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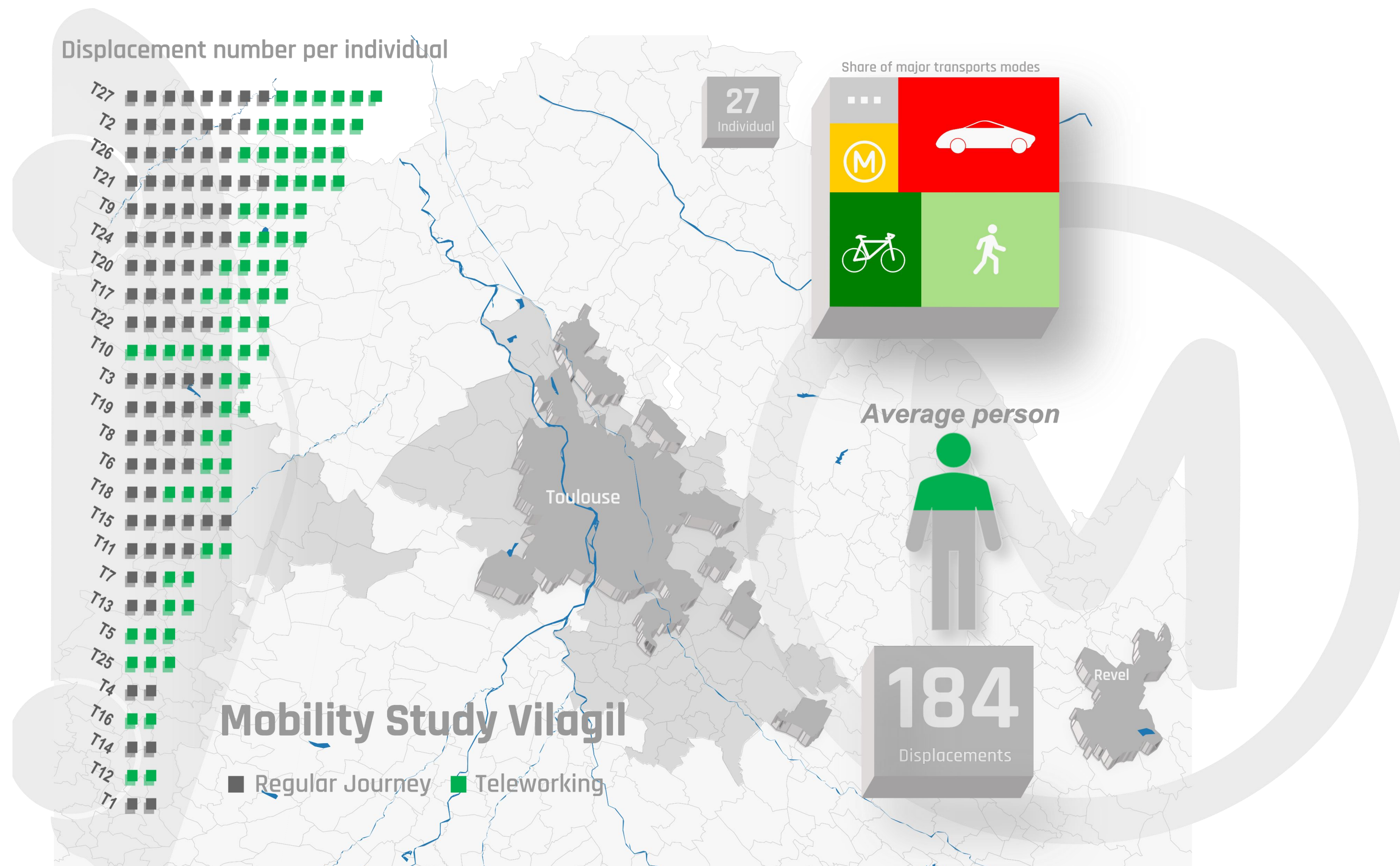
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# Graphics representation

JOFFRION Martin, LOPEZ RIEUX Claudia Ximena, SIINO Corinne, VIDAL Mathieu, JEGOU Laurent

