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Low appetite for high tech When the indifference of inhabitants to digital mobilities impedes a *smart suburbs* project in Loos-en-Gohelle, France

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ABSTRACT

In low-density urban areas, technologies are expected to play a significant role in tackling the ongoing mobility transition. A multidisciplinary research project focused on how a smart suburbs project, in Loos-en-Gohelle, France, could be promoted through resident participation. However, both the low level of smartphone ownership and the lack of appetite for technological tools discredited the hypothesis that technologies were essential to a faster mobility transition in this periurban area. This experience raises questions about the feasibility as well as the coherence of an approach that seeks to combine public participation as an ethical commitment to research, with smart territories as a scientific and political project. The inhabitants engaged in the project expressed the need and a certain readiness for change with respect to mobility within the municipal area of Loos-en-Gohelle, but were significantly indifferent to technological solutions.

Keywords: Mobility Transition, Digital Tools, Smart Suburb, Periurban Area, Participation, Social Innovation, ICT, Multidisciplinarty

INTRODUCTION

The purpose of this contribution is to report on an action-research programme on sustainable mobility in Loos-en-Gohelle (France). The main hypothesis was that information and communication technologies could support a participation based mobility transition. This location was chosen for its morphological properties as a periurban, low-density municipality, and its sociological profile of inhabitants familiar with participatory processes, considering a 20 years experience of ecological transition in Loos-en-Gohelle, for the purpose of studying the mobility transition at the local scale. While our work led to the emergence of "low-tech" and "slow-tech" solutions in the field of sustainable mobility, emphasising slow modes of transport and avoiding solutions based on information and communication technologies, this was not exactly the aim of the programme. Indeed, one of its central hypotheses was that the new information and communication technologies would be essential tools to encourage and, support a mobility transition, alongside the paradigms of sustainability and participation (Carrel, 2013; Hall, 1992). This hypothesis was invalidated by the fieldwork. Local people – perceived as the main partners in our research design framework – took a different view, rejecting high-tech solutions in favour of more frugal resources. The purpose of sharing this experience is that the results may be enlightening to fellow researchers who are increasingly incited to take a multidisciplinary approach – a vague *leitmotiv* whose conditions of communication, production, realisation and success need to be questioned more often.

The regional research project[1] was named CISMOP, for "Co-construction & InnovationS for MObility in Periurban areas", and lasted 18 months, starting in 2017. The main research objective was to design and test a local approach to supporting the mobility transition with the inhabitants of a low-density periurban municipality. A social science researcher was recruited into the initial team of two engineers and a geographer. The goal was to work closely with the inhabitants of Loos-en-Gohelle, a small periurban town in the Pas-de-Calais *départment*. With them, new solutions would be codesigned and trialled to facilitate day-to-day mobility. The aim would be to replace the too often exclusive and solitary use of the private car with more social and sustainable solutions. The purpose of the project was to determine relevant approaches and tools to support local people in this mobility transition.

The main hypotheses we wished to test were threefold. First, whether local level participation was an effective way, both politically and from a research perspective, to engage individuals in changing their mobility practices (Rocci, 2015; Schwanen, 2015). Second, whether the use of multiple experimental formats would: 1) lead to a better appreciation of mobility needs; 2) attract populations that usually have little involvement in public participation. Finally, the third hypothesis was that Information and Communication Technologies would be key tools in helping to change mobility practices. This last hypothesis called for a smart suburbs approach.

It seemed a stimulating piece of research, since its location was Loos-en-Gohelle, a small town with a 20 year history of involvement in the ecological transition, a pioneer in perceived strategic niche management approaches such as renewable energy and eco-construction (Schot & Geels 2008). Nevertheless, research on travel practices in Loos-en-Gohelle, consistently with the rest of the surrounding territory of the former Mining Basin, showed the marked dominance of the private car (SMTAG, 2018). Our objective was therefore to incorporate a mobility component into the municipality's transition strategy, while taking into account the marked socio-spatial disparities between the city centre,

the social housing districts and the incubation zone for innovative projects (Base 11/19).

