

The background consists of a series of parallel diagonal lines. A central band of these lines is filled with a solid green color, while the areas above and below are white. At the very bottom of the image, there is a horizontal band of solid yellow color. The text is positioned on the right side, overlapping the green and white diagonal line areas.

hyper
lieux mobiles
mobile
hyperplaces

hyper lieux mobiles mobile hyperplaces

Project
2017, 2018
et 2019

Devising apps for the autonomous connected vehicle, beyond transportation

An autonomous connected vehicle is not just about replacing a driver with a robot: it opens up the potential for changing practices, new services, new ways of thinking and experiencing mobility.

City on the Move Institute(IVM) : because mobilities are not just about transport but a societal issue, we need to look at the whole of society to do something new.

Design in Context

Running & Relaxing Modes

Engawa Parks of traditional Japanese houses were the people sit to enjoy the garden and to contemplate the surrounding nature in privacy.

Engawa Flexible Interior and Exterior Car Concept for the Aging Society of the year 2020



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ENGAWA
2020



IDEO

Mobile hyperspaces?

The arrival of the autonomous, connected, electric (ACE) vehicle and the passions it arouses – as well as the public and private investment it attracts – is an extreme catalyst for all the innovations and changes already underway in the field of mobilities.

This action-research project, based on a multidisciplinary international program of observation and exchanges within an international and multidisciplinary research hub, seeks to identify and study the different emerging and ongoing practices in on-the-move activities, beyond the simple transportation of people or goods, in order to:

- 1. better understand the radical changes taking place in on-the-move activities,**
- 2. define the characteristics of the new spaces generated by the arrival of these hybrid and multifunctional vehicles:** spaces in motion or physical spaces remodeled and augmented by the variety of potential uses – business, leisure, education, work, health, habitat... Spaces that we describe as **“mobile hyperspaces”**.
- 3. propose prototypes or demonstrators of services or “mobile urban micro-spaces”,** based on different examples of use (in terms of the nature of the activities and the diversity of national and international urban conditions).

Background

How does the prospect of the arrival of ACE vehicles act as a catalyst for change?

When societal priorities encounter innovation: possible utopia?

Universally perceived as inevitable, the ACE (autonomous connected electric) vehicle today involves major players in the world economy. Pilots are being conducted, for a variety of purposes, in cities and countries across the planet. Attracting massive media coverage, they trigger imaginings of an idealized futuristic city. Some findings from prospective surveys suggest that these vehicles will be standard by around 2050. The subject presents challenges for the business community, the world of research, for governments and territorial authorities, and new actors are emerging.

The convergence of advances around the electric vehicle, the Internet of things, artificial intelligence, on-board systems, real-time mapping and big data, seem to confirm

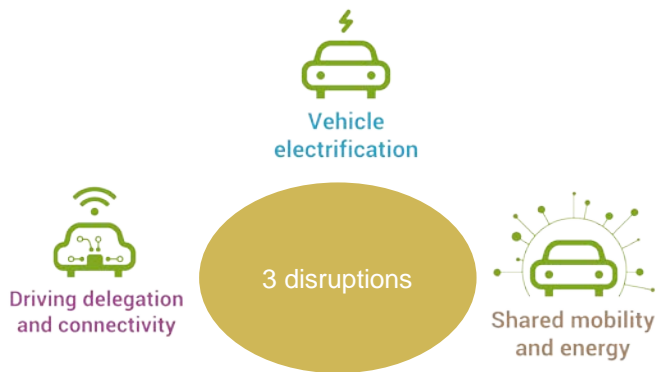
the hypothesis of a technological breakthrough. This is in sync with society's awareness that our ways of moving around the city need to change permanently, in order to overcome environmental threats and energy and congestion problems.

Something that seemed a utopian dream – autonomous vehicles, automated traffic regulation, delivery by drone, the resurgent myths around the mobile city – thus seems possible, provided that innovation and societal priorities can match the concerns and interests of two other protagonists: users and territories.

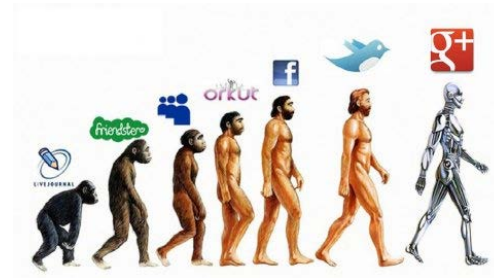


Simultaneous breakthroughs

But the ACE is not just a sophisticated object: it can accelerate, or even be a catalyst for radical changes in uses. It has the capacity to stimulate a new system of mobilities that challenges the traditional distinctions between the movement of people, of goods and of information, and between heavy mass transit infrastructures and shared or collaborative services. It therefore has the potential to bring about a transformation in practices and activities on the move, a redistribution in business, and a reconfiguration of urban areas and territorial habitats.



