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Abstract. The paper analyzes possible changes in people's urban mobility, understanding if and how the evolution of behaviours in connection with the ICT innovation and/or evolution, the development of digital tools (Internet, smartphone and transport applications) could facilitate travel practices. Our research field is the "Nouveau Mons" district within the European Metropolis of Lille (MEL) which has undertaken significant changes thanks to the national policies of urban regeneration. We analyze the articulation of its inhabitant's mobility within and outside the district (daily travel: work, school, shopping, etc., or more punctual movements: holidays, leisure ...) and new consumption practices (Internet, Drive ...). We consider their consequences in terms of development at a neighbourhood scale (offer of shared mobility, delivery points for urban freight), development of active transport modes (walking and cycling) facilitated by the short distances to be travelled in this neighbourhood that is very well innervated and served by public transport. We have conducted interviews with representatives of the city and realized focus groups with the "Nouveau Mons" inhabitants or workers.

Keywords: ICT, Travel Behaviour, Focus Groups.

1 Introduction

Much has been written about the impacts of the late 20th century's digital revolution on mobility, first with the development of the Internet and new consumption practices (e-commerce) since the 2000s. More recently, the wide spread of individual and mobile communication tools, with their various effects on mobility behaviours, has led to a new series of academic studies. Researchers showed that ICTs modify the way people are travelling, which is part, more broadly, of households' whole daily routine. Aguilera and Rallet [1] identify three types of services which can directly affect mobility practices such as, firstly, services which help people to organize their travels, such as applications providing itineraries and real-time schedules and information. The second type of services is the possibility to use ICTs as an entertainment during the trip or while waiting for a transport connection, which changes the percep-

tion of the travel time and its utility. Thirdly, ICTs can stimulate the development of new mobility services such as carpooling or car-sharing, based on the coordination in real-time between supply and demand.

The paper is divided into 5 sections. After the introduction, the second section exposes the research question. The third section describes the research field. The fourth section presents the qualitative methodology choice and the focus groups organization and the content of the questionnaire. The fifth section discusses the first main results and the sixth section gives the conclusion and perspectives.

2 Research question

The research aims to understand if and how people's behaviours have been changed in relation to the development of digital tools (Internet, smartphone, etc.). The approach is territorial, focusing on a particular neighbourhood.

Several assumptions are underlying this work. The first is that the use of digital tools and its impact on people's mobility is different according to people's age, professional activity, daily habits, spatial practices, digital literacy. These differences will be reflected particularly in the way they organize their travels and in their reflexes to address everyday situations. Moreover, digital tools could present different utilities for different persons. Indeed, mastering such tools could be more useful for working people who travel a lot and/or quite far, especially if they need to save time. Besides, different people will probably chose different uses of digital tools; some of them could prefer services to optimize their travels, while others would mainly use them as an entertainment during travel time. The last assumption linked with the socio-economic characteristics of our research field is that solidarity or sociability networks could be developed within the neighbourhood and constitute a resource for low-income population, which can make mobility less necessary in some daily life situations, as described by Fol [2]. Thus, we assume that the impact of the digital revolution on people's mobility could be less significant than what the widespread ideas on this subject can suggest, especially at local scale. We develop mainly a qualitative methodology based on focus groups with inhabitants of our research field that where crossed with quantitative data obtained by questionnaires enquiries.

3 Research field

The research field is located in Mons en Barœul, in the European Metropolis of Lille (MEL) territory, in the Northern part of France. The neighbourhood, called the "Nouveau Mons", was built in the 60's with a very rapid urbanization characterized by a landscape of high towers of housing and large blocks of buildings. Degradation of habitat and social difficulties rapidly emerged; that conducted the municipality to undergone significant changes within the framework of the national policy of urban regeneration, led by the ANRU (French Agency for Urban Renovation). With the renovation policy, reconstructions and rehabilitations were planned linked to important work on green spaces, pedestrians' pathways and amenities. In 2014, the

"Nouveau Mons" became an "eco-quartier", a national label awarded to neighbourhoods that have integrated a sustainable development dimension and taking into account ecological transition concerns. Nowadays, the "Nouveau Mons" counts 12.200 inhabitants, with a modest socioeconomic profile, a large part of low-income households, and a net income median significantly lower than the MEL median (Table 1).

