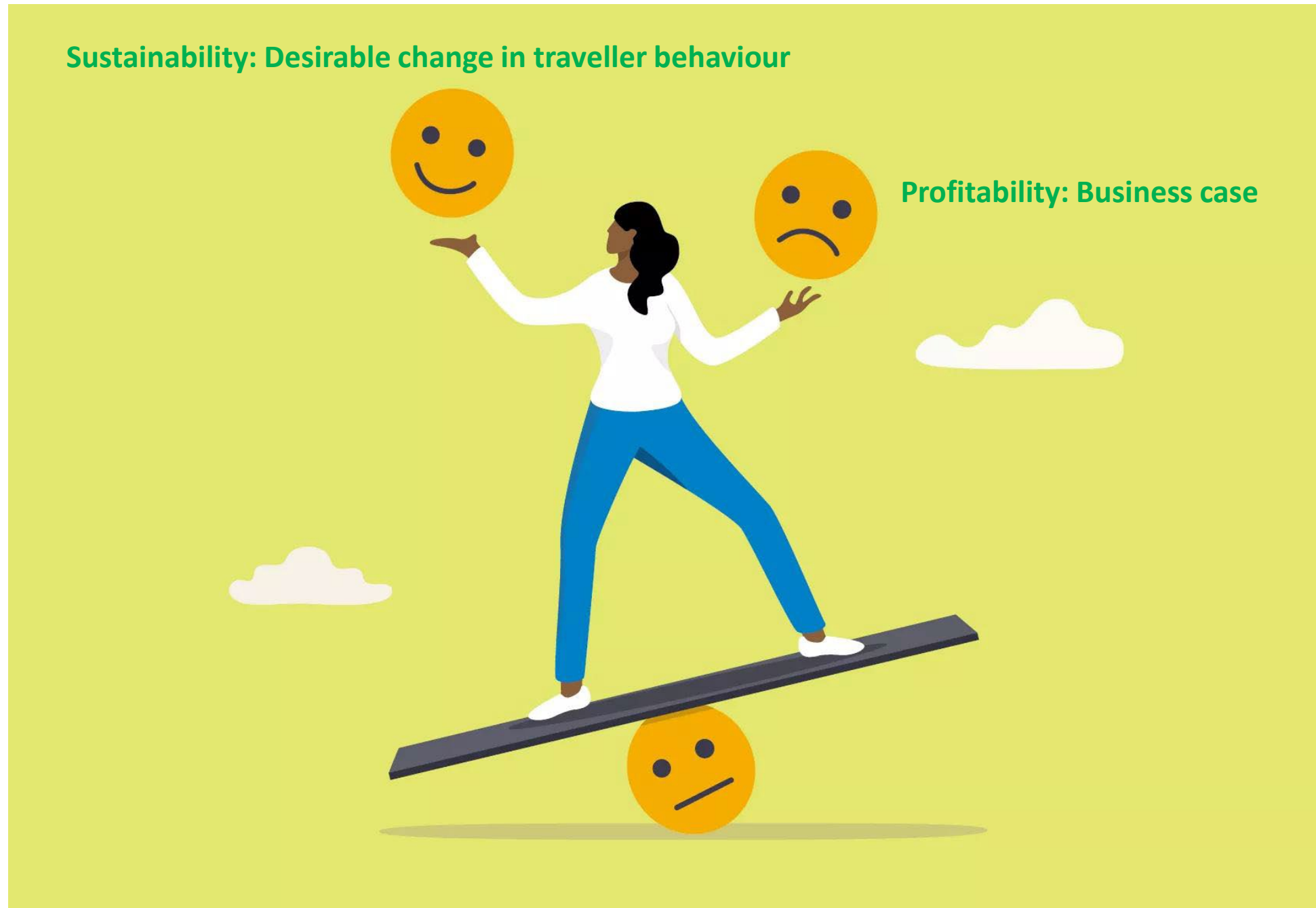
– Net impacts on car-based trips and kms were promising but not all were significant (see car-based panel)

We caution about the future trajectory. In “Going somewhere or nowhere?” we said: “All this suggests that without evidence of contributing to sustainability goals, a real challenge for government in particular, we see a bleak future for MaaS, leaving the multi-modal future as one of contactless deep linked customer-oriented Apps designed to be interoperable between different jurisdictions.”

Hensher, D.A., Mulley, C. and Nelson J.D. (2021) Mobility as a Service (MaaS) – Going somewhere or nowhere? *Transport Policy*, 111, 153-156. <https://doi.org/10.1016/j.tranpol.2021.07.021>.

So what have we learnt?

<https://mobilitaetsfunk.de/multiservice-statt-multimodal-wie-mobilitaetsverhalten-wirklich-veraendert-werden-kann/>



Do Integrated Modal Mobility Services have a Future?

- For the last twenty years we have seen exponential growth in interest in developing ways in which we can offer to the market **a unified multi-modal ecosystem**
 - that is so appealing that individuals would abandon their traditional ways of making travel choices to be guided by the offers through a digital platform either through pay as you go (PAYG) or a subscription to a package.
- **We have to date seen little success (some beg to disagree!) for MaaS despite the continuing euphoria in many settings (esp. trip planning App folks).**
- This commentary is the result of a significant amount of research and practice (funded in large part by iMOVE, CRC Australia) designed to find ways to give MaaS a chance in the market,
 - reflecting on what we see as the key features of any future MaaS aspiration in respect of having a **scalable impact** on changing traveller behaviour that is aligned with sustainability goals and resulting in a viable business case with or without government subsidy.
 - **We suggest the focus should be on a broader interpretation of transport services as an input into a wider activity-focussed product mix driven by the private sector, in a way that is also financially sustainable without necessarily requiring further subsidy from government. We (Hensher and Heitenan) call this Mobility as a Feature (MaaS).**
- *** Uni-Modal: 2025 see short video on the Car Community Club (CCC) https://mitfahrverband.org/beyond_ride-sharing/**
- A particular focus of our ongoing research is a recognition of the role that **non-mobility service providers (NMSPs)** can play in extending the stakeholder set that may well give MaaS/MaaS a scalable future.
- We also suggest that the generalisation away from **multi-modality to multi-service** supported by rewards and incentives that benefit non-transport providers, is likely to reveal a **continuing role for uni-modal solutions*** that can also align well with a MaaS ecosystem.
- **“Sadly, the industry has been frustratingly slow: we have been working as an ‘egosystem’, not an ecosystem.”** Sampo Heitenan, 6 March 2023 <https://www.itsinternational.com/feature/sampo-hietanen-maaS-we-needed-better-dreams>

Hensher, D.A. and Heitenan, S. (2023) Mobility as a Feature (MaaS): Rethinking the Focus of the second generation of Mobility as a Service (MaaS), *Transport Reviews*
DOI: 10.1080/01441647.2022.2159122



«Are we winning the battle, but losing the war?»

MOBILITETS-KONFERANSEN

SAMPO HIETANEN
Founder of MaaS Global / Advisor

Sampo, the wordsmith behind “MaaS” and founder of the Finnish company MaaS Global, made waves with the Whim app. Now, with MaaS Global behind him and a wealth of experience gained, Sampo shares his thoughts on what’s needed to reach our mobility goals. What role should the public sector play? Which companies will come out on top? Is Europe at risk of losing another digital revolution? What mobility services do we truly need? And importantly, is MaaS dead – or is there a new shiny concept on the horizon?

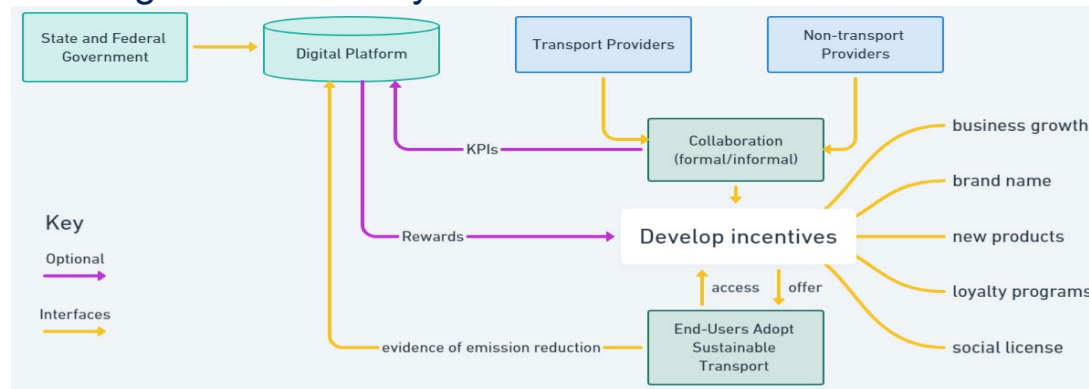
Fiskepiren, Stavanger – 31. October 2024

GRØNNby NO3DIC EDGE Universitet i Stavanger Kolumbus

The potential role of non-mobility service providers engaging in MaaS: Many are already doing it, but we do not recognise it as a link to the MaaS ecosystem

Online survey in 2024 of 4,080 interviews in Australia, USA, UK, Singapore, Sweden, and Finland

- The potential role of non-mobility service providers in achieving scalable **MaaS associated with changes in travel behaviour, aligned with sustainability objectives**, is shown to have merit.
- It requires however, careful consideration of which types of services and associated rewards and incentives are likely to be of interest to NMSPs.
- The evidence we have obtained to date suggests that there is a significant mix of either **a lack of awareness of opportunities and/or disinterest**, where the latter is to varying degrees the absence of any clarity as to what the benefits might be from participating in a MaaS/MaaF program.
- We are very early in the journey of opportunity in most western societies, in contrast to countries such as Japan and China where government directs the MaaS program with significant subsidy.



- To move the initiative forward, we conclude that **very specific examples need to be provided** and tested that show, in unambiguous ways, the financial and non-financial benefits of NMSPs engaging in a MaaF initiative. Examples that emerged from the in-depth interviews include:

- **In a supermarket app**, you could receive bonus shopping points if you visit a store using a shared bike or public transport.
- **Community car sharing** to/from Church ensures reduced car use while helping the capacity constraint on site at the church and in adjacent roads.
- If you have got public transport 10 times to come and see your local rugby team or football team, then you get **access to the players' lounge**.
- A discount on your restaurant bill (or a seat adjacent to a celebrity) because **you got the bus**.
- **Guaranteed front row at the theatre** because you have used sustainable modes over a certain period of time.

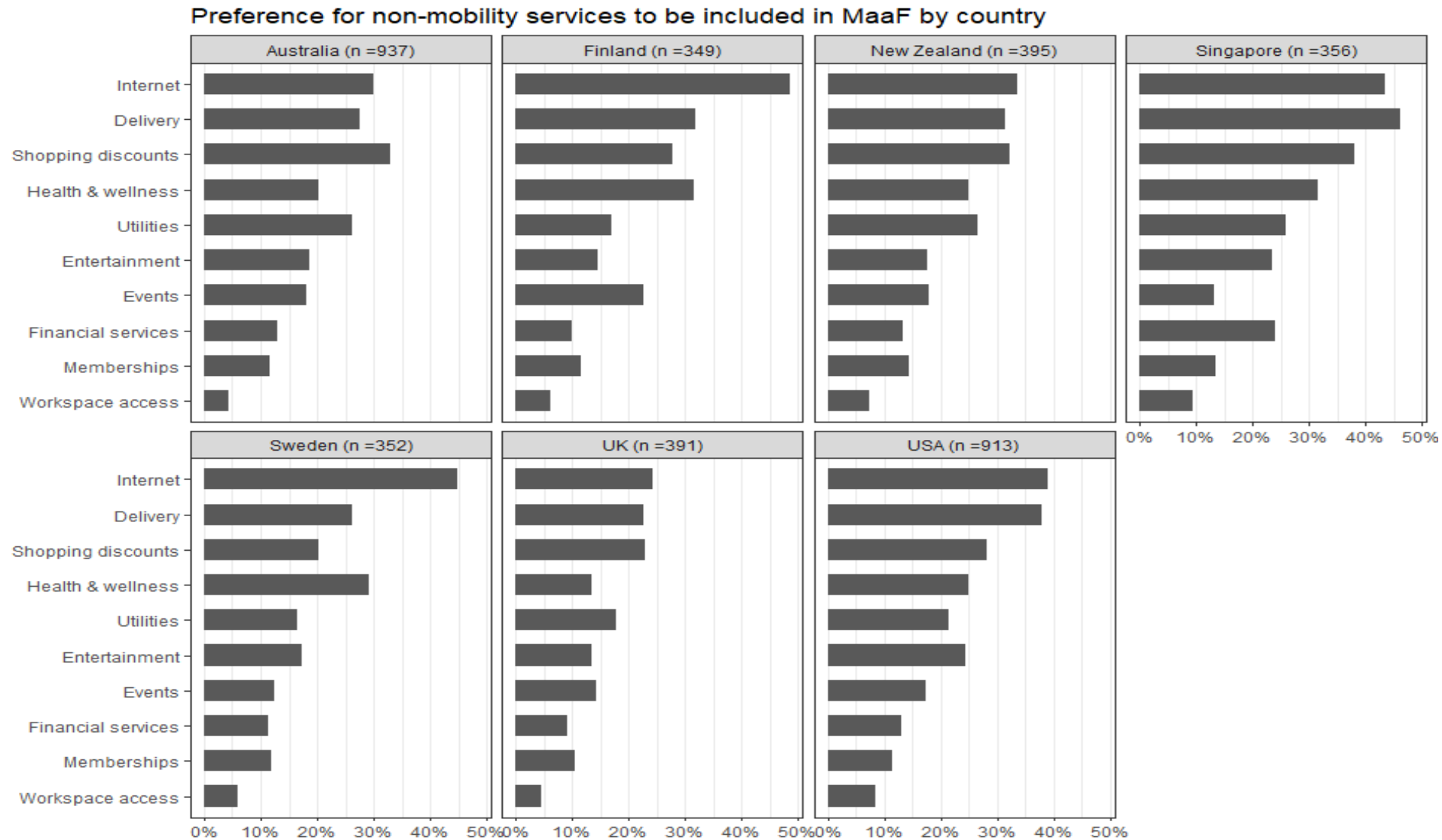
<https://url.au.m.mimecastprotect.com/s/-sF9C1WLPxcBG3VpRhLfrIVEC-0?domain=nus.edu.sg>

- **Five of the initiatives, at least, have a clear link to sustainable travel outcomes:**
 - **Paying for / subsidising public transport use**
 - **Rewarding environmentally friendly methods of work-related travel (including commuting), e.g., perks for those who use public transport, carpool, cycle, e-scooter**
 - **EV charging facilities**
 - **Showers / changing rooms for those who run / cycle to work**
 - **Flexible working which accommodates working from home**

Hensher, D.A. and Nelson, J. (2025) Do integrated modal mobility services have a future? The neglected role of Non-Mobility Service Providers and challenges and opportunities to extract sustainable transport outcomes, **TMR MaaS Paper #1**, *Transport Policy*, 163, 348-357.

David A. Hensher, John D. Nelson, Chinh Ho, Camila Balbontin, Thiranjaya Kandanaarachchi, Corinne Mulley, Edward Wei (2026) Establishing Evidence of Initiatives undertaken by Non-Mobility Service Providers that are aligned with Sustainable Travel Behaviour Change. *Transportation Research Part A*, online.

Preferences for non-mobility services to be packaged together with a mobility or transport app vary by countries (Survey undertaken in May 2025 by ITLS as part of iMOVE project with TMR)



data source: travel behaviour change survey 2025.

Support for MaaS framework observed in Finland, Singapore, Sweden, and USA where circa 40% of the respondents want to see Internet service packaged into multiservice bundles. The next popular non-mobility service is Food and Grocery delivery. The support for MaaS is weaker in UK, Australia and NZ where the most preferred options accounting for around 30% or less of the respondents. Discounts for shopping seems to be the most preferred option.

Scalability becomes possible even without the need for transport service providers to form a MaaS consortium (Maybe we should stop referring to MaaS and maybe call in ‘**Sustainable Mobility Initiatives of Business (SMIB)**’).

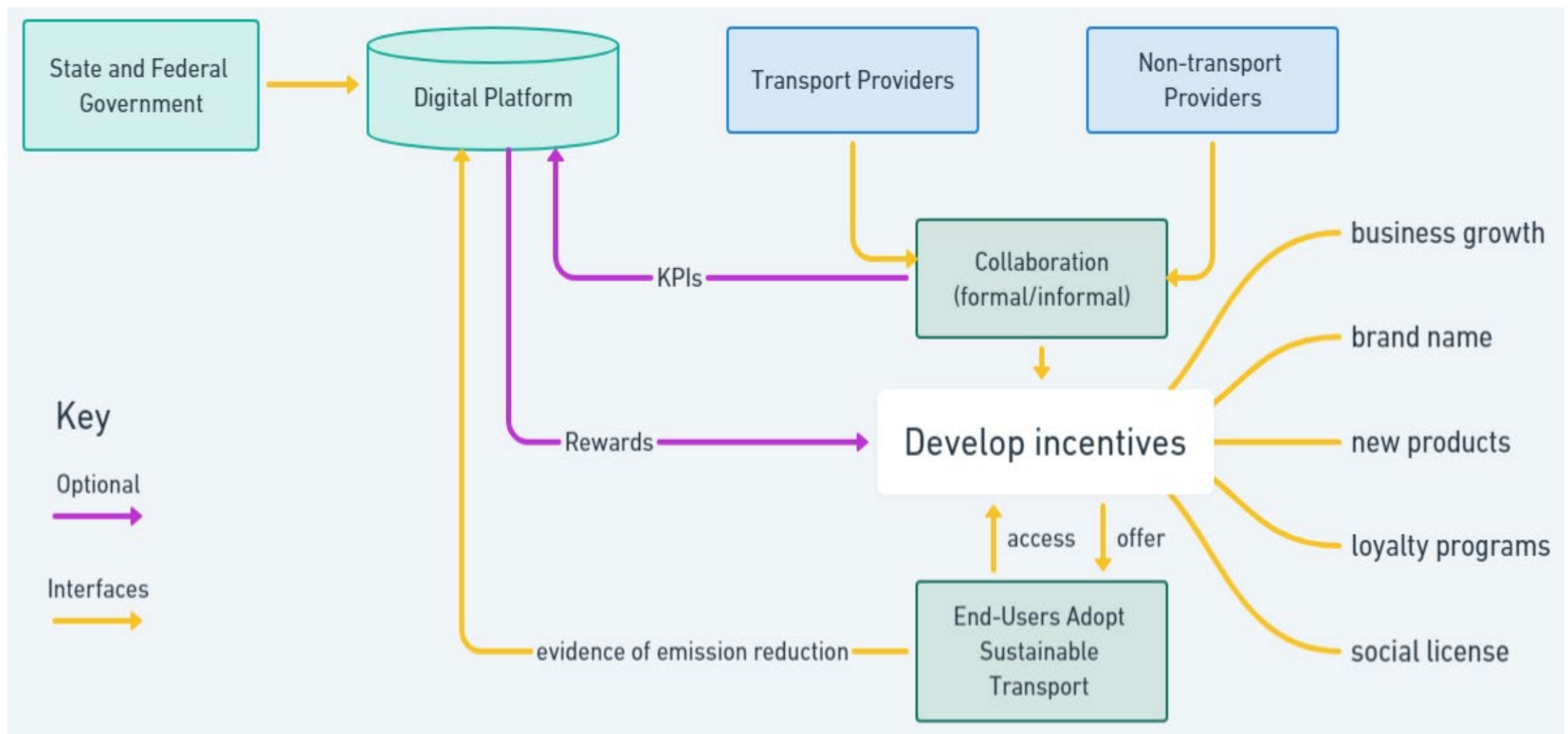
- We have clear evidence that NMSPs already undertake initiatives that have a link to the goals of the MaaS/MaaF ecosystem
- **What is missing is a recognition of this link** and how it can be promoted broadly and tracked quantitatively as a way of establishing changes in travel behaviour that qualify for recognition through a set of agreed KPIs, including the real possibility of government financial and/or non-financial rewards while aligned with current business objectives.
- **In a sense we have disguised MaaS/MaaF** in the way some organisations support travel behaviour outcomes increasingly aligned with sustainability objectives, **but they do not publicly seek recognition.**
- **We should continue to encourage such initiatives and not be blindsided by the way that MaaS has historically been promulgated.**
- Scalability then becomes possible even without the need for transport service providers to form a MaaS consortium since the modes already exist or could be provided to the market as separate modal services.
- Then the focus is on how government can provide incentives and rewards over and above the incentives and rewards also offered by private enterprise NMSPs to achieve the desired travel behaviour changes (as is the case in part in Japan).
- **This is an important finding that does not depend on the transport service providers other than their presence in providing services in the market to anyone wishing to use them.**
- **MaaS/MaaF may not have lost its future way – it has rather been mis-directed!**
- **We have focused in the wrong places.**

The ongoing challenge is to find an efficient mechanism to capture and report the green initiatives offered by an organisation and taken up by stakeholders. This is required to capture the evidence to account for the contribution to sustainable traveller activity as well as to assess compliance with government determined KPIs so that stakeholders and even the organisation can receive financial rewards, and the organisation can be recognised through a social and environmental digital badge. Through this capture and sharing, organisations may see value in initiatives that have been giving their competitors an advantage in hiring.