However, meticulous field work, starting with an immersion phase followed by questionnaires and a series of experiments, framed by reference to the literature on community-led urban transitions (Bulkeley, Broto, Hodson, & Marvin, 2010; Grin, Rotmans, & Schot, 2010; Schot & Geels, 2008; Seyfang & Haxeltine, 2012), and inspired by the methods used in the urban living labs movement (Bulkeley et al., 2016; Voytenko, McCormick, Evans, & Schliwa, 2016), showed that the territory was, on the whole, "resistant" (Labussière & Aldhuy, 2008) to our third hypothesis. The low level of smartphone ownership and web connection, and more broadly the indifference to technology of the citizens involved in the project, prompted us to advocate low-tech solutions, drawing on resources that may initially have been underestimated: solidarity, flexibility, creativity, pragmatism. Democratic, social and organisational innovations overcame our appetite for digital mobilities, smartphone applications and connected objects.

While the programme succeeded in enrolling more than five hundred inhabitants and engaging local authorities in developing a territorial policy on sustainable mobility, the low-tech dimension of the co-constructed solutions was discouraging to the engineers on the team, who experienced this reorientation as a failure.

This contribution is therefore in the first place an opportunity to describe the protocol employed in the field research and the process of developing innovative low-tech mobility solutions with the inhabitants of Loos-en-Gohelle, and to present these solutions and their effects. Secondly, it is also an opportunity to discuss the reason for the initial decision to research and support the advent of smart suburbs. The field data revealed in the article show how the technological indifference of the inhabitants is consistent with national statistics (Bonneville and Lengyel, 2017) on the national population's attitude to digital mobilities.

The article concludes with reflexive feedback on the experience of conducting a piece of action-research in which the multidisciplinary dimension has been thwarted. It also highlights the scale of the tension between low-tech transition and notions such as disruption, competitiveness and confidentiality, factors that might be central in a smart suburbs approach and prompt examination of the conditions under which these frictions can be overcome.

PRIORITISING CITIZEN PARTICIPATION

Loos-en-Gohelle is a municipality counting 6 650 inhabitants located in the agglomeration of Lens-Liévin, and belonging to a larger functional urban system centred on Lille. Loos-en-Gohelle is a periurban municipality composed of a centre town with commerce and equipment, surrounded by a suburban rim in contact with the urban fabric of Lens. The municipal territory also includes a social housing district, separated from the rest of the urban form of Loos-en-Gohelle, and in spatial contact with the neighbouring municipality of Grenay. The municipality is served by urban buses and a well developed

road network and its mobility is strongly focused towards the urban centres of the functional urban area.

The aim of the research was to work as closely as possible with the inhabitants of Loos-en-Gohelle, in a dynamic of co-construction in which their participation would be crucial to the process. The ambition was to initiate sustainable and tailor-made mobility solutions for the territory. To this end, the team adopted a unique Participatory Action Research stance (Baum, MacDougall, & Smith, 2006; Grbich, 2012; Minkler & Wallerstein, 2011) – the stance of the scholar-mobiliser. There are at least three main dimensions to this position: 1) the scholar's low-profile approach, conceived as a learning posture (by contrast with the teacher's knowing posture) combined with a resistance to instilling guilt in relation to the behavioral shift towards sustainability; 2) a dialogic form of data production in which genuine credit is given to the inhabitants' selection and interpretation of the data collected by researchers; 3) a plurality of participation formats conceived and offered in order to engage different groups and individuals in the project. This stance made it possible to conduct a four-stage research-action process, the methods and tools of which

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goal of supporting changes in daily mobility practices.

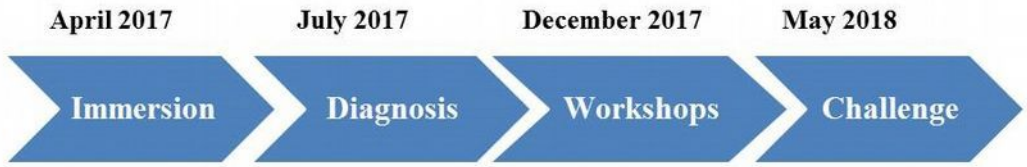

Figure 1: Four methodological protocol periods

The first two-month period was devoted to immersion work in the field. The objective was twofold: to establish a place in the local community and to experience their situation. Since the aim was to work with residents to trial solutions, we had to ensure that we were quickly identified both as researchers and as local facilitators in the sphere of mobility. For the team's social scientist, therefore, establishing a place entailed meeting resource people (local mission leaders, transport operators, association leaders, elected officials) and residents, both at random when travelling to Loos-en-Gohelle and in the city, and testing the different transport modes available (train, bus, bicycle, carpool, hitchhiking, scooter, pedestrian).

