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Walking in Mobility as a Service (MaaS): Exploring the Appraisal of Walking in MaaS in the Paris Region

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A. INTRODUCTION

What is Mobility as a Service (MaaS)?

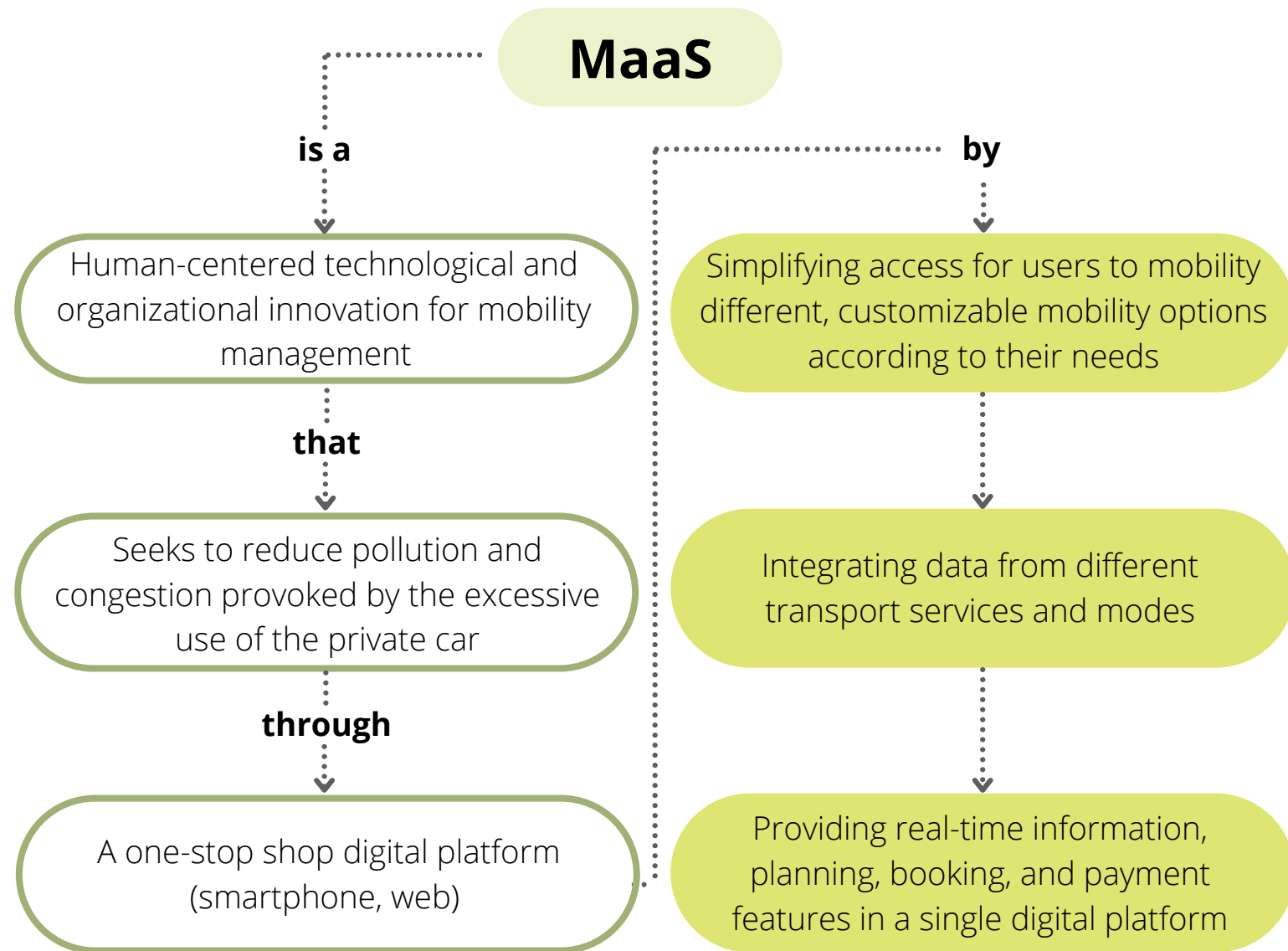


Figure 1. Our definition of MaaS based on our literature review.