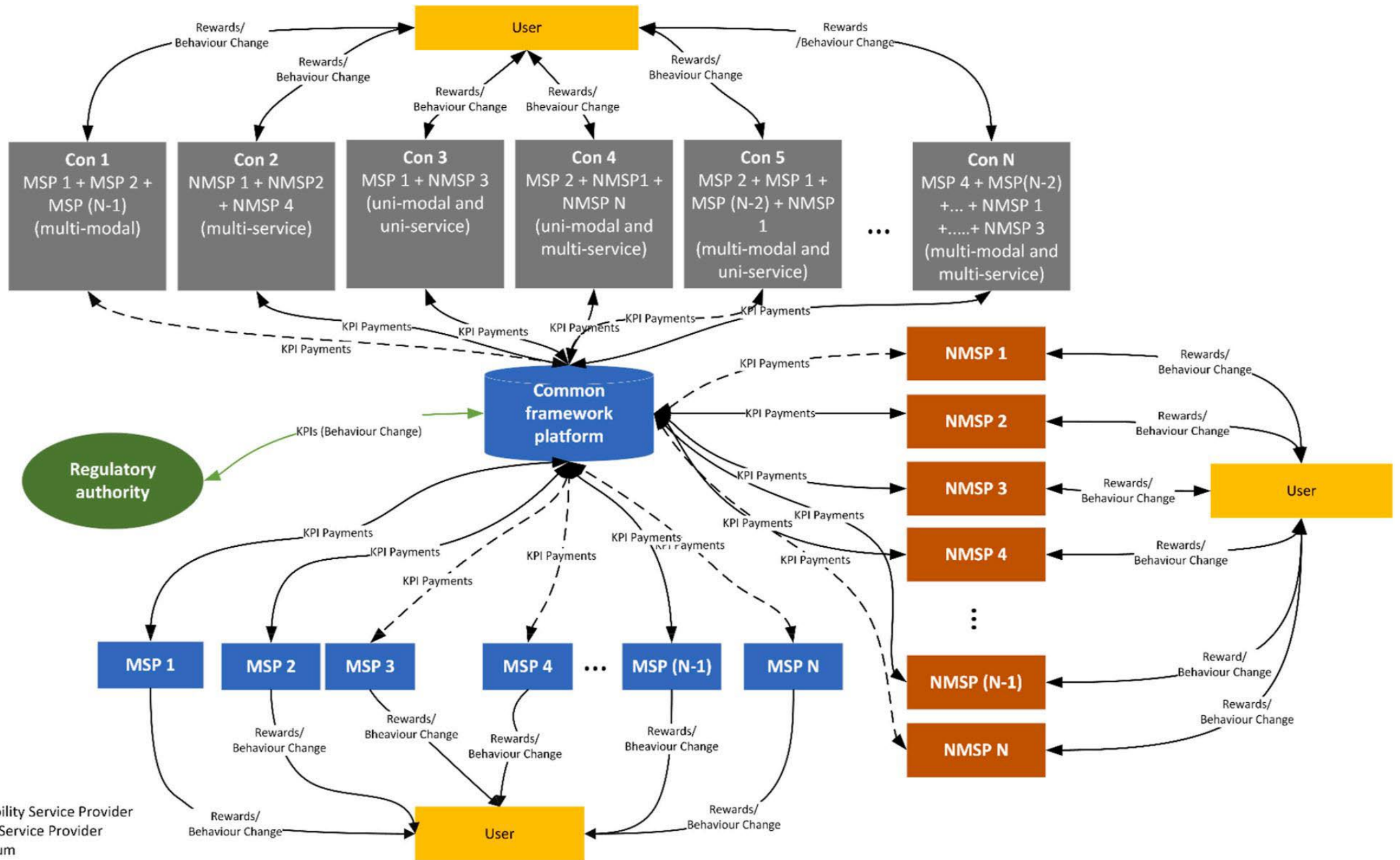
Simplified Diagram on Governance Framework Options in 2nd generation MaaS © ITLS

Establishing a Framework of Support to Scale in Mobility as a Service/MaaS

ITLS team: David A. Hensher, John D. Nelson, Thiranjaya Kandanaarachchi, Corinne Mulley, Edward Wei, Chinh Ho, with TMR and iMOVE



The Common Framework Platform with the proposed flow of rewards more detail



NMSP - Non-mobility Service Provider
MSP - Mobility Service Provider
Con - Consortium

→ - Direct involvement through tendering
- - - - - Indirect involvement without tendering

Overall Conclusions

- MaaS trials have been ephemeral and forgotten about quickly
- MaaS has yet to produce a scalable business model
- MaaS must move beyond multi-modalism to multi-service (i.e. NMSPs will play a critical role)
- **Mobility offers should be seen as an *input* into a larger activity-based paradigm of service delivery**
- NMSPs require incentives to enter the market
- Developing a scalable MaaS framework requires insights to inform design of targeted, context-sensitive interventions that can effectively support long-term behaviour change (which we capture via Windows of Change).
- Segmenting the market and designing targeted interventions offer the best prospect of effective outcomes
- The research future is to find the combination of service delivery (activities and mobility) that makes sense to the market

–MaaS and Beyond is

looking like the Future as Embedded Mobility

14

MaaS or MaaF: Summary



Dimension	MaaS	MaaF
Platform Type	Dedicated transport app	Embedded in existing digital platforms
User Experience	Requires separate adoption	Seamless, context-driven access
Modal Integration	Often excludes private vehicles	Can include private, shared, and public
Scalability	Limited by transport silos	Scales across sectors (health, retail)
Behavioural Fit	Assumes rational mode choice	Aligns with habitual, embedded decisions

Conceptual Overview

- **Mobility as a Service (MaaS):** A standalone platform that integrates multiple transport modes into a single app or subscription.
- **Mobility as a Feature (MaaF):** Embeds mobility into broader digital ecosystems (e.g., health, retail, insurance), making transport a seamless part of other services.

Why MaaF May Be Preferable

- **Higher adoption:** Users engage with mobility through platforms they already use.
- **Policy reach:** Enables transport access in health, education, and welfare contexts.
- **Behavioral realism:** Reflects bounded rationality and process heuristics better than MaaS.
- **Equity potential:** Can be tailored to vulnerable populations (e.g., CKD patients needing hospital access).

Modelling Implications

- MaaF may require **nested or hybrid choice models** to capture embedded decision-making.
- **Process heuristics** and **contextual triggers** (e.g., appointment reminders) become key variables.
- Opportunity to integrate **transport access modeling** with **digital service usage patterns**.

Case Studies & Emerging Examples

- **Uber Health in Mississippi:** Embedded in public health workflows to reduce missed appointments.
- **Mobility features in hotel apps:** Offering airport transfers or local rides as part of booking.
- **Retail platforms:** Bundling delivery, parking, or rideshare credits with purchases.

MaaS and Beyond (2035+) is looking like the Future as Embedded Mobility

Mobility-as-a-Feature is at an early adoption stage, with business models still fragile. But its logic is powerful: consumers and businesses increasingly expect mobility to be bundled into other services. If cost, integration, and policy hurdles are addressed, MaaS could become as natural as having Wi-Fi included in an office lease.



Real estate:

Apartment leases could include mobility credits, bundled access to shared EVs, or on-demand shuttles as part of the package. Parking will be optional, not assumed.



Healthcare:

Hospitals and insurers will embed patient and employee mobility into service offerings, ensuring seamless trips to appointments or facilities.



Retail and tourism:

Concerts, hotels, and events will package transportation directly into tickets or reservations, guaranteeing customers door-to-door service without separate planning.

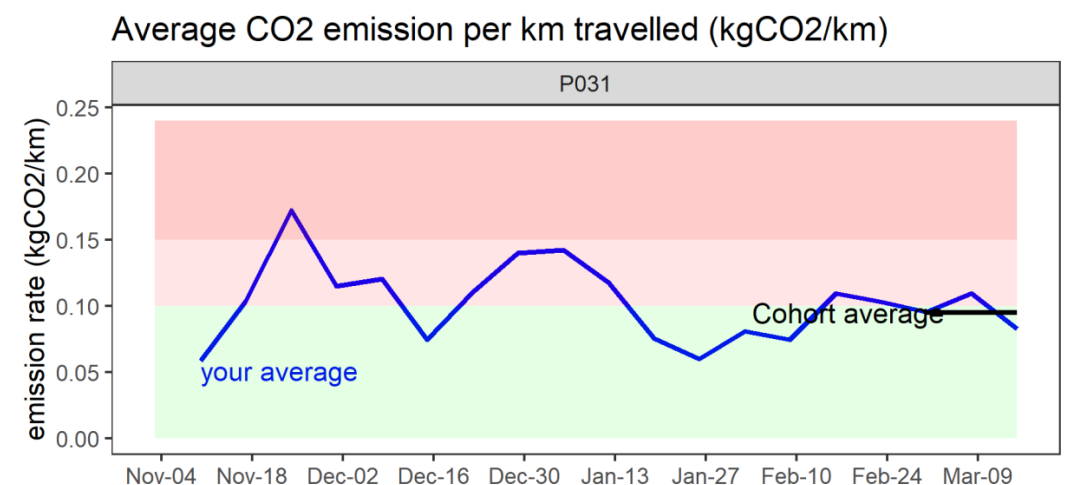
https://assets.ctfassets.net/9g4sdlwetik5/5GZCqh92jyGfu9hdqVzMok/a33c0ea9dc4760b272dacf51e41d395f/FY25_Future_of_fleet_technology_and_mobility_Element_Fleet_Management.pdf

The emission busting challenge in the Sydney Trial: started but stopped due to Covid-19

- Unlike a monthly plan which targets a particular group of travellers, **the emission challenge is an incentive aimed at all participants regardless of whether they have chosen any subscription bundle.**
- All participants are eligible for the rewarding scheme if they reduce their CO₂ emissions, compared to their own emissions in the previous month.
 - Benchmarking emissions against the previous month's emissions at the individual level allows individual effort in reducing CO₂, **but care must be considered in designing the gamification to avoid participants gaming the scheme.**
- **One approach** could be allocating a given number of winners/prizes for the entire cohort so that only the participants who cut their CO₂ emission the most, compared to the previous month, would win a tangible prize from the challenge (e.g., \$100, \$200, \$500).
- **An alternative approach is to classify participants into different groups/cohorts and define different rewarding schemes for each group/cohort.**
 - The different cohorts can be defined based on the bundle the participants subscribe to for that month, but a different taxonomy can be used such as grouping all participants with safer-journey data into one cohort to reward them for reducing private car use, observable via the safer-journey data.
 - Compared to the first approach, this approach recognises that some travellers (e.g., heavy car-based users) can reduce their emissions more easily than other participants (e.g., those already using PT for many trips).
 - Thus, it is important to use an appropriate metric in defining the emission challenge **to create a fair playing field** for all participants.

Specifically, for every percent point reduction in the CO₂ emission rate that the entire cohort achieve, everyone will be rewarded by a \$1 reduction in their monthly invoice. For example, if the group manages to reduce the average CO₂ emission per km travelled by 20%, every participant will receive a \$20 discount.

Using gamification in MaaS design works best if users can track how they are going reasonably closely so that their savings are not a complete guess at the end of the month. Therefore, the **regular feedback is important** for the gamification to be effective. With that in mind, we aimed to provide weekly updates on individual emission rates and how the entire group is responding, using key statistics and bespoke graphs. An example personalised graph of CO₂ emission per km travelled:

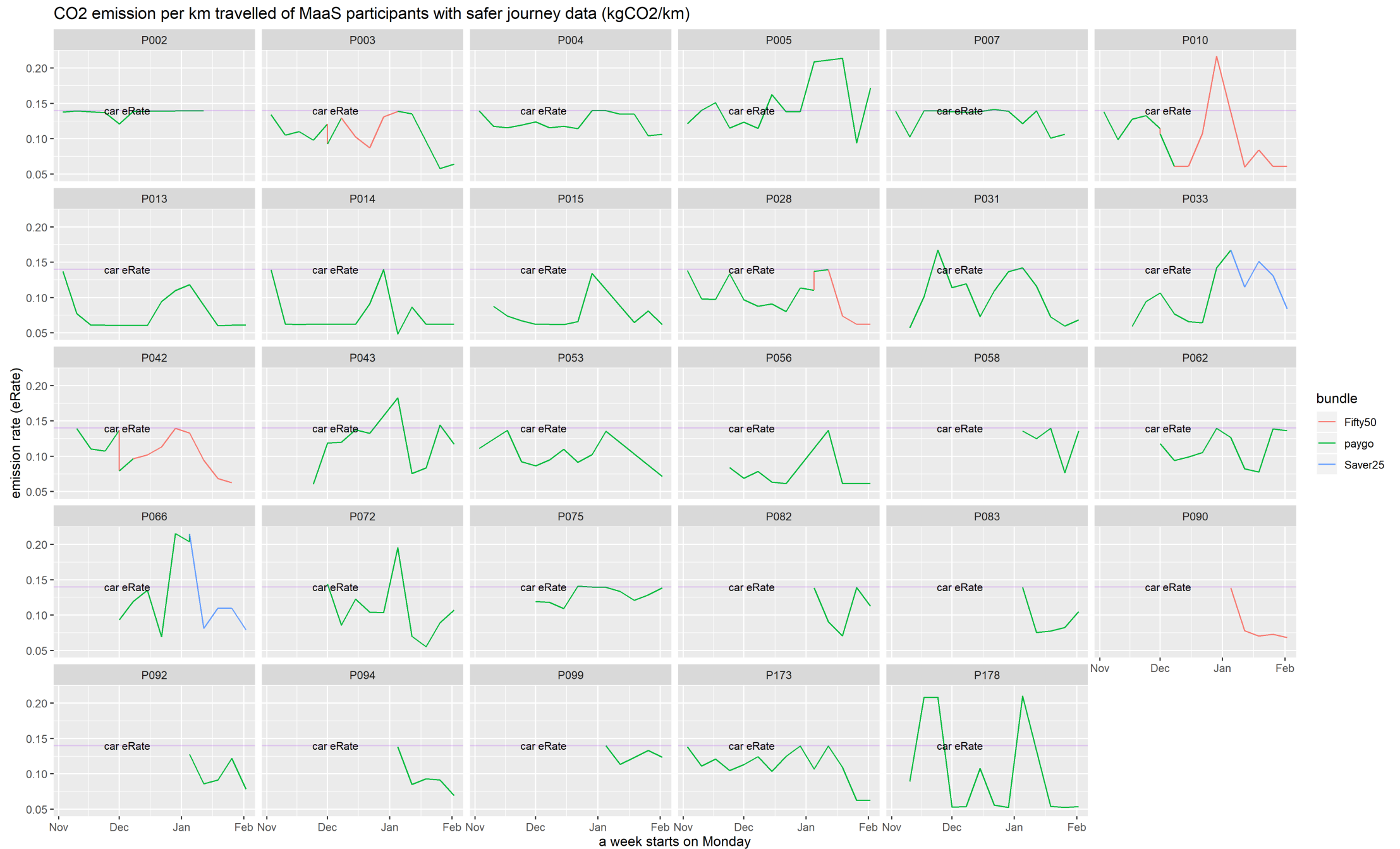


note: data aggregated forward to the Sunday of each week

Personalised colour coded CO₂ emissions per kilometre band travelled for an example participant P031

Preliminary Evidence

A complementary program called Safer Journeys, run by IAG, involves some participant's cars fitted with tracking devices for rapid incident response, enabling us to assess the influence that MaaS has on private car use.



data aggregated forward to the Sunday of that week

Always a Qualifier: Scaling behavioural incentives for low-carbon mobility through digital platforms

- **Authors:** Bing Liu, Yuan Liao, Sonya Yeh, Oded Cats, Kristian Nielsen, Zhenning Dong, Yong Wang, Yi Li, Yanli Liu, Ztrui Ni, Xtaolei Ma
- MaaS Platform in Beijing – See next slide
- Meeting global carbon reduction targets requires large-scale behavioural shifts in everyday travel.
 - Using high-frequency mobility data from millions of individuals, they evaluate how the CIP-MaaS program influenced travel behaviour, CO₂ emissions, and spatial patterns across Beijing, China.
 - The program links individual travel activity with verified carbon accounting through a citywide MaaS platform operated via the Gaode digital map app in collaboration with public transport agencies.
- They evaluate a carbon incentive program embedded in a MaaS platform in Beijing, China, using data from 3.9 million participants and 4.8 billion multimodal trips over 395 days.
- The program increased reported public transport and bike travel by 20.3% per month and reduced gasoline car use by 1.8% per day, yielding an annual carbon reduction of ~94,000 tons, or 5.7% of certified reductions in Beijing's carbon market....
- **We suspect heavily subsidised and business case unknown.**
 - Some similar experiences in Japan