This period of participating observation was used to formalise a questionnaire designed to classify the mobility habits of the residents of Loos-en-Gohelle together with the day-to-day travel problems and resources they identified in the territory. The 300 questionnaires collected gave a picture of the mobility practices and concerns of Loos-en-Gohelle's population. The survey sample is reasonably close to the

composition of the population of the town, with a slight bias towards low income categories more present in the social housing development due to a strengthen collection protocol set up to ensure a better representativeness. The questionnaires were also used to recruit volunteers for the rest of the project, on a "foot in the door" principle (Joule & Beauvois, 2004). Having invited the inhabitants to share their problems with us, we asked them how far they were willing to be involved in solving them. Some fifty people answered the call and some thirty actually shared their expertise with us over the long term.

Monthly workshops, called "Apéros-Mobilités", were initiated in December 2017, in the form of short-format evening sessions (2 hours, including an informal component). The discussions were facilitated through a range of collective intelligence tools (funnel brainstorming, fish bowl, Bono hats, Walt Disney method). It was understood that the workshops were action-oriented, with a shared desire to create and implement projects quickly.

The focus of the first two meetings was nevertheless on establishing a shared diagnosis of the area's mobility issues. We provided a set of data from the survey, which the local participants commented on, debated, qualified, so that they could take ownership of the data. The volunteers then chose to work in groups to address certain issues that they considered to be priorities.

Between the fifth and sixth meetings, a major one-month mobility challenge was organised within the town, the "MobiLoos Challenge" (May-June 2018). The objective was to invite all residents of Loos-en-Gohelle to adopt new ways of getting around for a period of one month. Thirty-eight – individual or group – challenge ideas were presented in an illustrated catalogue, all of which entailed a reduction in individual car use. The last, a free challenge, was chosen by one in ten participants. Despite the availability of paper and digital media, the vast majority of people (82%) signed up at the kiosks that were set up during the challenge period. In order to keep track of the different entries, and with the agreement of the participants, they were photographed holding a slate with the number of the chosen challenge. They were then invited to send back photos of their challenge, once completed, via email, social networks or SMS. Through this method, exciting and engaging photos of the people of Loos-en-Gohelle in action could be published on different digital media. It also added a playful dimension to the activity (Thibault, 2019), thereby stimulating participation.

The challenges chosen by the inhabitants involved walking, cycling and to a lesser extent car usage. The challenge the most chosen was to move more often by walking. About 500 persons participated in total.

Figure 2: People engaged in the MobiLoos Challenge photographed with the number of their chosen challenge(s)

