MAAS AND INTEGRATED MOBILITY: RESEARCH FINDINGS FROM THE GLOBAL SOUTH

Dr. Marc Hasselwander, DLR-Institute of Transport Research

SUMP Türkiye – Webinar 29: Mobility as a Service (Part 1); Laying the Foundations for Seamless Integrated Urban Mobility Systems

Introduction

- Researcher at the DLR-Institute of Transport Research since 2021
- PhD at the University of Coimbra (2017-2023), MIT Portugal
- Research focus on consumer and mobility behavior, technology adoption, and platform economy
- Case studies in the global South: Cochabamba, Kigali, Dar es Salaam, Manila
- Topics: Mobility as a Service (MaaS), mobility platforms, (transport) super apps

Source: Marc Hasselwander

Source: Trufi Association

Agenda

- Study 1: Acceptance of MaaS in Metro Manila
- Study 2: MaaS barriers in the global South
- Study 3: MaaS impacts
- Study 4: Local Super Apps
- Discussion

STUDY 1: ACCEPTANCE OF MAAS IN METRO MANILA

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05.02.2025

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Background

MOBILITY-AS-A-SERVICE

- Consolidation of **different** transport **modes** and **services**
- Accessible through a **mobile app**: plan, book, and pay
- Key features:
    1. **Ticket** and **payment** integration
    2. **ICT** integration
    3. (**Mobility packages**)

Source: Raymark Lapitan Sebastian

Case study: Metro Manila

METRO MANILA

- Capital: center of culture, economy, …
- 17 cities/municipalities; 620 km²
- Population: 13 million + 2 million commuters
- One of the **most crowded** and **dense** urban areas in the world

Source: Marc Hasselwander

Case study: Metro Manila (cont‘d)

METRO MANILA - transportation

- 90% of households do **not own a car**
- Rapid pace of **motorization**
- Fragmented rail network, subway to be opened in 2029(?)
- Some pop-up bike lanes and BRT corridor after COVID-19

Source: Jack Schmidt

Source: Hans Cecilio Bosshard

Research questions

- RQ1. How strong is the **willingness to use MaaS**? Who are the **potential adopters** and what are their **motives** to use MaaS?
- RQ2. Does MaaS have the potential to **promote a shift** towards public transport and sustainable mobility?

Methods and Data

- Online survey (N=238)
  - **Transport & Mobility**: nr. cars/motorcycles, modal choice factors; previous day travel, …
  - **Socio-demographic**: age, education, household size, …
  - **MaaS questions**
- Econometric models (utility theory, discrete choice)
  1. **Willingness** to use **MaaS** (whole sample)
  2. **Likelihood** of increasing the use of **public transport** (among MaaS adopters)

Results and discussion

Model 1: Willingness to use MaaS (whole sample)

- “I would probably use MaaS” = **84%**
- Potential adopters:

price-sensitive (compare and choose best option), **females**, **ride-hailing** users (short, social, and leisure trips), Metro Manila residents, **multimodal travel behavior**.

Results and discussion (cont‘d)

Model 2: Likelihood of increasing use of PT (among MaaS adopters)

- “I would probably use MaaS and use PT more often” = **73%** (of adopters)
- Potential adopters:

living in **adjoining provinces, price-sensitive, females**, already using **transport apps**.

Main (new) findings

- **Consolidation** of different services (aka transport integration)
- Users expect **cost-savings**
- Users expect **more reliable services** (integration of services and travel info*, comparison of different travel alternatives)

