New mobile places, the challenge of connectivity for tomorrow's hyperplaces
Call for studies in the frame of the international hub of the Mobile hyperplaces project

IVM's "mobile hyperplaces" program[1]: "developing apps for the connected autonomous vehicle, beyond transportation"

The arrival of the autonomous, connected electric vehicle (ACV) 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 **program of observation and exchange within an international and multidisciplinary research hub**, seeks to identify and study different emerging and current practices in on-the-move activities, beyond the simple transportation of people or goods, in order to:

- **gain a better understanding of the radical changes underway in mobile activities**: since the changes are already happening, to **observe today's on-the-move activities**, in all their diverse forms and a situations.

- **analyze activities that are contributing to the creation of new urban micro-spaces** and challenging the boundary between mobility and immobility, and to 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… – that could be called "mobile hyper-spaces".

- **propose** on the basis of different examples of use (in terms both of the nature of the activities and the diversity of national and international urban contexts), prototypes or demonstrators of services or "mobile urban micro-spaces".

2017: setting up the steering group and the project consortium, interviews of experts, methodology and state of the art

2018: roll-out of international studies, call for studies, 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 a territory, dissemination, communication

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[1] See full program presentation

The research hub: observing and analyzing

The competition "New mobile places, the challenge of connectivity for tomorrow's hyperplaces" is organized in the frame of the research hub established for the "mobile hyperplaces" program is to observe, from an international and interdisciplinary perspective, activities conducted on the move (work, services, shops, leisure, health, community…), whether in emerging trends, in makeshift forms for the poorest populations, or in high-end manifestations.

It draws on a network of local partners – universities, research labs, design offices, companies, and territorial authorities – as well as IVM's networks around the world.

Through 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 arise from new interactions between spaces, mobilities, connectivities, and activities.

The observation will address activities, objects, adaptations of public policies, or spaces. The case studies carried out by the program's partners in Latin America, China, Africa, Europe… will be used to analyze tomorrow's services and objects and the new interactions with spaces of flow within the city.

Deliverables

This observation is expected to produce deliverables that can be disseminated and demonstrated, in the form of photo reportages, videos, sound recordings, computer graphics, guided tours, exhibitions, publications…

Organization of the research hub

Interactions and information exchange

The case studies are conducted by the program partners are through call for ideas (as it is the case in China), in interaction with the international steering group, a body consisting of experts and professionals from a variety of disciplines, representatives of the partners, of the project manager, and of the scientific director, which meets once a month.

Exchanges are organized between the different research hub teams (exchanges of information, social network groups, blogs, websites, seminars, local meetings…).

Available tools

Apart from this methodological guide, the reference documents are as follows:

- Project sheet
- State-of-the-art
- Survey sheet template
- Shareable survey table
- Gradually, survey sheets filled out by the teams

The findings from the different studies are presented on the blog https://www.mobilehyperplaces.com, with an intranet dedicated to the members of the research hub; code: HLM2018).

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Mobile activities and hyperplaces?

The autonomous connected vehicle, an accelerator of change?

An ACV is not only about a robot replacing the driver: it opens up possibilities for changes in vehicles, changes in uses, new services, new ways of thinking and experiencing mobility.

Beyond transporting people and goods, will the potential for connectivity in these new vehicles lead to a proliferation and spread of "hyper-activities", characterized by a hybridization of presential and remote interactions? Will these new practices produce new urban spaces?

The emergence of mobile hyperplaces could then be one of the outcomes of the autonomization and improved connectivity of vehicles.

The mobile hyperplace hypothesis[2]

The **hyperplace** is multifunctional, multiscale (an n-dimensional place), a locus of multiple interactions, both real and virtual. It therefore possesses the characteristic of hyperspatiality, a state that combines physical accessibility, the possibility of copresence, and connectivity.

So what if, today, against the background of an ongoing shift in mobility conditions linked with the imminent arrival of ACVs, these "n-dimensional" places themselves became mobile?

