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Engendering Habitat III: Facing the Global Challenges in Cities

SPECIAL ISSUE

Sonia De Gregorio Hurtado and Inés Novella Abril coordinated this special issue with the editorial board

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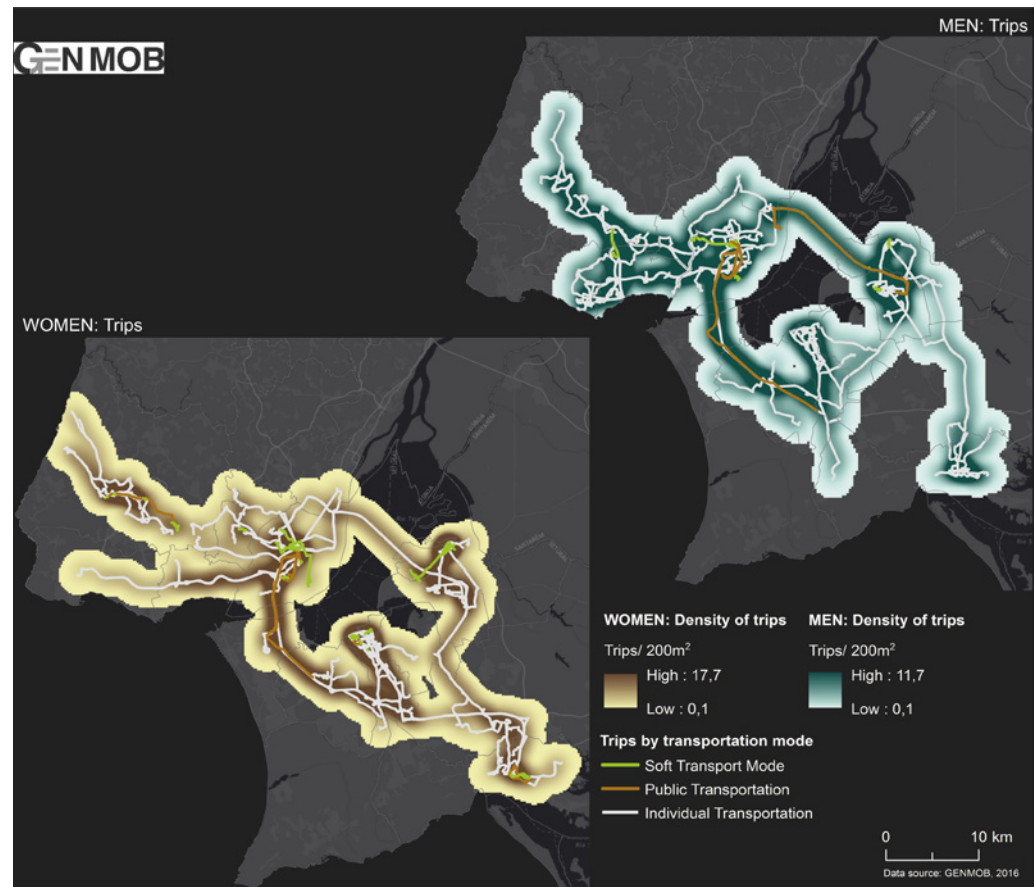
Abstract

Gender equality and the City: a methodological approach to mobility in space-time

Margarida Queirós, Nuno Marques da Costa, Paulo Morgado, Mario Vale, Júlia Guerreiro, Fábio Rodrigues, Nelson Mileu, Aníbal Almeida

Abstract

Telecommunications and geospatial technologies (electronic devices, computers and software, communicating with each other in real time) nowadays form the backbone of urban structures that support the everyday lives of people around the world. Despite their recognized role, little attention has been given to the social and gender impacts



of these techno-urban systems, and little has been questioned about how they can be used to foster more inclusive and equitable mobility policies with the participation of communities. On the other hand, mobility is one of the great challenges that institutions face, and research related to gender imbalance in the everyday use of space-time is scarce.

Deepening knowledge about mobility and the use of time by women and men in Portugal, the research that led to this article used the methodology of real-time monitoring of a (business) day of workers in order to examine their commuting patterns. To this end, and relying on volunteers, smartphones and/or devices with embedded GPS (trackers) were used for data acquisition. The results demonstrate the feasibility and relevance of the methodology (telegeomonitoring of commuters), highlight gender inequalities in mobility and time use, and help encourage more inclusive social policies and work-life balance tools.