Technological breakthroughs



Arrival of new economical players

Nous vivons une révolution qui porte en elle une civilisation du léger: le culte de la minceur triomphe, le virtuel, les objets nomades, les nanomatériaux changent nos vies(...) Partout il s'agit de connecter, miniaturiser, dématérialiser. Le léger a envahi nos pratiques ordinaires et remodelé notre imaginaire: il est devenu une valeur, un idéal, un impératif. Voici venu le temps des utopies light

Gilles Lipovetsky

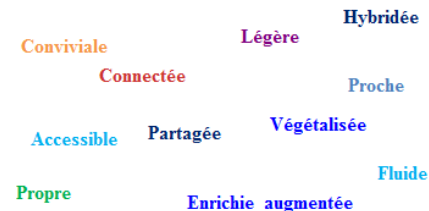


Desire for a lightened and connected world

LES MOTS DE LA VILLE / MOBILITÉ RÊVÉE

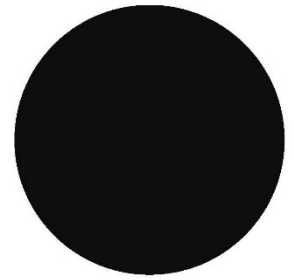
(LA FABRIQUE DU MOUVEMENT, ENQUÊTE IVM AUPRÈS DE 800 ETUDIANTS DU MONDE, 2012)

Empathique

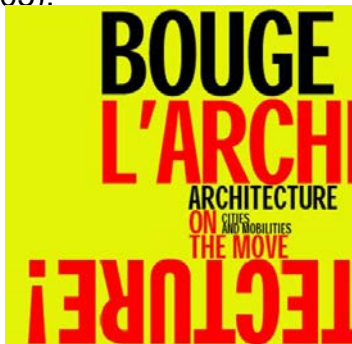


Paradigm shift in the management of mobilities (in certain cities or countries), linked with sustainable development priorities

From hyperspaces to mobile hyperspaces



“For a partly new society, partly new urban spaces. A society where individuals move in all directions, at every hour of the day and night, a hypertext society where individuals shift rapidly from one social milieu to another, where sequences of activities overlap and intertwine, where social bonds are chosen, are formed, are made more freely, but also more freely unmade. This hyper-modern society produces new places: hyperspaces.” (François Ascher, « Le Mouvement dans les sociétés hypermodernes », *Les Sens du Mouvement*, Belin 2005).



Day-to-day hyperspaces

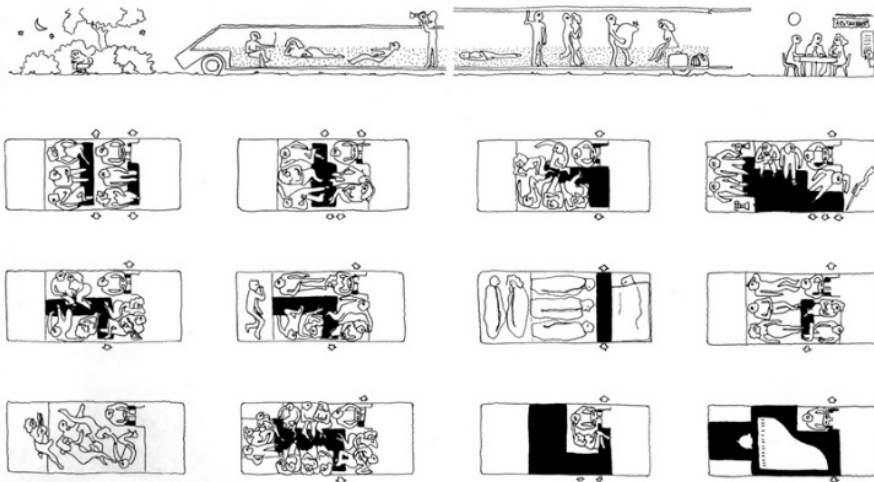
This definition of the spaces of intermodality by François Ascher inspired the work of IVM (City on the Move Institute), for example in 2003 with the exhibition “Architecture on the Move!, Cities and Mobilities” or in 2009, with “The Street Belongs to All of Us!”

Intermodal hubs, airports, but also certain day-to-day public spaces such as cafe terraces or station concourses: these fast changing places generate urban environments that are distinctive and intense. They are places where new sociabilities and new practices develop. Characterized by the transit networks to which they provide access, they also bear the stamp of all the mobilities of the individuals, the goods and the services that flow through them, settle and organize. The connected individuals of a new “hypertext society” interact in these places physically and remotely, via fast spreading communication technologies.

Tomorrow, mobile hyperplaces?

So what if, today, in the context of an ongoing shift in mobility conditions linked with the imminent arrival of ACE vehicles, these “n-dimensional” places themselves became mobile?

With the smartphone, the primary telephone function has become well-nigh irrelevant. Beyond transporting people and goods, will the potential connectivity of these new vehicles lead to the proliferation and spread of “hyper-activities”, characterized by a hybridization of physical and remote interactions? Will these new practices manufacture new urban spaces?



Kara Sutra, Bellini (1972)

Resurgence of a 1970s vision?