The mobile hyperplace exists as a hyperplace, and therefore as a place, even when in motion – if only by its digital existence and the remote interactions that this potentiates. Both mobile and

[2] Extracts from the state-of-the-art and the project sheet

habitable, it could be a locus of hypertext interactions even when on the move, by contrast with the ephemeral hyperplace, which is made and unmade in both space and time. **It is a place that would form around a mobile object**, i.e. a vehicle that allows the practice of physical activities (through adaptation of the vehicle) and digital activities (through the connectivity of the vehicle or its occupants) at different spatial locations.   Finally, the multiple activities that it accommodates can themselves be described as mobile.

A mobile hyperplace is thus simultaneously a mobile place and a hyperplace.

A close relationship can be identified between vehicle (autonomous, connected, and possibly adapted) and the hyperplace, and this connection can be analyzed as a "mobile hyperplace".
By observing the mobile activities practiced – among other things – by means of a vehicle, we can begin to explore what a mobile hyperplace might look like in the future.

Vehicles (re)designed to accommodate multiple activities

The traveler (currently in public transport, in the future in autonomous vehicles) is free to decide what to do during the journey.

Nevertheless, mobility vehicles and services can be designed to permit and promote specific uses: for example, drivers of taxis and private-hire vehicles these days are encouraged to provide their customers with phone recharging facilities, and sometimes a Wi-Fi connection, and transportation operators have introduced initiatives to make digital content (e-books, etc.) available to their passengers.

Vehicles are also a working tool for mobile professionals.

While such travelling workers currently remain responsible for driving the vehicle, they can nevertheless use it as a workplace when not on the move. They – or their employers – are free to adapt such vehicles to allow professional activities to be conducted in or around it.

The design of the mobile places – i.e. the vehicles – that provide accommodation for mobile activities is therefore a relevant angle from which to approach the analysis of mobile hyperplaces. It explores how vehicles can be adapted to act as a locus for the performance of activities – digital or physical – other than just movement through space.

Typology of mobile activities

For the analysis of mobile activities, we propose to distinguish between two types of activity: private initiative activities, and activities entailing the distribution of goods or the supply of services.
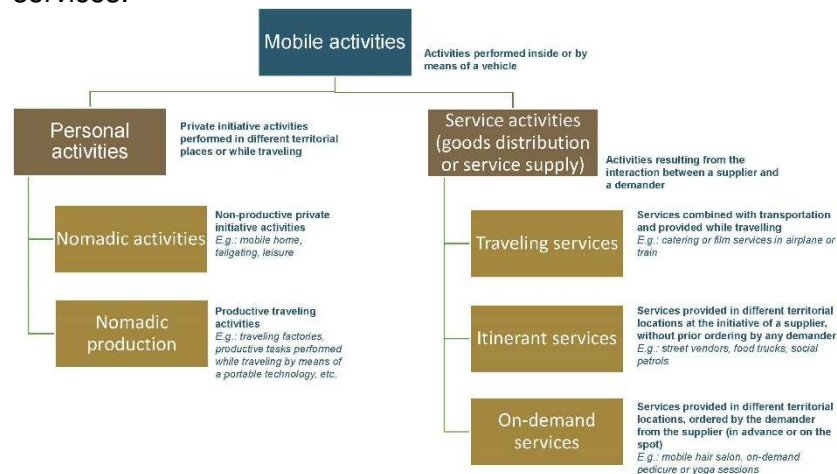

Figure 1 - Typology of mobile activities selected for the exploration of future mobile hyperplaces[3]

Personal activities activities

* **Nomadic personal activities** are not, at the time of their performance, the outcome of an interaction (commercial or otherwise) between a supplier and a demander. They **take place in different territorial locations or in transit**, and the person/vehicle pairing carries with it the material conditions needed for the performance of an activity in any location, including the vehicle itself.

Among these private initiative activities, we can distinguish between productive activities (mobile workshops and more broadly all productive tasks carried out while on the move) linked with a method of work organization, **and other nomadic activities** (mobile home, tailgating, recreation), which are more associated with personal or community choices.