KEY WORDS

Gender equality; mobility in space-time; VGI; geospatial technologies

La parità di genere e la città: un approccio metodologico per la mobilità nello spazio-tempo

Telecomunicazioni e tecnologie geospaziali (dispositivi elettronici, computer e software, comunicanti tra loro in tempo reale) al giorno d'oggi costituiscono la spina dorsale delle strutture urbane che supportano la vita quotidiana delle persone in tutto il mondo. Nonostante il riconoscimento del loro ruolo, poca attenzione è stata data agli impatti sociali e di genere di questi sistemi tecno-urbani, e poco è stato indagato su come possono essere utilizzati per promuovere politiche di mobilità più inclusive ed eque, con la partecipazione delle comunità.

D'altra parte, la mobilità è una delle grandi sfide che le istituzioni devono affrontare, e la ricerca relativa allo squilibrio di genere nell'uso quotidiano dello spazio-tempo è modesta. Approfondendo la conoscenza sulla mobilità e l'uso del tempo da parte delle donne e degli uomini in Portogallo, la ricerca che ha portato a questo articolo ha utilizzato la metodologia di monitoraggio in tempo reale di una giornata lavorativa al fine di esaminare i modelli di pendolarismo.

A tal fine, e basandosi su volontari, sono stati utilizzati per l'acquisizione dei dati smartphone e/o dispositivi con GPS integrato (trackers). I risultati dimostrano la fattibilità e la pertinenza della metodologia (telegeomonitoraggio degli spostamenti), evidenziano le disparità di genere nella mobilità e nell'uso del tempo, e contribuiscono ad incoraggiare l'adozione di politiche sociali più inclusive e degli strumenti di conciliazione.

PAROLE CHIAVE

Parità di genere; mobilità nello spazio-tempo; VGI; tecnologie geospaziali

Gender equality and the City: a methodological approach to mobility in space-time¹

M. Queirós, N. Marques da Costa, P. Morgado, M. Vale, J. Guerreiro, F. Rodrigues, N. Mileu, A. Almeida

1. Introduction

The policy for reconciling work and family life, as well as equal opportunities, is prominent in European Employment Strategy. And in the context of employment policies, the Europe 2020 Strategy includes guidelines to increase the participation of women and men in the labour market. Developed within the framework of the Strategy, this reconciliation is an essential element in achieving the aim of increasing the employment rate of women and men aged between 20 and 64 to 75%. The European Pact for Gender Equality (2011-2020) also highlights the importance of promoting better balance between life and work for women and men throughout their life cycle with the purpose of reinforcing equal opportunities (EIGE, 2013).

As an EU member state, Portugal should develop strategies for balanced sharing between women and men of the time spent in paid work in the context of the labour market, as well as in unpaid work (care). However, support of female employment through public structures for family assistance is still insufficient. According to Aboím (2010), the growing number of women in the labour market in Portugal has not been significantly accompanied by a change in gender roles, and the division of labour in the home is one of the most unequal in Europe.

Therefore, public policies to facilitate the balance between work, family and the needs of private life persist in promoting a change in behaviour in relation to a greater involvement of men in family care (unpaid work) and promoting and sharing parenthood, as well as stimulating labour market policies that include flexible working hours. Thus, in Portugal, the first National Employment Plan began to consider as a fourth pillar the equality of women and men in the labour market. However, in spite of this “de jure” equality the distribution of power and responsibilities remains unequal in everyday life.

According to Greed (2011) and Madariaga (2013), during the 20th century urban planning was founded on the paradigm of rational planning created by the modern movement (CIAM, Athens Charter) and as such, it separated the place of residence from the workplace by means the dwelling, work, recreation and transport functions that have guided urban policies up until today. A dispersed use of the land gradually emerged, supported also by the widespread use of motorcars. Consequently, daily tasks are allocated among travel that is mostly motorized. If women are responsible for the daily routines at home, care work, among other tasks, and at the same time