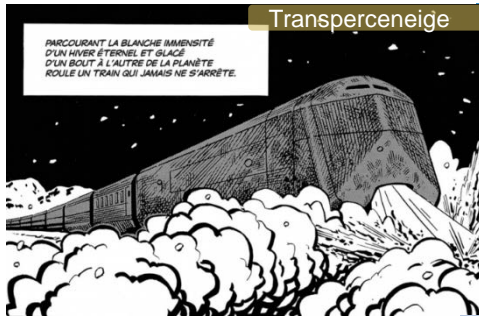
- Multiservice vehicles -



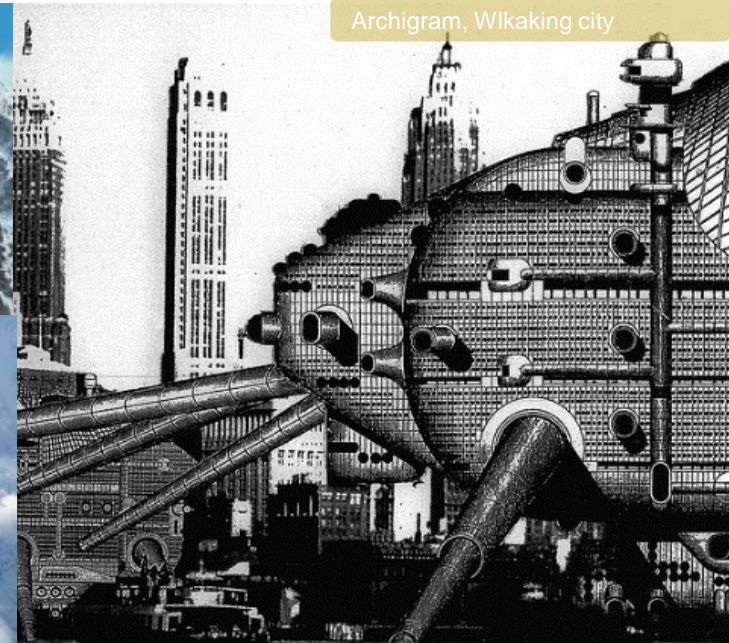
“E-palette” modular vehicle (Toyota, CES project 2018)

Resurgence of a 1970s vision?

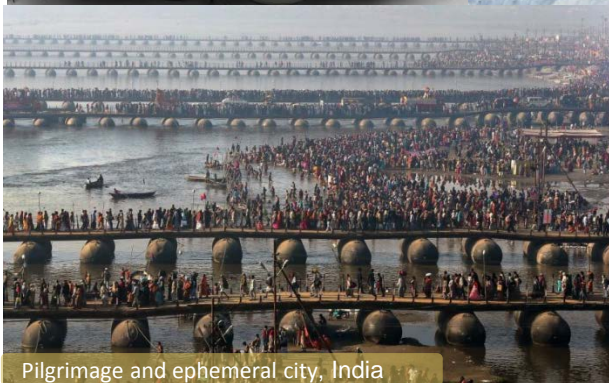
- Mobile cities -



Transperceneige



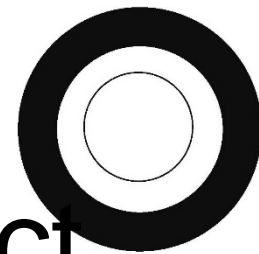
Archigram, Wkaking city



Pilgrimage and ephemeral city, India



Burning Man Festival, USA



The mobile hyperspaces project

Project issues

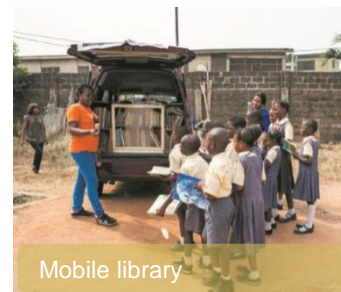
Innovation, offbeat uses, business

The history of innovation shows that new technological objects do not always find their audience, or sometimes do so in a roundabout way. Will these new connected objects and services, with their potential to change our day-to-day mobility practices, be used as their designers expect? Can we already foresee other forms of appropriation? What advantages will they bring compared with today's mobile objects?

What needs will they be able to fulfil? Will they create new opportunities for activities, for encounters, or responses to new “hyper-mobile” needs that are as yet ill-identified or unexpressed? What will be the margins of innovation in terms of usage? Will they trigger the emergence of new sociabilities? From the point of view of practices, what will be the innovations linked with everyday urban reality?

Transformation of public space and territorial reorganization

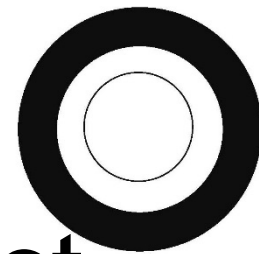
If these innovations can be perceived positively, what territorial reorganizations may they produce? Who will be the winners and losers from these changes? What can be done to prevent the risks of exclusion and to spread the benefits of these innovations as widely as possible?



Mobile library



Mobile screening laboratory



The mobile hyperspaces project

Project issues

New governance and new professions

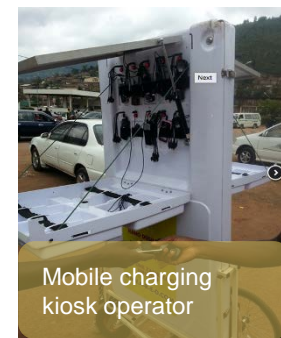
GAFA's entry into the world of transportation is disrupting the system of actors. What adjustments will the most traditional players have to make? How are the transportation businesses going to change? Will a transit operator be able to become a mobility operator in the broader sense? Will businesses be able to take advantage of the time released during travel by offering new services? What will be the role of central and local government and what new regulations will be introduced to cover these emerging activities, in order to guarantee equity between territories, in a way that reflects their economic, sociodemographic, and physical specificities and realities?