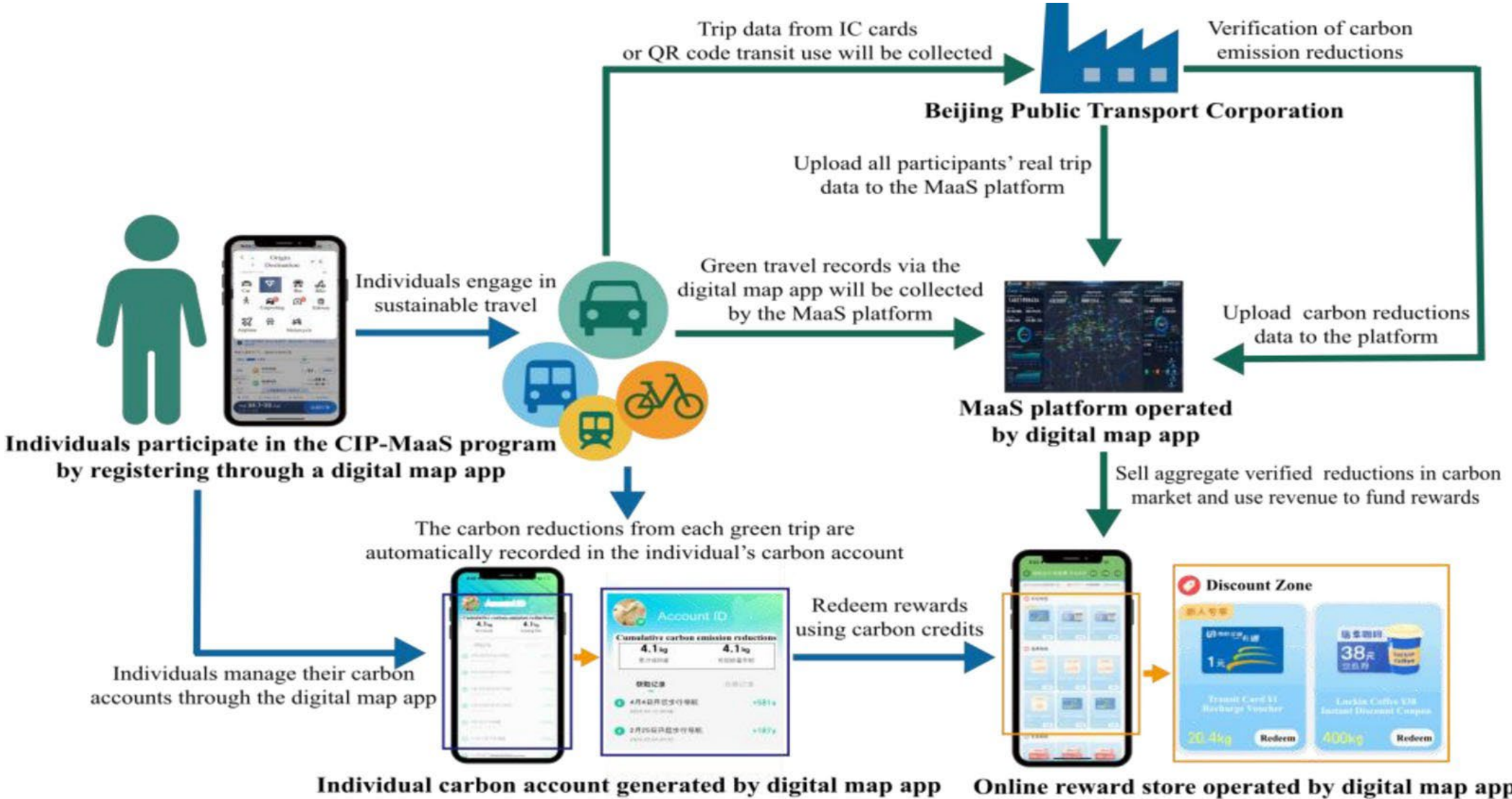
In China there isn't a single national MaaS subsidy rate. Big cities like Beijing and Shanghai heavily subsidise their underlying metro and bus systems (often covering well over half of operating costs), while the MaaS layer adds relatively modest green-travel incentives, typically worth only a few dozen yuan per active user per month that are often co-funded by platform operators (e.g., Amap, Baidu) rather than paid purely from government budgets.

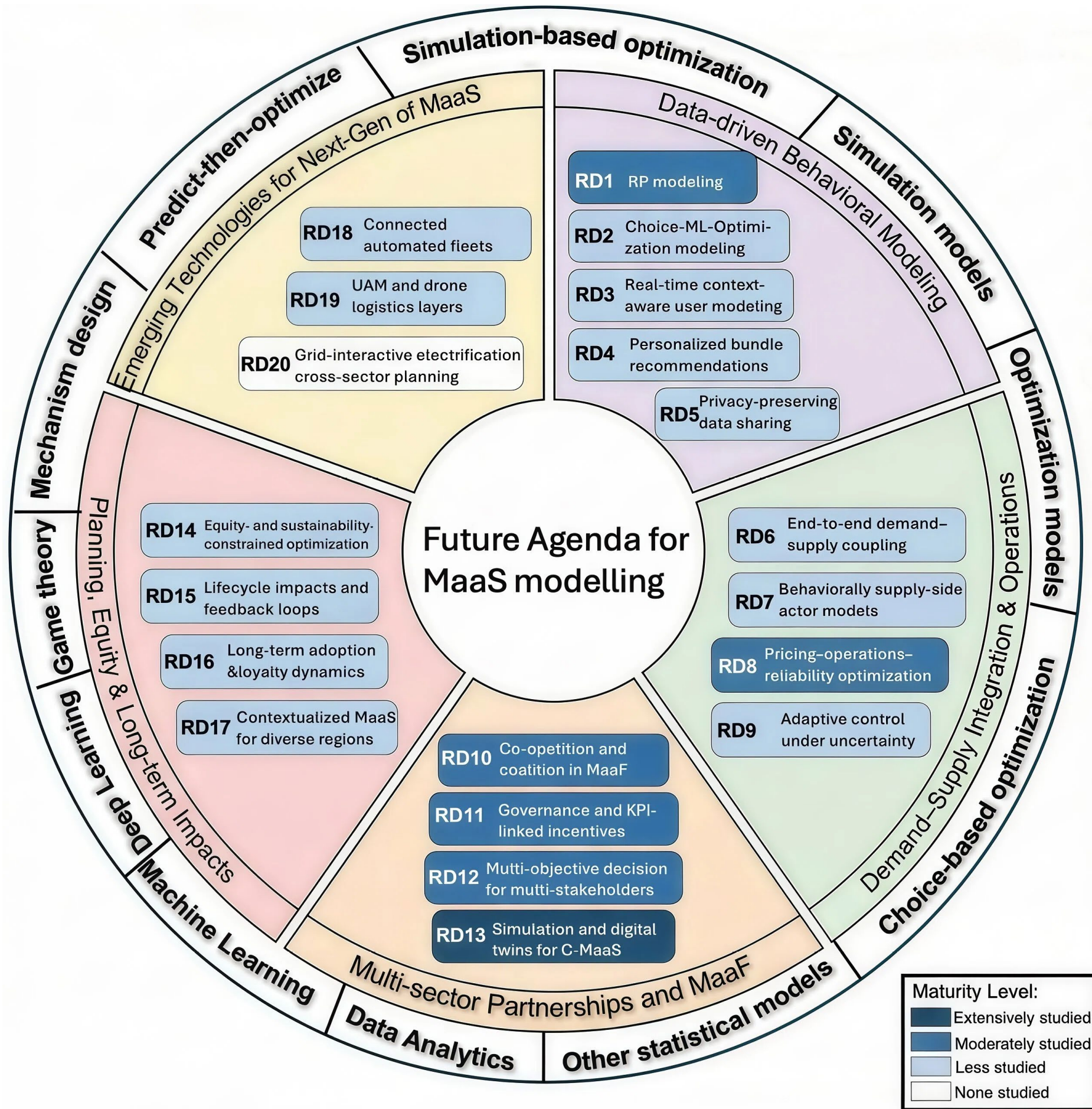
Shanghai has layered additional reward schemes on related city apps, e.g. the Tanpuhui carbon incentive platform, where choosing buses/metro/shared bikes/EVs earns "carbon points" that can be converted to digital cash or coupons; one commuter example in the city's own news reported earning 48.9 CNY.

Xi, H., Li, M., Hensher, D.A., Zheng, Y. and Xie, C. Strategizing sustainability and profitability in electric Mobility-as-a-Service (e-MaaS) ecosystems with carbon incentives: A multi-leader multi-follower model, *Transportation Research Part C*, 166,104758 <https://doi.org/10.1016/j.trc.2024.104758>

Xi, H., Liu, W., Waller, S.T., Hensher, D.A., Kilby, P., and Rey, D. (2023) Incentive-compatible mechanisms for online resource allocation in Mobility-as-a-Service systems, *Transportation Research Part B*, 170, 119-147

MaaS Platform in Beijing





2025 podcast on MaaS and MaaS: <https://mobilitaetsfunk.de/multiservice-statt-multimodal-wie-mobilitaetsverhalten-wirklich-veraendert-werden-kann/>

2025 see short video on the Car Community Club (CCC)
https://mitfahrverband.org/beyond_ride-sharing/

Singapore: 30% car, estimate 24% captive so only 6% potential to switch to other modes

Table 1: Peak-period mode share of all motorised journeys

Transport Mode	2012	2016	2022	2023
Public Transport (MRT, LRT and buses)	57%	62%	64%	65%
Taxis/PHCs	6%	5%	5%	5%

MaaS-ive Success or Failure? It Depends? No more MaaS but think MaaF “Massive Future”

MAAS REPORT

MAAS REPORT

Can MAAS succeed?

Mobility as a Service (MaaS) aims to dismantle the inefficient model of private car ownership and replace it with on-demand services that offer just as much freedom at a lower cost, while also generating greater profits for service operators. There's consensus on the desirability of its aims, but, as Jack Roper discovers, many different opinions on how best to achieve them, prompting some to wonder if MaaS will ever reach its stated destination...

Illustration by Stephan Walter/Debut Art

Stephan Walter was flying business class when inspiration came. Perhaps it was London, or the streamlines pouring champagne. But he began to imagine what the mobile revolution in transport would look like if it were opened to transportation. Digital platforms would integrate every service to provide on-demand, multi-modal journey planning, ordering and payment via a single app. Somewhere over the English Channel, Mobility as a Service (MaaS) was born. It was 2014.

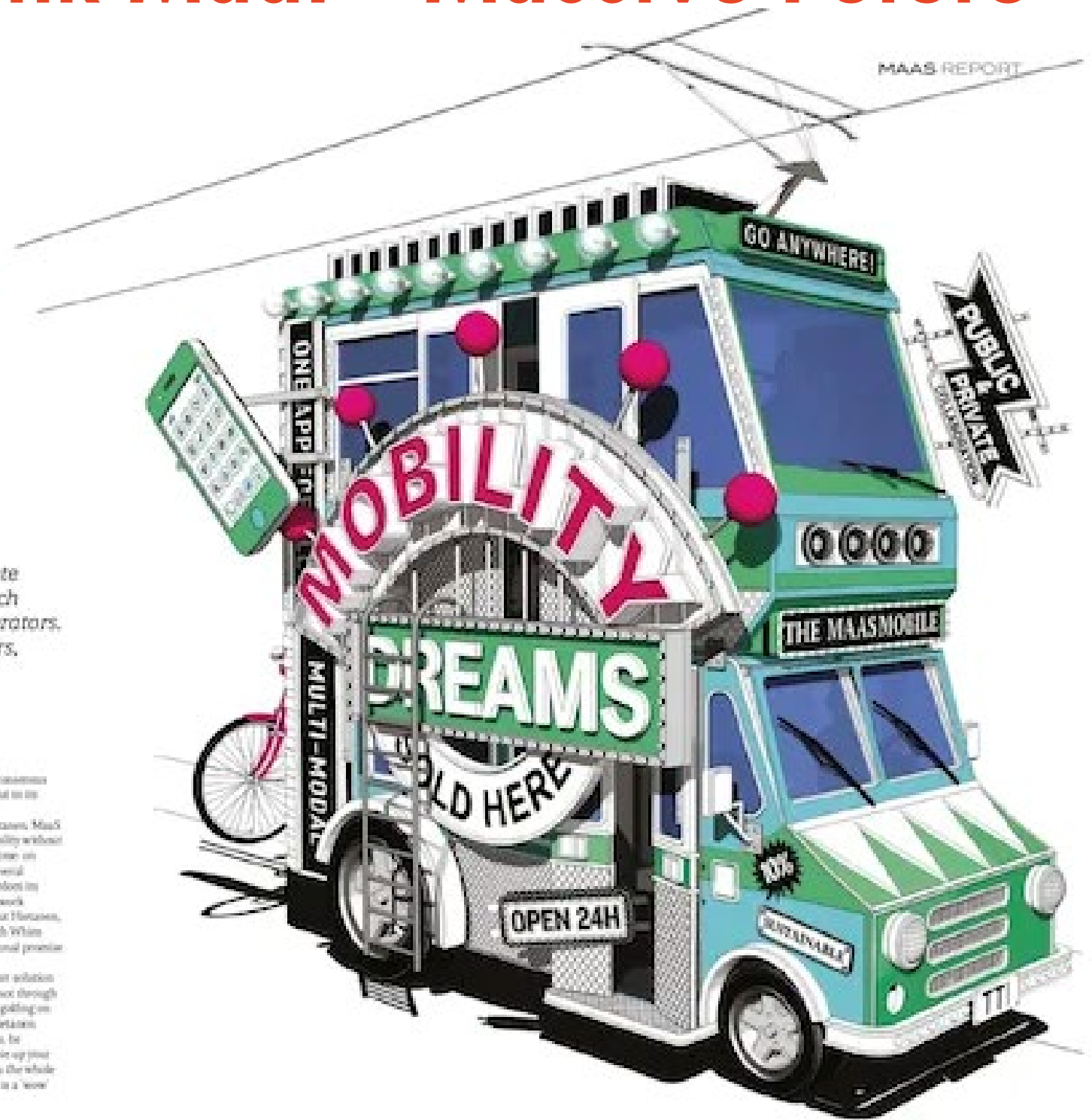
From 2014, MaaS was expected to deliver frictionless mobility, optimize network efficiency, decongest congestion and reduce emissions in cities. But the revolution has been slow to arrive. Despite countless pilots, MaaS has not reached the tipping point of mass-adoption needed to realize its superior promises. Critics perceive



a movement opposed by an identity crisis, with little consensus about what MaaS means or how to implement it. But as its progression, its essence is not hard to define.

For the end-user, it's quite simple," says Hietanen. MaaS Global's founder and CEO. "It's freedom of mobility without car ownership. The promise of anywhere, anytime, on a whim." MaaS Global's Whim app is live in several European cities. The optimized individual freedom in some metropolitan sites usually with local network operators and carbon-reduction organizations. But Hietanen, who pledges to replace a million private cars with Whim subscriptions by 2020, notes only this unconditional promise can address the psychology of car ownership.

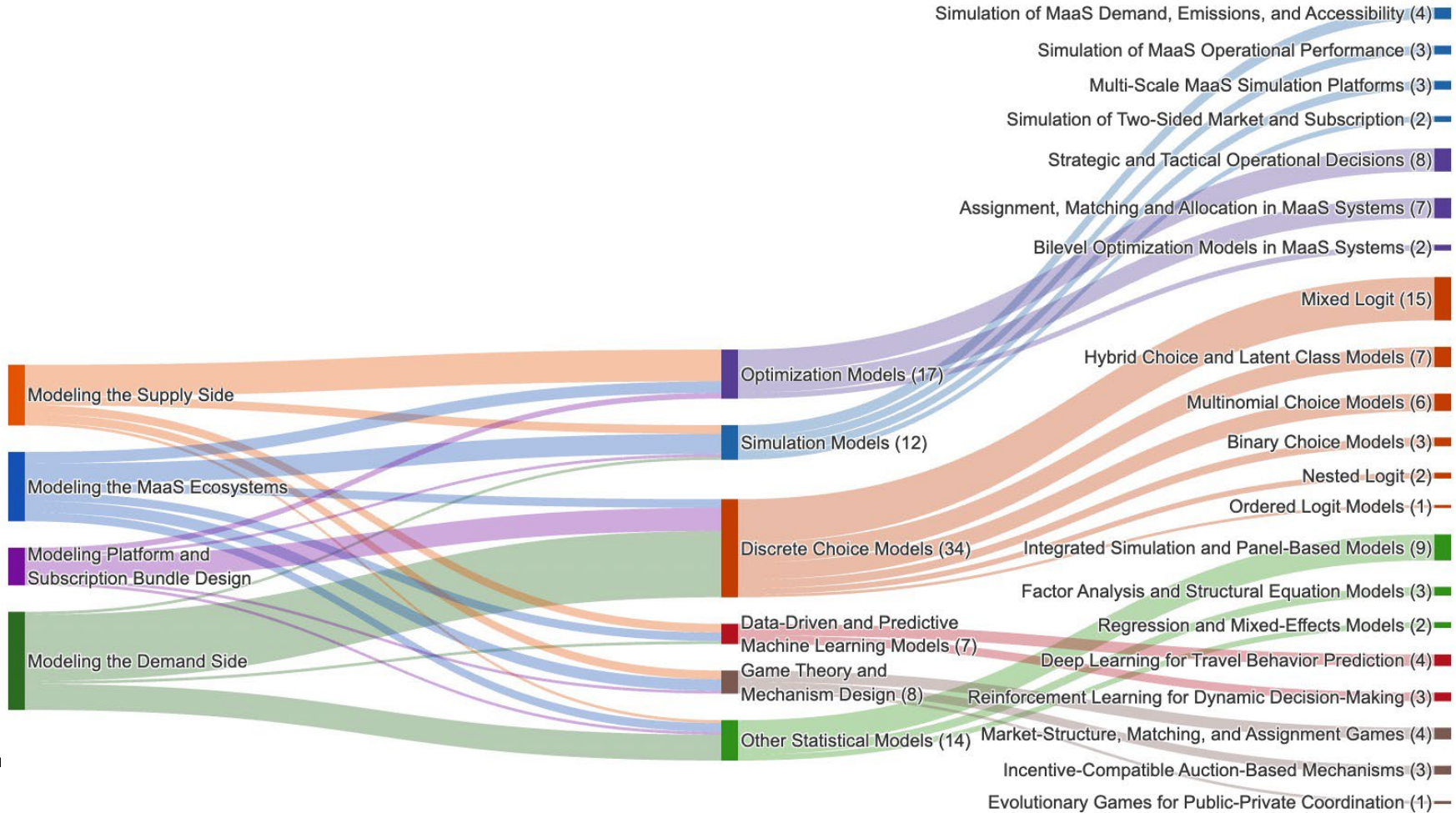
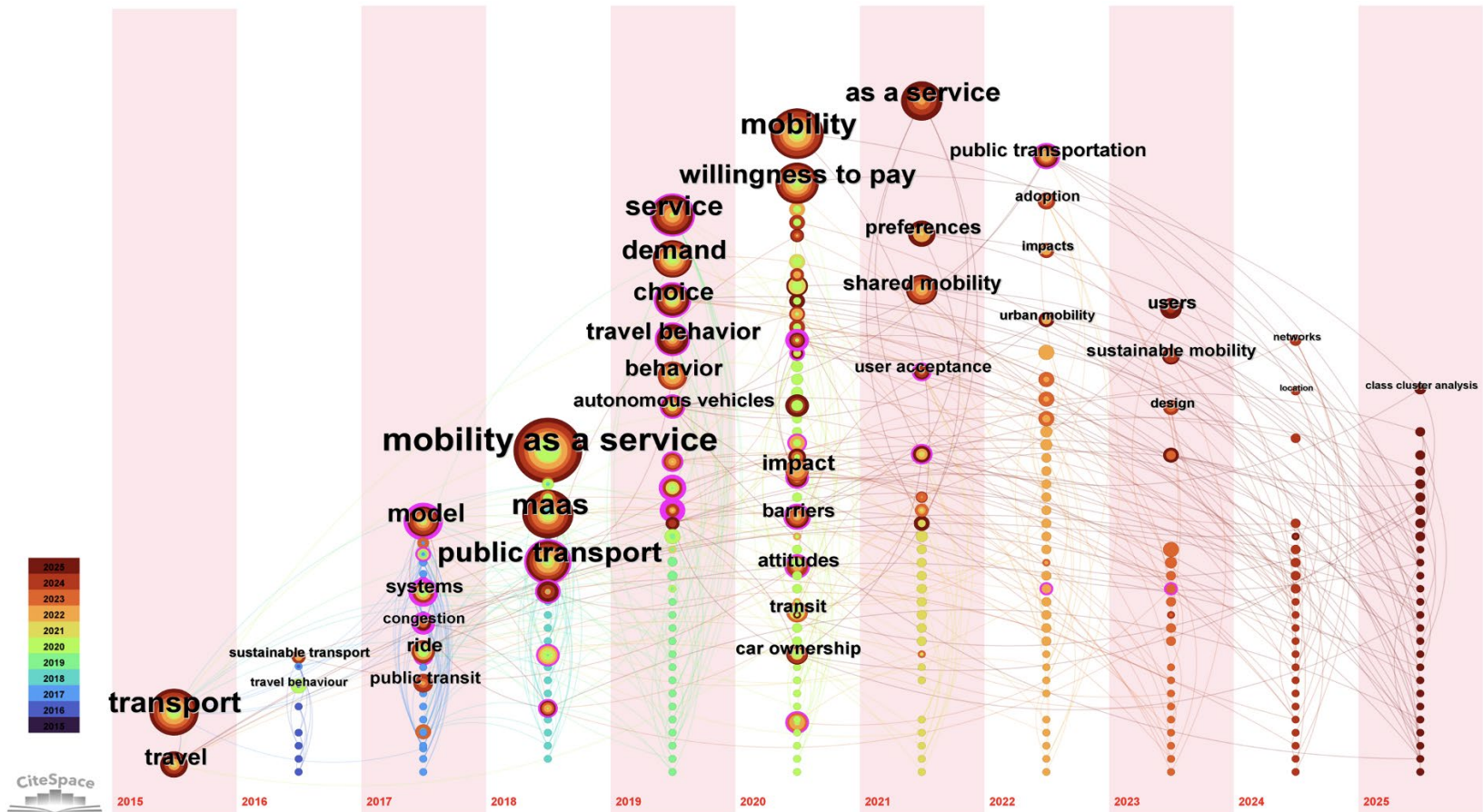
In Europe, 20 million car owners would like a better solution - 76% of mobility expenditure is locked into cars, but not through rational necessity. "People say, 'I want to take my wife getting on Sunday, I can just go without planning ahead,'" says Hietanen. "We're willing to pay for certainty and convenience." So, he continually asks one question: what would it take to give up your car? "What if, instead of Helsinki or Finland, I gave you the whole world?" he asks. "In Paris, everything is yours! The car is a 'wow' thing, to compare, we also need a 'wow' thing."