## How to visualize and compare individuals space-time data ?

### Initial data



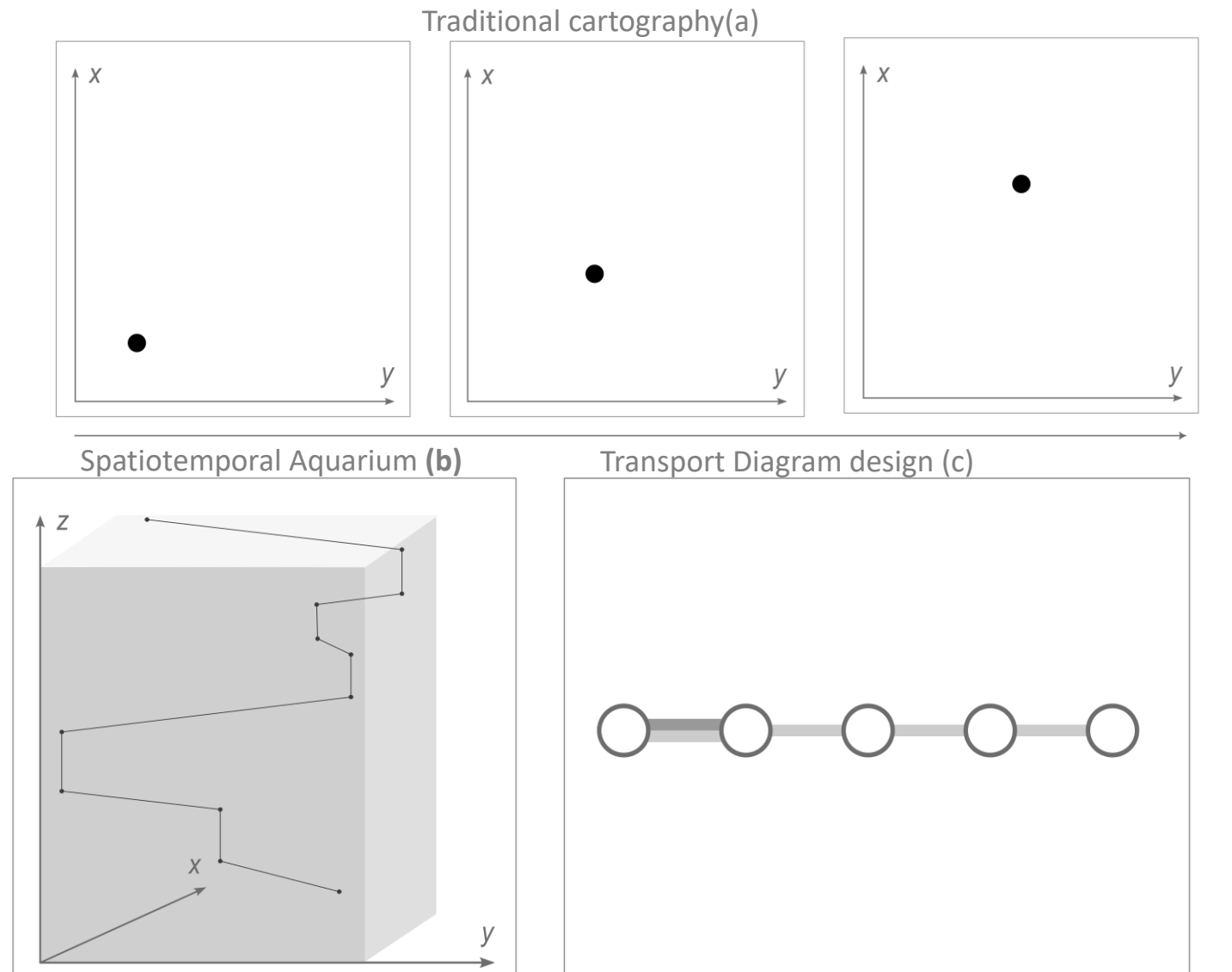
### State of the Art

In traditional cartography, two proposals were put forward. A succession of cartoon-like images representing the different temporalities of a trajectory (a) or the tracing of changes in location over time.

In 1970, Time Geography proposed a 3D representation of trajectories (b). The three-dimensional aquarium it proposes makes it possible to visualize approaches focusing on the individual, highlighting the temporal dimension of the data (Chardonnel & Thevenin 2012).

Finally, design and graphic communication, with their transport plans and diagrams (c), provide unparalleled effectiveness in transmitting information (Allard, 2009).

Each approach has advantages and limits in terms of legibility, data representation and communication objectives. But, the representation will mainly be based on the spatiotemporal aquarium and the graphic identity of transport diagrams, which are the most suitable.