New stakeholders

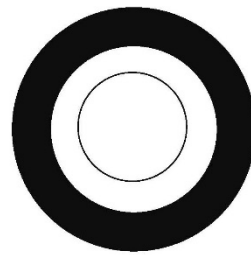


New businesses and new professions



Mobile charging kiosk operator

The approach



Starting with reality

New, very concrete mobile practices are already emerging and spreading, often at the margins, attracting little attention in prospective studies on self-driving vehicles. Some have the potential to provoke change.

... in order to imagine the future

Drawing on the observation of existing practices, ways of life and modes of consumption, the project's objective is to reveal the unexpected forms of urbanness that may arise from new interactions between spaces, mobilities, connectivities, and activities, and to envisage possible future disruptions linked to the spread of the ACV, since a vehicle that contains a mobile activity can, even now, contribute to a redefinition of everyday places.



Observing activities in flows (China)

Project objectives

Phase 1: observe

Since the changes are already here, **the international research hub established within the program**, with a network of partners in Latin America, China, Africa, Europe – universities, research labs, design offices, businesses, and territorial authorities – together with IVM's networks around the world, is **seeking to observe on-the-move activities as they are today**, with all their diversity of situations and mobile objects. The investigation will include activities, objects, adaptations of public policies or spaces.

Already, traditional, new or updated mobile services and activities are being invented and proliferating. They can be found among the poorest – often informal and makeshift – or in the world of luxury (for the richest, the airplane becomes an office, the automobile a sports hall or a home cinema...).

Whereas urban gatherings and temporary cities – for festivals or political or cultural events – revive memories of the mobile cities of the 1970s, 3-D printers have opened up the way to large-scale mobile platforms (hospitals, laboratories, temporary factories, factory-boats) and to agile maintenance within easy reach of users (*in situ* repair and production of missing or damaged parts, manufacture of personalized prostheses).



Factory trawlers – hyper-logistics of movement



Boliches de fiesta, Argentina



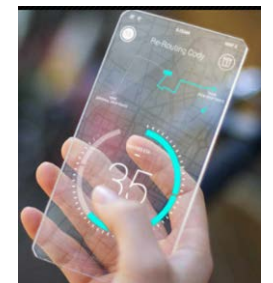
Lulu dans ma rue

The roll-out of 4G mobile telephony, the spread of smartphones and the enthusiasm for social media, are facilitating the development of a variety of mobile services: in-flow delivery, food trucks, bicycle repairs and mobile libraries, hairdressers, assistance to the homeless...

Thanks to an Internet connection, sometimes precarious and unstable in the poorest neighborhoods and cities, new interactions, both presential and remote, are emerging between users and service providers, generating public micro-spaces of varying longevity, connected to the flows that are often the source of these activities. Some mobile public services – mail, healthcare, education... – make particular sense in areas where population density is too low for a stable activity to settle.

The field of observation excludes urban services (such as street cleaning, garbage collection...): while such services may undergo big changes, such future robot-vehicles cannot in principle constitute places, since they are not habitable.

The cases studied will need to be chosen in different territories (dense inner-city, suburbs, countryside, wealthy and working class neighborhoods...) and may include existing or projected practices, or even abandoned projects, provided that the reasons for their failure are analyzed. Also included may be certain high-traffic zones (freeway pull-off areas, intersections, temporary markets...).



Phase 2: analyse

In the second phase, explorations – interviews, observation, geographical or architectural analyses, analysis of economic sectors, guided tours, documentary, narrative, sound recording, computer graphics... – will help to **identify practices that are already contributing to the transformation, sometimes temporary, of the places where they are implemented.**

How do these activities contribute to the creation of new urban micro-spaces that challenge the boundary between mobility and immobility?

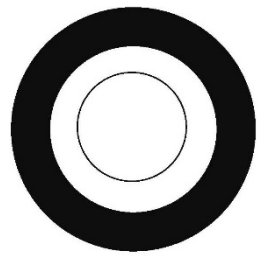
The generalized connectivity that creates the conditions for teleworking, enhanced last-mile logistics, the sharing of mobility objects, collaborative mobility services, real-time information on traffic conditions...

We are seeing the early signs of a hybridization of lifestyles and business activities – the bicycle rider who delivers home meals, the multi-skilled entrepreneur... – and of a rise in the complexity of the interactions between mobile activities, urban territories, and individuals.



Large scale or small (mobile hospital)





Phase 3: identifying potentials for development with the ACV

Between low-tech or high-tech, DIY or factory modifications, is the ACV a possible accelerator of transformations in practice?

Mobility objects – second-hand cars, vans, “small mobility objects”, tuk-tuks...– are already being adapted, customized, to accommodate new or revived activities, whether digital or physical.

They are often diverted from their initial uses, either through tinkering or sometimes simply through the incorporation of a connected “high-tech” component (currently often a smartphone and its numerous applications, in the future on-board systems or robotics).

These objects help us to identify the criteria that ACE vehicles will need to meet in order to become an appropriate medium for the development of new activities and a mobile urban micro-space in their own right. These characteristics may vary depending on territories, cultures, individual practices.



