Mobility LAB

WHAT DOES THE FUTURE HOLD FOR MOBILITY?
by Bruno Marzloff, member of the Think Tank

What will tomorrow's mobility be?

The Mobility Lab Think Tank, a multidisciplinary group of experts, has highlighted the need for a better understanding of the needs and desires of the public in terms of mobility and new services over the period to 2050.

With this in mind, the Mobility Lab launched, along with Ipsos, an international foresight study into day-to-day mobility in towns and cities (cf. box on p. 2). As an introduction to the results of that study, this article sets out the point of view of a sociologist on the subject. Exploring the values of contemporary mobility and their consequences, Bruno Marzloff lays out the signs of what the future holds, each one of which is an issue to be addressed by mobility operators.

Growth – Weighting / Supply – Demand
Free, responsible and "auto-mobile" travellers

When questioned on the future of mobility, more than three French respondents out of every four do not see their own trips declining over the period to 2030 (36% think they will be the same and 46% that they will increase)[1]. Nevertheless, reactive forces are at work. The French have no hesitation in favouring moderation of motorised journeys and control over how they spend their time. We have given the label "auto-mobility" to this self-management of personal travel – in other words: "autonomous mobility strategies". This is the major shift that carriers currently need to cope with. In a survey conducted by Chronos/TNS Sofres, one person in four stated that they walked more in 2010 and over 50% declared that they had reduced their car use[2]. "Active modes" of transport (i.e. walking and cycling) are competing with motorised modes. This is a change in the ground rules.
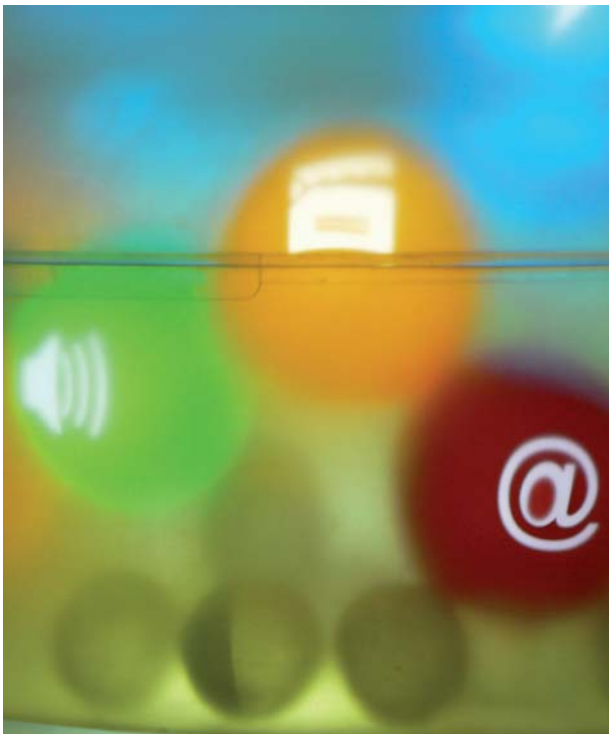
VEOLIA TRANSPORT TRANSDEV

The key to these major changes is to be found in the smartphone, a prime tool for enhanced autonomy: "by encouraging the development of apps that make travelling easier, transit agencies can drastically, and at little cost, improve the ridership experience and make riding mass transit more attractive"[3]. The explosion of "mobility data" further enhances users' empowerment. It enables wikis to flourish (Open Street Map, etc.) as well as websites (Walk Score, etc.), information threads (Twitter on Paris Metro line 13 for example), "market places" (ride-sharing for example) and urban lifestyle applications (FixMyStreet, etc.). What these "web and mobile services" have in common is that they are initiated, updated and managed by people themselves. This revolution testifies to:
• User involvement and autonomy;
• Reversal of the supply & demand paradigm;
• The expanded role of the dematerialised components (data and information, service and transactional systems) in building mobility.

On the one hand, distances and time spent travelling continue to grow, even becoming intolerable in some cases. On the other, people have greater opportunities for monitoring their mobility. That brings us to the distinction between transport and mobility. In a nutshell, while the first refers to the act of moving from one place to the other, the second focuses on the purpose of the action: i.e. accessing resources (whether social resources, work or any kind of services and product people want to access when they travel) as well as the qualities of time spent travelling. With this in mind, Information Technologies (IT) also become mobility tools. While mobility rights remain at stake, transport needs to be brought down to reasonable levels.