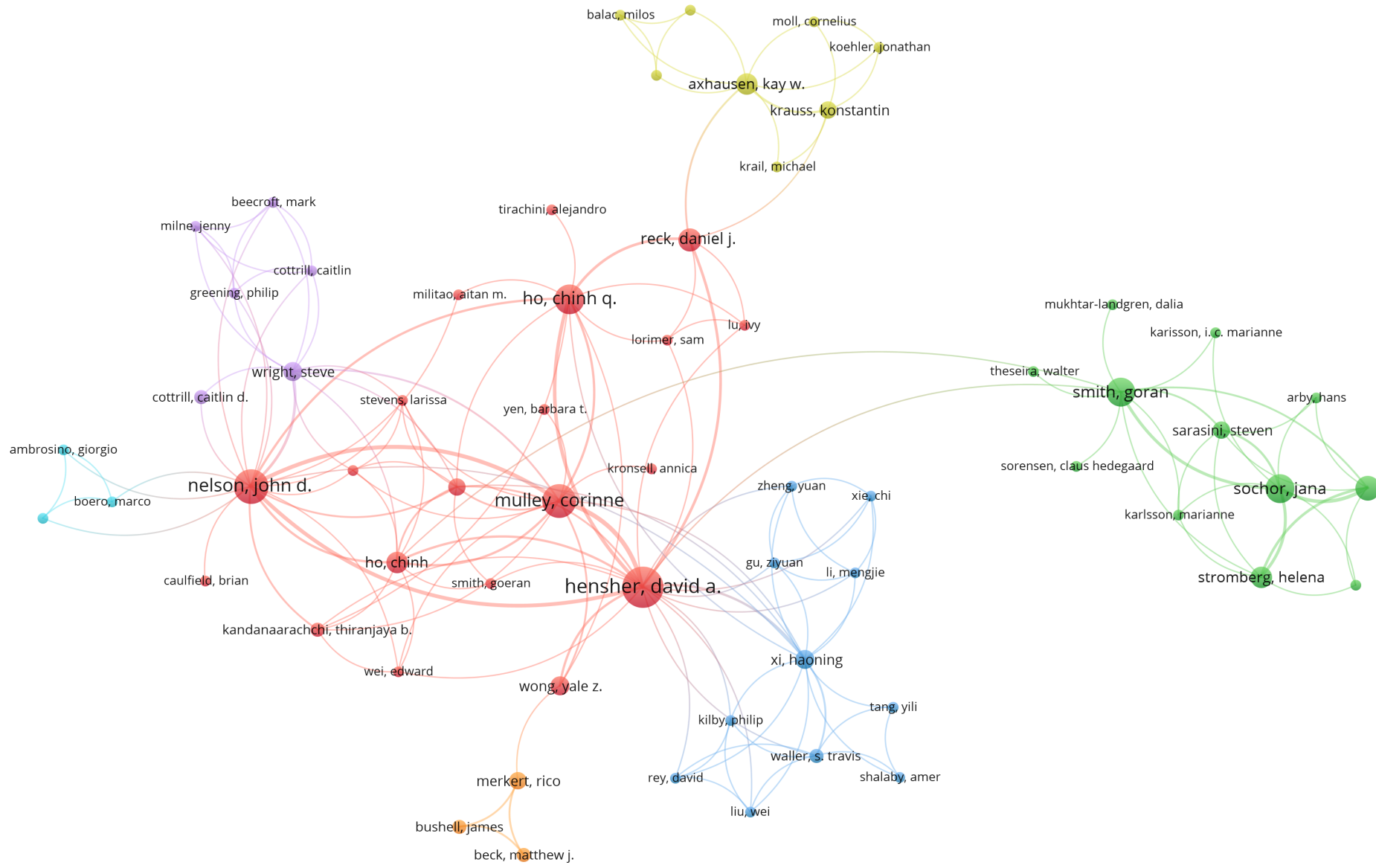


The risk of participants gaming the gamification

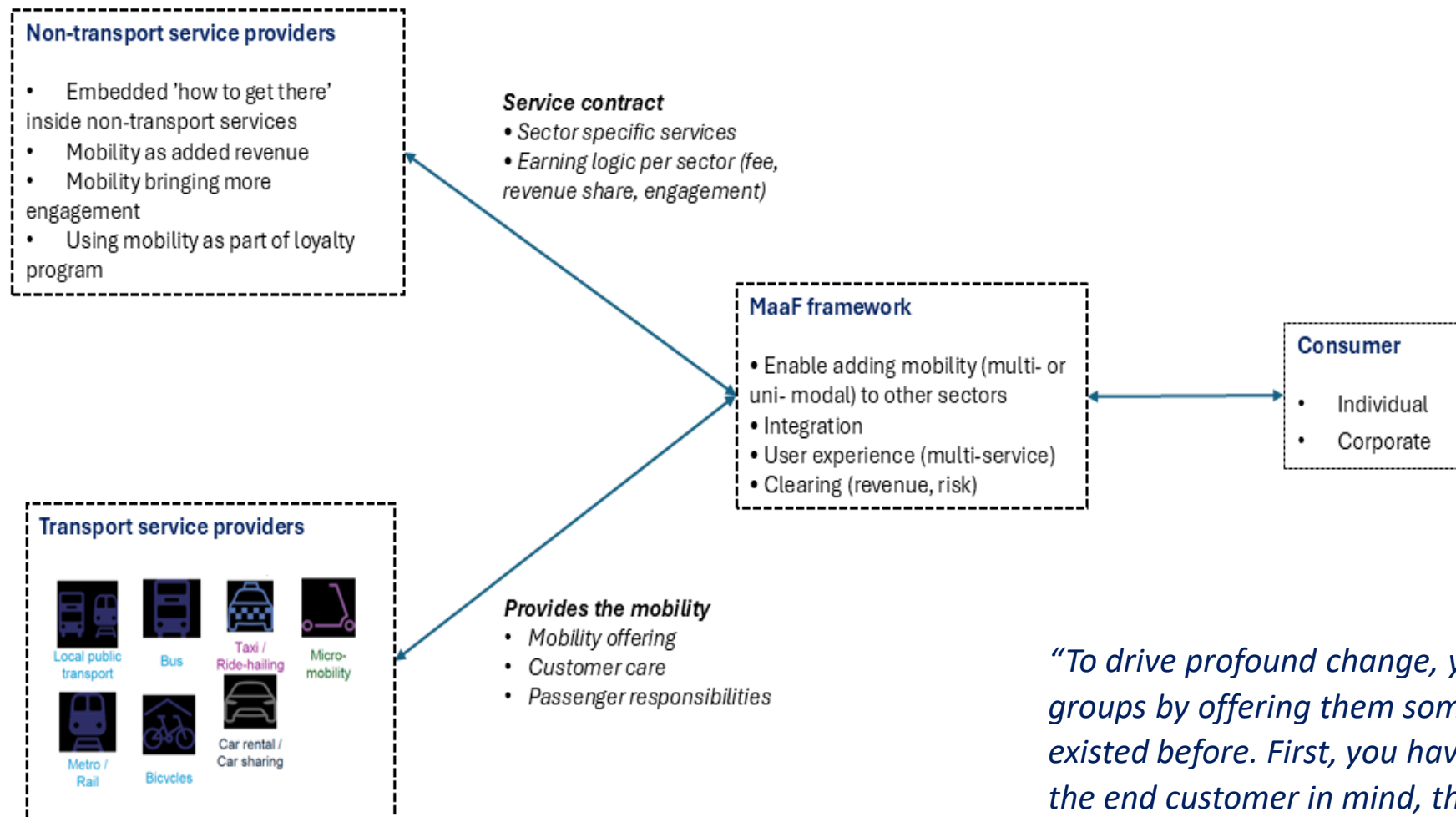
- To reward different segments differently, it is necessary to assess the scope of each segment reducing CO₂ emissions by changing travel behaviour, particularly replacing carbon-heavy trips (e.g., Uber, GoGet) with more sustainable choices, including cancelling the entire trip or making these trips using a personal account instead of the *Tripi* account.
- While cancelling the entire trip reduces CO₂ emissions, making all or most CO₂ heavy trips using a personal account is considered as a behaviour that games the gamification, which the challenge aims to avoid. Analysis of the booked trip data suggests that by removing all Uber, taxi, car-rental and GoGet trips from their travel record (either not making these trips or making these trips with a personal account so that data would not be captured), some participants may be able to reduce their CO₂ emission per km travelled by more than 60%.
- A counter tactic to avoid participants gaming the scheme is to reward participants *accordingly* so that gaming the scheme would not result in any benefit.
 - We analyse the total discounts that each participant may have to forgo in order to reduce their monthly emission rate, using January trip data as the base
 - Figure below shows the linear relationship between these two metrics by group of users based on the subscribed bundles. On average, a subscriber to the Fifty50 or the Saver25 bundle must forgo \$1 in discount to obtain a 1% reduction in the emission rate. By contrast, most PAYG users, except for two users, can cut their emission rate by a large percentage (>20%) without losing any financial benefit.
 - Thus, we can define the rewards for bundle subscribers based on the percentage reduction in the emission rate (e.g., \$1 for 1% reduction in emission rate); **however, rewarding PAYG users is problematic because there is no guarantee that they will not game the system and this will lead to a loss-loss situation: losing money and losing data (i.e., trips are not captured if they are made outside the *Tripi* app).**
 - In assessing the impact of the emission busting challenge, we looked at the data on private car travel, rideshare and GoGet but excluded Thrifty car-rental (which was negligible in its take up). The findings as of March 8 2021 suggest that the entire cohort has increased CO₂ emissions (kg) by 1%, and hence there is no financial reward at all. This reinforces the calls for road pricing reform as a complement to the MaaS initiative.







Key elements of an extended MaaS (as MaaS) governance framework



“To drive profound change, you have to onboard new groups by offering them something that has not existed before. First, you have to build the service with the end customer in mind, then you have to make noise about it, and finally, you have to sell it. The selling is the hard part, and something that organisations born to administrate cannot do.” Sampo Hietanen

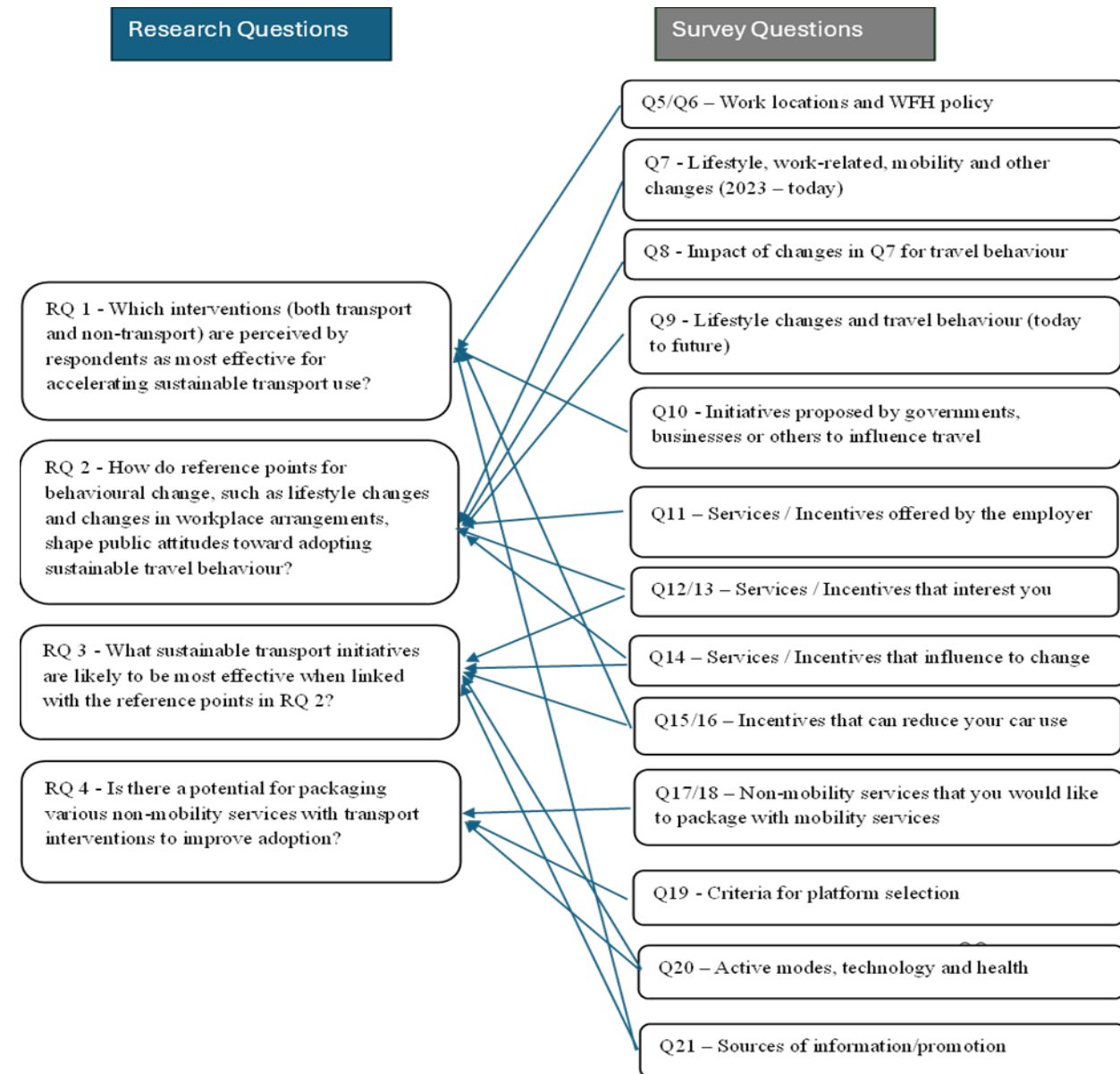
Adapted from: Hietanen, S. (2024). How to speed up investment into mobility innovation in Europe. Report Finnish Ministry of Transport and Communication.