¹ Prepared under the project “ Gender mobility: time-space inequality | Género e Mobilidade: desigualdade no espaço-tempo” (GenMob), starting in June 2015 and ending in December 2016, organized by the Centre for Geographical Studies, IGOT - University of Lisbon. GenMob was funded by the European Economic Area Financial Mechanism, EEA Grants, Programme Area PT07 (Mainstreaming Gender Equality and Promoting Work-Life Balance), 2nd Open-Call (Development of Tools and Methods to Promote Gender Equality at a Local Level) and its programme operator is the Commission for Citizenship and Gender Equality (CIG). A first draft of this text was presented at the 15th Iberian Conference on Geography, AGE/APG, on 7-9 November in Murcia, Spain.

have a professional activity (remunerated in the labour market), their mobility patterns and time use are differentiated from men's. Because of the combination of day-to-day household chores, of care and of paid work, women have more complex travel chains than the traditional home-work pattern; for example, they use public transport more often. As a result of spatial functionality and gender roles, women need more and better-adapted public transport services. However, in the 21st century urban transport policies are still neutral as far as gender is concerned, paying little attention to the differences between women and men when using it, most particularly with regard to the purpose and frequency of travel, mode, distances travelled, stopping points and associated times. In effect, space is not neutral, "it is inhabited by sexualized bodies which have different experiences of the city and the territories, with differences in the ways of living and of moving through the city, and these differences are evident in the different stages of the life cycles" (Boccia, 2016: 18). Since they host all their inhabitants, cities are many times aggressive for women and all too often make women invisible because they are designed and planned without regard for women's experiences and needs (Boccia, 2016).

Various UN-Habitat reports have argued that we need a different kind of city and that it is necessary to reconsider the existing urban development model, capable of creating urban spaces on a human scale and where diversity, connectivity and physical integration of the city are interlinked (Capel, 2016). The New Urban Agenda agreed upon at the Habitat III Conference in 2016 contains commitments oriented towards women's needs, including the removal of obstacles they face in urban environments. So this will be a reference in the New Urban Agenda – comprehensive and responsible planning that is directed, among many examples, towards the mobility of women, and that recognizes their contribution in informal or care work, including housework (Acierno, 2016).

In our view, the city of the 21st century inherited the rationalism of the 20th century, and therefore the New Urban Agenda will necessarily have to break with the socio-spatial model of the past. However, nowadays we have technological resources that can support us in the construction of the New Urban Agenda, i.e. technologies that use ubiquitous computing and which is available in all elements, such as in buildings, infrastructure, open spaces and people, something that has never happened in the history of mankind. And the number of "things" now exceeds the number of people connected to the Internet. So we live in a world defined by urbanization and digital omnipresence (ubiquitous city), where mobile broadband connections surpass landline connections, revealing a new world, the "internet of things" (Shin, 2009; Townsend, 2013) in which telecommunication networks and cloud computing form a complex that articulates urban megaregions. Attention should be drawn, however, to the fact that the technological ubiquity that is redesigning the city is mainly run by big business and urban management, disregarding the potential contribution of user communities (women and men) in their everyday lives (Townsend, 2013).

This article associates the abovementioned dimensions of everyday life from a gender perspective. In Portugal there is no statistical, systematic and current study of gender

differences in time use between home and work (at a local level) from a geospatial perspective. There are only the Time Use Survey promoted by the National Institute of Statistics (INE) in 1999 and the Censuses, also by the INE, since 1981, from which we only know about mobility due to work or study motives. More recently, a study based on surveys was published, known as the National Survey on Time Use of Men and Women 2016 (resulting from a partnership between CESIS, CITE and CIG) but with few spatial disaggregation.

The approach presented below recommends methodological innovation in gender studies that uses geographic information (measurement, recording, organization, analysis and viewing, combining new information technologies) that can help bridge the current knowledge gaps and strengthen, from the point of view of complementarity, the production of information that is centralized in public entities of statistical production. By using real-time measurement of instances of daily mobility and time use, and with the deepening afforded by the local scale, geographic information associated with the VGI (Volunteer Geographic Information) phenomenon, whether in the form of maps, images, driving directions or guides, is increasingly essential and accessible to many aspects of human existence and this is why it has become so important (Goodchild, 2008, Furletti et al., 2013). VGI has proved to be a collaborative form of collection of geospatial information and discusses society's right to access information.

In the first section we present studies on the uses of time in the home-work segment and other everyday tasks. In the next section we discuss the differences between women and men in daily commuting patterns. Then we put forward a methodology that enables real-time measuring and viewing of daily mobility and time use via smartphones and / or GPS (trackers), combining new information technology and geographic information systems through VGI. Finally, we discuss the problems and the potential of the methodology as a bottom-up contribution to the construction of the New Urban Agenda.