[3] Wired: "How smartphones can improve public transit", 08/04/11.

This backdrop, once described, raises serious questions for transport operators:
• What if increasing flows stopped being the engine for growth?
• What if it were users who dictated changes?
• What if services were to become the underlying structure for mobility?
• And what if yesterday's business models needed to be radically overhauled?

Zigzagging – or nomadic turbulence

Urban journeys are increasingly off-the-cuff:
• Journeys are decided upon on the fly;
• The mode of transport is chosen according to what is available at a precise moment;
• The route is no longer an empty moment between two activities;
• Stopover points are no longer mere transit points.

There are two lessons in these major changes in practice. The first is that journeys must be reintegrated into daily life. While time spent in transport used to be seen as a lost and meaningless time to be reduced as much as possible, time spent in mobility is valuable. It can be a time for leisure as well as a time for work, studies, communication, etc. In any cases, this "lived mobility" transforms the prospects for all concerned: travellers, regional authorities and operators. How can mobility offerings be changed to match this? The second trend that carriers must take into account is the greater unpredictability of people daily trips. The shift away from the societal pattern of the daily commuting grind is becoming firmer as daily lives become increasingly fragmented. The contrary notions

› STRATEGIC FORESIGHT STUDIES INTO TOMORROW'S MOBILITY

The qualitative research phase was conducted in January and February 2011. Nine interviews were conducted with groups of 10 individuals composed respectively of young people, adults of working age and seniors in three cities in France (Paris and surrounding region, Strasbourg and Marseille), China (Hong Kong, Shanghai and Beijing) and the United States (San Francisco, Chicago and Los Angeles). These cities and countries were selected not only for their diversity in terms of transport offering and culture but also for their inhabitants' capacity to look forward into the future. Mobility in this study was seen from the angle of citizens' action and possibilities for physical access, recurrent or occasional, to activities, facilities and social loci (i.e. services, accommodation, work, school, meeting places, and so on). The study deliberately left out of account contextual factors and the economic, physical or financial constraints to which they point in order to allow the respondents to exercise their imaginations to the full. Indeed, had such factors been included they would have inhibited the expression of desires and dreams.

of agility and rigidity refer back to those of flexibility and recurrence, the egocentric and the collective. In the midst of the required fluidity, addresses and identities become fleeting. Mobile numbers and electronic addresses are increasingly transient locations for us.

Neologisms are flourishing to describe these new practises and habits. The Italians neatly describe contemporary mobility as "zig-zagging". Others talk in terms of "commuter-actors", hereby highlighting the active role of individual in shaping their own mobility as well as the broader offer of mobility services. Tomorrow's mobility, thus sketched out, is an issue to be addressed by transport operators.

Order – Disorder
Balance – it's the customer who decides

Twitter, Foursquare, Facebook, Google, Yellow Pages – all guide the steps of today nomad individuals. Are we talking about opportunism? What can be considered as control? Planning does not rule out improvisation. Beneath all this turbulence there is not necessarily order, but there is certainly a balance. It is too late to cling on to fixed territories, rigid time frames, life-time entitlements or fixed addresses. Behind its apparent disorder, there is a new form of nomadic lifestyle that brings with it abrupt, radical change in our relationships with time and space.
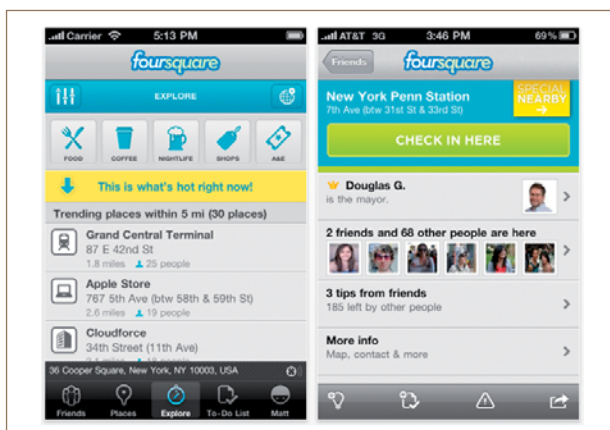
Foursquare

For transport operators, this nomadic lifestyle and its self-managing aspects are the vehicle for a range of innovations.