Insights from the 2025 end user survey – Further analysis on transport-influencing initiatives

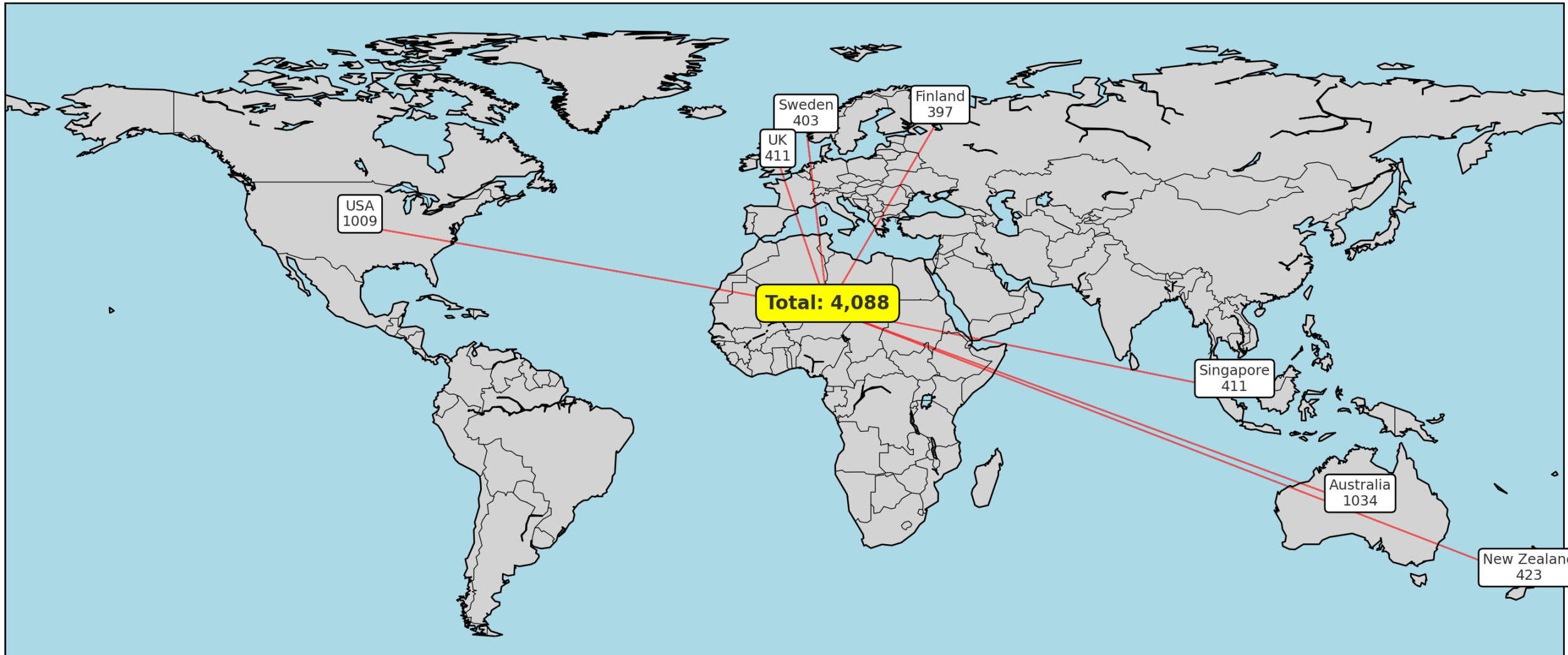
Survey structure

- Focused on “Windows of Change” (key moments of behavioural susceptibility to change) to assess how major changes affected travel habits over the last 3 years
- Examined respondents’ views on various government and business initiatives intended to influence travel
- Investigated the growing role of integrated mobility services
 - Considered packaging of mobility + non-mobility services in a single app
 - Identified features most appealing to users
 - Assessed how features support adoption and long-term behaviour change



Survey sample

Survey Respondents by Country (April/May 2025)



The incidence of selection of a WoC influence across the entire sample

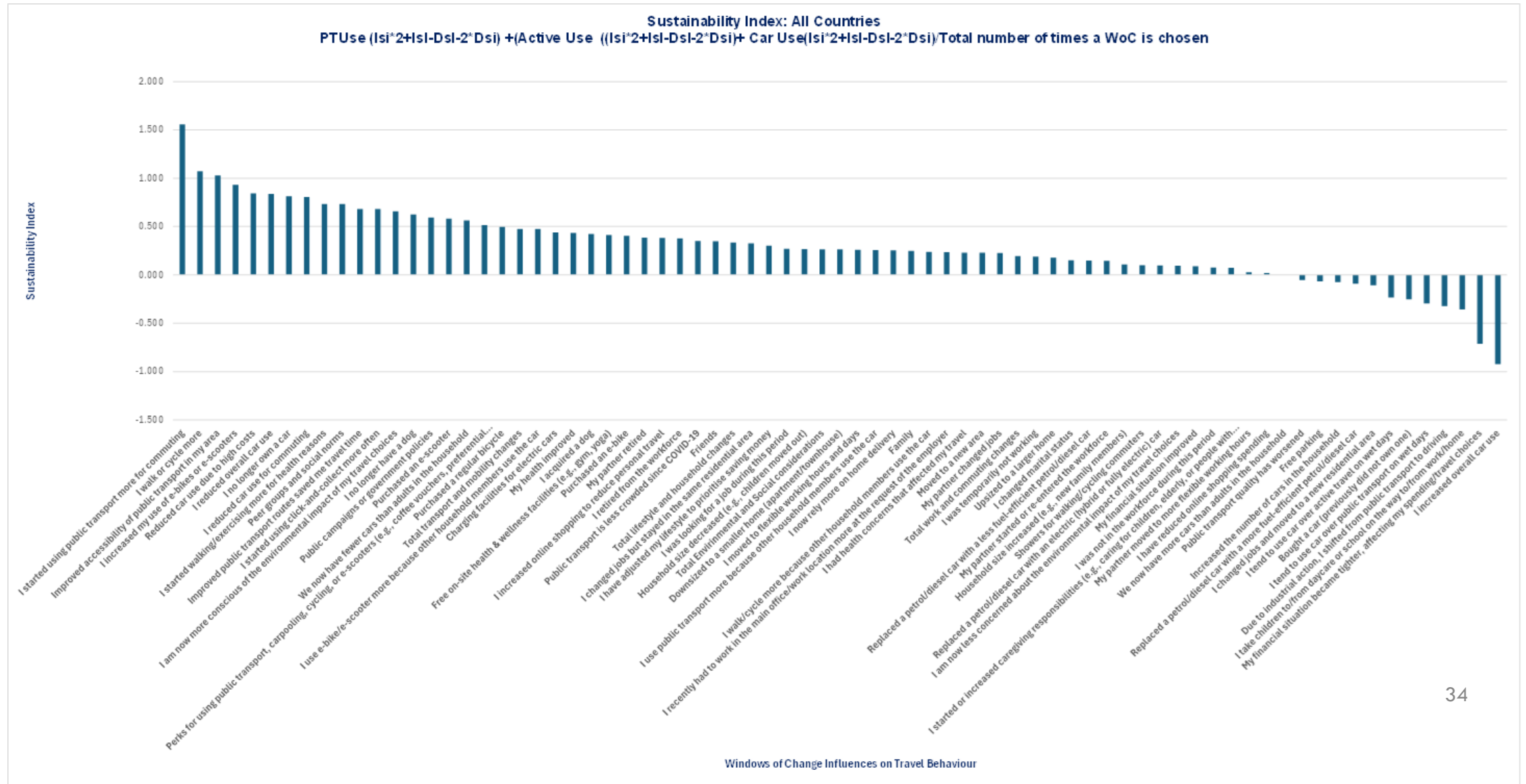
Windows of Change on Travel Habits after 2023	Incidence of Change	Windows of Change on Travel Habits after 2023	Incidence of Change
I use e-bike/e-scooter more because other household members use the car	0.5%	I changed marital status	6.5%
My partner started or re-entered the workforce	0.7%	Replaced a petrol/diesel car with an electric (hybrid or fully electric) car	6.6%
I increased my use of e-bikes or e-scooters	0.7%	Public campaigns or government policies	6.6%
My partner moved to more flexible working hours	0.8%	Purchased a regular bicycle	6.6%
My partner retired	1.5%	Improved public transport routes saved me travel time	7.1%
My partner changed jobs	1.6%	Bought a car (previously did not own one)	7.4%
I walk/cycle more because other household members use the car	1.9%	Household size decreased (e.g., children moved out)	8.0%
We now have more cars than adults in the household	2.0%	I reduced car use for commuting	8.3%
Due to industrial action, I shifted from public transport to driving	2.4%	Improved accessibility of public transport in my area	8.7%
Peer groups and social norms	2.5%	Upsized to a larger home	9.1%
I use public transport more because other household members use the car	2.8%	I have reduced online shopping spending	9.2%
We now have fewer cars than adults in the household	3.1%	Household size increased (e.g., new family members)	9.5%
I was temporarily not working	3.3%	Reduced car use due to high costs	9.9%
Perks for using public transport, carpooling, cycling, or e-scooters (e.g., coffee vouchers, preferential parking)	3.5%	Free parking	10.4%
Replaced a petrol/diesel car with a less fuel-efficient petrol/diesel car	3.6%	I am now less concerned about the environmental impact of my travel choices	10.6%
Purchased an e-scooter	3.7%	I had health concerns that affected my travel	10.9%
I no longer have a dog	4.0%	I recently had to work in the main office/work location more at the request of the employer	11.1%
I retired from the workforce	4.0%	I tend to use car over active travel on wet days	12.0%
Charging facilities for electric cars	4.4%	My financial situation improved	12.1%
Free on-site health & wellness facilities (e.g., gym, yoga)	4.6%	I changed jobs but stayed in the same residential area	12.4%
I now rely more on home delivery	4.7%	I walk or cycle more	13.1%
I changed jobs and moved to a new residential area	5.0%	I reduced overall car use	13.3%
Showers for walking/cycling commuters	5.1%	I was looking for a job during this period	13.5%
I started using click-and-collect more often	5.3%	I increased online shopping to reduce personal travel	13.7%
I started or increased caregiving responsibilities (e.g., caring for children, elderly, or people with disabilities)	5.4%	Friends influenced my travel decisions	14.0%
I increased overall car use	5.4%	I have adjusted my lifestyle to prioritise saving money	15.3%
I started using public transport more for commuting	5.5%	My health improved	16.7%
I no longer own a car	5.8%	I tend to use car over public transport on wet days	17.2%
I take children to/from daycare or school on the way to/from work/home	5.9%	Moved to a new area	17.7%
Increased the number of cars in the household	5.9%	I moved to flexible working hours and days	20.2%
Public transport quality has worsened	5.9%	My financial situation became tighter, affecting my spending/travel choices	21.0%
I acquired a dog	6.0%	I started walking/exercising more for health reasons	22.5%
Downsized to a smaller home (apartment/townhouse)	6.1%	I was not in the workforce during this period	26.1%
Replaced a petrol/diesel car with a more fuel-efficient petrol/diesel car	6.2%	Family influenced my travel decisions	27.5%
Public transport is less crowded since COVID-19	6.3%	I am now more conscious of the environmental impact of my travel choices	37.9%
Purchased an e-bike	6.3%		

Four WoC classes were defined: (i) Lifestyle and household changes, (ii) Work and commuting changes, (iii) Transport and mobility changes, and (iv) Social and environmental considerations.

How have these WoC impacted your travel behaviour from 2023 to today (All countries)? - Lifestyle and household changes (percentages of total respondents)

	% of Total Respondents	Frequency of travel			Ease of Access			Car usage			PT usage			Active mode usage		
		Decrease	No change	Increase	Decrease	No change	Increase	Decrease	No change	Increase	Decrease	No change	Increase	Decrease	No change	Increase
Moved to a new area	17.7%	34%	37%	29%	25%	49%	26%	31%	39%	30%	26%	45%	29%	19%	43%	37%
Upsized to a larger home	9.1%	31%	34%	35%	24%	44%	32%	25%	41%	34%	27%	40%	33%	19%	40%	41%
Downsized to a smaller home (apartment/townhouse)	6.1%	37%	38%	25%	27%	49%	24%	38%	38%	23%	27%	46%	27%	22%	44%	34%
Household size increased (e.g., new family members)	9.5%	26%	36%	38%	28%	49%	28%	24%	36%	39%	25%	45%	30%	18%	43%	39%
Household size decreased (e.g., children moved out)	8.0%	37%	42%	21%	25%	56%	19%	34%	43%	23%	23%	51%	25%	18%	51%	31%
I changed marital status	6.5%	31%	43%	26%	26%	52%	22%	27%	46%	27%	23%	49%	28%	21%	48%	31%
I started or increased caregiving responsibilities (e.g., caring for children, el)	5.4%	24%	34%	42%	20%	58%	21%	25%	38%	37%	22%	53%	25%	17%	49%	34%
My health improved	3.0%	53%	40%	7%	22%	74%	4%	52%	43%	5%	24%	67%	9%	15%	59%	26%
I had health concerns that affected my travel	2.8%	55%	34%	12%	21%	70%	9%	44%	44%	12%	27%	60%	13%	18%	61%	21%
I started walking/exercising more for health reasons	1.1%	42%	42%	16%	13%	84%	2%	47%	49%	4%	9%	69%	22%	7%	69%	24%
My financial situation improved	1.3%	33%	53%	15%	9%	84%	7%	27%	49%	24%	13%	75%	13%	7%	80%	13%
My financial situation became tighter, affecting my spending/travel choices	0.3%	21%	29%	50%	7%	57%	36%	7%	21%	71%	29%	57%	14%	21%	50%	29%
I have adjusted my lifestyle to prioritise saving money	0.6%	26%	43%	30%	17%	70%	13%	35%	35%	30%	17%	61%	22%	9%	61%	30%
I increased online shopping to reduce personal travel	17.8%	23%	43%	33%	15%	54%	31%	27%	45%	28%	21%	48%	31%	14%	44%	43%
I have reduced online shopping spending	11.6%	45%	32%	22%	30%	51%	19%	37%	37%	26%	28%	48%	25%	29%	47%	23%
I started using click-and-collect more often	24.6%	20%	46%	34%	12%	69%	19%	37%	48%	16%	19%	58%	24%	7%	43%	50%
I now rely more on home delivery	13.1%	14%	55%	31%	8%	69%	23%	17%	58%	25%	14%	61%	25%	8%	61%	31%
I acquired a dog	22.8%	49%	38%	13%	20%	73%	8%	43%	44%	13%	22%	59%	19%	12%	60%	28%
I no longer have a dog	16.8%	45%	44%	11%	15%	76%	9%	44%	47%	9%	18%	61%	22%	9%	57%	33%
I retired from the workforce	13.5%	42%	44%	14%	17%	70%	14%	42%	43%	15%	19%	64%	17%	12%	63%	25%
I was temporarily not working	9.0%	36%	51%	13%	19%	72%	9%	33%	55%	13%	21%	65%	14%	16%	65%	21%
My partner retired	3.6%	21%	49%	30%	11%	74%	16%	22%	59%	18%	13%	64%	23%	5%	65%	30%
My partner changed jobs	3.9%	42%	43%	15%	19%	71%	10%	37%	52%	11%	20%	65%	15%	15%	69%	16%
My partner started or re-entered the workforce	4.5%	16%	61%	22%	13%	73%	15%	12%	64%	24%	11%	76%	13%	7%	61%	32%
My partner moved to more flexible working hours	2.7%	33%	64%	4%	16%	80%	4%	34%	62%	5%	16%	78%	5%	23%	70%	7%
Total	4088	33%	43%	24%	18.2%	65.1%	16.8%	32.0%	45.6%	22.5%	20.5%	58.6%	20.9%	14.8%	56.0%	29.2%

Sustainability Index related to each WoC



The set of transport-influencing initiatives

How has your local travel changed since we came out of COVID-19 restrictions?

Your Views on Travel-Influencing Initiatives

Governments, businesses, and other organisations often propose initiatives to influence how people travel.

Below are a range of such initiatives. Please rate each initiative on a scale from "Big Negative Impact" to "Big Positive Impact".

1. These initiatives aim to make public transport more attractive by reducing costs and improving service quality.

Public Transport Improvements	Big negative	Some negative	No impact	Some positive	Big positive	Not apply
Free local public transport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Fixed public transport fares at AU\$0.25 per trip	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Double public transport services frequency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

2. These policies support easier access to public transport through parking and first/last-mile solutions.

Improving Access to Public Transport	Big negative	Some negative	No impact	Some positive	Big positive	Not apply
Free park and ride facility close to transport hubs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Free secure lockers for bikes/scooters at transport hubs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Bike/scooter parking at transport hubs for AU\$0.50/day	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

3. These initiatives focus on managing congestion and improving travel times through tolls or pricing strategies.

Road Pricing and Tolling Policies	Big negative	Some negative	No impact	Some positive	Big positive	Not apply
Tolled roads ensuring 25% faster travel time than free roads	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Tolled roads ensuring 50% faster travel time than free roads	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Peak-period road user charge AU\$0.05/km	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Peak-period road user charge AU\$0.10/km	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Peak-period road user charge AU\$0.15/km	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Peak-period road user charge AU\$0.20/km	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Congestion-free lanes what you pay AU\$0.05/km	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Congestion-free lanes what you pay AU\$0.10/km	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
A supplementary charge of AU\$15 per car in a defined area around the city which is designed to reduce congestion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
A supplementary charge of AU\$10 per car in a defined area around the city which is designed to improve air quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

How has your local travel changed since we came out of COVID-19 restrictions?

Your Views on Travel-Influencing Initiatives (continued)

4. These opt-in policies aim to influence car ownership and usage by adjusting vehicle-related costs.

Vehicle Taxation and Registration	Big negative	Some negative	No impact	Some positive	Big positive	Not apply
Free annual vehicle registration with AU\$0.10/km peak-hour charge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
50% reduction in annual vehicle registration with AU\$0.05/km charge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
75% reduction in annual vehicle registration with AU\$0.03/km charge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Tax deduction for acquiring hybrid/plug-in hybrid vehicle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Tax deduction for acquiring a full electric vehicle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

5. These initiatives provide alternative travel options through shared mobility and on-demand services.

New Mobility and Shared Transport	Big negative	Some negative	No impact	Some positive	Big positive	Not apply
Bookable door-to-door bus services at transport hubs, free	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Bookable door-to-door bus services at transport hubs, same fare as regular public transport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Bookable door-to-door bus services at transport hubs, +10% fare of regular public transport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Free, bookable voluntary car-sharing: you are a passenger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Free, bookable voluntary car-sharing: you are a driver	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Bookable car-share subscription at AU\$10/month + AU\$0.05/km	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Bookable car-share subscription at AU\$10/month + AU\$0.10/km	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Bookable car-share subscription at AU\$10/month + AU\$0.15/km	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

6. These policies aim to encourage sustainable travel to events such as concerts, restaurants, or sports matches.

Travel to/from Events	Big negative	Some negative	No impact	Some positive	Big positive	Not apply
Event ticket includes free public transport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
25% off parking cost for car-pooling (T3+)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Valet parking at event at +20% extra cost	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
15% off event tickets for public transport users	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Special seats at a 25% discount when you use public transport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

How has your local travel changed since we came out of COVID-19 restrictions?