The Role of Active Modes in Sustainable Mobility Transitions

- Active modes require human energy like "walking, cycling, skating, skiing, and manual wheelchairs" (Litman, 2003).
- Potential to connect the last mile of journeys and help reach public health and environmental goals (Markvica et al., 2020).
- Potential of bringing economic, environmental, and health benefits to the mobility ecosystem by enabling access to more city features and services (Fig.2).
- Active modes are affordable mobility options (Deguire and Courel, 2020).

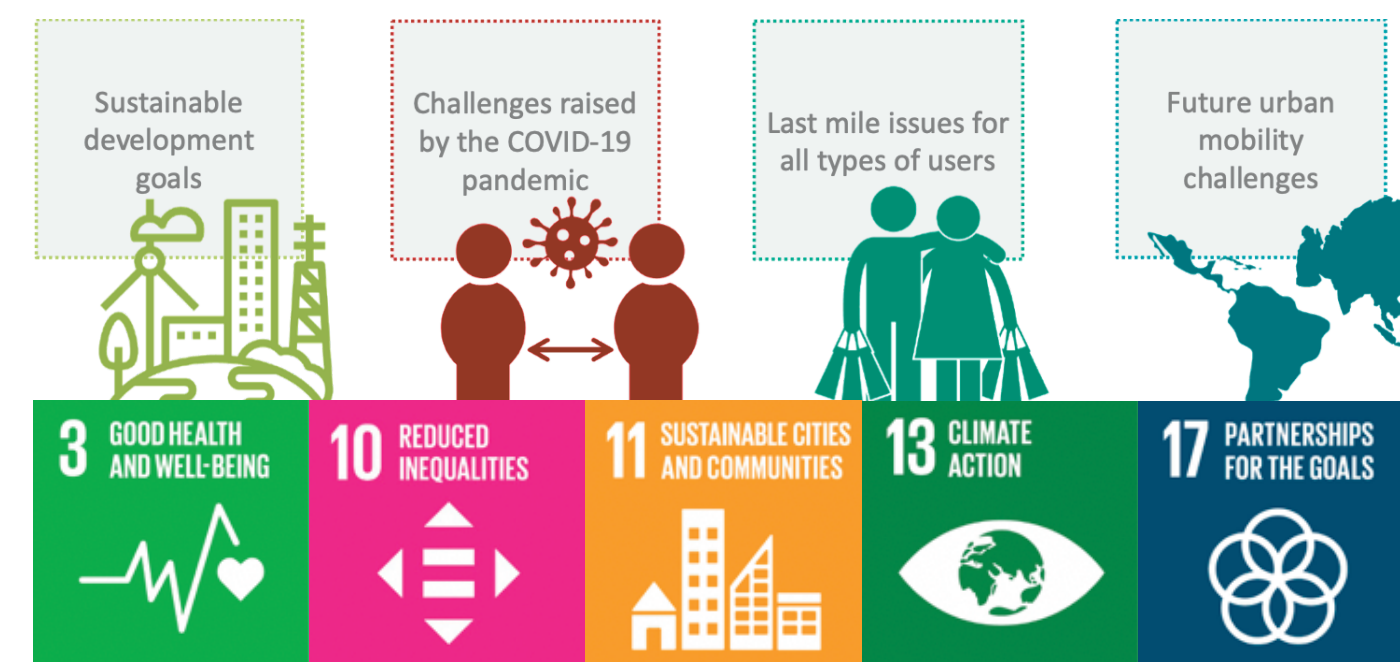


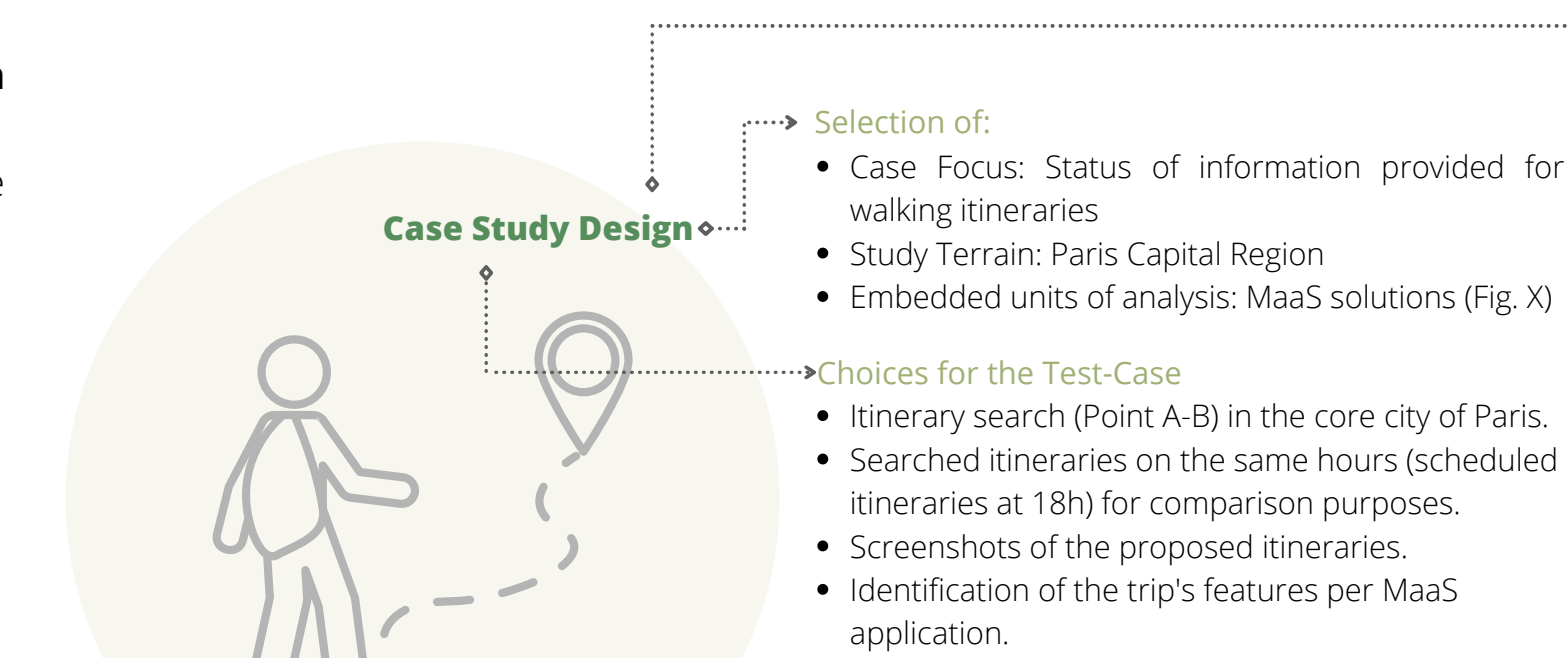