STUDY 2: MAAS BARRIERS IN THE GLOBAL SOUTH

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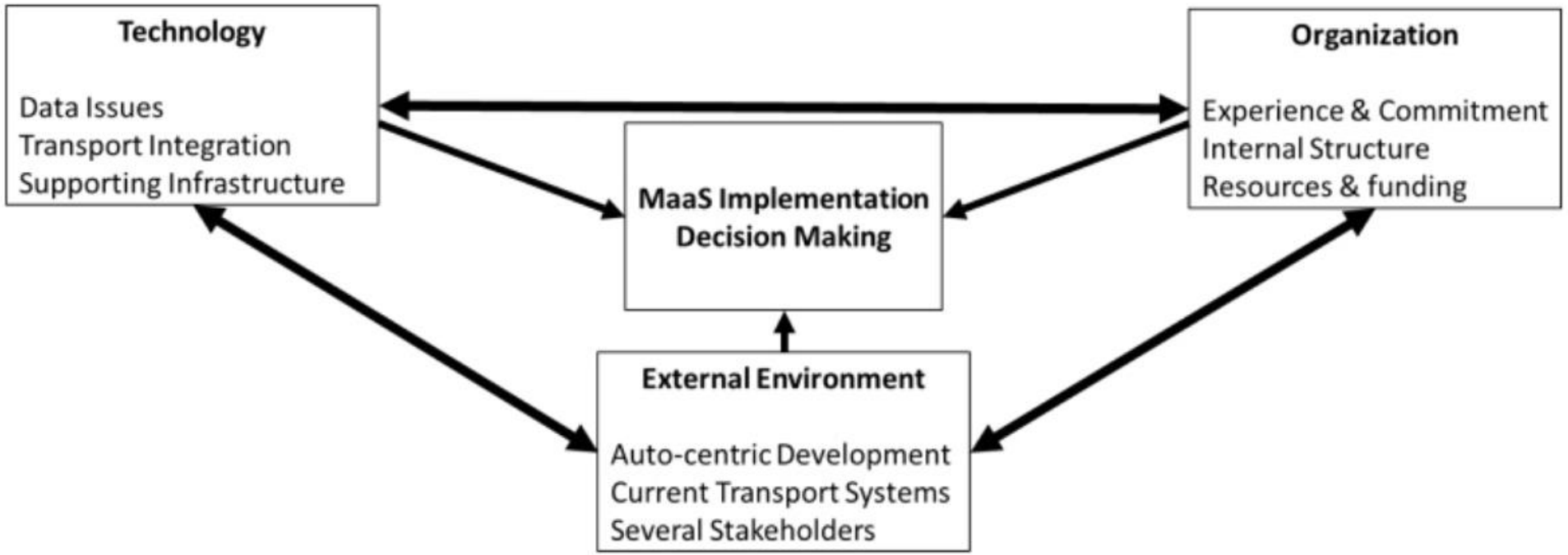
Research questions

- RQ1. What are the most critical **implementation barriers** for MaaS in the Global South?
- RQ2. What are the **interconnections between** these implementation **barriers**?

Methods and Data

- Theoretical background
  - Technology, organization, and environment (**TOE**) framework
- Literature review
  - MaaS, transport policies, public sector innovations
  - 34 implementation barriers identified
- Two-round expert survey (N=29; 21)

Results and discussion



Source: Marc Hasselwander, Joao Bigotte

STUDY 3: MAAS IMPACTS

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Research questions

- RQ1. Does **transport integration** under MaaS contribute to **better access** to transport services?
- RQ2. Which areas can **benefit the most** from an integrated MaaS system?

Methods and Data

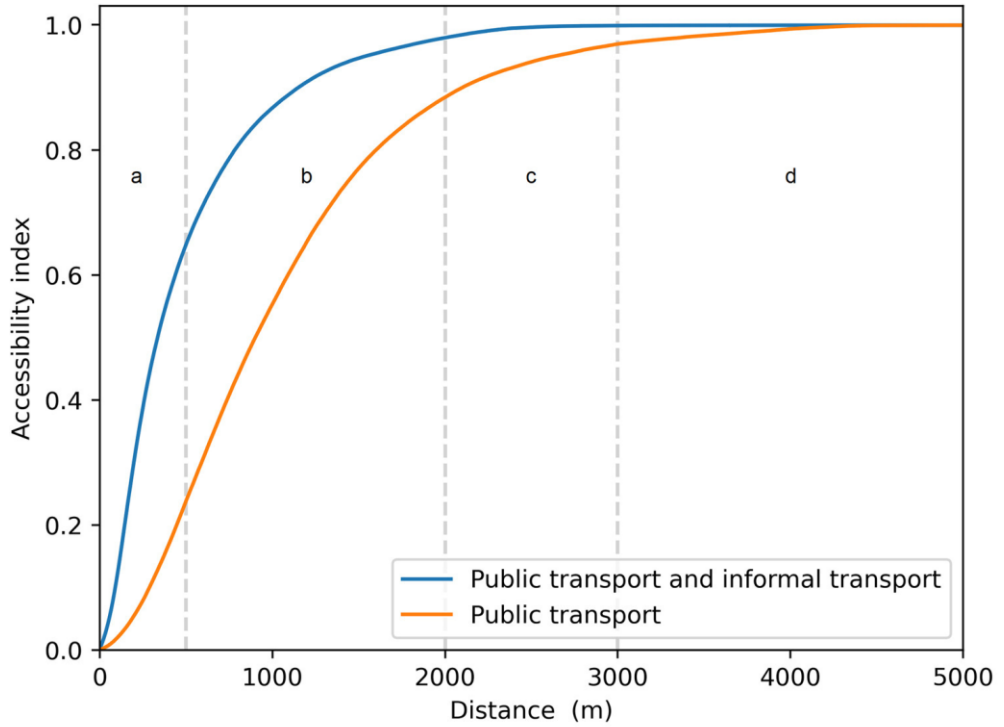
- Case study: **Metro Manila**
- Three (open) data sources
  - **Population data** → satellite imagery (World Settlement Footprint 2019)
  - **Street network** → OpenStreetMap
  - **Transit stops** → GTFS
- Accessibility calculation based on **SDG 11.2.1**
  - proportion of the population with convenient access to public transport within **walking distance**
- Simulation using **PtAC**