	« Nouveau Mons »	European Metropolis of Lille	Hauts de France Region	France (metropolitan territory)
Density (inhabitants/km²)	14776	1854,3	188,8	104,2
Households	5067	483795	2491007	28766069
Families with children (%)	41%	38%	40%	36%
Single-parent families (%)	15%	11%	10%	9%
Owned lodgement (%)	18%	50%	58%	58%
Rented lodgement (%)	82%	49%	41%	40%
No car at all (%)	35%	25%	19%	19%
Only 1 car	51%	48%	47%	47%
2 cars or more (%)	14%	27%	34%	34%
Net income median (€)	15183,1	19308,5	18812,0	20369,0
Unemployed, 15-64 (%)	27%	17%	16,9%	14%
No-diploma population >15 (%)	41%	32%	36%	31%

Table 1. Comparison between the "Nouveau Mons" and other scales.

The "Nouveau Mons" is an eighty hectares sized neighbourhood, less than 1 square kilometre, meaning that distances are relatively short and it is easy to be crossed by foot. Most of the shops are located outside this neighbourhood; however, it is well innervated by public transportation with three metro stations, three bus routes and a special bus route named "the Corolle" that links this town to Villeneuve d'Ascq hosting several commercial malls. It is also possible to reach the city-centre of Lille, with its various shops and amenities, in less than ten minutes by the subway. The "Nouveau Mons" benefits of a strong associative life which constitutes a resource for the population and allows creating mutual assistance networks within the neighbourhood.

4 Methodology

The research aims to identify differences in the way people's mobility habits change, depending on their profile; thus, focus groups seem to be a very appropriate methodology. They allow identifying, for each group of people, their specific behaviours and ideas; different factors that participate to change mobility practices appear.

4.1 Focus groups organization in the "Nouveau Mons"

With the help of the city mayor Rudy Elegeest and of the citizen council[1], seven groups have been constituted. In order to reach teenagers, two focus groups have been

[1] In 2014, a law called MAPTAM [3] has created citizen structures called "citizen councils", mandatory for neighbourhoods having benefited from the French program of urban policy to encourage citizen participation within those neighbourhoods.

organized in the Secondary School "Collège Rabelais". A focus group has been led in the "Imagine" community centre with old ladies and another with a group of parents attending a cooking workshop in the "Caramel" association. Some low-income people were met through a focus group with ten beneficiaries of a solidarity grocery; six volunteers of this association participated to another focus group. Finally, a group has been constituted with ten residents of the "Europe towers", a large residence of high buildings of private housing. The discussions were recorded but there was no opposition to this procedure as the records will be erased at the end of the research. Participants' anonymity was guaranteed. They were volunteers and received no incentive.

During a focus group, three themes are discussed, firstly about their mobility practices and their use of digital tools and how they link or not these two aspects, secondly about their territorial appropriation at a local or wider level and thirdly their impression about the quality of public transportation and their life in the neighbourhood.

All the participants are asked to indicate on a map of Mons en Barœul focusing on the "Nouveau Mons" neighbourhood and on a map of Lille's region, the different places they are used to go. They put a cross on the place where they live, a triangle where they work or study, a square on the places they go to shopping, a heart where they go to see family or friends and a circle where they are used to practice sport or have leisure time (**Fig. 1**). Inside those different forms, they indicate a number specifying how many times per week they frequent those places. These exercises give us keys to understand to what extent inhabitants' practices are focused on the "Nouveau Mons" neighbourhood and its nearest surroundings or turned towards the outsides.