2. Space and time use: work and family

Work and family are apparently governed by different rationales – one is public, the other is private – but they affect each other and generate a tense relationship between the public and the private spheres, in which people have to manage the use of their time – a limited commodity. According to CIG (2013) the labour market in Portugal is often segregated by gender and most women work full time. Rendering to Tavora and Rubery (2013), Portugal has the lowest part-time labour rates (13% of all female employment, according to Eurostat in 2009), labour regulation with little flexibility and the lowest levels of education for women and men, a combination of conditions that is an obstacle to high rates of female employment. In fact, the dominant social model continues to assign the primary responsibility for family care and work done within the family to women, and most professional work to men.

The 2013 Report of the European Institute for Gender Equality (EIGE) concludes that

the participation of women in the labour market is limited due to their disproportional involvement in family roles, and expresses the need for taking measures to ensure fair and balanced proportions of hours of unpaid work in the home between women and men. Actually, this trend is emphasized by the 2015 Gender Quality Index (EIGE, 2015), which shows a lower score (37.6) compared to previous years. This still presents a challenge for EU countries with regard to gender equality (it also indicates the case of Portugal, where the score dropped most dramatically by 17 points). This same report points out the inequality of women in the sharing of time at home, on care and in the kitchen, reasserting the importance of measures to promote a better balance between men and women in working life. Also according to EIGE (2013), an analysis of data on time use shows that, despite some progress towards a more balanced use of time, men are still more likely to work longer hours in paid employment, while women do more unpaid work than men. In countries like Portugal, with a gender culture inherited from a dictatorship, this legacy supports a family model where conventional gender values are approved of and gender inequality is tolerated by social actors (Tavora and Rubery, 2013: 228).

Some academic studies reveal that women with full-time employment in urban areas have fewer opportunities than full-time employed men (average working time: 8.2 hours), women have a path of reduction of their potential by 64% and also have 44% fewer opportunities (Madariaga, 2013). The reduction in regard to men is due to flexible activities unrelated to work (average time: 6.8 hours); gender roles are the main reason for this reduction when comparing the potential and opportunities for women and men (Madariaga, 2013). As reported by the document Statistics in Focus and the Eurostat's Harmonised European Time Use Survey (2005; 2009), time use patterns in the EU show differences between countries and between men and women. On average, women aged 20-74 years spend more time than men on domestic work and this difference is more marked in southern European countries.

A review of the literature about work-life balance indicates that there is little research that discusses gender differences in the profession-family combination that are reflected in daily commuting patterns. These differences are nevertheless important and should be studied to support policy measures that promote balance between professional, personal and family life, founded on spatial mobility patterns (based on daily activities). For women, public transport provides access to a variety of resources like employment and, in general, women make up most of the market of public transport users (Hanlon, 1996). Issues concerning the accessibility and mobility of women are often assumed to be similar to those of men, resulting in a low level of awareness of the different travel needs of women. In this context, despite the recognized role of transport in economic development, little attention has been paid to the social and gender impacts of investment in public transport systems; for instance, there is a dearth of studies that assess the differentiated impacts of transport on the private and professional lives of women and men. And the trip forecasting models widely used by transport planners have no behavioural basis and do not really focus on the role of spatial and temporal

restrictions in domestic activities and family care (Neutens, Schwanen and Witlox, 2011).

Due to the scarcity of data that address gender differences in daily activities, there is a tendency to simplify the transport on offer on the basis of standard passengers/commuters, as well using the same function distribution probability for both genders in transport modelling structures. Similarly, there is a gap in terms of systematic studies on locally expressed time use. In effect, perceiving human spatial behaviour, particularly restrictions and implications in the allocation of limited time between activities in space, is a powerful conceptual framework for understanding the activity of women and men in their everyday lives (Miller, 2005). Transport promotes higher efficiency in exchanging time for space when traveling to participate in activities in certain locations. According to Miller (2005), the constraints that limit travel include the ability to trade time for space in movement (e.g. access to public or private transport), the need to be with others at particular locations for specific time periods (e.g. meetings), thus limiting activities elsewhere, and some authorities' ability to restrict physical presence in certain locations for a specified time (e.g. gated communities, shopping centres). These constraints are also differentiated according to gender perspective.