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Integrated transport modes	None	Public transport Paratransit	Public transport Micro-Mobility	Public transport Paratransit Micro-Mobility
Transit stops' catchment area	500 m (walking)	500 m (walking)	500 m (walking) 2,000 m (e-scooter) 3,000 m (bicycle)	500 m (walking) 2,000 m (e-scooter) 3,000 m (bicycle)
Description	The status quo: no integration, disaggregated networks of different transport services	Intermodal integration but without first/last mile	Intermodal integration but without informal modes of transport	Implementation of a full MaaS schemes that covers all public modes and micro-mobility for the first/last mile

Results

Overview of model results.

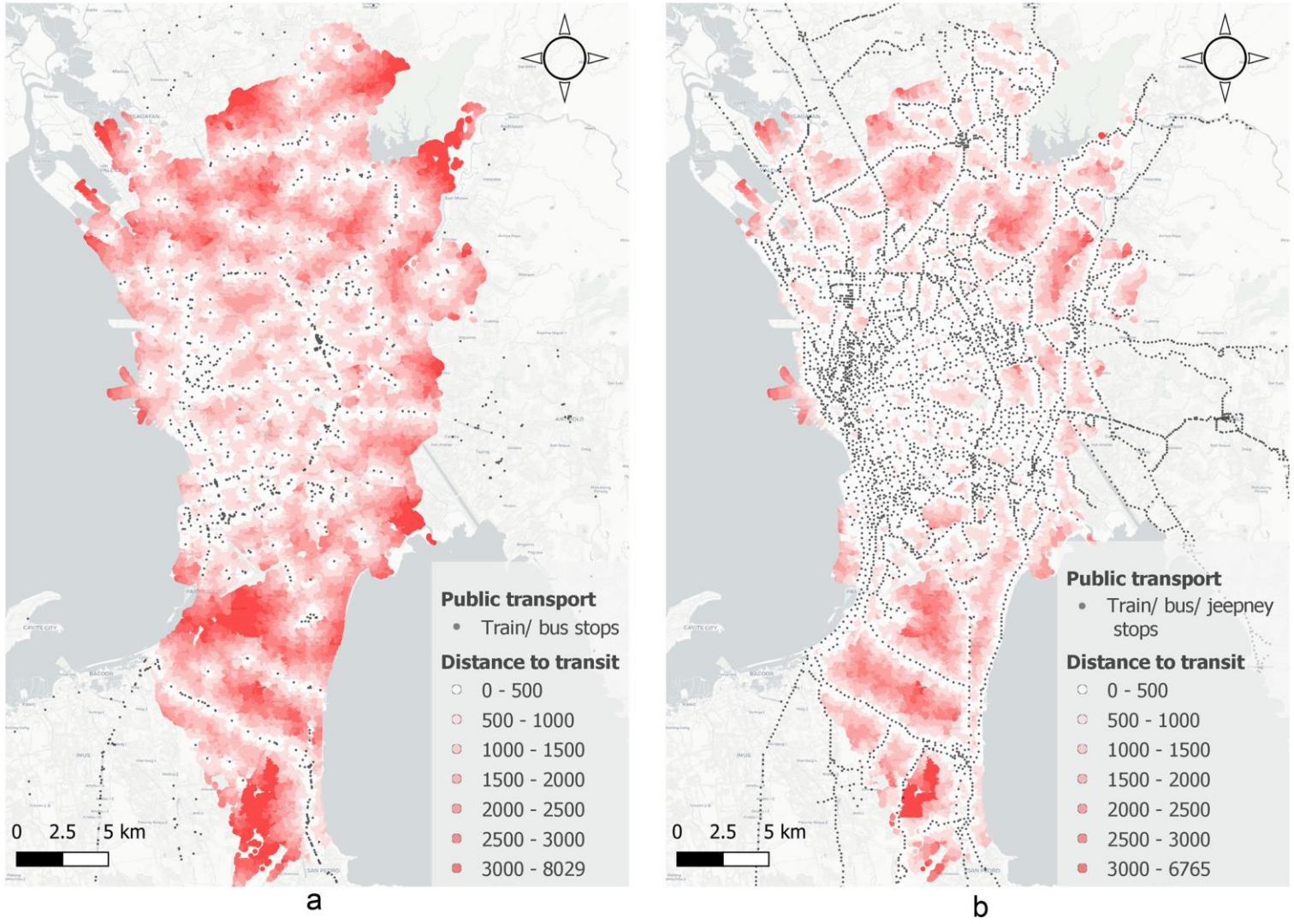
	Accessibility index			Distance to closest transit stop (in m)	
	walking	E-Scooter	Bicycle	mean	max.
Public Transport	.239	.884	.969	1088.96	8029.34
Integration of paratransit	.650	.979	.999	563.92	6764.56