Your Views on Travel-Influencing Initiatives (continued)

7. These policies aim to encourage adoption and usage of personal mobility devices.

Active Transport	Big negative	Some negative	No impact	Some positive	Big positive	Not apply
10% government rebate for e-bike/e-scooter purchases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
20% government rebate for e-bike/e-scooter purchases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
\$200 voucher for e-bike/e-scooter purchases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Tax deduction for e-bike/e-scooter purchases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

8. These policies, being considered by your employer, aim to encourage sustainable commuting.

Employer-Supported Travel Initiatives	Big negative	Some negative	No impact	Some positive	Big positive	Not apply
Free charging at your workplace for EV and other electric mobility devices such as E-bikes or E-scooters	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Showers and storage available for bikes, scooters, and personal items to support active travel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Public transport on travel card will be subsidised	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
1% fuel discount for every 1% reduction in car use (measured in terms of kms travelled)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

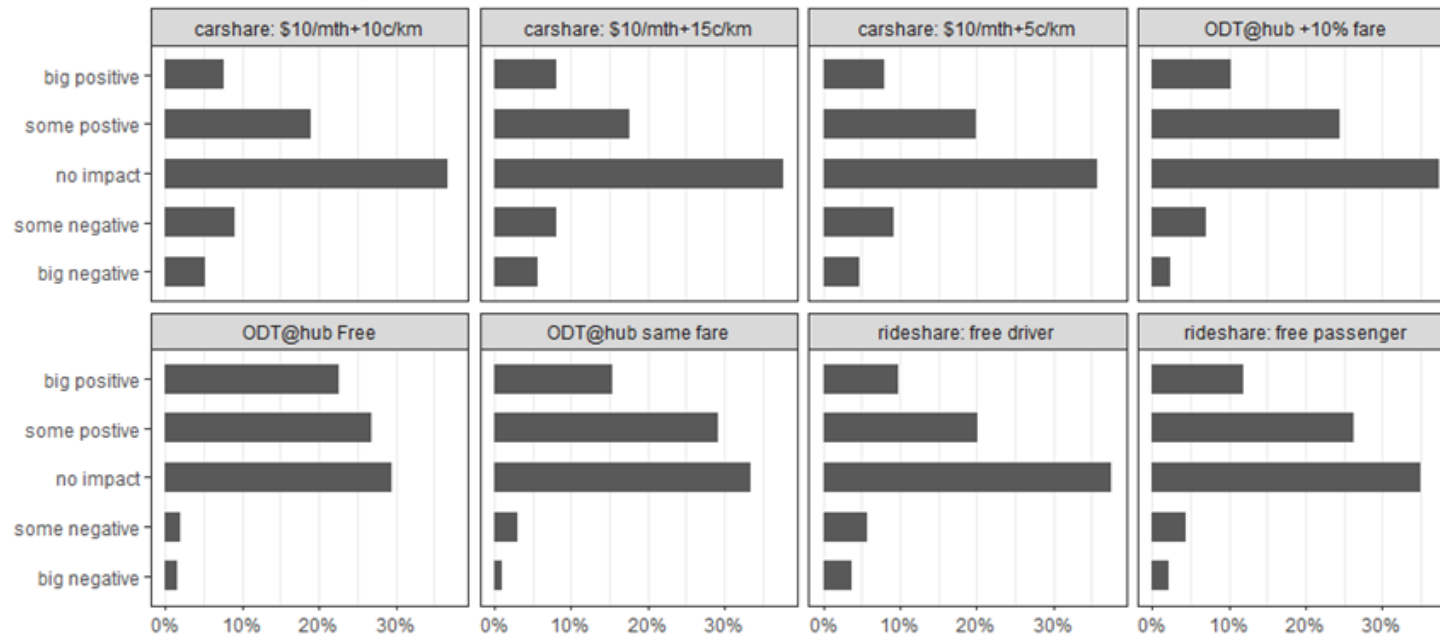
9. These workplace messaging initiatives aim to encourage sustainable commuting.

Workplace Communication Strategies	Big negative	Some negative	No impact	Some positive	Big positive	Not apply
Highlighting the health benefits of walking, cycling, scootering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Promoting cost savings of active modes and public transport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Highlighting environmental benefits of driving less	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Monthly leaderboard of employees using active transport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Monthly leaderboard of employees reducing car use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

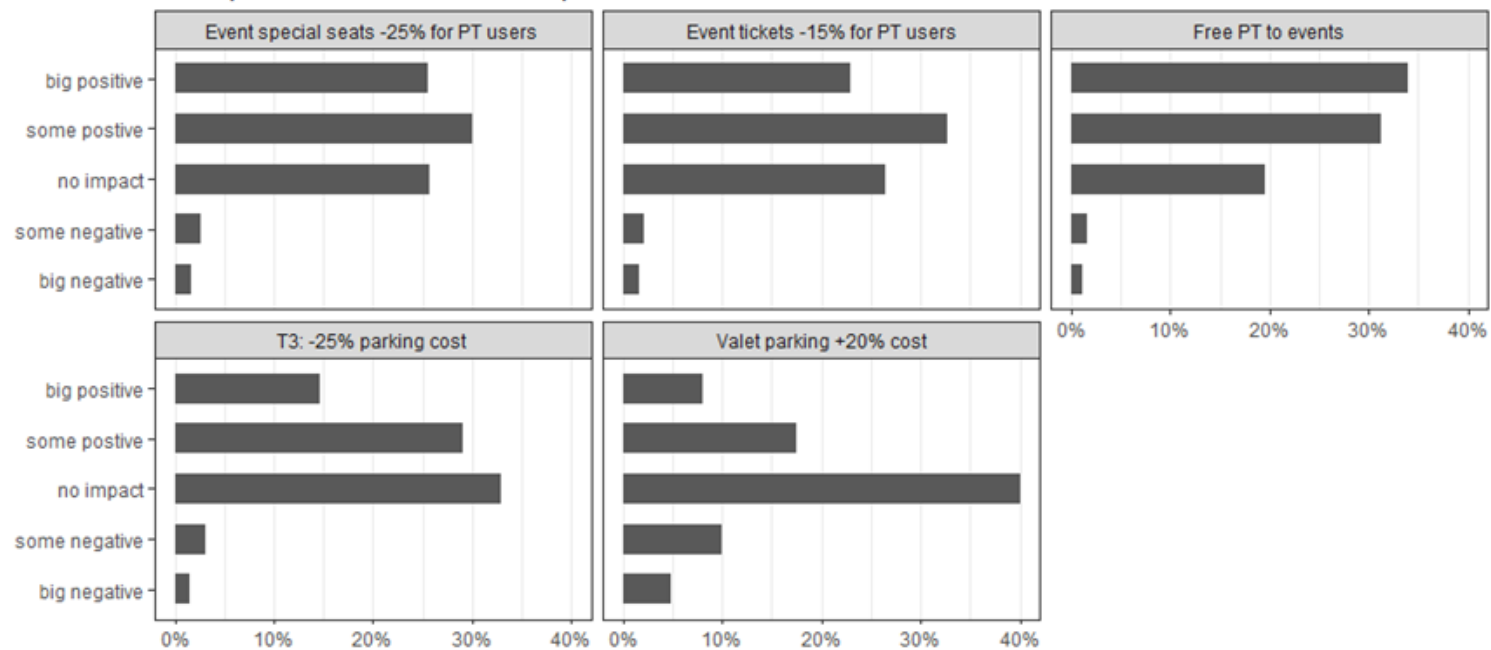
10. These policies are designed to promote the adoption of EVs.

EV Charging Strategies	Big negative	Some negative	No impact	Some positive	Big positive	Not apply
A government-enabled platform providing consumers with real-time EV charging information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
A consistent and transparent pricing policy for EV charging services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Innovative charging solutions that reduce charging time by 50%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

Example Interventions for accelerating sustainable transport use in Australia



Impact of *on demand* travel initiatives on travel behaviour



Impact of initiatives related to event transport on travel behaviour

Segmenting the population

- We segmented the entire population into three Latent Classes
- Variables considered
 - Windows of change
 - Interest shown toward transport-influencing initiatives
 - Demographics of the participants
- Outcome resulted in three classes
 - Class 1 (“US ”): *Urban strivers* (characterized noticeably by people in full-time employment);
 - Class 2 (“SS”): *Settled simplifiers* (in addition to retirees, this includes homemakers and other "not working"); and
 - Class 3 (“DJ”): *Dynamic jugglers* (including part-time and flexible workers).

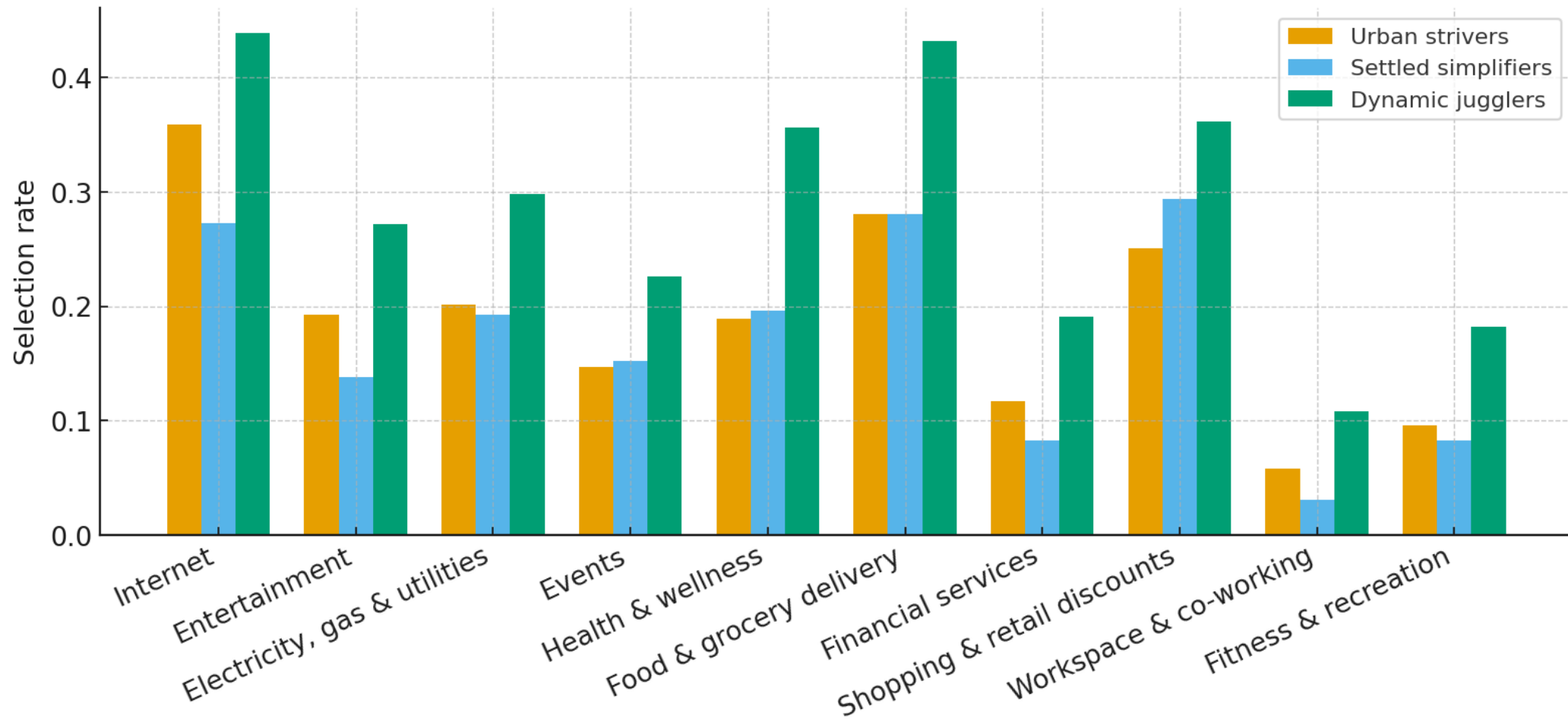
37

Interest for initiatives from different classes

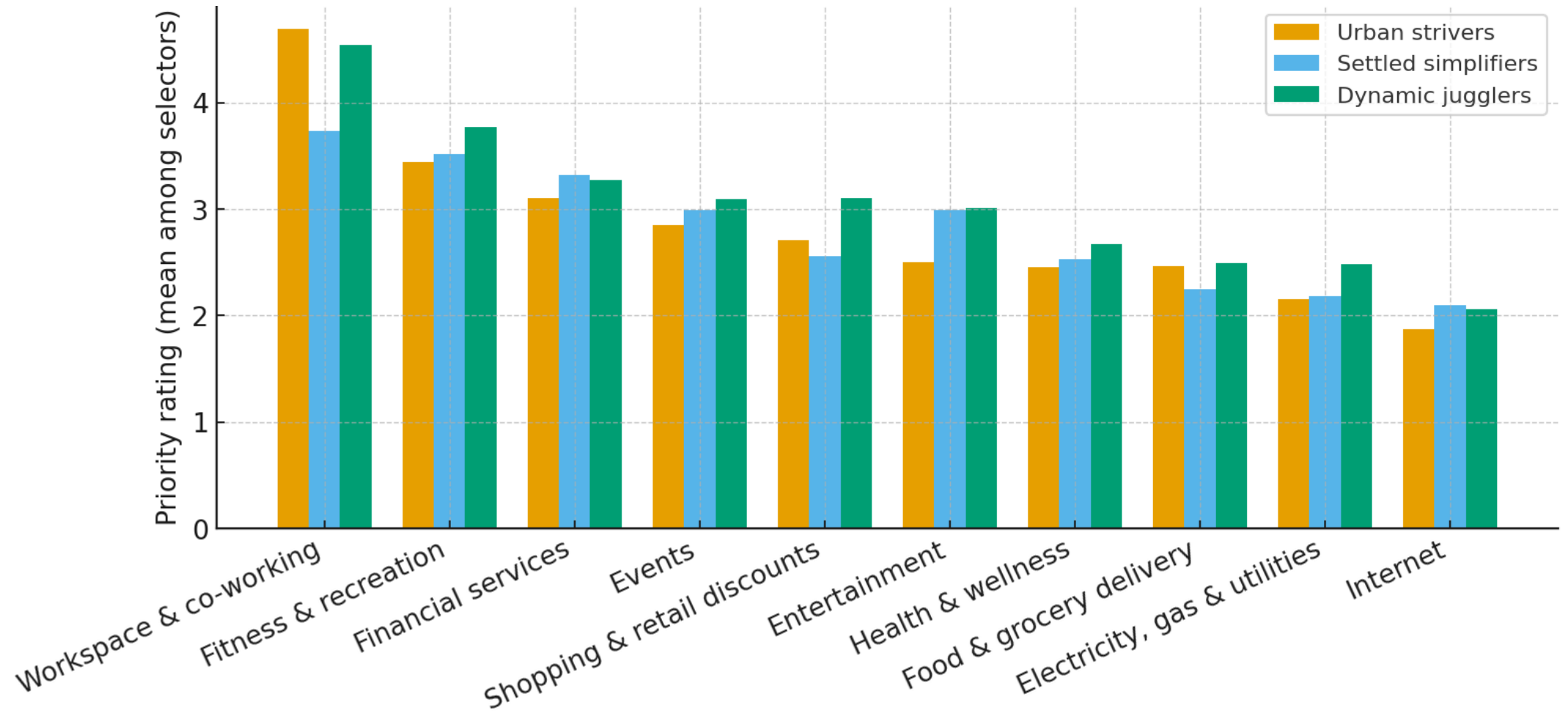
Initiatives	“US”	“SS”	“DJ”
Free local public transport	54%	66%	92%
Fixed public transport fares at US\$0.25 per trip	48%	59%	91%
Double public transport services frequency	43%	53%	86%
Free park and ride facility close to transport hubs	42%	56%	88%
Free secure lockers for bikes/scooters at transport hubs	31%	38%	86%
Bike/scooter parking at transport hubs for US\$0.50/day	23%	29%	79%
Tolled roads ensuring 25% faster travel time than free roads	24%	24%	79%
Tolled roads ensuring 50% faster travel time than free roads	26%	27%	80%
Peak-period road user charge US\$0.05/mile	12%	8%	69%
Peak-period road user charge US\$0.10/mile	11%	7%	67%
Peak-period road user charge US\$0.15/mile	12%	6%	64%
Peak-period road user charge US\$0.20/mile	13%	6%	63%
Congestion-free lanes what you pay US\$0.05/mile	11%	7%	71%
Congestion-free lanes what you pay US\$0.10/mile	12%	8%	68%
A supplementary charge of US\$15 per car in a defined area around the city which is designed to reduce congestion	12%	8%	64%
A supplementary charge of US\$10 per car in a defined area around the city which is designed to improve air quality	12%	8%	67%
Free annual vehicle registration with US\$0.10/mile peak-hour charge	18%	25%	79%
50% reduction in annual vehicle registration with US\$0.05/mile charge	19%	27%	80%
75% reduction in annual vehicle registration with US\$0.03/mile charge	23%	31%	82%
Tax deduction for acquiring hybrid/plug-in hybrid vehicle	28%	33%	85%
Tax deduction for acquiring a full electric vehicle	27%	32%	85%
Bookable door-to-door bus services at transport hubs, free	33%	49%	91%
Bookable door-to-door bus services at transport hubs, same fare as regular public transport	27%	40%	85%
Bookable door-to-door bus services at transport hubs, +10% fare of regular public transport	18%	23%	77%

Initiatives	“US”	“SS”	“DJ”
Free, bookable voluntary car-sharing: you are a passenger	25%	29%	84%
Free, bookable voluntary car-sharing: you are a driver	18%	17%	78%
Bookable car-share subscription at US\$10/month + US\$0.05/mile	13%	12%	77%
Bookable car-share subscription at US\$10/month + US\$0.10/mile	12%	11%	74%
Bookable car-share subscription at US\$10/month + US\$0.15/mile	13%	10%	73%
Event ticket includes free public transport	46%	60%	93%
25% off parking cost for car-pooling (T3+)	26%	40%	86%
Valet parking at event at +20% extra cost	14%	14%	66%
15% off event tickets for public transport users	34%	48%	88%
Special seats at a 25% discount when you use public transport	36%	48%	89%
10% government rebate for e-bike/e-scooter purchases	21%	21%	81%
20% government rebate for e-bike/e-scooter purchases	23%	25%	83%
\$200 voucher for e-bike/e-scooter purchases	26%	30%	85%
Tax deduction for e-bike/e-scooter purchases	24%	27%	83%
Free charging at your workplace for EV and other electric mobility devices such as E-bikes or E-scooters	29%	45%	89%
Showers and storage available for bikes, scooters, and personal items to support active travel	28%	44%	85%
Public transport on travel card will be subsidised	36%	62%	87%
1% fuel discount for every 1% reduction in car use	24%	50%	84%
Highlighting the health benefits of walking, cycling, scootering	26%	62%	84%
Promoting cost savings of active modes and public transport	25%	55%	85%
Highlighting environmental benefits of driving less	21%	61%	81%
Monthly leaderboard of employees using active transport	16%	36%	75%
Monthly leaderboard of employees reducing car use	16%	42%	75%
A government-enabled platform providing consumers with real-time EV charging information	21%	35%	83%
A consistent and transparent pricing policy for EV charging services	24%	38%	84%
Innovative charging solutions that reduce charging time by 50%	30%	42%	87%