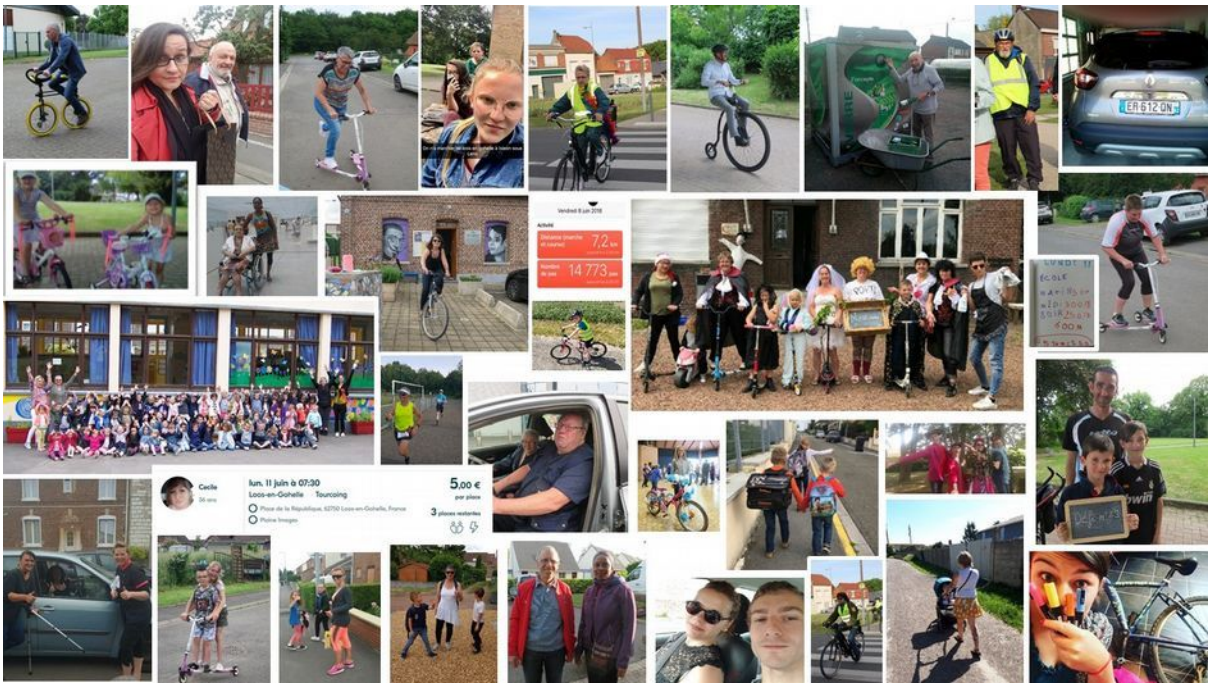

Figure 3: Examples of pictures sent by the participants once they had completed their challenge(s) in the MobiLoos Challenge

Results in the form of social and organisational innovations

Beyond the diagnosis of mobility habits co-produced during the immersion period and then the joint analysis of the questionnaire, it seems relevant to share the effects of the enrolment process undertaken through the "apéros-mobilités" sessions and then the MobiLoos challenge.

Regarding the "profiles" of the local volunteers, it should be stressed that most of the Loos-en-Gohelle residents who participated actively in the "apéros-mobilités" were already recent or long-standing participants in community life, as volunteers in civil society organisations, elected citizens, or regulars at public meetings. All of them expressed their appreciation of this new kind of meeting, with its emphasis on playfulness, inclusivity and sociability. The widespread critique that participation was otherwise the matter of "always the same persons" was therefore partially verified in these meetings. However, it should be noted that for 4 of the 25 participants, these "mobility aperitifs" were a first experience of participation in public life. What was surprising was that the participants did not choose to focus on older people, whom we saw as an obvious target group, but decided instead to work on schools and bicycle use.

The MobiLoos Challenge brought a more diverse population into play. About a hundred children (from all socio-cultural backgrounds), plus pensioners, working people, teenagers, and residents from all parts of the city, visited the kiosks and took part in the events. More than 500 people participated by choosing one or more challenges, i.e. nearly a tenth of the municipality's population of participation age.

In response to the usual critique of participation, that everything is fixed in advance, we responded that, though the initial assumptions of the action-research programme were maintained, its implementation was characterised by improvisation and agility. Each workshop was timed and designed on the basis of the progress made in the previous one. The field interventions (stands) were mostly set up at short notice, based on the invitations received. As one of the challenges was a free choice, the list of challenges evolved over time. Some participants drew inspiration from the challenges tackled by others to adapt them to their daily lives. The action-research protocol was therefore largely influenced by the timeframes and creativity of the inhabitants.

Finally, the third common criticism that we sought to answer was the participants' sense of powerlessness. We wanted to avoid the frustration too often experienced by participants over projects that remain at the discussion stage and lead to no concrete action. In the case of the "apéros-mobilités", although local expertise was required for the discussions in the first two meetings, the subsequent orientation was clearly towards action. Supported by the research team competencies in design, three micro-projects were devised, conceptualised and implemented:

1. a bike repair kit service provided to cyclists in shops in the town,
2. educational flyers showing children's drawings of pedestrians inconvenienced by badly parked cars,
3. the design of a carpooling service to be implemented by a local partner association

The micro-projects that emerged are certainly modest, but they represent significant advances in the region, impacting on school environments, mobility service exchanges and cycling.

The current work to evaluate the effects of the programme is based on weak qualitative signals of changes in practice observed in the territory during exchanges with the inhabitants (sixth "apéro-mobilités" in September 2018 and more informal conversations). The impact of the work on travel patterns needs to be assessed over time. On a broader scale, it may be noted that the municipal council has decided to add the issue of sustainable mobility to its agenda through several initiatives: pedestrian and cycling facilities, equipment for residents (loan of rollerblades, scooters, bicycles, electric bikes) in partnership with a start-up (Shareathlon), consideration of the introduction of shared electric vehicles for seniors.