a: accessible on foot; b: accessible via shared e-scooter; c: accessible via shared bicycle; d: not accessible

Source: Marc Hasselwander et al.

Results (cont‘d)



Source: Marc Hasselwander et al.

STUDY 4: LOCAL SUPER APPS

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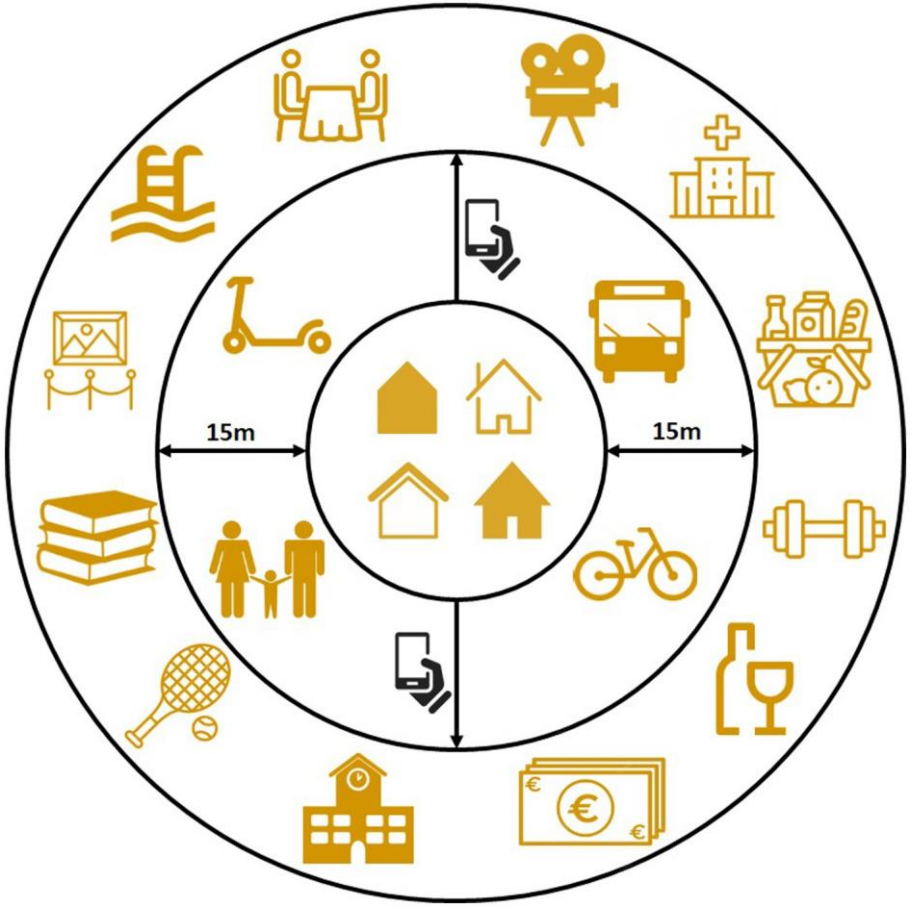
A think piece

LOCAL SUPER APP (<u>more</u> than MaaS)

- driven by **public** authorities, tailored to **local needs**
- integrating the concepts of the **15mC** and **MaaF**
- essential daily necessities and services accessible within a **15-minute** radius
- seamlessly order, book, and pay for daily necessities, services, and leisure, all seamlessly integrated within a **single app**



Source: Marc Hasselwander, Daniel Weiss, Stefan Werland

DISCUSSION

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FURTHER READING & CONTACT

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Get in touch!

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