While nomadic activities are **carried out in a place not usually associated with – or designed for – that purpose**, nomadic production demands specific workspaces where travel does not disrupt – and even sometimes facilitates – productivity. In both cases, the person/vehicle pairing carries with it the material conditions needed for the performance of an activity in any location, including the interior of the vehicle itself, for activities carried out on the move or at rest.

Improved vehicle connectivity can prompt the spread of nomadic practices, since the vehicle can facilitate access to numerous digital activities. Vehicle autonomy too can encourage the spread of nomadic practices insofar as vehicle design will no longer need to take account of the constraints associated with driving. Moreover, with regard to nomadic production, the robotization of productive tasks that can be performed on the move may lead to the development of factories that are mobile and autonomous.

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[3] See the State-of-the-art for a full presentation of this typology

Goods distribution and service supply activities

Goods distribution and service supply are activities that can be carried out while on the move, whether through an itinerant mode or on-demand.

* **Travel services** encompass all activities offered to individuals on the move, e.g. buying a coffee or a film on a high-speed train, perfume on the plane... The operation of vehicles (or places of movement, such as airports or stations) includes passenger services that are ancillary to transportation. These services are part of the total transportation package, insofar as their existence does not require prior ordering or reservation. **They are therefore routine services (i.e. services that do not necessarily require prior reservation) that form part of the transportation process, provided in a vehicle or a place of movement.**. The consumer can be certain or almost certain that the service will be available.

While this type of activity is currently confined to public transit, in particular long-distance travel, the impact on digital services of advances in connectivity, and the impact of autonomous vehicles in eliminating the need to drive, leads us to think that these types of mobile activities will become widespread. The different services associated with travel could therefore play a dominant role in future mobility choices and practices.

* **Itinerant goods distribution and service supply activities** encompass all activities provided in different territorial locations. The supplier crisscrosses streets and territories in search of customers, either randomly or following a planned itinerary. An adapted vehicle can become a production tool that enables the professional to be entirely mobile and eliminates the need for the fixed locations usually required for these activities. In this way, the activity gains in visibility with potential users. On the user side, the interaction entails spontaneous decision-making. It is therefore **a service provided in different territorial locations at the initiative of a supplier, without prior reservation on the part of an eventual demander**.

These different itinerant services can benefit greatly from connectivity, notably in the establishment of itineraries. Large volumes of individual location data can, for example, contribute to the flexibility and rationalization of itineraries, with the possibility for the service provider of making real-time adjustments in order to travel to places most likely to offer opportunities for meeting with users. Moreover, with autonomous vehicles, such mobile professionals can use the travel time in order to prepare their service offering.

* In the case of **on-demand goods distribution and service supply activities**, users summon the mobile activity to them. The user therefore has great influence on the spatial distribution of the mobile service. On-demand services are already experiencing strong momentum, which can be observed in particular through the revolution in the logistics sector in response to the spread of e-commerce, food tech, or on-demand mobility services. It is therefore **a service provided in different territorial locations at the initiative of a demander by prior reservation**.

Improvements in real-time connectivity may encourage the creation of new mobile activities through the "mobilization" of activities that are currently static, or by other kinds of mobile activities switching to on-demand. Autonomous vehicles may then trigger a spread of this process by providing on-demand services without the need for human interactions: indeed, the trend towards automation in many commercial sectors (starting with supermarkets) may perhaps, in the future, combine with vehicle autonomy to turn currently fixed places into mobile places.

The methodology

The case studies (lead by local teams or in the frame of call for studies) begin with a survey, before an in-depth study of selected cases is undertaken.

Step 1: survey on case studies

Initially, the case studies begin with a survey of mobile connected activities in urban situations, based on a theme previously defined in consultation with the project steering group.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…).

This survey is carried out using the survey forms provided by IVM. These forms are divided into 3 parts:

- General presentation
- Mobile activity
- Vehicle and connectivity

They may be produced with online documentation and may already develop certain hypotheses (relevance to the mobile hyperplace project and prospects for an in-depth analysis, possible study methodology, and potential from improvements in connectivity tools and from the development of autonomous vehicles).