Figure 2. Relevance of the topic and expected SDGs to be improved through the improvement of walking in MaaS. Source: UN, 2015.

C. RESEARCH METHODOLOGY

Case Study-based Empirical-Inductive Qualitative Research

Comparative Case study

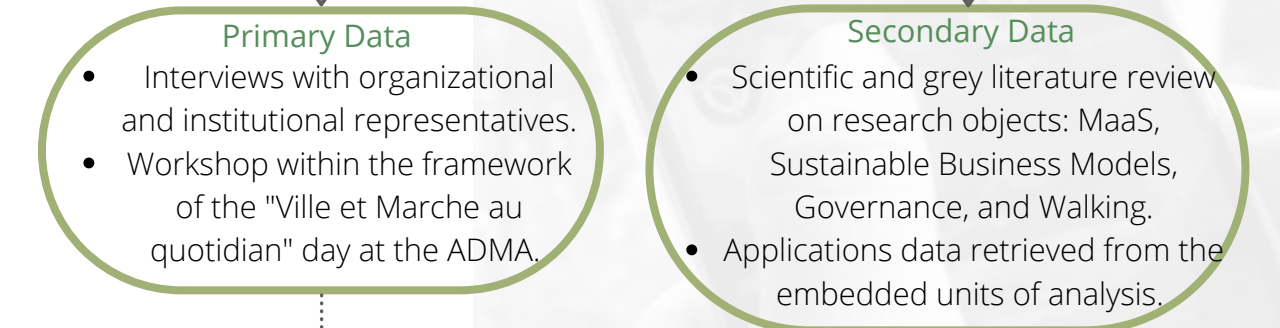
Comparative of the integration status of walking into MaaS available in Île de France.



Objective:

1) Identify the current situation regarding the integration of walking in the MaaS solutions analyzed and the actors' perspectives concerning this integration.

Data Collection Methods



Data Analysis

The analysis results from the comparison between the different MaaS solutions' user interfaces (UIs) using UI design principles.