In conclusion to this section, it can be seen that the bias towards innovation in the research relationship led to the emergence of social and political innovations on the issue of sustainable mobility. However, it should be emphasised that the process adopted – open, improvised, agile – entailed a shift away from the initial research-action project, which was to inject new technologies into the territory.

THE MOBILITY TRANSITION IN SUBURBS: NOT SO SMART?

The hypothesis regarding the role of new technologies in supporting a transition to more sustainable mobility was initially based on a very favourable scientific, operational and political context. Indeed, the initial state of the art and a preliminary field survey suggested that Loos-en-Gohelle met the conditions for the periurban smart solutions observed elsewhere.

The smart suburb, an utopia based on interference?

High-tech solutions seem to have proved their worth in urban areas, particularly with respect to shared mobility. This development promotes a certain image, that of the smart city in which industrial actors develop integrated solutions for local authorities, rarely taking into account the needs expressed by the inhabitants, at least not in the initial stages. Nonetheless, these technological advances can sometimes provide a response to the challenges of sustainable development, for example by connecting drivers and passengers. But what is the relevant spatial scale for this type of solution? If the algorithms developed open up new potential, are they likely to meet the needs of inhabitants in low-density areas such as Loos-en-Gohelle? In short, what are the conditions for the emergence of a smart suburb?

As a symptom of the drive to introduce technology, in 2016 Caisse des Dépôts, a French public financial institution that fosters regional development and public interest local projects, published "Smart City Versus Stupid Village?", guidelines for small towns and their intermunicipal structures. The objective

was to provide indicators that would measure the (inevitable?) progress of the digital revolution in these places and to guide, support and accelerate this transformation by means of generic advice (Verpeaux, 2016).

While this orientation has led to the emergence of a number of projects, particularly relating to energy, as is the case in Loos-en-Gohelle, it should be noted that few high-tech initiatives have been co-constructed with local residents. While some, such as Waze or StreetCo,[1] are open to downstream participation, these projects are mainly the result of upstream public-private partnerships.

The table below, based on ongoing research, shows the four mobility solutions applicable to low-density areas in France, selected from a corpus of seventy solutions identified at the national level. First, the small proportion of tailor-made solutions for sparsely populated areas shows that periurban areas, like rural areas, seem to be lagging behind in their thinking on mobility, even though major progress has been made over the past five years (Huyghe, 2018). Let us now look at the relationship between the degree of technological development of these mobility solutions and the possible participation of residents in the design process.

Table 1. Four mobility solutions in sparsely populated areas and the role allocated to inhabitant participation in the process (adapted from R. Boubakour and O. Heddebaut 2019)

Project name **Territory of application**	**Means of access to the service**	**Origin of the project** **Resident involvement**
Ouestgo Big cities in western France	**Smartphone** application required	Local authority initiative
Resa'Est Orléans Métropole	**Smartphone** application and/or phone call	Orléans métropole and the public transport network (TAO)
Covoit'ici 4 territories in France	**Smartphone** application or physical terminal for reservation and validation	ECOV – a start-up in the social and solidarity sector
Cocliquo Orvault Suburbs of Nantes	No technology required Registration through a local civil society organisation (NGO)	Local residents involved in the design of the solution

it is noteworthy that, in the cases shown in the table, the lowest tech solution is the only one for which local residents were involved in the design, i.e. upstream of the decision-making process. This finding could be a subject of future research designed to test the hypothesis that low-density periurban areas are

1 Waze and StreetCo are navigation apps for, respectively, car drivers (https://www.waze.com) and pedestrians with disabilities (https://en.street-co.com/).

less likely than high-density areas to see the implementation of technological solutions, and that such solutions are rarely the result of participatory processes.

In this context, our initial idea of co-designing smart mobility solutions in Loos-en-Gohelle appeared singularly fragile, since it would have constituted an interference and run counter to the intention of taking take resident participation seriously. Let us take a closer look at what our survey in Loos-en-Gohelle revealed about its inhabitants' appetite for technology.

The indifference to ICT in Loos-en-Gohelle

Throughout the fieldwork, strong signals of indifference, even resistance, to new technologies, were encountered among residents.