Selection of cases for further analysis

The analyses conducted in the mobile hyperplaces research hub will prioritize – **while developing a specific topic proposed by each research team** – cases of practice that show **strong integration between the vehicle/activity pairing** (in order to envision the possible disruptions arising from the spread of the ACV, since a vehicle that houses a mobile activity can already contribute to the redefinition of everyday places).

The case studies should therefore focus preferentially on mobile activities pursued inside or by means of a vehicle adapted – even in a minor way – for the purpose of activities other than the carriage of people or goods.

Step 2: in-depth case studies and deliverables for dissemination

Combining substance and form

This second phase of in-depth study could involve a range of methodologies: interviews, observation, geographical or architectural analyses, analysis of economic sectors, guided tours, documentary, narrative, sound recording, computer graphics…

It is important that the content and form of the findings of the in-depth study should be considered together, since these findings need to be available for display, publication, discussion within the research hub, and dissemination to a wider audience interested in IVM's international program.

Calendar

- Final entries of the further studies : 30 September 2018
- Announcement of the results: 30 November 2018
- International Seminar: 7 February 2019

Expectations with regard to content

The aim in the second phase will be to conduct a more in-depth analysis of a smaller number of activities, reflecting the theme of each study.

This may involves seeking a better understanding of the nature of the interactions between individuals, mobile activities, and territories, based on the assumption that the shift in the mobility of these activities and the interactions that they engender contribute to the reorganization of the places they pass through, or even the production of new places. In this case, what forms of territorial grounding can be found in vehicles adapted for the purpose of mobile activities? What are their underlying patterns? What are the effects of context and contiguity? Will these mobile micro-spaces contribute to city making, or conversely reinforce a tendency towards the hyper-privatization and hyper-personalization of public space?

We distinguish between four analytical stages, which may vary according to the theme explored, the cases of practice considered, the methodologies adopted, and the deliverables expected.

* An analysis of the users of mobile activities

The reorganization of places through the impact of a mobile activity can be approached first of all from the perspective of the user's experience: in what circumstances might the use of these mobile activities be perceived as everyday or out of the ordinary? What comparisons can be made between activities carried out in fixed locations and mobile activities? What is the advantage of summoning a mobile service, or encountering such service on one's route or during a journey? What motivates the adoption of a nomadic practice?

Non-exhaustive list of points to be considered in the survey:

- Determination of user profiles (early adopters, all-comers, high-end, poor, informal…)
- Identification of the motives for the adoption of mobile rather than fixed activities
- Description of feelings and experience (relation with service provider, relation to the place of the mobile activity, with other users)
- Definition of the imaginings linked with these activities (mobile city, hyper-connectivity, travelers…)
- Demonstration of alternative uses and their creative dimension
- Identification of constraints on use
- Description of vehicle conversion processes (customization, adaptation, etc.) and identification of the stakeholders in this operation
- Analysis of the hybrid forms of sociability between potential providers and users, both presential and remote
- Analysis of the elements of connectivity
- Analysis of the potential for changes with ACVs

* An analysis of professionals providing mobile activities

From the point of view of travelling workers, to what extent and under what conditions is this high level of mobility (sometimes day-to-day) experienced as a form of freedom or of insecurity? What is the motivation for making these activities mobile? What are the poles of attraction or repulsion of these mobile activities? Under what conditions (economic, sociodemographic, political, organizational…) can these activities develop?

Non-exhaustive list of points to be considered in the survey:

- Determination of the profile of mobile professionals
- Description of vehicle conversion processes (customization, adaptation, etc.) and identification of the stakeholders in this operation

- Detailed description of the operation of the mobile activity and the reasons for choosing to operate in this way (temporality, definition of places/areas of implementation, etc.)
- Analysis of the strategy that led to the choice to supply a mobile activity or to work in this sector
- Description of the relation to competitors?
- Analysis of proposed commercial strategies
- Analysis of the economic reality, reasons for success but also for possible failure
- Description of feelings and experience (relation with the customer, sense of freedom/constraint arising from flexibility)
- Identification of the constraints on practicing the activity (regulatory or travel-related constraints)
- Description of the development and hybridization of activities
- Analysis of the potential for changes with ACVs

* Analysis of the role of the public authorities in the spread of mobile activities

How do the public authorities perceive the revival of mobile activities? Between limiting negative externalities and encouraging mobile activities that are seen as publicly desirable, how do they assess the regulatory issues? What vision of tomorrow's city is then adopted?