3. Unequal mobility patterns from a gender perspective

It is known that there are differences in daily mobility and that this is related to time use (Queirós and Marques da Costa, 2012). Women and men have substantially different profiles in transport utilization and in the use of their time. Women's travel patterns and use of transport are more complex compared to men's. In European countries, women are the most vulnerable transport users, and make several short trips a day, often on foot, and more often outside rush hours (Hasson and Polevoy, 2011).

Many studies attribute the differences between women's and men's travel patterns to the division of roles in the labour market and in the family. In spite of the increase in women's participation in the labour market in recent decades, employment patterns of men and women still differ. Women's reproductive responsibilities, most particularly in family care, lead to different travel patterns and time use and very often restrict their full integration into the labour market. Ignoring the various roles of women, especially in the domestic economy and in social reproduction, or in the formal economy, reduces the productivity of the entire economic system and negatively impacts women's access to public services, social and political participation and domestic efficiency (Peters, 1999; Queirós and Marques da Costa, 2012; EIGE, 2013).

Although there have been significant changes in the last few decades regarding the roles of women and the composition of households around the world, women generally make shorter trips distributed throughout the day; they take care of children and elderly relatives, and they perform other reproductive and productive tasks (Eurostat, 2004; Gaspar et al., 2009; Queirós and Marques da Costa, 2012). This means that

large differences in women's and men's mobility requirements are based on the gender division of labour within the family and the community.

Highlighting these differences, many World Bank and United Nations reports show that in developing countries, too, the main differences in women's and men's mobility needs are rooted in the division of labour according to gender. In addition, the World Bank Group (2010) maintains that transport planning models have not considered women's specific travel patterns, particularly differences in travel purposes, frequency and distance of trips, the mode of transport used, and mobility restrictions to access other services such as health. Even in developed economies like the European Union countries, those differences have not been totally eradicated. The first Compendium of European Statistics on how Europeans spend their time, of 2004, shows that on average men spend more time on paid work than on unpaid tasks, while the opposite is true for women.

The Compendium also reveals that people aged 20-74 spend an average of 2 hours and 30 minutes per day travelling. Men spend more time commuting than women, and when comparing men and women, trips related to paid work are more evident among men, while women's travel is more often associated with household tasks. To some extent, women and men use different modes of transport: men use more private cars than women, this being true both regarding the amount of time spent and the percentage of total travel time. Women and men spend about the same time on public transport. However, if we look at the share of total travel time, women tend to spend more of their time on public transport and, compared to men, more of women's travel time is spent walking or cycling (Eurostat, 2004). Even in Europe, where public transport supply is greater, systems rarely provide services that are adjusted to the daily needs of women. Public transport is, in most cases, designed to meet the transport needs of people who work outside the home in paid professions, usually men, who need transportation at specific and well-marked periods during the day.

In Portugal little is known about gender differences in an integrated labour-mobility perspective at local and regional levels. According Queirós and Marques da Costa (2012), the analysis of gender in the Portuguese transport system is limited by the lack of information disaggregated by gender, whether it concerns the information provided by the national statistical system or information collected by different institutions and by the transport operators. Neither politicians nor regulators such as transport operators have shown special sensitivity to including this issue in their practices (Queirós and Marques da Costa, 2012).

4. Measuring mobility from a gender perspective: a methodological proposal

The study of space-time uses, among other things, captures the nature of the spatial distribution and the allocation of time spent by women and men between economic,

social and personal activities. In their daily lives, men and women move within space and spend time in care activities as well as in social, recreational, cultural and volunteering activities. Nowadays most people have a mobile telephone, used for communication and asynchronous exchanges of text and images. Mobile telephones are interfaces of discrete materials used for networked information spaces, and they simultaneously constitute techno-social performances inasmuch as they promote new relationships between people and spaces. These communication objects offer the growing possibility of creative, spontaneous uses for producing spaces of resonance and meaning (Greenfield and Shepard, 2007). And in this context, the dynamics of structure and experience of the city that can be associated with the use of the smartphone are a fundamental source of information in the study of time-space uses. Therefore, a valuable contribution to a better understanding of the imbalances between “housework-care-leisure-volunteering” arises from smartphones, mobile applications, and the GPS. Portugal is one of the countries that are above the EU average when it comes to SIM cards (1.57 SIM cards per person in Portugal, while the EU average is 1.34, in 2014), so the use of smartphones for data collection is not a barrier; in any case, personal GPS trackers are provided for any volunteer who does not own a smartphone.