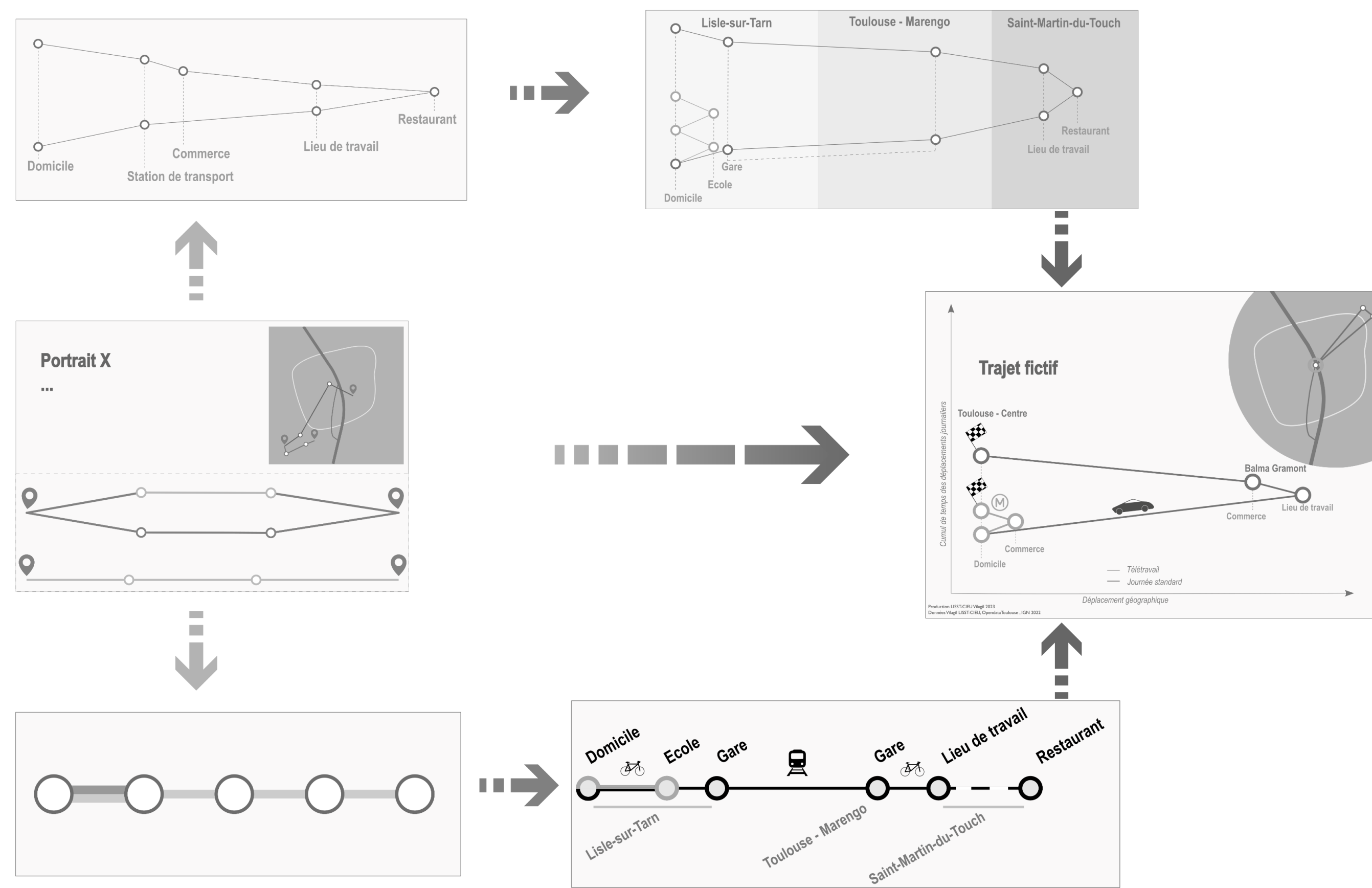


- Allard, José. « THE DESIGN OF PUBLIC TRANSPORT MAPS Graphic elements and design operations in the representation of urban navigation systems ». Politecnico di Milano, 2009.
- Chardonnel, S., & Thevenin, T. (2012). Les apports de la Time Geography dans les représentations spatio-temporelles.
- Kwan, Mei-Po. « Interactive Geovisualization of Activity-Travel Patterns Using Three-Dimensional Geographical Information Systems: A Methodological Exploration with a Large Data Set ». *Transportation Research Part C: Emerging Technologies* 8, n° 1 (1 Février 2000): 185-203.