Phase 4: imagining tomorrow's mobile hyperplaces, urban micro-spaces or producers of urbanness, and developing a demonstrator?

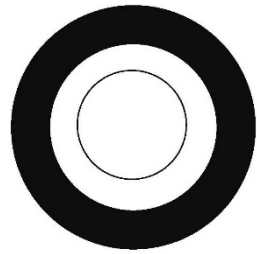
What will be tomorrow's mobile hyperplaces? What impact will they have on public space, whether activities take place in a dense urban environment already equipped with equivalent fixed amenities, or in low-density areas where the conditions for success will need to be created?

Connected to information, energy and transport flows, the mobile activities arising and proliferating through the arrival of hybrid and multifunctional vehicles are likely to be singular in their relation to space.

Will they contribute to the reorganization of the places they pass through, or even to the production of new places? Will the new spaces thus created allow friction, human interaction, unexpected encounters or experiences? Will they contribute to urban community, or conversely reinforce a tendency towards the hyper-privatization and hyper-personalization of public space?



Will these connected mobile urban places be catalysts for a new urban condition, or simply “capsules” that consolidate existing social divisions? In short, will they become hyperplaces? What roles will city authorities play in regulating the and guaranteeing their spatial quality?, What impact will these changes have on the profession of urban design?



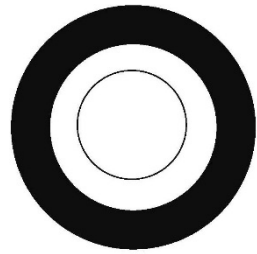
This program is part of a **process that affirms the right of the city for each and every person.** It seeks to develop proposals that correspond to a belief in public space, in democratic access to urban amenities. The proposer demonstrators will need to be service-oriented.

The purpose of the international analysis of varied examples of use is thus to generate debate around these new practices and their urban implications. A prototype mobile urban service will be developed with the project's partners



“E-palette” modular vehicle (Toyota, CES project 2018)

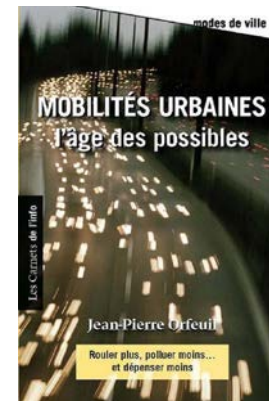
Some IVM references on mobility services



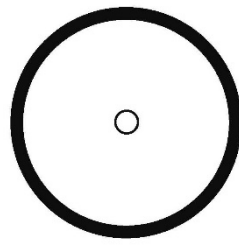
Since its formation, IVM has been interested in developments in mobile activities and their effects on practices, the economy, businesses, and urban space.

- Making the city with flows, in partnership with ENPC, 2004
- The trades of movement and the urban economy, in partnership with École nationale supérieure d'architecture Paris-Val de Seine, 2007
- Taxis!, in partnership with Veolia Transport, 2007
- *Mobilités urbaines, l'âge des possibles*, a volume edited by Jean-Pierre Orfeuil following the seminar "To buy or to rent consumer goods", run in partnership with ESC-EAP, 2008
- City at home – mobilities and services, 2009

**LES MÉTIERS
DU MOUVEMENT
ET
L'ÉC%NOMIE
DE LA VILLE**
Symbolique du domicile 2



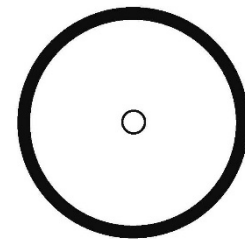
Methodology



A three-year action-research program

Which aims to:

- **Observe**, in an interdisciplinary and international approach, activities conducted on the move (work, services, shops, leisure, health, community...), whether in emerging trends, makeshift forms for the poorest populations, or in their luxurious aspects. Observation will focus on activities, objects, adaptations of public policies, or spaces. It should produce deliverables that can be disseminated and presented (photo reportage, videos, exhibitions, publications...);
- **Analyze** the services and objects of tomorrow and their new interactions with the spaces of flow and of the city;
- **Propose** ways in which they can be implemented and developed by economic actors in the world of transportation and urban mobilities;
- **Develop demonstrators** of mobile services within a territorial zone.



The international dimension

- Exploring activities in local situations, from the richest to the poorest, the most connected to the most isolated, **in Latin America, in Africa, in Europe, or in China.**
- Revealing, through comparative monographs, the differences or inequalities between territories, as well as the multiplicity of practices.

Project-based demonstration

On the basis of what is already emerging, a project approach will be employed to embody and demonstrate what might be an offbeat, oblique effect of innovation in public space, on the principle that the practices of today can tell us about tomorrow.

A multidisciplinary approach

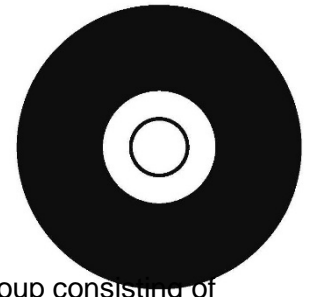
The changes currently underway challenge traditional disciplinary divisions. That is why mobile activities and services will be explored in all their dimensions: cultural, spatial, cognitive, social, economic, marketing, historical, architectural, urban, scientific, geographical, political... The shifting interplay of actors will also be considered, from the perspective of the sociology of innovation and the history of transportation and technologies.