The methodology used by GenMob can be systematized according to the following stages:

- 1) Selection of the study areas based on location quotients (LQs) and employment catchment areas for the Lisbon Metropolitan Area and Alentejo (southern Portugal). Within the areas selected, the areas of greatest attraction regarding employment were identified, along with their respective employers.
- 2) Contact with the managers and leaders of all previously identified employers, explaining the project’s aims and a request for an interview; when the response to the initial contact was positive, the team held awareness-raising sessions at various locations in order to publicise the project and attract volunteers.
- 3) Training sessions for learning and handling of mobile devices and to collect information. During these sessions an individual questionnaire was administered, concerning the sociodemographic characteristics of the volunteers, their households and daily mobility.
- 4) The data provided by the volunteers for at least 24 hours of a working day were collected and associated to the data from the questionnaires. A georeferenced GenMob Database was later created, where gender differences in mobility and time use can be demonstrated.

The methodology for gaining detailed knowledge of spatial behaviour (mobility) of women and men and its associated time use – utilized in the project GenMob – is innovative in gender studies and its results question whether men’s mobility chains should continue to be the reference standard of institutions and their policies. Based on real-time, synchronous capture of the weekday movements of a sample of volunteers (men and women) in the job market, timetables, travel chains and stops (points of interest), the spatial distribution of trips and modes of transport are identified,

and daily mobility profiles are defined. Data collection is achieved by means of geo-referenced (GPS) automatic recording of personal daily activities, preferably supported by smartphones (personal trackers for those who could not or would not use the smartphone). Data collection is supported by the Moves application for mobile devices, available for iOS and Android, which has precise spatial reading through Google Maps (Figure 1).

The Moves Application is associated to an online platform that aggregates the data of each smartphone user. To obtain the application (app), an account must be created when installing the app, with an associated e-mail address and password. After the volunteers' routes are collected, the data are aggregated in different formats (KML for Google

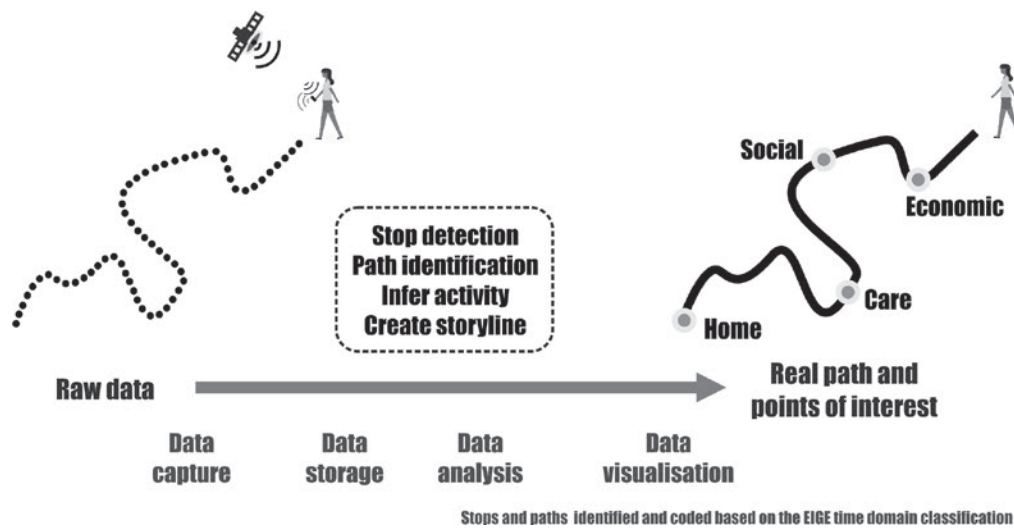


Fig. 1 - Raw trajectory collected by a smartphone App or a GPS tracker

Earth, KML, JSON, ICAL, GPX, GEORSS, GEOJSON and CSV) and the information is aggregated in different time scales (annual, month, week, day). Associated with the time scales are data aggregated by storyline – corresponding to the entire route of the individual Moves user, with stops and trajectories; stopping places, paths, and also geoactivities in some formats.