4 http://www.multicity.citroen.fr/

• The operator's customer is a car driver, a pedestrian, as well as a cyclist… The Multicity web portal put on line by Citroën[4] last March provides drivers with information on other modes of transport, thus encouraging multimodality.
• Travellers are also consumers and teleworkers… Services and facilities are being rethought with this in mind.
• Travellers are city dwellers, shoppers, strollers… They may have specific characteristics, they may be impaired either cognitively (tourists) or in their personal mobility (one popular web application in Rennes provides a survey of pavements and their obstacles and gradients for the benefit of the "wheelchair brigade").

Transport operators' panoply of services is already being fleshed out. Their market offerings are forming on the basis of integration, annexation and combination – each example being a response to society's increased flexibility, or a solution for individualised "door-to-door" service.

Inflation – Moderation
Control in the face of journey inflation

Despite all these innovations, everything remains to be done. Connections between modes challenge organisation in real time. Traffic congestion and lengthening journeys are bordering on the intolerable for some. The two daily peak periods for commuter traffic are the burdensome heritage of a society shaped by a temporal rhythm – work – and a transport mode – the car. The dominant private car (80% of total distance travelled and 80% of all households with at least one car in France) overloads every traffic artery and hinders every form of mobility. Even dedicated-lane public transport is full to overflowing and a source of thrombotic stress. Transport operators are not blame-free: the occupation rates of their fleets are not always very good. So what might the answers be for the disaster of mobility that is ineffective, congested and disconnected from patterns of demographic growth?

Three models sum up current thinking on mobility.
• The oldest – and the bedrock of modernity – favours growth, speed and expansion.
• This headlong rush to catch up has hit limits that have given rise to a second mode based around regulation: doing as much with less.

• Digital technology helps with this and simultaneously forges a third model focused on moderation, optimisation and even flow reduction. In this context the question that arises is that of "sensible" travelling.

The first model adds infrastructure to cope with the expansion of flows. Thus, when German officials started arguing for a new station using words like "optimisation", "rapidity", "flexibility" or "irremediable", Stuttgart's local population, not known for their left-wing views, failed to identify with this technocratic jargon and took to the streets in protest[5]. Such values from a past era, typified by the station project, sent this impregnable bastion of the right-wing CDU straight into the arms of the Greens. "The public are questioning the notion that progress – that is, a new station right in the heart of a historical city centre valued by the inhabitants – brings happiness". Another example – the truly pharaonic project for an automated Greater Paris metro system – costing 35 billion euros over twenty years – which comes hard up against every limit: human, economic, environmental and time itself. Even worse - if increased supply does succeed in absorbing overflowing demand it fuels the inflationary cycle. How can this "overflow" dynamic be brought under control? To try to make progress on this, we need to look again at the commitment of the traveller.

Slow – Fast
Mobility is what you make it

This "tap" problem – managing the balance between flows and piping when the flow is increasing faster than the size of the pipes – contains the definition of available capacity management. In this second model, the system's productivity involves, all things being equal, controlling time. Applying a logic focused on autonomy, everybody is looking for the period of least traffic for their use of a mode of transport. Information, by switching from the theoretical to the predictive, opens the door to real-time, localised route management, and to control of mobility generally. Information can channel travellers' opportunistic decisions in real time. In its Transport Master Plan, the Tolosan regional authority in southern France proposes an isochronic journey map to regulate its carsharing system[6]. In London, Chromaroma[7] applies the same principle to keep Tube travellers informed.

Such control over time has led the British to define a *time shift* law: users tend to transfer their hypermarket shopping to quieter moments when roads, car parks and check-outs are all less crowded. The idea here is that part of the city's flow regulation can be transferred to users. With the use of personal and urban screens, together with mobility information, individuals have the ability to decide how and when to move. Transport operators have every interest in identifying reservoirs of extra productivity hidden in market supply. Staggering journeys over time is a way of ensuring an improved resource utilisation ratio. A way exists to make this possible, the "chosen mobility" and the natural self-regulations it creates.