Figure 6. Research design. Source: the authors.

D. CASE STUDY

General functionalities

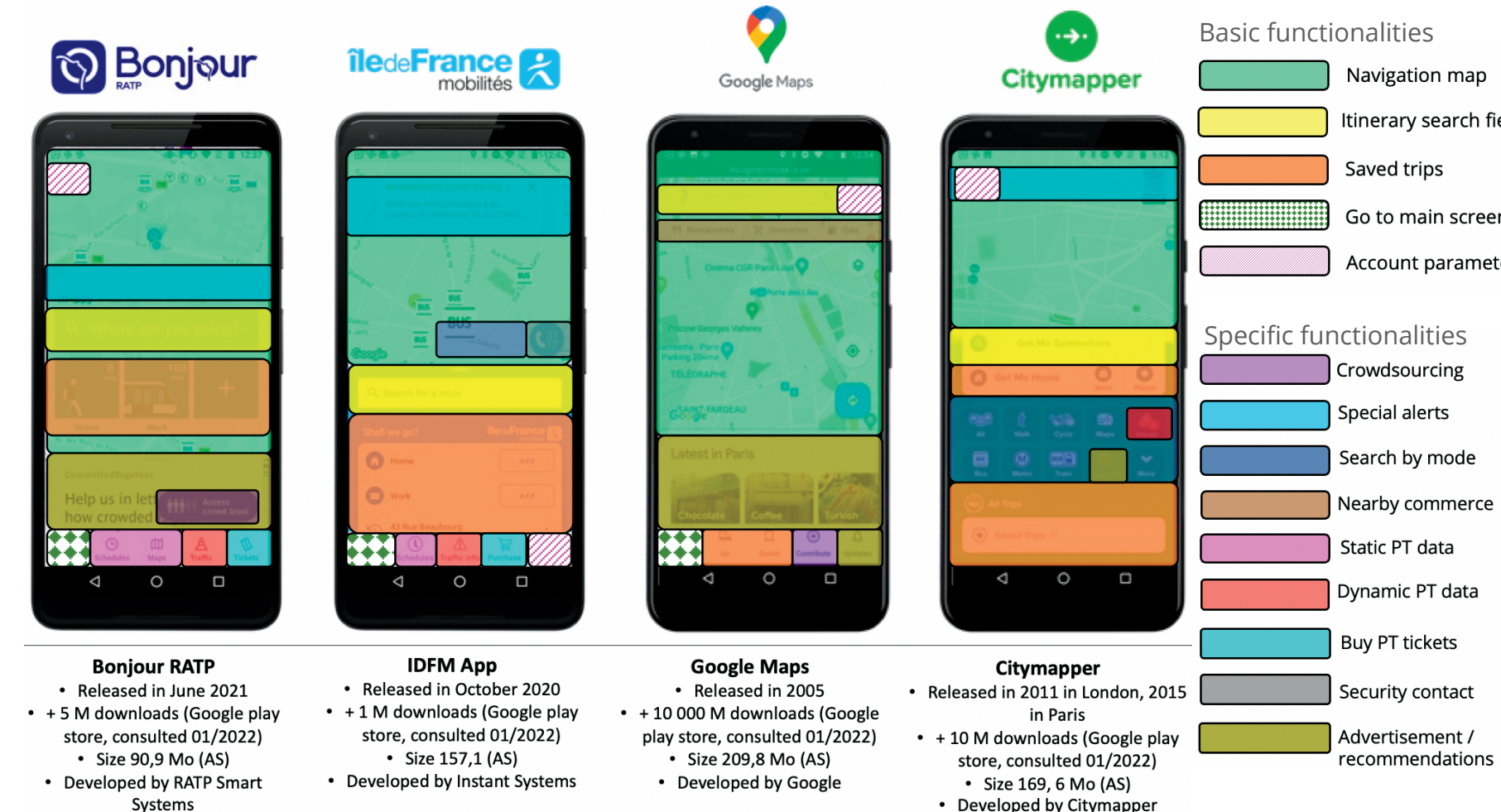
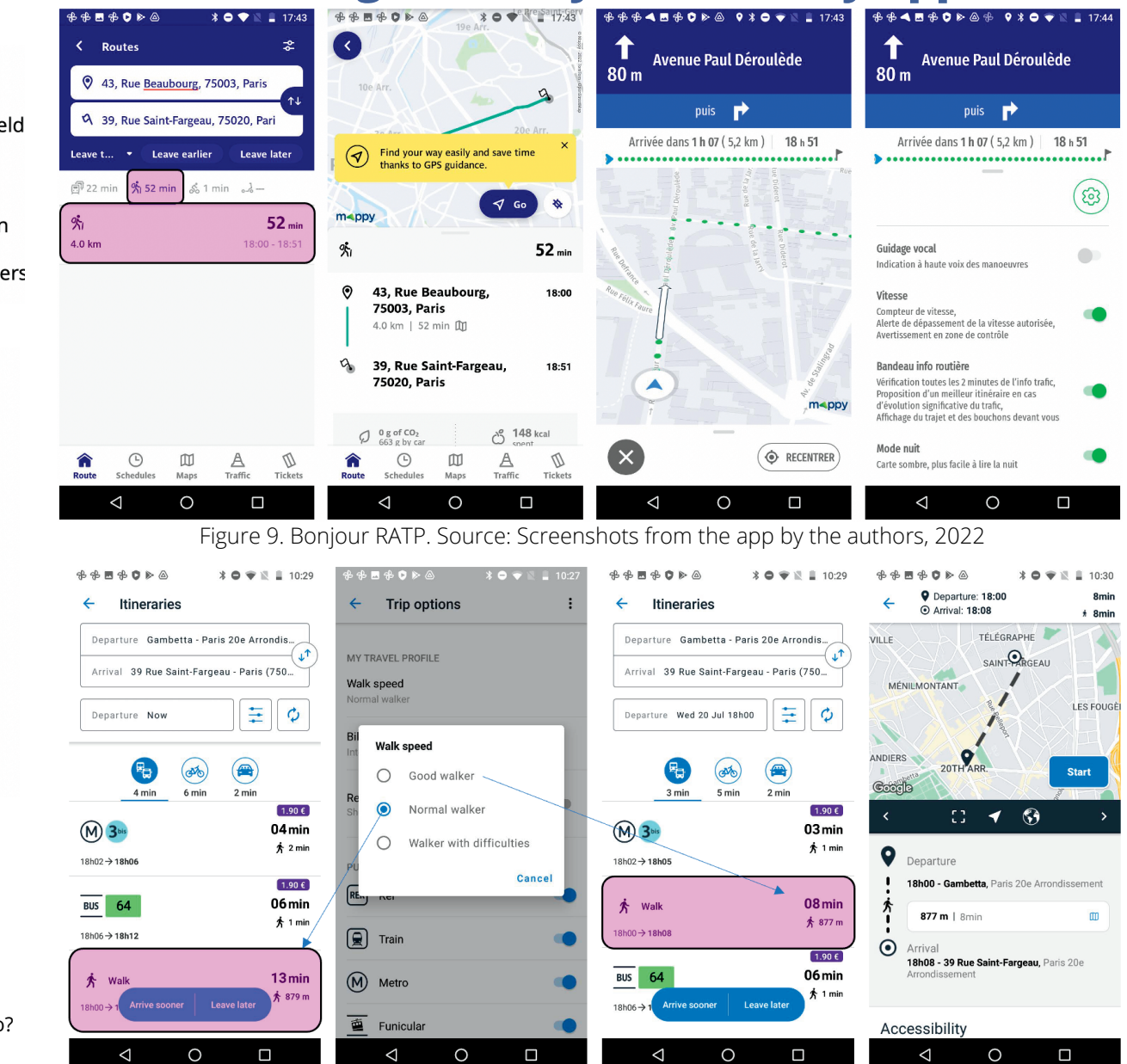