Little connection and unequal access to ICT

Our mobility survey included a section on people's habits and practices in the use of information and communication technologies. In this domain, we anticipated inequalities between residents, as well as between the inhabitants of Loos-en-Gohelle and the national average. But the scale of the gap far exceeded expectation.

The questionnaire, which was completed by three hundred respondents in the summer of 2017, reveals that only half of the respondents (53%) owned a smartphone. This is significantly below the national average (about 70%, see Bonneville and Lengyel, 2017). Subsequent discussions with the residents also revealed that 15 to 20% of people with smartphones did not have an internet package. In other words, they used their smartphones as a telephone, camera, calendar, alarm clock, audio/video player, but fell far short of exploiting all the potential of the device, especially its connected functions. Finally, where people had access to the Internet, they used it mainly to listen to music or watch videos online, but very rarely for mobility services other than GPS. In addition to this underuse of smartphones, the survey showed that a quarter of respondents rarely or never connect to the Internet. Even for the 50% of respondents who said they were "always connected", we were told that network quality in Loos-en-Gohelle is poor, so the connection is frequently lost.

On the positive side, the vast majority (64%) of the Loos-en-Gohelle inhabitants surveyed said they were comfortable with new technologies, whereas only 12% described themselves as technologically illiterate. While one cannot know precisely what skills they associate with new technologies, this figure seemed encouraging at first glance. However, when we looked at the profiles of the self-declared technologically illiterate (12%), we found them to be mainly pensioners and residents of the Cité Belgique, a social housing estate. In addition, other data from the questionnaire showed that these were the people in our sample who were the most vulnerable in their mobility. We therefore realised that pressing for the

introduction of high-tech mobility solutions might certainly meet the needs of the majority of residents, but that those solutions would also exclude most of the population that was already vulnerable in its day-to-day mobility. These results led us to question our third hypothesis.

Big appetite for low-tech

The plan has been to support the inhabitants in implementing "disruptive" and technologically innovative projects. However, the residents who came to the "apéros-mobilités" were not receptive to this approach. On several occasions, during brainstorming sessions organised to generate innovative solutions, proposals were put forward, by the engineers of the research team, in favour of technologically advanced applications, but without success. At the cost of a significant outreach effort, we managed to gain the interest of some of the participants. However, the same remark kept being repeated: "agree, but we still have to find places to display this information on post-its" (a retired resident, during the 2nd, 3rd and 4th aperitif sessions, always well received by the other participants). Since we were committed to meeting the needs expressed by the inhabitants, and given that advantaged – and hence tech-savvy – residents were overrepresented among the people at the "apéros-mobilités", we chose not to support and foster a process of disruptive innovation (more anonymous, more virtual and more difficult to access than the post-it displays it would aim to replace), since we understood in advance that the post-its (homemade, user-friendly, grounded) would be much more successful.

Mobility challenge and new technologies: a limited equation

Again, during the month-long MobiLoos Challenge, rates of (non)connection among participants came as a surprise. Many did not have an e-mail address (between 34 and 50%, depending on the registration days). Many were unable to reach us online (blog, Facebook), and we had to stay in touch with them by SMS, mobile phone, or even landline.

It is noteworthy only one in the list of challenges set out at the "apéros-mobilités" actually related to new technologies: "I am learning to use the Internet for travelling" (challenge 36). Two people chose to take up this challenge and only one completed it (photo evidence).

Each of the observations made here further reinforces the impression that the appetite for high-tech among Loos-en-Gohelle residents is limited. More generally, they show the potential limitations of the ongoing development of tools designed to alter day-to-day travel practices, based on the principle of persuasive technologies designed to change people's thinking and habits (Fogg, 2009). Notable among these are the innovative tools developed by the 6T Design Office. This type of tool is intended for a connected minority. If it were to be rolled out in a region such as Loos-en-Gohelle, we believe that it should be complemented by face-to-face support in the field. These findings, opposing low and high tech, echoes the call for less resource consuming, more local and participatory solutions, opposed to technology driven, top-down approaches advocated by Bihouix to solve current sustainability issues (Bihouix 2014)

The problem with digital mobility is not (only) spatial

In 2016, the Observatoire des Mobilités Digitales published the results of a series of inclusive and qualitative surveys covering the practices and expectations of the French with respect to mobility-related digital tools (Bonneville and Lengyel, 2017).