Chosen mobility – Imposed mobility
Rethinking neighbourhoods both near and far

The third model – the most adventurous – is flow reduction: but not all flows and not just any flows. "Chosen mobility" is a matter for celebration and is measured by freedom of movement. It is increasingly the criterion seen as the opposite of "imposed mobility", whose ill-effects there is a desire to reduce. The choice between chosen and imposed mobility, based on variables adjusted by each individual and combined according to their activities, the modes available to them, their locations and their time frames. The Transitscore website contains a first outline of this type of approach, as encouraged by The Center for Neighborhood. In 2008 the mayor of Portland came up with the concept of the "20-minute neighborhood"[8]: all inhabitants should be no more than 20 minutes' walk from local shops and everyday services. Twenty or so city districts have now been transformed simply by the efforts of their inhabitants. Indeed, the transport operator's mission is being questioned to the point at which there is a paradoxical demand for "everyday services at a distance": providing access to everyday resources without the need to travel. In other words, providing less travel to guarantee enhanced fluidity and quality in the system!

[5] Rue 89: "Stuttgart, on pense que le progrès ne fait plus le Bonheur" [Stuttgart: people feel that progress is no longer a source of Happiness], 22 April 2011.
http://www.rue89.com/planete89/2011/04/22/a-stuttgart-on-pense-que-le-progres-ne-fait-plusle-bonheur-200746
[6] Mobigis: "Retour d'expérience : élaboration du PGD du Pays Tolosan" [Feedback – drawing up the Transport Master Plan for the Tolosan region].
[7] www.chromaroma.com.
[8] InnovCity.fr – "À Portland, les habitants modèlent eux-mêmes leurs quartiers" [In Portland the inhabitants shape their own local neighbourhoods].

Paradigms for the home and everyday services at a distance

Logically, this "reduction" model calls for another – strongly favoured by the French: proximity. Proximity has become the most important criterion for daily life, with a 12-point increase in its ranking over the period 2002-2009 according to Kantar Media[9].

At the same time, e-commerce sales rocketed by 26% in 2010 to 31 billion euros for purchases by 28 million Internet users[10]. Making the near and the far coexist has become an obvious possibility since the advent of the service economy. The upshot is that carriers should adapt their market offering to provide travel-based access to distant destinations with communication networks as an option. Such everyday services at a distance are what carriers owe their customers just as much as transport logistics. It is an extension of the domain of mobility.

The attractiveness of transport services inevitably involves the "mobility station". The temporary halt (the station) and movement (mobility) are constructed as alternatives and as mutually complementary. Tomorrow, the same places will provide access to transport services, to their interactions and to everyday resources. The transport hub will also be a hub for urban amenities and – why not? – a place where people could work. Systems and tools are available. Users constantly want more – for example, parcel pick-up points in transport locations or the introduction of payment by mobile telephone. The structuring of daily life around transport services is an avenue to be explored by carriers, and is already commonplace in airports and mainline stations. All that remains to be done is to bring in other locations to link up the different levels of mobility, to reinforce urban life and provide region-wide coverage.

[9] SIMM study 2009 – Kantar Media.
[10] Report by FEVAD (*Fédération du e-commerce et de la vente à distance* / E-commerce and distance sales federation).

A paradox! When fluidity involves complexity

The "Auto-Mobilités" survey has measured a substantial difference between current use of mobile applications (1% of total respondents) and the future use with which people credit such applications (61%). This gap between practice and expectation, between demand and supply, is the source of another paradox: navigation in the world of mobility involves juggling a multiplicity of resources. The ecosystem linking activities and destinations is a complex one and involves constant choices between modes, times and connections – not forgetting network disruptions.

Despite the thousands of applications now available and the millions of downloads, we are still in the stone age where service solutions are concerned. The fact that users are shaping market supply calls for reflection, solutions, partnerships and business models. Car makers, transport operators, transport organising authorities, actors in IT and the service industries are engaged in a far-reaching programme of innovation.

Integrating modes, fares, information and services

The territorial rebalancing between centres and peripheries, between dense housing and scattered rural communities is both an issue and a tool for radical change in mobility. The compartmentalisation of market supply according to zone is incompatible with the reality of movement in the territories concerned. Scales of mobility are increasingly independent of administrative demarcation lines, forming "areas of relevance" for modes it is the operator's job to interface. Geographical integration extends the carrier's field of competence, supplemented by the integration of modes, fares, information and services. Commuters across the wider urban district combine car and train, commuters in the city combine foot and bus, rural dwellers have their cars or they have nothing.