Figure 7. Main features across the UI of MaaS solutions analyzed. Source: Screenshots from the app by the authors, 2022

Walking itinerary features by app



Walking itinerary requests

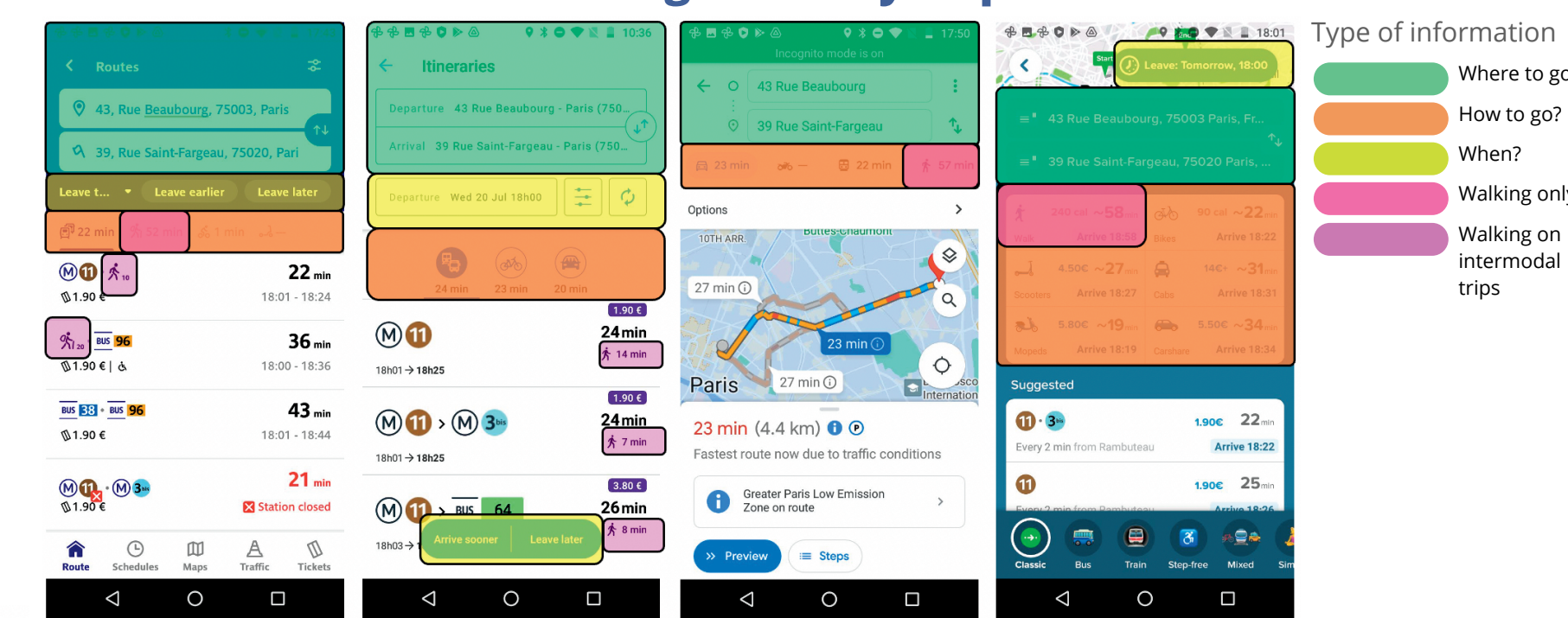


Figure 8. Walking itineraries on the second screen after the itinerary search. Source: Screenshots from the app by the authors, 2022

Type of information

- Where to go?
- How to go?
- When?
- Walking only
- Walking on intermodal trips

B. RESEARCH BACKGROUND

Motivation

- In a context of climate, food, and health crises, a shift towards more sustainable mobility practices and sustainable business models are required (Fig.3).
- Walking is not a transport service like others and it tends to be overlooked by MaaS operators on the road for innovation.
- Around 40% of trips made by people living in the Île de France region done by foot.