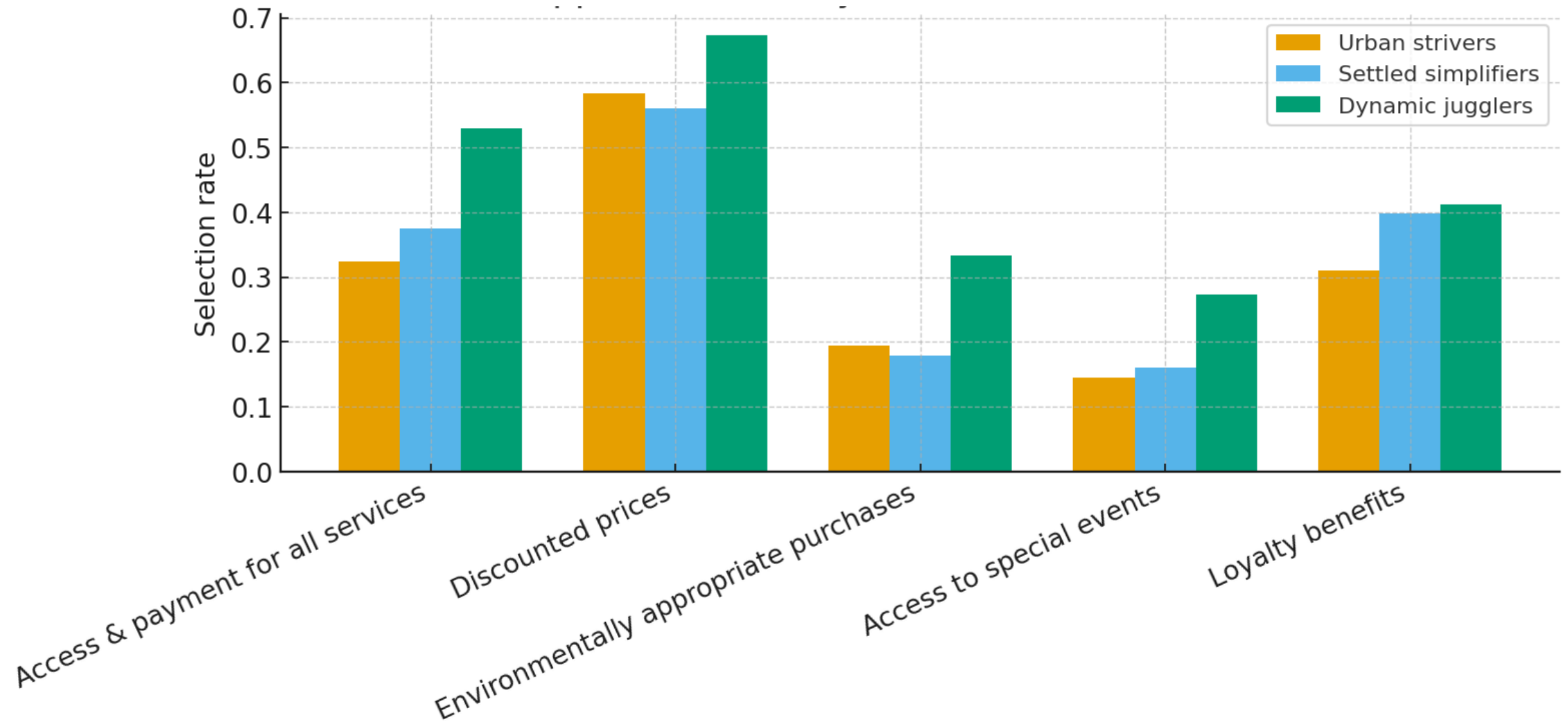
Interest in integrating services to MaaS as MaaSF



Ranking of the services



Interest in App features



Towards an extended governance framework

“The future of MaaF in terms of an appealing business case, and even commercial success, should be driven by organisations who do not have a direct vested interest in transport supply ownership, but who have an extensive customer base to enable them to focus on the delivery of a broad-based fully integrated activity solution that inputs a range of appropriate transport solutions.”

Hensher, Nelson & Mulley (2025)

Recommendations for implementing the prototype MaaS/Maaf ecosystem

– Leadership & Integration:

– *Government are a strong candidate to lead the establishment of a Common Framework Platform:*

- Through a tendering process or data-sharing models.
- Act as neutral facilitator, not operator.

– *Why Government involvement matters*

- Aligns public-private agenda with national goals (sustainability, inclusion).
- Ensures equitable access and encourages innovation.
- Supports behavioural change via KPI-linked incentives.

– *Integration Insights*

- Survey results show user demand for bundled mobility + non-mobility services (e.g., retail, healthcare, delivery).
- Encourages sustainable lifestyle choices and reduced car dependency.
- Market segmentation plays an important role when designing and offering services

Recommendations for implementing the prototype MaaS ecosystem (cont.)

- User insights
 - Strong interest in cost-saving benefits (e.g., groceries, utilities, internet).
 - Most valued features:
 - Discounts, streamlined access, and payment options.
 - Environmental benefits ranked lower.
 - Employer incentives shifting from parking to EV charging, wellness programs.
- Strategic directions
 - Include Non-Mobility Service Providers (NMSPs) in the MaaS ecosystem.
 - Recognise diverse motivations: social vs. financial.
 - Use tailored incentive schemes (no one-size-fits-all).
 - Profile user segments to customise rewards and engagement.

“The findings in Hensher et al. (2024) suggest a re-interpretation of what a future MaaS portfolio may look like, noting that much is already happening, but that it has never been recognised as MaaS/MaaS-like initiatives. If all of the evidence across the many thousands of businesses can be accumulated, then a significant amount of MaaS/MaaS like activity can be said to be identified.” Hensher, Nelson & Mulley (2025)

Papers from the project to date

Hietanen, S. (2024). How to speed up investment into mobility innovation in Europe. Report Finnish Ministry of Transport and Communication.

Hensher, D., Nelson, J., Balbontin, C., Ho, C., Wei, E., Mulley, C., and Kandanaarachchi, T. (2024). Establishing Evidence of Initiatives undertaken by Non-Mobility Service Providers that are aligned with Sustainable Travel Behaviour Change as a next generation focus of MaaS as MaaS. ITLS Working Paper ITLS-WP-24-20.

<https://ses.library.usyd.edu.au/handle/2123/33218>

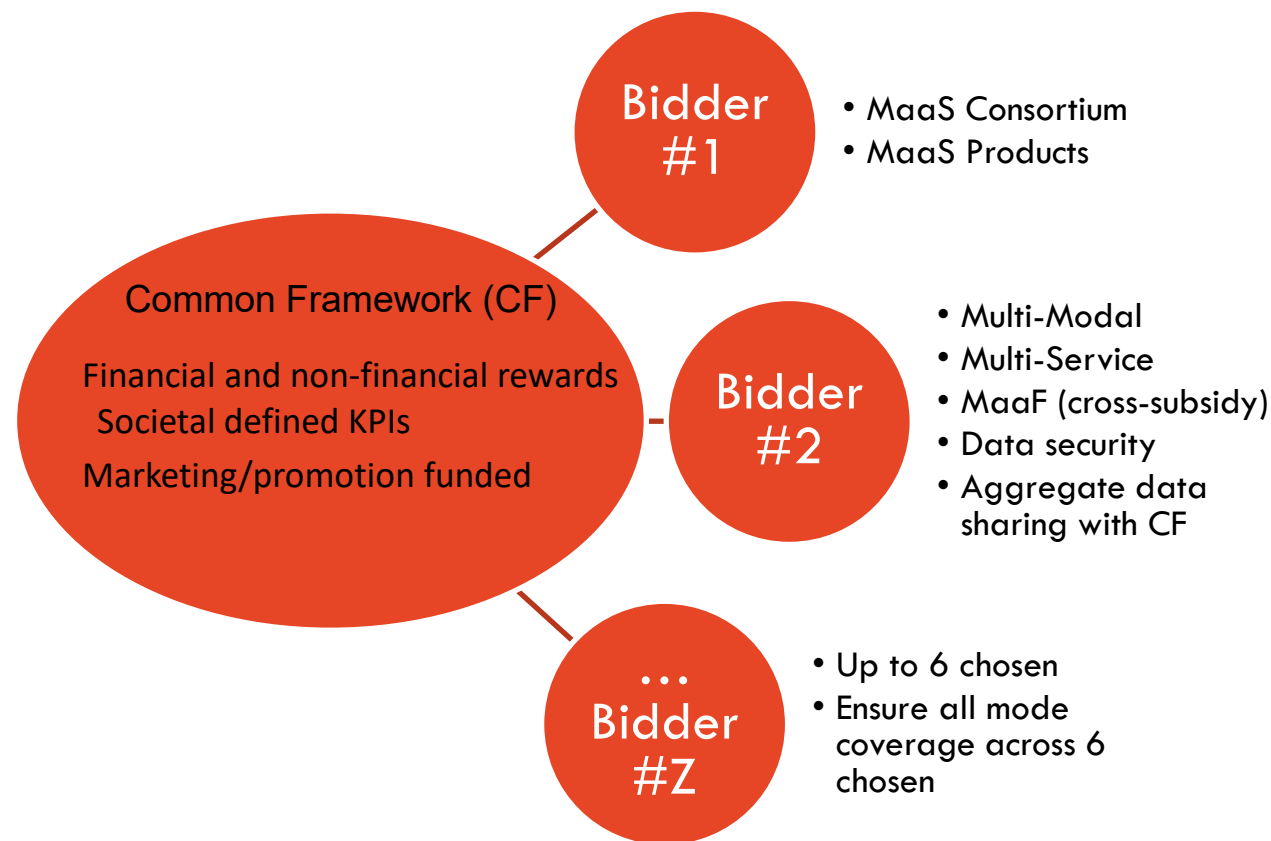
Hensher, D. A., and Nelson, J. D. (2025). Do integrated mobility services have a future? The neglected role of non-mobility service providers: Challenges, and opportunities to extract sustainable transport outcomes. *Transport Policy*, 163, 348-357.

Hensher, D. A., Nelson, J., and Mulley, C. (2025). Mobility as a Service: Challenges and Opportunities. In A. Smith & C. Nash (Eds.), *Handbook on Research Methods in Transport Economics and Policy*, Edward Elgar Publishers. [also presenting at ATRF 2025]

Hensher, D. A., Nelson, J. D., Wei, E., Kandanaarachchi, T., Balbontin, C., Ho, C., Mulley, C., and Liu, W. (2025). Windows of change as precursors to changing travel behaviour aligned with sustainable mobility. ITLS Working Paper ITLS-WP-25-19. <https://ses.library.usyd.edu.au/handle/2123/34154>

Kandanaarachchi, T., Nelson, J. D., Hensher, D. A. and Mulley, C., Wei, E., & Ho, C. (2025). Establishing a Framework of Support to Scale in Mobility as a Service: Consolidated Insights from the Literature on potential governance frameworks. *Research in Transportation Economics*, 112, 101583.

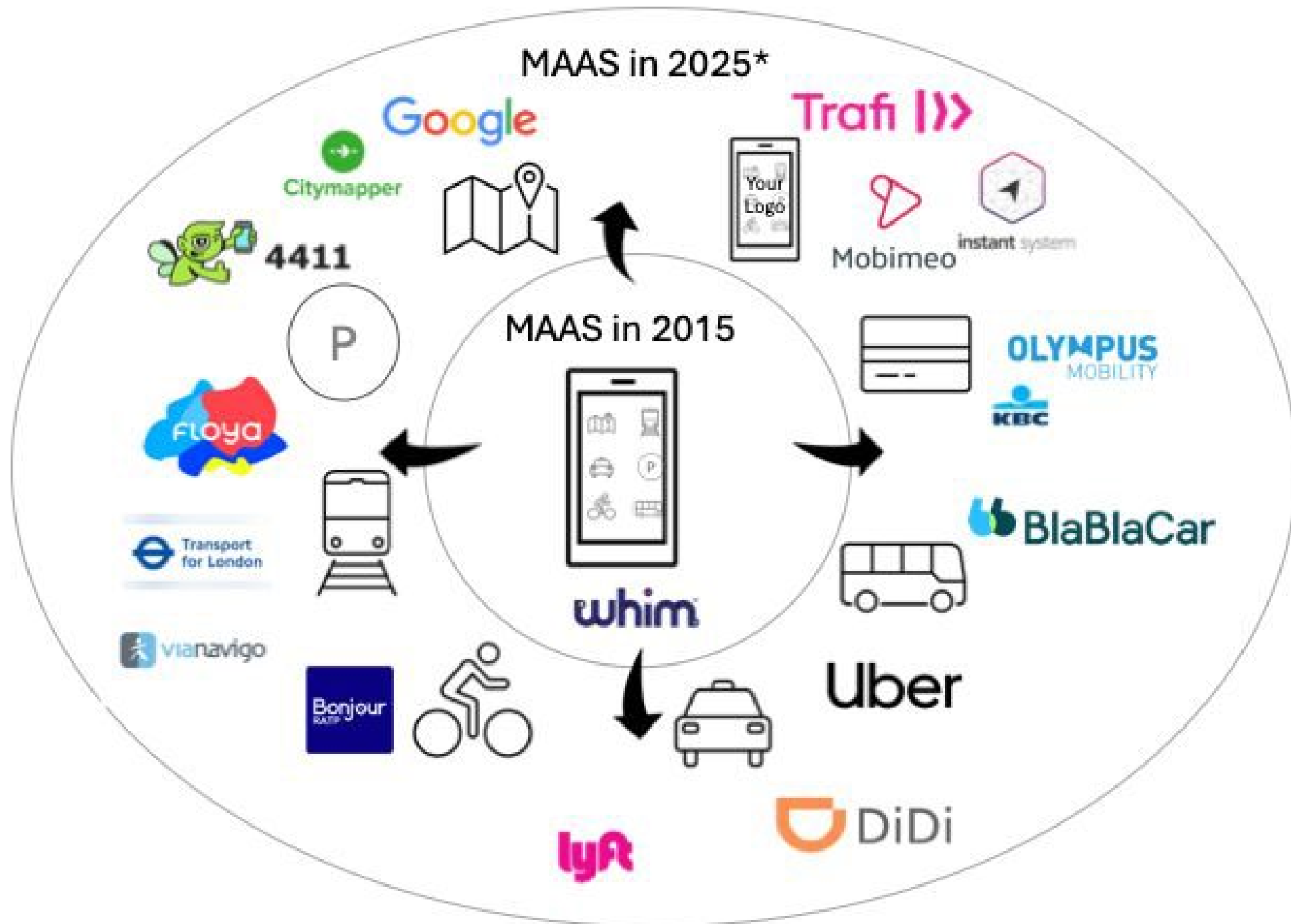
What is an Ideal (Utopian) MaaS Ecosystem?



Competitive Tender (CT): Bids called for

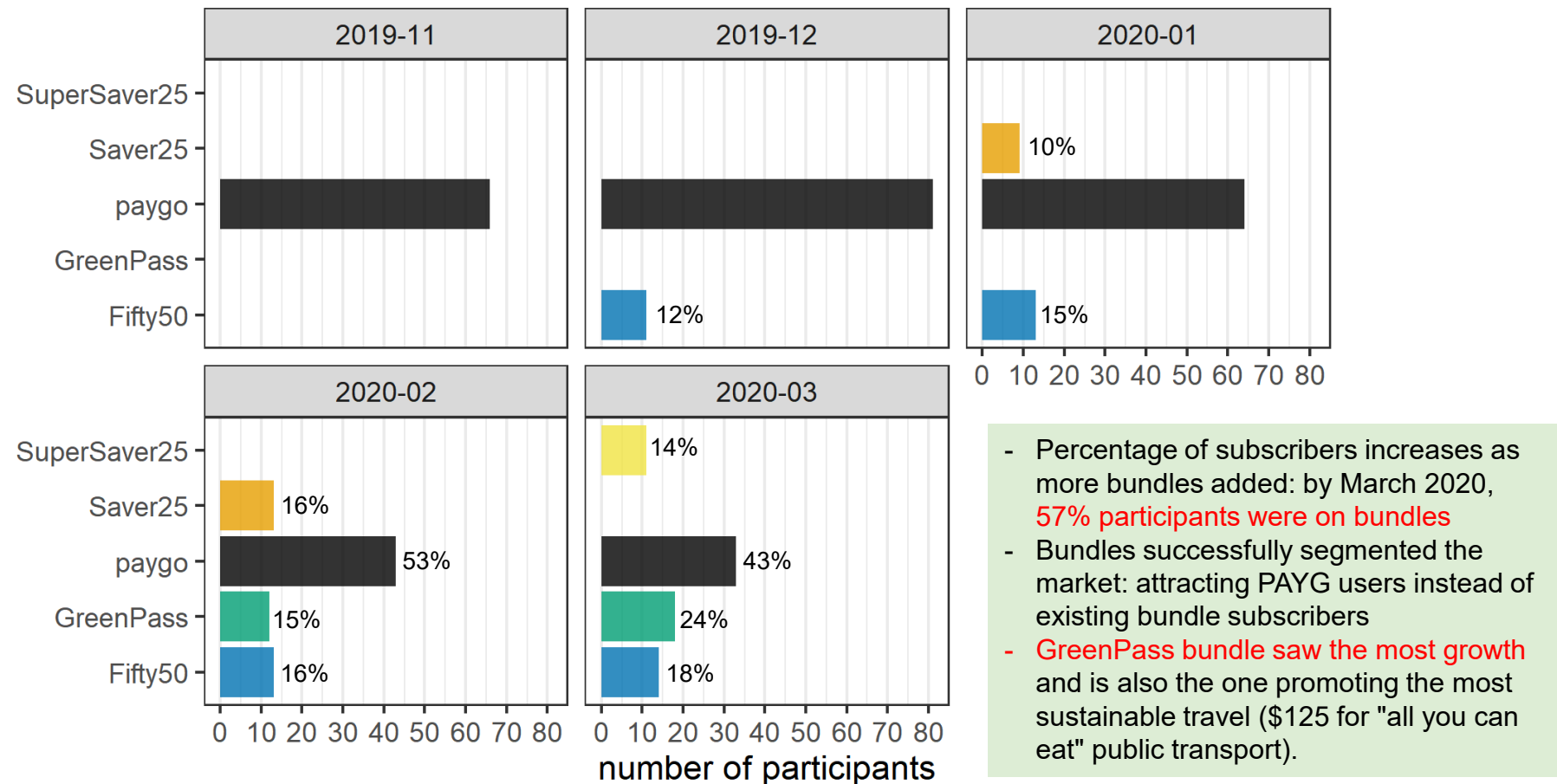
Hensher, D.A., Mulley, C. and Nelson, J.D. (2023). What is an Ideal (Utopian) MaaS Ecosystem? A Communication Note, *Transportation Research Part A*, 172, 103675.

Slides after this not in presentation but available in the pdf



Bundle Uptakes/ Customer Responses? COVID-19 set in March 20, 2020)

Monthly bundle subscription: Nov 2019 - Mar 2020



For details, see Ho, C.Q., Hensher, D.A, Reck, D.J., Lorimer, S. & Lu. I. (2021) MaaS bundle design and implementation: Lessons from the Sydney MaaS Trial. *Transportation Research Part A: Policy and Practices*.