Transport operators are faced with the challenge of offering holistic, seamless supply. They are increasingly mobility operators. This is an opportunity not available to car makers, or even to the promising

automotive service sector. Having started out as managers of fleets, carriers are now becoming logisticians managing fragmented forms of mobility and designers of the innovative market offering that goes with them. This brings with it a multiplicity of opportunities, massive expansions of customer base and attractiveness, giving rise to other sources of value-added.

Private – Public / Individual – collective
Sharing as one key to weighting

Transport operators can see in the fact that 80% of journeys are made by car a reservoir to be tapped for future development. The US Secretary of State for Transport proposes that the occupation ratio of private cars should double by 2020 as a measure for healthier public highways – and an exercise in "sharing". Since the birth of "Vélo'V" in Lyon in 2006, the taxonomy of transport has seen two new categories added, "public-individual" (self-service cycles) and "shared transport". BuzzCar, which has already been mentioned, has announced its own arrival after the announcement of the launch of Autolib' in the Paris area (BMW is also launching its "one-way" carshare service, meaning that the vehicle can be returned at a different location), and other initiatives linked to the car provided as a service.

Public transport operators are never very far away in such developments. This is because services of this kind call for concerted action with the organising authorities – who are in some cases the instigators. Such concerted actions embrace a chain of totally new disciplines. "Hubs" – for interaction between modes, transactions, parking, exchanges – are natural transport locations, either existing or to be developed, for the assimilation of this blossoming of services. The goal for carriers? To win market share through involvement in the integration of cars into a more comprehensive system, based on pricing structures common to public transport and cars, and on a network of pick-up points ensuring fluidity of use.

Possession – Use
From property to utility

The much-heralded obsolescence of the "car as personal possession" is part of a broader movement towards syndication of use. Its erosion into the infinite forms of sharing opens the door to new forms of productivity. The representation of the car is shifting from "property" to "utility". Optimising the use of the car through serial or joint use is a matter for "market places" that may be physical (pick-up points) or digital (matching vehicles with users). Productivity in this context in fact means fluidity. Less car use for the same – or even a little less – travelling. The rental firm Ucar and the Comuto-covoiturage.fr website enable members of the public to rent a car as a carpool driver and to split the cost with those sharing the ride. The utilisation ratio (i.e. occupation ratio x use ratio) can in this case offer extreme levels of productivity in comparison to which engine- and fuel-based productivity pale into insignificance.

The Europcar Observatory (Ipsos) provides confirmation of Europeans' desire to make radical changes in their car use. By 2030, 51% of the French public see themselves as sharers of vehicles[11]. This notion covers all the varieties of shared car use (carsharing, carpooling, collective taxis, transport on demand, and so on). By 2015 it is possible that carshare services could have some 140,000 subscribers and six times the annual sales revenue. In Europe, this market could exceed five million users in 2016[12]. The inevitable conclusion, rapidly reached, is the need for flexibility to underpin innovation. The benefits provided to individual customers by that innovation are part of a logical and virtuous circle by which community and mobility operators will both profit.

[11] The third edition of the Europcar transport and mobility observatory/Ipsos. A survey of 6,000 respondents aged 18 or over in seven European countries.
[12] Study by Xerfi: Carsharing in France to 2015.

Sustainable – Profitable
And their virtuous circle

The ways of monitoring usage – as strategies for users and cities – conflate with the requirements of sustainable development. What are the objectives here? For consumers, to enjoy enhanced commuting in terms of greater comfort, efficiency and fluidity. For operators, to roll out market offerings that go hand in hand with progress in the ways transport is used. The circle has never been more virtuous in that it turns benefits for some into benefits for society. Controlled, comprehensive mobility turns out to have individual and collective advantages. The business models for sharing customers, for splitting value-added, for user "roaming" (i.e. customers moving seamlessly from operator to operator) are being actively sought. The carriers – already present for bicycles and even cars, juggling multizone, multimodal fare structure consolidations, opening up to door-to-door services – are locked on target. But other actors are lying in wait, ready to sell the same market offerings. And all are seeking the right models.