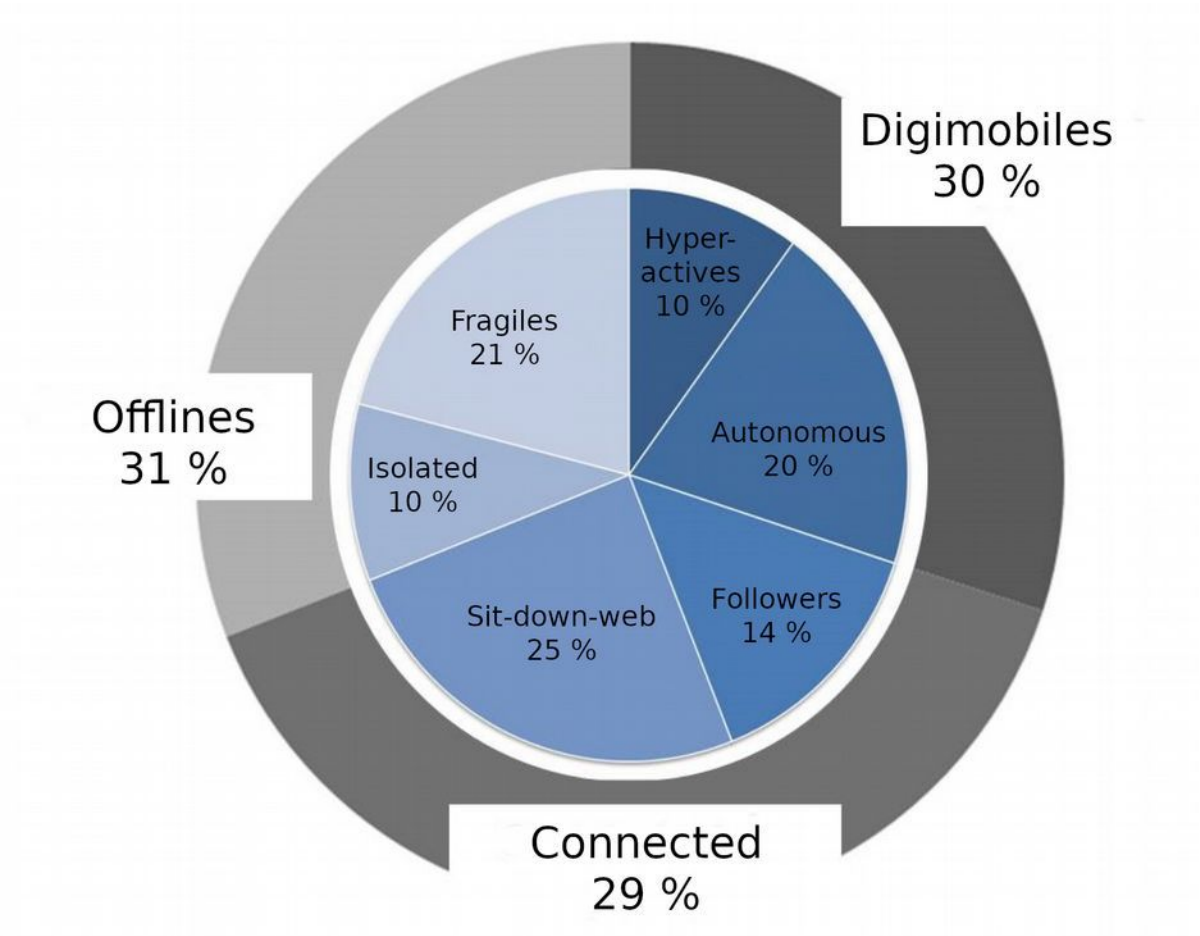

Figure 4: Profiles of digital users (Bonneville & Lengyel, 2017, based on 2015 data from the Keolis-Netexplo Digital Mobility Observatory)

This article discusses the six user sociotypes presented above.“Digimobiles” include “hyper actives” that are mostly public transport users, living in large agglomeration, and “autonomous” that are dominated by professionals favouring the use of cars. “Digimobiles” (mobile, equipped, connected, competent) are far from a majority: they are not even as numerous as the third of the population currently excluded from the digital sphere. The “offline” category includes the “isolated” mainly composed of people living in small towns and rural space with low usage of publixc transport, and the “fragiles” represented by elders with very low equipment in digital devices.