Mobility as a Feature (MaaF): Rethinking the Focus of Mobility as a Service (MaaS) **(none of previous slides supports a business or commercial case)**

In the last 10 years, Mobility as a Service (MaaS) has entered into our conscience as a very attractive way of taming the private car through offering better and seamless mobility services; however, a move to encourage use of a more sustainable model of mobility has not delivered the outcomes to the extent we had all hoped for. Lessons learnt have been financially draining and often behaviourally disappointing. This note identifies some of the reasons for this and why a paradigm change is required. **We suggest the focus should be on a broader interpretation of transport services as an input into a wider activity-focussed product mix driven by the private sector, in a way that is also financially sustainable without necessarily requiring further subsidy from government. We call this Mobility as a Feature (MaaF).**

MaaF directly focusses on where the greatest potential gains are in achieving scalability and societal sustainability goals, reducing the risk and increasing the ability to achieve an outcome that aligns with a business case that is both profitable, contributes to the social licence as well as delivers sustainable outcomes aligned with social development goals (SDGs).

The focus of the 1st generation MaaS on non-private car multi-modal offerings has generally failed to impact where it aspires to do so. The old adage ‘to make public transport more attractive we have to make the private car less attractive’ still holds and is the reason why we suggest MaaS has not delivered on its aspirations. **MaaF may offer a new and rewarding perspective.**

Hensher, D.A. and Heitenan, S. (2023) Mobility as a Feature (MaaF): Rethinking the Focus of the second generation of Mobility as a Service (MaaS), *Transport Reviews* DOI: [10.1080/01441647.2022.2159122](https://doi.org/10.1080/01441647.2022.2159122) Also <https://www.sydney.edu.au/business/news-and-events/news/2022/12/01/mobility-as-a-feature--maaf---rethinking-the-focus-of-mobility-a>.

Hensher, D.A., Mulley, C. and Nelson J.D. (2021) Mobility as a Service (MaaS) – Going somewhere or nowhere? *Transport Policy*, 111, 153-156. <https://doi.org/10.1016/j.tranpol.2021.07.021>.

Hensher, D.A. (2022) The reason MaaS is such a challenge: a note, *Transport Policy*, 129, 137-139.

Hensher, D. A., Mulley, C., and Nelson, J. D. (2023). What is an ideal (Utopian) mobility as a service (MaaS) framework?
A communication note. *Transportation Research Part A: Policy and Practice*, 172.
<https://doi.org/10.1016/j.tra.2023.103675>

“Mobility as a Service (MaaS) has been there as a concept for more than 15 years. For over five years it’s been on the lips of just about everyone involved in mobility. In many ways it has been like the emperor’s new clothes: something we all should look in awe at – but not really knowing why.”

And

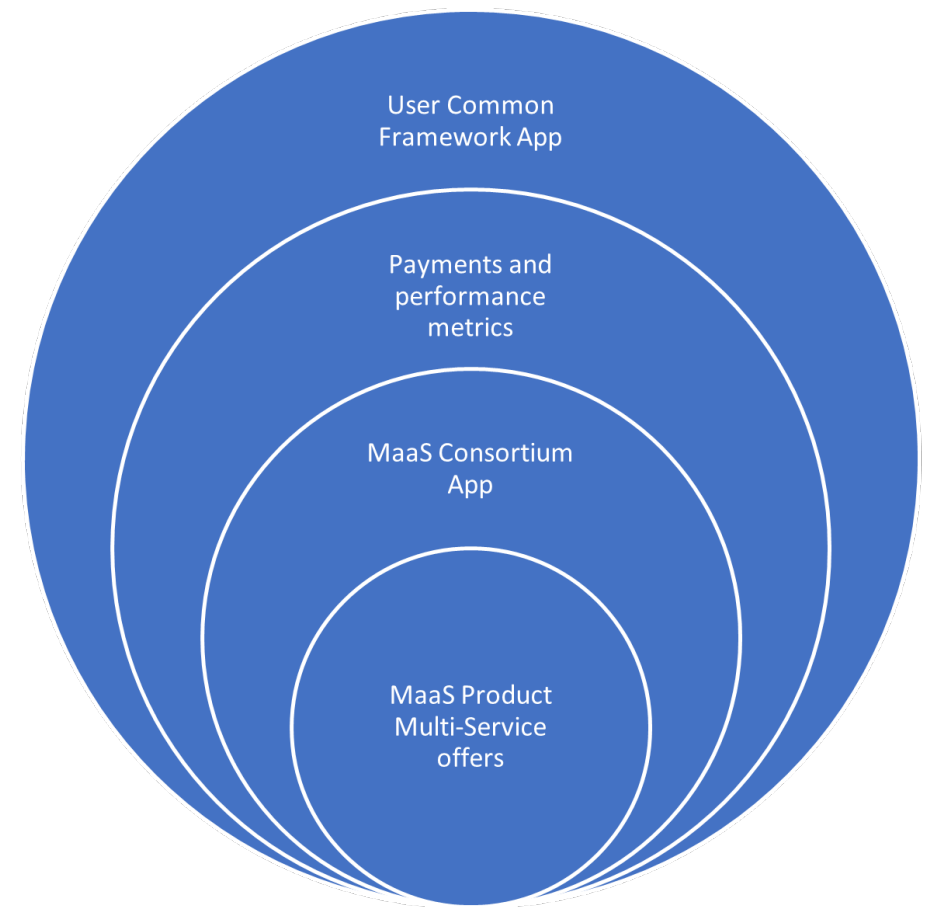
“Still, if you look at the amount of talk, research, national programmes and investment, very little has changed so far. MaaS has not become mainstream, and it has not changed the way people perceive their freedom of mobility“

And

“Sadly, the industry has been frustratingly slow: we have been working as an ‘egosystem’, not an ecosystem.”

Sampo Heitanen, 6 March 2023

<https://www.itsinternational.com/feature/sampo-hietanen-maas-we-needed-better-dreams>



MOBILITETS-KONFERANSEN
SAMPO HIETANEN
Founder of MaaS Global / Advisor

Sampo, the wordsmith behind “MaaS” and founder of the Finnish company MaaS Global, made waves with the Whim app. Now, with MaaS Global behind him and a wealth of experience gained, Sampo shares his thoughts on what’s needed to reach our mobility goals. What role should the public sector play? Which companies will come out on top? Is Europe at risk of losing another digital revolution? What mobility services do we truly need? And importantly, is MaaS dead – or is there a new shiny concept on the horizon?

«Are we winning the battle, but losing the war?»

Fiskepiren, Stavanger - 31. October 2024

GRÖNNby NO RDIC EDGE Kolumbus

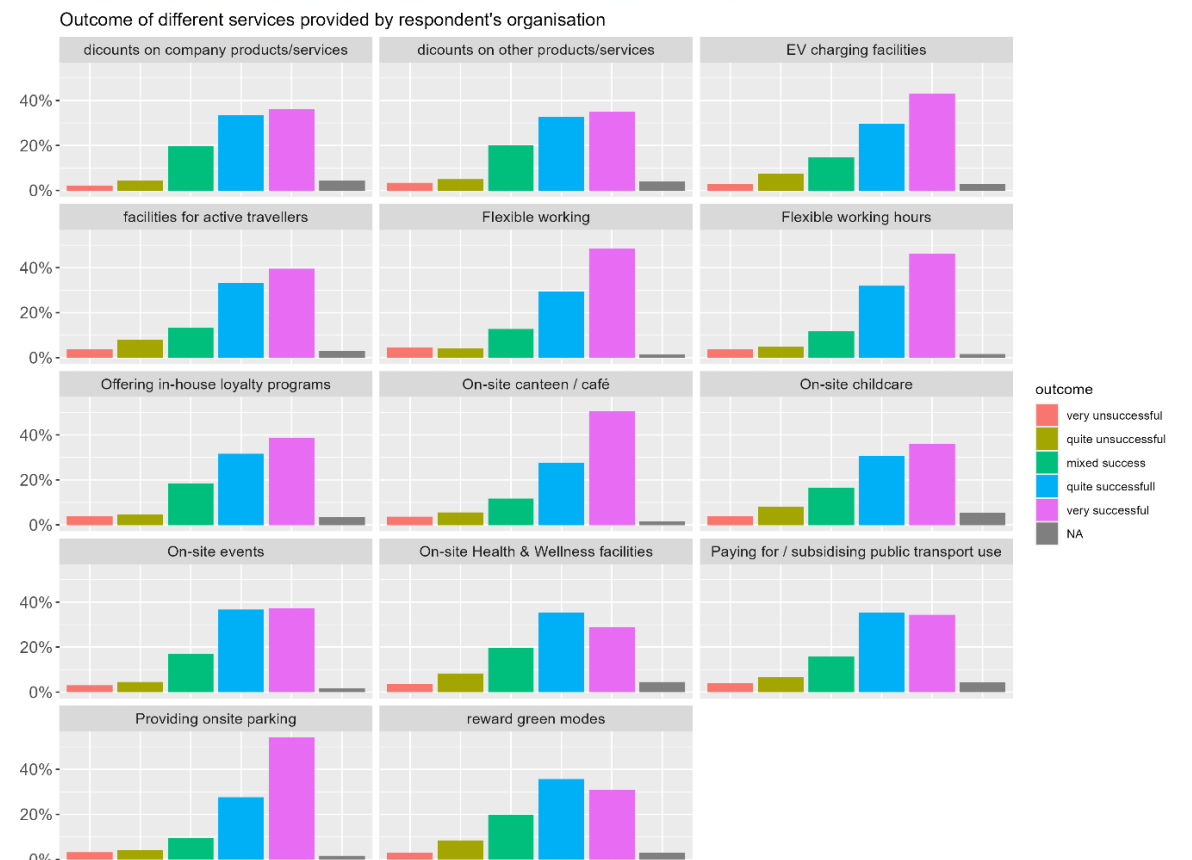
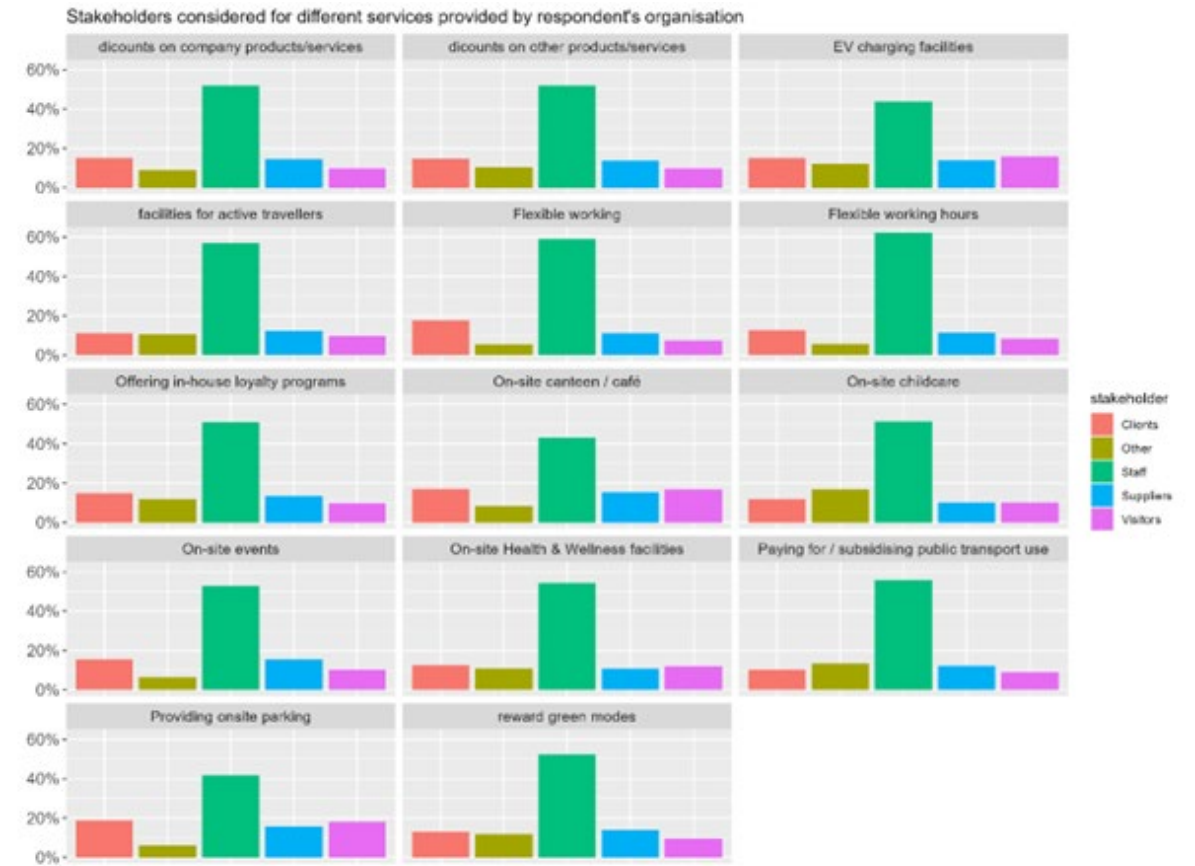
What NMSPs do already

Sharing examples of what others have done is one way of contributing to a growing awareness of service opportunities that can align with the transport related objectives.

In an online survey in 2024 of 1,200 interviews in Australia, USA, UK, Singapore, Sweden, and Finland, with respondents being eligible if they are involved in decision making processes relating to an organisation's strategic priorities / decisions, we identified a range of services provided to an organisation's stakeholders (Top Table) as well as associated experience in terms of levels of success in offering such services (Bottom Table).

Five of the initiatives, at least, have a clear link to sustainable travel outcomes:

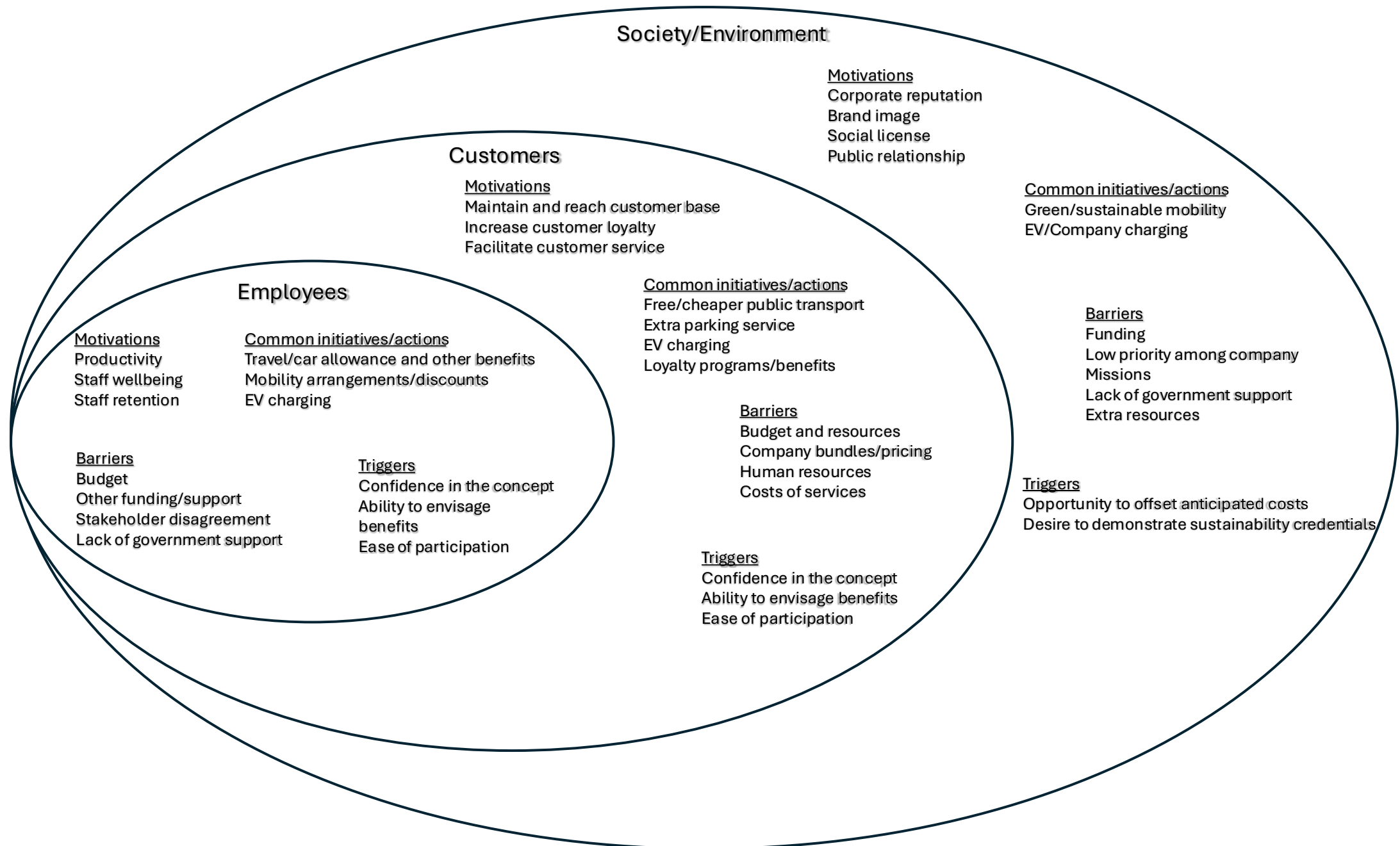
- Paying for / subsidising public transport use
- Rewarding environmentally friendly methods of work-related travel (including commuting), e.g., perks for those who use public transport, carpool, cycle, e-scooter
- EV charging facilities
- Showers / changing rooms for those who run / cycle to work
- Flexible working which accommodates working from home



From Multi-Modal to Multi-Service Provision: The Japanese Approach with significant govt subsidy and control

- The idea of multi-service provision has also been proposed in the Asian context with the addition of other non-mobility services such as accommodation and food, effectively extending MaaS from a multi-modal to a multi-service offering (Leung et al., 2022).
- Kansai MaaS Japan is one such example where revenue is generated by sponsorships from smaller service providers who offer a range of mobility and non-mobility services on the MaaS platform.
- The open platform of Kansai MaaS is **funded through the government**, and in return, **the government has set up KPIs that align with public goals**.
- Furthermore, for major transport service providers, the government provides investment for new applications and platforms and has given autonomy to the service providers to build them in a manner that would thrive in business.
- This approach has helped other small non-mobility and mobility service providers to become involved in the model in return for a membership fee.
- **The government tracks the transport benefits** by enabling the operators to set relevant objectives for the given service.
- One important feature in the Japanese MaaS schemes is the focus given to developing the supply side. Plans include developing all-inclusive applications using the available suppliers in the ecosystem.
- The app can be accessed via -
<https://play.google.com/store/apps/details?id=jp.kansaimaas.app&hl=en&gl=US&pli=1>

Factors influencing motivations to collaborate for financial, environmental and social benefits of NMSPs



Hensher, D.A. and Nelson, J. (2025) Do integrated modal mobility services have a future? The neglected role of Non-Mobility Service Providers and challenges and opportunities to extract sustainable transport outcomes, **TMR MaaS Paper #1**, *Transport Policy*, 163, 348-357.

- Xi, H., Li, M., Hensher, D.A., Xie, C., Gu, Z., & Zheng, Y. (2024a). Strategizing sustainability and profitability in electric mobility-as-a-service (e-maaS) ecosystems with carbon incentives: A multi-leader multi-follower game. *Transportation Research Part C: Emerging Technologies*, 166, 104758