Scarcity – Abundance… and conclusions
Data – the raw material of future mobility

Innovation will be present in models enshrining information and service as the magic keys to mobility, celebrating "real time" and even activating "predictive time". To achieve this, they mix and match data: from territories, from contributors and from operators. At the same time, this is also the paradoxical side to the new forms of mobility: on the one hand, massive quantities of data describing, regulating, specifying, pinning down and anticipating journeys or used to manage digital substitutes for journeys and, on the other, the growing scarcity of fossil and territorial resources. The fuel for future mobility is therefore to be found in such data. This is an inexhaustible, infinitely exploitable reservoir – all transport operators need do is transform it into smart processes.

What it remains for operators to do now is to enter into productive trading for information sharing and reuse, to take on board the fact that in many cases passengers know more than they do, to listen through

the screen of data monitoring for other desires present in the market, to make use of regulations for the benefit of control over their fleets and more generally for a general economy of resources and to take advantage of them to ensure that supply is constantly improving. Once the core of mobility has been activated by smart processes of this kind, the future value of these dematerialised goods will be enormous. Google, Facebook, Foursquare, whose market valuations are of economic bubble proportions (100 billion dollars where Facebook is concerned) remind us that data can be converted into value. The rich vein of collaboration present in OpenStreetMap (collaborative mapping), Walk Score (walkability), Dein Bus[13] or Comuto (ride-sharing) is there to remind us that a parallel economy can also bring its own substantial profits. On that basis, it only remains to transport operators to construct all the right models for tomorrow's mobility. ◼

› THE BEGINNINGS OF CHANGE IN PATTERNS OF MOBILITY

53% of people are expecting change where the private car is concerned.

82% think the number of cars on city roads should be reduced.

–12% fewer kilometres travelled every year by car compared with 1995.

25% say that they have reduced or stopped their use of the car – the main reason given is the price of fuel.

60% and **47%** are respectively perceiving carsharing and ride-sharing as modes of the future.

SOURCE: TNS Sofres/Chronos "Auto-Mobilités" survey 2010.

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[13] "DB loses its litigation against a small coach company".

BIBLIOGRAPHY

- FEVAD (*Fédération du e-commerce et de la vente à distance* / E-commerce and distance sales federation), 2010 Report [in French].
- Ipsos, The third edition of the Europcar transport and mobility observatory/Ipsos. A survey of 6,000 respondents aged 18 or over in 7 European countries [in French].
- InnovCity: "In Portland, the inhabitants shape their own local neighbourhoods", 1 April 2011 [in French].
- Kantar Media, SIMM Study, 2009 [in French].
- Mobigis *"Retour d'expérience: élaboration du PGD du Pays Tolosan"* [Feedback – drawing up the Transport Master Plan for the Tolosan region].
- Mobivia Group and SNCF: Barometer of French public opinion on sustainable mobility. "Ateliers de la Terre" survey, October 2010 [in French].
- Rue 89: *"Stuttgart, on pense que le progrès ne fait plus le Bonheur"* [Stuttgart: people feel that progress is no longer a source of Happiness], 22 April 2011.
- TheCityFx.com – "'Smarter Traveler' App Manages Traffic Flow", 18 April 2011.
- Tissot/OpinionWay: survey of 1,154 employees in both public and private sectors. 2011 [in French].
- "Auto-Mobilités" study 2010 by TNS Sofres – Chronos. Method used : a postal survey of 10,000 households selected from the TNS Sofres "Metascope" panel as representative of the French population as a whole [in French].
- Ville Rail et Transports: "DB loses its litigation against a small coach company", 20 April 2011 [in French].
- Wired: "How smartphones can improve public transit", 8 April 2011.
- Wired: "IBM App Predicts How Your Commute Will Go", 13 April 2011.
- Xerfi: Carsharing in France to 2015, November 2010.

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FOR SOCIALLY REPONSIBLE MOBILITY

The Mobility LAB observes and analyses trends relating to mobility in a large number of countries. As a locus for encounters and exchanges between research work and field experiences, it takes into account expectations of the public and local government authorities in order to build solutions to propose to them.