Non-exhaustive list of points to be considered in the survey:

- The issues in terms of territorial marketing
- Description of the regulatory conditions covering the mobile activity in question (movement, occupancy of public space, such.)
- Description of the knowledge and perception of this type of activity (opportunity or threat)

- Analysis of the regulatory tools used in order to promote, control or limit these mobile activities and assessment of their effectiveness (appropriate or inappropriate tools, need to change regulations, etc.)
- Description of the change in the actors involved and the role of national, regional and local government
- Study of the issues of regulation and territorial equity
- Analysis of the potential for changes with ACVs

By studying the interactions between individuals – mobile users and mobile workers – and the places that accommodate mobile activities, from the perspective of lived experience, and by analyzing how the authorities assess these questions, we can envisage future developments regarding the role of mobility in our urban systems.

* Analysis of the spatiotemporal context of the development of mobile activities

Mobile activities can be undertaken in very different spatiotemporal contexts (urban or rural, weekday or weekend, daytime or evening, at particular events). This context affects the nature of the places through which they pass. Mobile activities are therefore grounded in different places and interact with them. In particular, mobile activities can develop in ordinary places as well as in established hyperplaces. Whatever the case, their introduction cannot be perceived as neutral.

Non-exhaustive list of points to be considered in the survey:

- Determination of the specificities and realities, both economic ("who funds this type of mobile activity and who governs it?), sociodemographic (density/intensity?), and physical of the territories through which these activities pass

- Characterization of the conditions for the development of activities: distinction between low-density areas where the conditions for success need to be nurtured, and dense areas where the need is to manage the coexistence with the pre-existing fixed equivalent amenities.
- Description of the reorganization of the places through which the mobile activity passes (production of new places, improvement in the quality of public spaces, temporary production of density)
- Consideration of the quality of the places and spaces of mobility, and any impact on the designer's task
- Inclusion of urban reality and innovations (in terms of use, sociability, appropriation…) linked to the practical "tinkering" with the everyday
- Analysis of the social and shared dimension of these mobile micro-spaces (universal right to the city or privatization of public spaces, with the creation of spatially grounded "clubs"?)
- Impact analysis in terms of hyperplaces (reinforcement of a pre-existing hyperplace, production of a temporary hyperplace, or conversely total dissociation of the mobile place from fixed places, etc.)
- Larger scale analysis of a possible network of mobile hyperplaces within a common urban ecosystem
- Analysis of the potential for changes with ACVs

This final analytical perspective draws in large part on the three previous ones, with the aim of bringing a more general perspective to the case studies on the notions of hyperplaces and mobile hyperplaces.

Questioning the mobile hyperplaces in China

Here are a few possible theme that the teams may explore in the Chinese context:

"City to old city center"
Providing services to old urban centers that are too densely occupied for new fixed services to be introduced. Activities and areas of sociability are already appearing on the sidewalks (in the absence of other available spaces), but spaces could be developed as a location for mobile public services.

"City to village"
In a context of massive rural exodus in China, the development of mobile services (health, education, culture, touring circuses that have disappeared) could be a solution, encouraged by the Chinese government, for people (women, children, elderly) who have remained in the villages and rural areas. One can imagine these mobile services generating a temporary urban atmosphere for an hour or two.

The vehicle as an extension of urban space
Observation of the physical and digital interactions during on the move activities.

The questions of what developments are required for these mobile activities to work
Accessibility, street furniture, connectivity, connection to the information and energy networks… How to avoid these developments resulting in these spaces being privatized? How instead to generate mobile hyperplaces for everyone?

Privatization of public space versus communities of services

Evaluation of the costs (economic, environmental, etc.) of these activities