The data to be represented  
The qualitative data on mobility, which is intended to be enhanced by graphic representations, was acquired in 2022 during an interview survey of teleworkers.

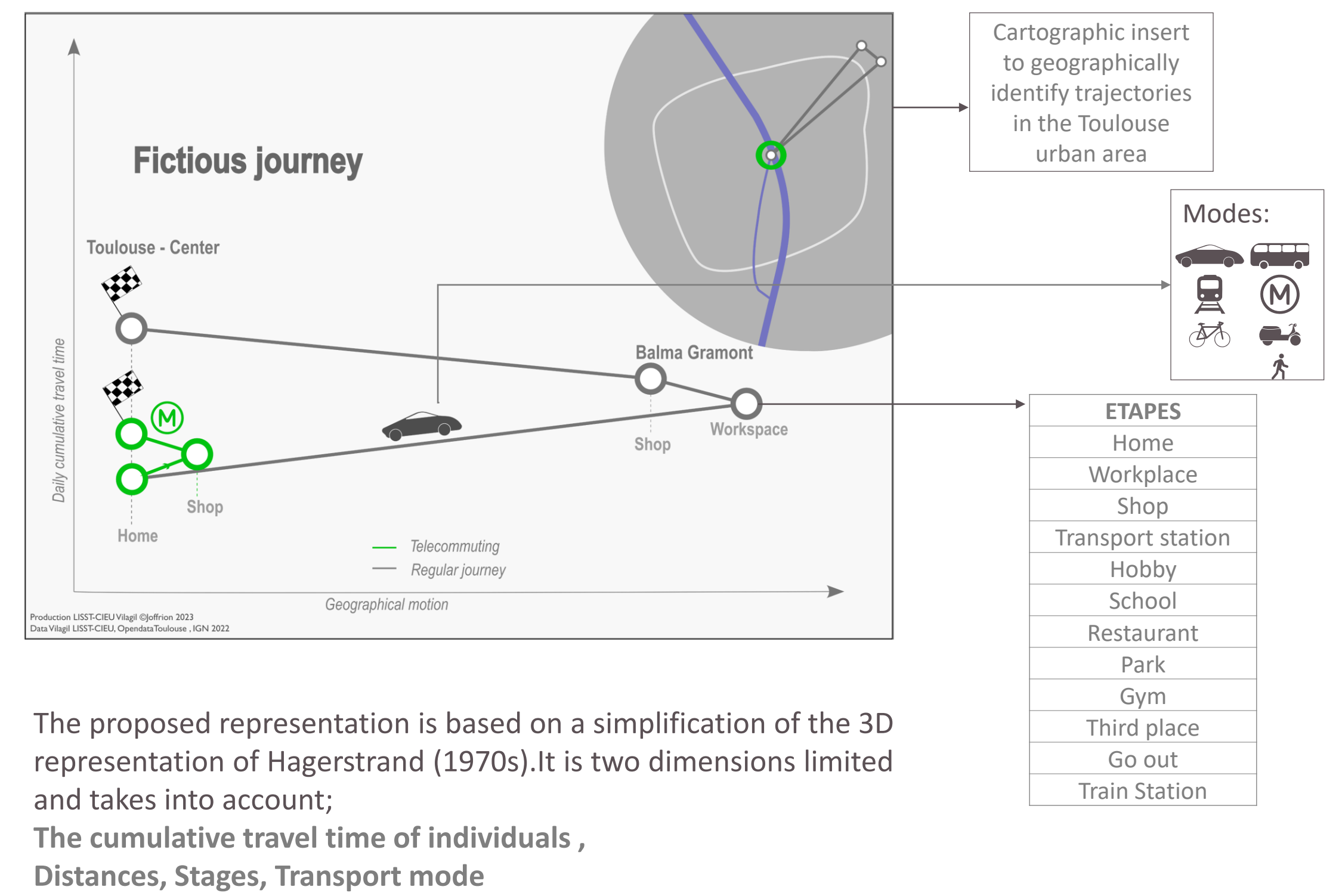
Spatio-temporal trajectory				
Stages		Displacements		
Places Municipalities, neighborhoods	Label home Workplace ...	Transport mode	Duration	

### Creative process



The creative process generated a large number of graphic model. To achieve the best possible representation, the team selected the most relevant ones. This selection was made taking into account the theoretical definitions of each representation, their legibility and clarity.