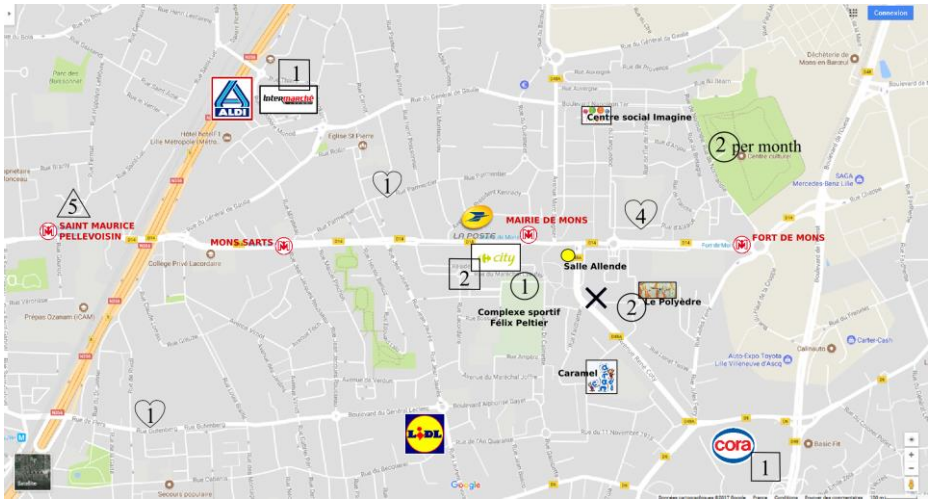

Fig. 1. Model of a map filled with frequented places

4.2 A questionnaire as a complement to the qualitative methodology

A questionnaire was filled by the focus groups participants either before or during the meetings. The questionnaire also has been transmitted to a wider sample of "Nouveau

Mons" inhabitants, in order to arouse the interest of volunteers for a focus group among them, and also to obtain information about residents even if they didn't accept to attend a focus group.

The questionnaire is composed by closed-ended questions but includes also open-ended questions, to broaden the results obtained by the focus groups. It contains mainly questions about travel practices, main modes of transportation used, digital equipment, digital literacy, use of these tools before and during travel, points of view about public transportation and subway and buses stations in the "Nouveau Mons". The questionnaire gives the possibility to rely the way people use digital tools for mobility with their sociodemographic characteristics.

5 First findings

5.1 Focus groups first findings

When discussing with the 71 participants, we tried to identify their reflexes to organize their travels, by proposing scenarios and asking them how they would react in several situations. The findings show differences between youth practices, parents' practices, retired people's practices, etc. When they have to reach an unknown destination, the elderly still have the reflex to ask somebody to help them, for example a staff member of Transpole, the public transport company. They say: "I prefer human contact to machines". By contrast, the teenagers' first reflexes are to check their itinerary and schedules on a website or a smartphone application like Google Maps or Waze. Moreover, they do not dare to "bother" somebody, as they say, by asking for directions. Thus, reflexes are very different according to the age, the habits to use digital tools and the travel habits.

When discussing about the quality of public transportation in the neighbourhood and of the subways and buses stations needs such as some digital services, the results show that people seem to be more preoccupied by security in the stations than by a lack of services or amenities. Some inhabitants think that digital amenities, such as real-time schedules or a pick-up station to collect their parcels ordered on the Internet, are interesting or useful when we ask them, but they do not mention it spontaneously by themselves. Anyway, the teenagers from the Rabelais Secondary School, more used to online shopping than the others, are more enthusiastic than adults about pick-up boxes in the subways stations because they are opening late in the evening.

About their life in the "Nouveau Mons", their local practices, the amenities, the neighbourhood's evolution. The inhabitants regret a lack of convenient stores; a much appreciated low-prices supermarket closed and was replaced by another brand more expensive. The new one does not respond to the needs of the low-income population of the neighbourhood (**Table 1**). Shops are mostly located outside the neighbourhood. Leisure activities are also quite limited or too expensive according to the different groups of inhabitants we met. This explains that a significant part of leisure and shopping practices are realised outside of this neighbourhood.

Different types of practices emerge from the analysis of the maps. The following description is based on the analysis of the maps of three different focus groups' participants, the two groups hold in the solidarity grocery and the focus group with inhabitants of the collective ownership. Those three groups comprise 3 active people, 5 unemployed people, 9 retired people with volunteer activities and 4 retired people without associative activities. 4 kinds of practices can be identified. The first one regroups persons who have limited habits, focused on the "Nouveau Mons" and not varied – purchasing practices, a few leisure activities and some visits to family and friends. It counts seven persons, all retired and not very mobile. Most of them do not use ICTs, except to communicate with their family and friends. Six persons belong to the second kind of practices; they are also focused on the "Nouveau Mons", but more intense and more varied, with purchasing practices but also cultural, social and associative ones. Five persons are retired and one is unemployed; all of them are involved and members either in local associations, co-owners trustee or in the city council. The third type of practices regroups three persons who also have intense and diversified customs, especially in the "Nouveau Mons" but also more turned towards the Lille's agglomeration. They have firstly many activities in their own neighbourhood, related to shopping, culture, associations and sports activities; but they also go regularly to Lille for other specific activities (exhibitions, concerts, museums, etc.). Finally, the fourth type counts five persons whose practices are diffuse and not very intense outside of work and take place in Lille as well as in the "Nouveau Mons" Two of them are active and do not have a lot of time for leisure activities. Their practices in the "Nouveau Mons" are mainly related to shopping. Two other persons of this type are unemployed and focus on finding a job; the fifth person is retired. People who regularly use ICTs for their travels are mainly those who work outside of this neighbourhood and are very mobile. People who have intense local habits do not express the need to use ICTs regularly; their use of digital tools for their travels is more punctual.