Special attention will be paid to the design – mobile objects and urban furniture – of these hyperspaces.

The IVM way

Gradually constructing the project through a variety of intermediate deliverables, and using cultural and artistic practices as elements of enquiry and experiment that feed into the scientific and academic aspects of the project.

Set-up



Management process

IVM is coordinating and managing the international and multi-partner project through an international steering group consisting of experts and professionals from various disciplines, representatives of the partners, the project manager, and the scientific director, meeting once a month.

Steering group

A group of experts headed by a scientific director:

Yann Leriche, Transdev, CEO North America, in charge of the BtoC Business Line and autonomous vehicle activities

Laetitia Dablanc, IFSTTAR, researcher in urban design and logistics

Nicolas Louvet, Director of the 6T design office

Jean-Pierre Orfeuill, emeritus professor, transport socio-economist

Carles Llop, architect and urban designer, professor and researcher at ESTSAV-UPC, Barcelona

Andres Borthagaray, Director of IVM Latin America

Christian Licoppe, Telecom ParisTech, sociologist of telecommunications

Pauline Beaugé de La Roque, Strategic Anticipation and Co-innovation, Michelin

IVM international

Andres Borthagaray IVM Latin America

Luiza de Andrada IVM Brazil

PAN Haixiao IVM China

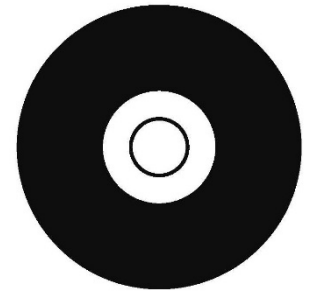
Project management

Mireille Apel-Muller, Director, director of Institut pour la ville en mouvement / VEDECOM

Yuna Conan, Project Manager, Institut pour la ville en mouvement / VEDECOM

Julien Barbier, Communication, Institut pour la ville en mouvement / VEDECOM

Management process *(continued)*



+ Guest experts, invited for certain steering group meetings

A network of local experts and scientific correspondents:

François Adoue, 6T researcher

Yao Sagna, architect and urban designer, PhD researcher, Paris-Malaquais School of Architecture

Valter Caldana, Faculty of Architecture and Urban Design, MacKenzie University

Rocío Hidalgo and Rosanna Forray, Laboratorio Ciudad y Movilidad, Los Landes University, Santiago de Chile

Carlos Patiño, Institute of Urban Studies, National University of Colombia

Dominique Rouillard, Infrastructure, Architecture, Territory Laboratory, Paris-Malaquais School of Architecture

Christian Long, coordinator of the Robomobile Life Workshop, Stratys

Beneficiaries

Public authorities, mobility players, urban design, urban planning and architecture professionals, transit operators, carmakers, digital and innovation specialists, urban advertising and street furniture designers, local and regional authorities, researchers, citizens, engineering design and territorial forecasting offices...

The partners



Companies

- **Transdev**, B to C and autonomous vehicle activity development department
- **PSA**, Research, Innovation and Advanced Technologies Division

Contacts in progress:

- **Clearchannel**, Marketing , Customer Relations and Communication Department
- **Saint Gobain**, Marketing Division
- **Michelin**, Strategic Anticipation and Co-innovation/Prospective Division, Michelin
- **Gruau**
- *La Poste, Vehicle Innovation Department (in discussion)*
- *Sidewalk Labs, Toronto*

Territorial partners

In discussion :

- **Caisse des Dépôts**, CDC Research Institute, Strategy Department
- **Versailles Grand Parc**
- **Département des Yvelines**
- **Saint-Nazaire**

Providers

- **Estudio + 1**, São Paulo, Brésil
- **6T**, Paris
- **ObSoCo / Chronos**, Paris

Academics and Research

- **IFSTTAR – Université Paris-Est**
- **Telecom ParisTech**, Department of Economics and Social Sciences
- **USP São Paulo**, Brazil
- **MacKenzie University**, Faculty of Architecture and Urbanism, São Paulo, Brazil
- **Tongji University**, Shanghai, China
- **IVM Latin America and IVM China Chairs**
- **Institute of Urban Studies**, National University of Colombia
- **Laboratorio Ciudad y Movilidad**, Los Landes University, Santiago de Chile
- **University of Buenos Aires**
- **City & Territories School of Architecture**, Marne-la-Vallée, Université Paris-Est
- **Paris-Malaquais School of Architecture**, Paris
- **African School of the Architecture and Urban Design Professions**, Lomé, Togo
- **Laboratory of Economic and anthropological sociology of symbolic affiliations**, Université Félix Houphouët Boigny d'Abidjan, Côte d'Ivoire
- **IRD**, Bénin
- **« Vie Robomobile » programme**

Contacts en cours

- **History of Innovations Department**, Eindhoven University of Technology, Netherlands
- **Le Havre University**, AES/Economics Department

Deliverables



Throughout the lifespan of the program, the aim is to produce deliverables for dissemination, academic, cultural and professional events, which will move discussion forward.