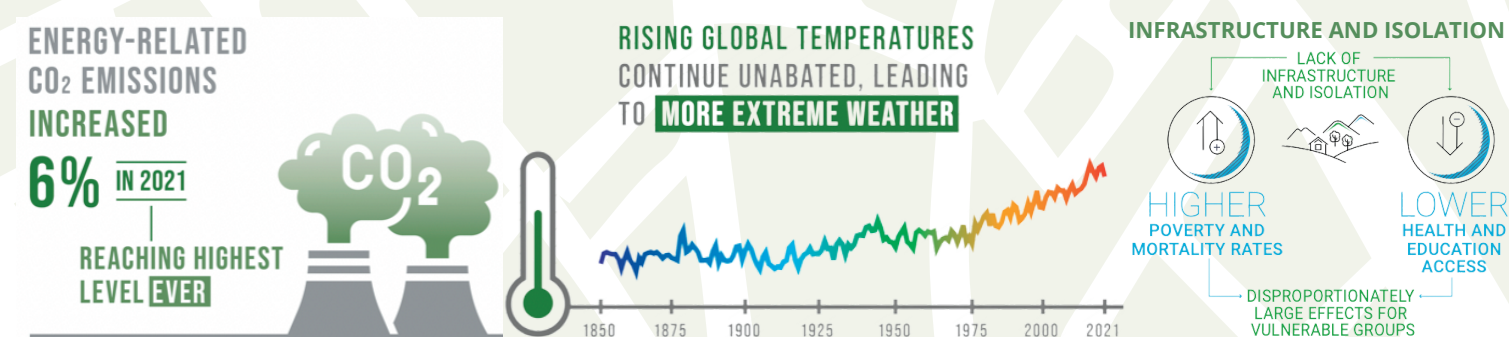


Figure 3. Worldwide context of sustainability challenges. Source: UN, 2021, p.17.

Research Problem

The integration and innovation around pedestrian mobility in MaaS solutions remain underdeveloped and undervalued by the ecosystem of MaaS actors and influenced by the different governance configurations in the ecosystem.

Research Questions

- How is walking currently integrated into MaaS solutions in the Paris capital region?
- What are the factors influencing the current level of integration?
- What strategies could be implemented for the appraisal of walking in MaaS?

Hypotheses

- Improved integration of walking in MaaS can act as an inclusion tool to give individuals equitable access to opportunities in urban, peri-urban, and rural areas.
- Active modes have the potential to induce modal shift to reduce short and medium-length trips made in polluting and bulky individual vehicles.
- Encouraging walking would have positive impacts on health and the environment.

Objectives

- Give more visibility to walking through MaaS UIs and promote the development of enhanced tools for walking trips and walking connections in intermodal trips.
- Implement sustainable mobility policy objectives.