5.2 Questionnaire's first findings

We received 120 filled questionnaires. They reveal that almost 80% of the respondents have a smartphone. According to our sample, the number of digital tools is not related with the household income level or economic difficulties. Low-income people, single-parent families or unemployed people do not possess less digital tools than the others. The questionnaire shows also a relationship between age and digital literacy. 76% of the 11-24 years old indicate they can use very easily the Internet or a smartphone; it represents 56% of the 25-64 and only 15% of the elderly (65 years old and more). The questionnaire shows a difference in the way young people and adults use digital tools for their travels. Scholars seem to use their smartphone mainly to occupy their time during the travel, by sending messages, listening music, etc. Young adults also use digital tools for these activities but also in order to optimize their travels (check schedules, itineraries, etc.). Generally, older people do not use these tools a lot to occupy their time during their travel, but rather to optimize the travels.

Among adults[2], 20% often or always check the traffic conditions before a travel. Most of them are car users who travel by car more than once a week. Checking traffic information often leads to a change of plans in case of problems: among those 20%, more than two thirds often adapt their itinerary or their departure time in case of heavy traffic or disruptions. Checking itineraries on a website or an application is also a very common reflex: if they have to go to an unknown destination, 38% always search their itinerary on the Internet, 26% often and 15% sometimes. Finally, the questionnaire indicates that only 37% of the respondents answer that they have connected activities – messages, Internet, social networks, etc. – during their travels. This result is probably related to the absence of Wi-Fi in the Lille's subway.
38% of the adult respondents are more connected than the others, using the Internet both to occupy their travel time and to plan their trips. They are younger (38 years old in average) than the whole sample (51 years old in average). More than a third of them are working people. They often use their smartphone during their travels and have a large sample of activities – videos, Internet, social networks, plays, music, chats with other people… These people who use their smartphone are more accustomed to use ICTs for programming and organising their travels and 80% of them use transport or localisation applications, against 58% of the whole sample. One third of them always or often check the traffic conditions before a travel, against 21% of the respondents. 80% of them use the Internet to look for an itinerary in case of a travel with an unknown destination (64% for the adult respondents). Finally, these smartphone users are also those whose practices have the most changed. 46% of them think that they use now the Internet to organise their travels "much more often" than few years before; for the whole sample of adult respondents, this rate is only 36%. More significantly, 54% think that they use ICTs to occupy their time during travel, against 26% for the whole adult respondents.

6 Conclusion and perspectives

Many focus groups participants were recruited among association members, whose activities take place mostly during the day; most of them do not have any professional activity. Working people are less available and more difficult to recruit for a focus group. Thus, results could be biased by the weak number of workers within the sample. Consequently, participants' practices are limited and mainly focused on the "Nouveau Mons". Globally, they do not use a lot ICTs. In the focus group hold with inhabitants of the "Europe Towers", we had the opportunity to collect in-depth information from workers about their practices and points of view. Even though the results of the focus groups cannot be generalised, this information is very useful.

The questionnaire gives information about the evolution of ICTs use in travel practices with a larger sample of respondents. Retired persons and teenagers from the

[2] In what follows, we didn't include teenagers (11 to 16 years old) in the analysis, because their choices in terms of mobility are limited by the facts that most of them are going to school on foot and that a lot of them still depend on their parents when they go further.

Rabelais Secondary School still are over represented, but one quarter of the adult sample is constituted of workers. Within the questionnaire adult respondents, one third is constituted of people who are particularly connected and use ICT to organize their travels as well as to occupy their travel time. People who are less connected have a limited use of ICT for their mobility and use the Internet mainly to find an itinerary.

A perspective to this research is to study the impact of mobility behaviours' evolution in the context of mobility hubs development, in which the services supply involving digital tools is increasing [4] – cellphones charging terminals, real-time schedules, delivery points for online shopping, etc. It would be interesting to understand how the development of these amenities in transport hubs respond to increasing demand related to new mobility practices, and how it creates new habits or practices in interchanges linked with ICTs use.

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