- **State of the art and gathering of expert viewpoints**
- **Survey of practices**, based on an **international observation** of emerging mobile activities and services, the vehicles and connectivity objects through which they operate, and their interaction with urban space.
- **Field surveys**, engaging IVM's academic chairs:
 - Latin America: Brazil (Rio de Janeiro, São Paulo), Colombia (Medellin, Bogotá), Argentina (Buenos Aires, Córdoba), Chile (Santiago), Mexico (Mexico City, Merida), Peru (Lima)
 - China (Shanghai, Beijing, Nanjing, Wuhan, Shenzhen, Xi'an, Chongqing, Canton)
 - Europe (Catalonia, Belgium, Netherlands, Sweden, France...)
 - Canada (Montreal, Toronto) and USA (MIT, Berkeley)
 - Africa (Benin, Togo, Ivory Coast)
- **Student design workshops**, with USP and São Paulo's MacKenzie University, Marne la Vallée School of Architecture, Catholic University of Santiago de Chile, Tongji University, Eindhoven University of Technology...
- **Audiovisual productions of documentary surveys and artistic events**
- **International lectures and seminars**
- **Publications**
- **Development** of a mobile service demonstration prototype

Timetable



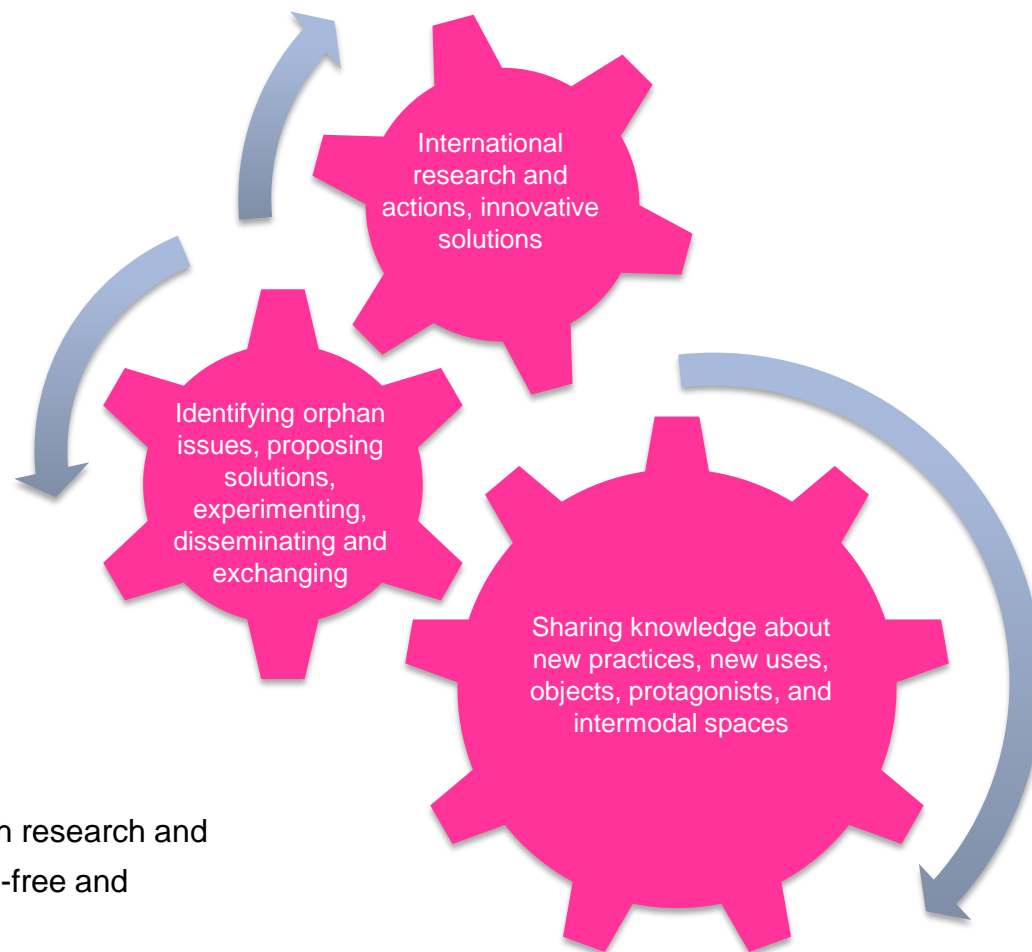
2017 : establishment of the steering group and project consortium, collection of expert inputs, definition of the working method, state of the art, summary of practices, problem formulation, methodology of international studies, preliminary studies

2018 : roll-out of international studies within the international research hub, discussion and design workshops, lectures, audiovisual surveys on examples of practices, publications, calls for projects, identification of demonstrators (specifications, feasibility)

2019 : implementation of a service or vehicle prototype in an area, dissemination, communication