Mobility Context of the Paris Capital Region

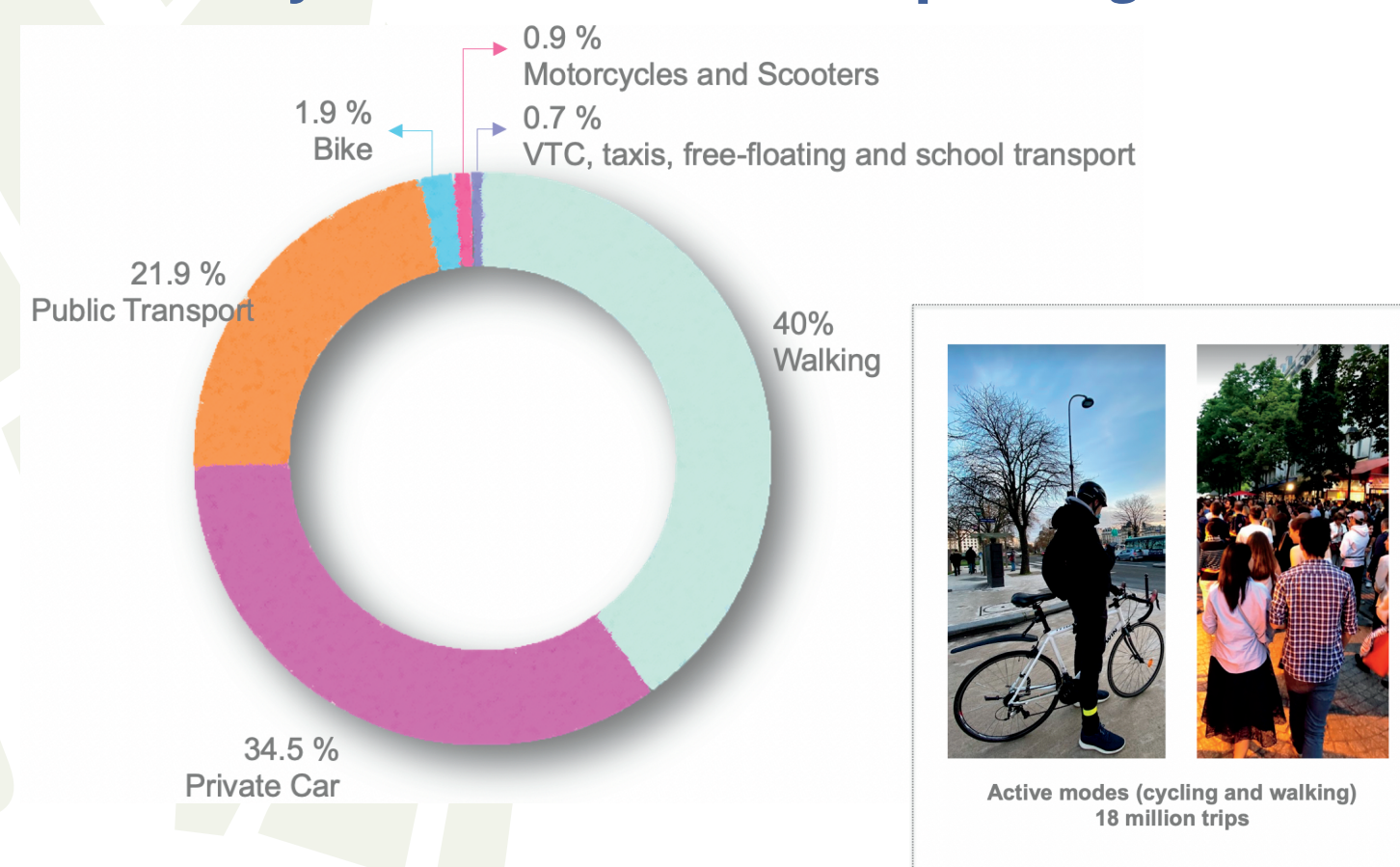


Figure 4. Modal share in Île de France and active modes modal share. Source: IDFM's EGT, 2018-2020.

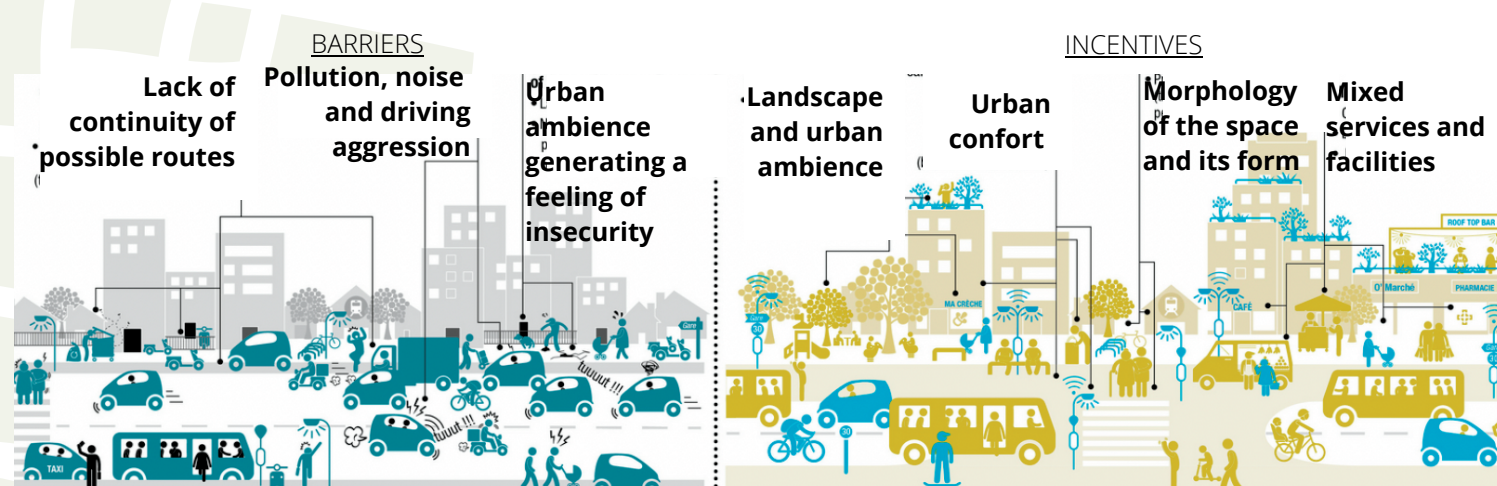


Figure 5. Main results of the national survey for the walking barometer. Source: IAU, 2021.

E. CONCLUSION AND RESEARCH PERSPECTIVES

- Walking is integrated at a basic level in studied MaaS solutions in the French capital region, and there is a gap when considering different types of users and travel reasons.
- Room for improving user experience (UX) quality by providing users with more and better (higher level of detail) in publicly led MaaS.
- Crowdsourcing tools could help to collect and co-construct a more detailed database of the characteristics of chosen itineraries.