### Theoretical model



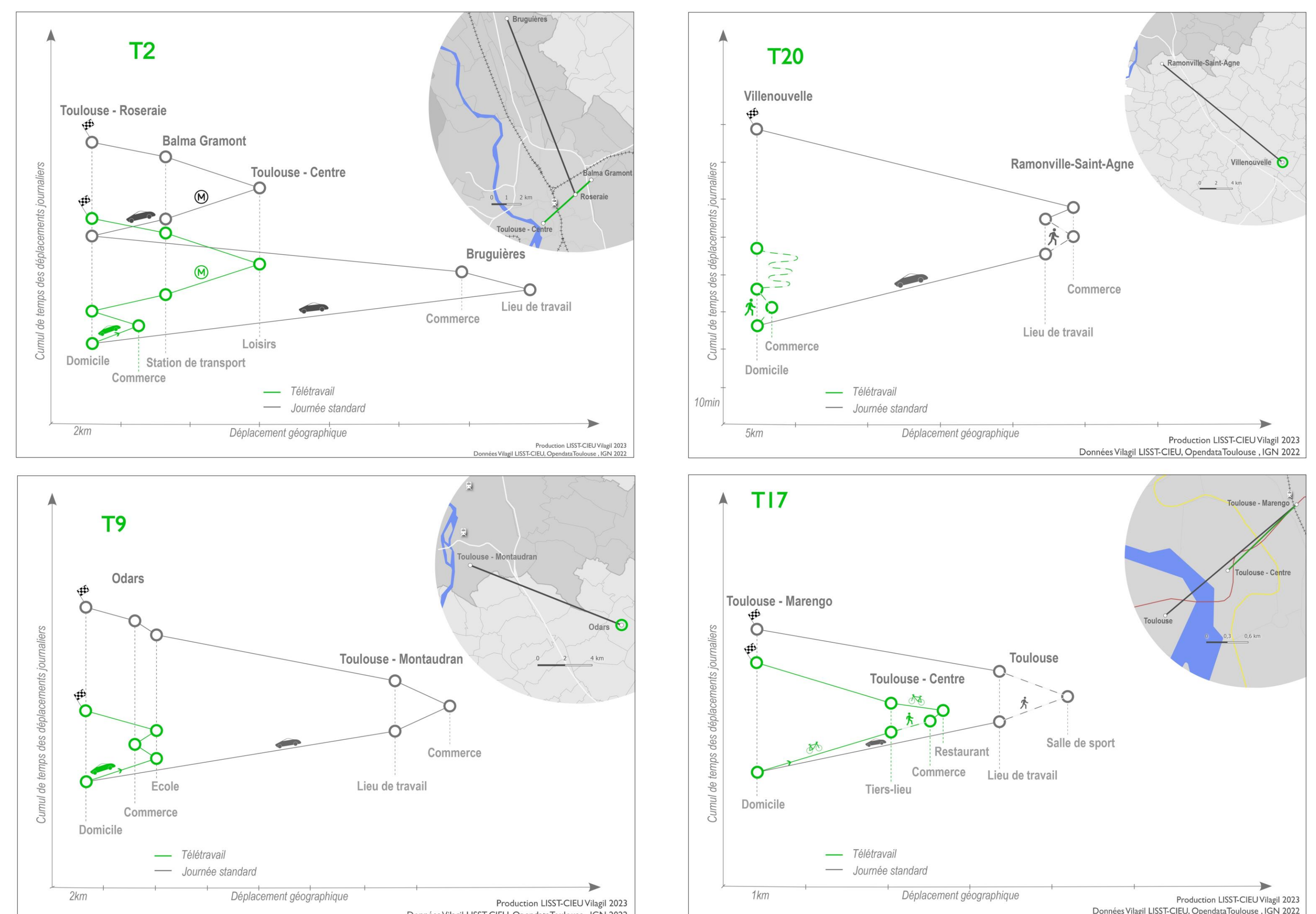
### Perspective

This representation opens up new perspectives and, according to our research, could be an effective decision-making tool if development continues in a more dynamic and automated direction. The theoretical foundations have been laid, but a web-oriented approach has yet to be developed.

### Global analysis

The teleworkers we interviewed save a considerable amount of travel time when they are not at office. However, the greater the degree of mobility is, the more this time saving tends to decrease. Moreover, among these people we can observe a more significant persistence of transport mode. The graphical representations are therefore relevant, and seem all the more suitable for other themes that would deal with people's spatiotemporal trajectories.

### Final result



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