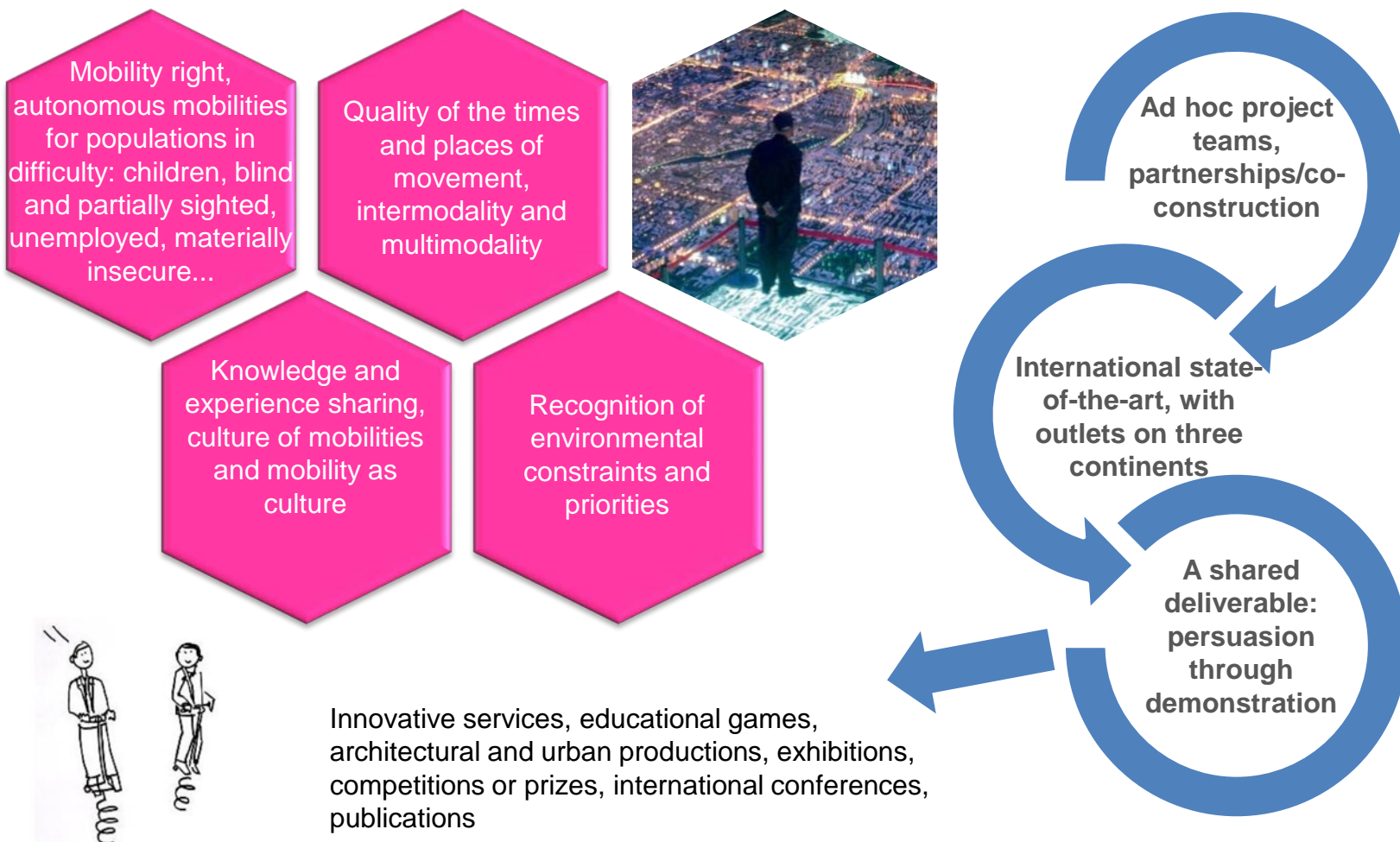
What is IVM?

It is a part of VEDECOM (Energy Transition Institute), a particular way of doing things, an international network of cities, of experts on the new mobilities from all disciplines.



A partnership-based public-private French research and educational institute, dedicated to carbon-free and sustainable individual mobility.

Research fields and methods



An international network

Toronto, Lyon, Shanghai, Montreal, Rennes, Buenos Aires, São Paulo, Rio de Janeiro, Beijing, Canton, Barcelona, Tours, Valparaiso, Bogotá, Montevideo, Mexico, Santiago, Rome, Helsinki, Lima, Belo Horizonte, Lisbon, etc.

Offices: Shanghai (Tongji), Chair with 7 universities / Buenos Aires and São Paulo (Mackenzie), Chair with 7 universities in 6 countries / Paris, Labex Futurs urbains Université Paris-Est, UPC Barcelona, Antwerp, Eindhoven, Rennes2, Telecom Paris, Tours...

more than 30
cities,
authorities

PSA, VINCI, Veolia, Orange, Transdev, RATP, SNCF, CEA, Ubisoft, JC Decaux, Monoprix, Metrolinx, Ecadi, Expo Shanghai Group, 3M, La Poste, Randstad...

more than 20
companies,
institutions,
foundations

UN-Habitat, World Bank, AFD, French Institute...

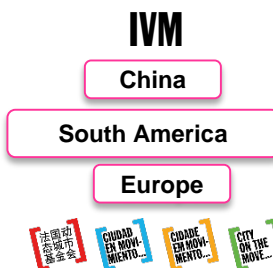
Alvina, MACIF, Ford, PSA, EDF...

NGOs, civil
society
organisations

Uni-Est, Goodplanet Belgium, Cinémathèque de Grenoble, FASTT, FARE...

more than
30 schools,
universities

more than 30 projects,
more than 30 publications



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mobile
hyperplaces

Contact

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