The survey also reveals that, beside the “followers” that are attracted by digital tools but experience

difficulties in using them, a quarter of the French population has a "sit-down-web" profile, i.e. consists of users who plan their trips online, but only in advance on a computer, rather than while on the move.

The study's sponsors are responsive, concluding that the concept of the average user needs to be abandoned and that a differentiated offering is required, including a low-tech approach, regardless of the type of area – urban or rural – concerned.

The lessons from this research are fundamental. They reveal that what can be observed in our study area is not attributable to a special degree of backwardness or resistance, but rather to a much more widespread indifference to digital tools associated with day-to-day mobility, an indifference that is often underestimated. In other words, it may be that the reluctance to embrace high-tech among the residents of Loos-en-Gohelle is not a characteristic unique to that population, but rather that it baldly reveals a clear and protean digital divide that exists across the country.

CONCLUSION: A MISSED MULTIDISCIPLINARY ENCOUNTER?

Our contribution has sought to reveal the complexity inherent in fostering a threefold transition: 1) ecological, 2) democratic-scientific, 3) digital. The approach adopted was to take people' skills seriously in a piece of action-research in which the researcher's bows learner and leader.

This approach produced a number of results and effects within the territory with respect to changes in practices in the sphere of sustainable mobility. However, both the low level of smartphone ownership and the lack of appetite for technological tools discredited the hypothesis that these were essential to boost the mobility transition. The transition has begun to take shape more through the tools of social and organisational innovation, with the offer of alternative services based on easily accessible resources (solidarity, pragmatism, face-to-face), and involving a multiplicity of actors with no previous stake in urban management. In the end, the transition that links new uses of digital technology to changes in mobility practices seems to be more successful in large cities where the adoption of digital technology – or even the enthusiasm for it – is greater. It is nevertheless worth considering the people that this transition leaves behind, who represent a majority with disparate profiles at national level (Bonneville & Lengyel, 2017). As we expressed, for technology solutions to be adopted in such a context, our recommendation is to support their deployment with face-to-face interaction.

The other challenge of our contribution was to report on the experience of collaboration between researchers from the Social and the Engineering Sciences. The analysis of mobility uses and needs in the territory revealed little appetite for new technologies. Obviously, these findings affected the members of the team in different ways. Thus, though the initial remit was to introduce new technologies into the territory, to do so would have been a form of technological fetishism (Harvey, 2003), which runs counter

to the dynamic of co-construction inherent to the project. It may be that the low-tech turn was experienced as a disappointment by the team's engineers. Although one can be confident in the fact that the desires and skills of the population were taken seriously, it nevertheless remains difficult to justify the commitment and effort expended to no purpose. To avoid this type of frustration, would it not be more realistic, given the data produced by the Digital Mobility Observatory, to take the default position that new technologies are not embraced, that their adoption is an exception and therefore that their rejection (or the forcing to which they are subject) is simply "normal"?

Beyond this issue, for which we could have been better prepared, it is worth noting that the differences in the organisation of the work arising from the team's different disciplinary affiliations also challenged the initial desire to cooperate within a multidisciplinary team. For researchers trained in the social sciences, the habit of advancing on the basis of field observations and improvising in order to adhere to the dynamics of the actors (do – undo – cancel – redo), although by no means lacking in scientific rigour, could be perceived and judged stereotypically by engineers as disorganised and sloppy.

Finally, we are now firmly convinced that identifying the real needs of the inhabitants, using tools that are consonant with their daily practices – whether high-tech or not – and including them in all phases of deliberation and action, is a way to ensure that emerging solutions are both viable and sustainable. However, in reaching this conclusion, the specificities of the territory should be borne in mind: Loos-en-Gohelle is known for its quite unique culture of participation. We must not ignore the fact that this approach does not promote new technology-based solutions and that it develops outside the usual innovation processes, particularly those based on competition, confidentiality or even disruption.

In order to analyse our complex, liquid urbanities (Bauman, 2000), where individuals increasingly use technological tools on a daily basis, multidisciplinarity seems to be the only sensible scientific approach. However, our experience raises questions about the feasibility as well as the coherence of an approach that seeks to combine public participation as an ethical commitment to research (Dewey & Rogers, 2012), with smart territories as a scientific and political project. In expressing their needs regarding mobility within the municipal territory of Loos-en-Gohelle, local people manifested a significant indifference to technological solutions.

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