For participants who used personal trackers, the data collected are organized in an .xlsx table, aggregating the pair of coordinates, speed, street and a set of 3 columns associated with tracking.

Subsequently both source tables of data are imported into GIS software. In this case ESRI's ArcMAP was used and a database of geographic data was created, where the information for each participant is imported and then converted from an .xlsx file to a shape file (.shp) so that it can be spatialized for future analysis (Figure 2).

Conceptually, GenMob uses VGI (Volunteered Geographic Information), i.e. it mobilizes tools to create, assemble and disseminate geographic data provided voluntarily by individuals (Goodchild, 2007; Fraser Taylor and Lauriault, 2014). This is a phenomenon known as “user-generated content”, in this case volunteers/ participants/

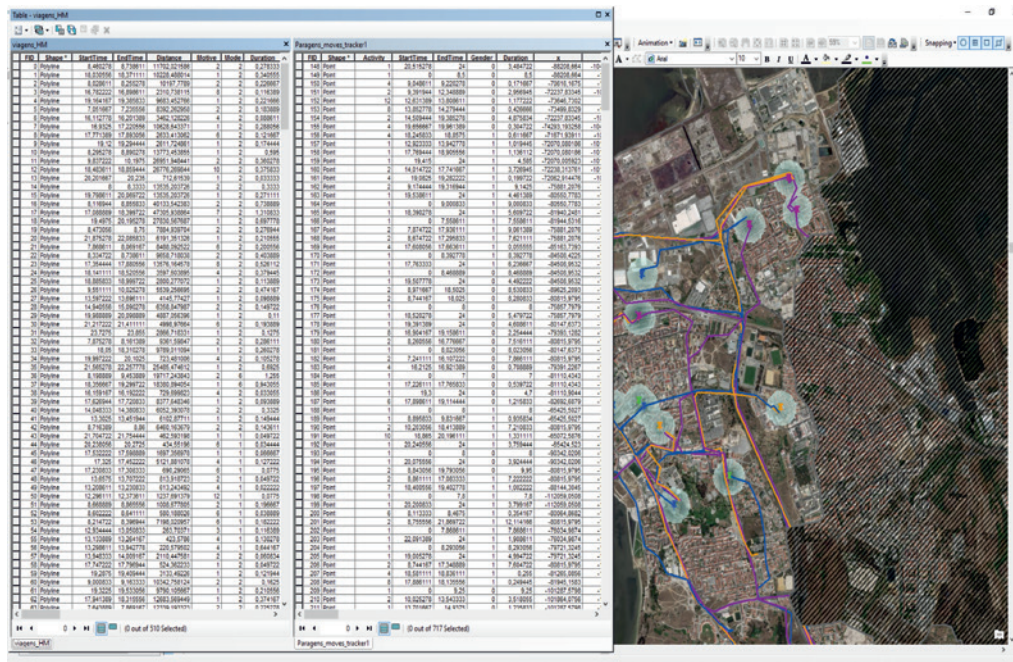


Fig. 2 - Extract from the GenMob database, generated with data collected via Volunteer's smartphones and trackers

citizens-actors/data producers who agree to be monitored (via smartphone and/or tracker) for at least 24 hours of a working day, with the advantage that the information provided is connected to a specific geographic area. This way, the GenMob methodology benefits from citizens-actors/data producers who generate and share knowledge about their own activities.

The source of information is created and provided free of charge by a group of volunteers (VGI). In effect, one of the aims of GenMob was precisely to attract volunteers in the previously-defined universe delimited by the employment catchment areas of the Lisbon Metropolitan Area and of Alentejo, who would agree to be monitored for 24 hours of a working day using, as mentioned above, a smartphone application or a personal tracker. To this end, the employers that were strongly represented in the local labour market were contacted. Once they agreed to freely participate in the project, awareness-raising and training activities were held with the participating entities (municipalities, businesses and NGOs) to attract volunteers who would agree to collect real-time data on their own daily activities/mobility.

The quantitative approach to real-time data collection is complemented by a qualitative approach, as each participant/VGI is asked to complete a questionnaire that provides additional information on the socio-demographic and economic characteristics of their household, enabling us to identify mobility profiles by gender. Data from GPS devices are cross-referenced to with questionnaires that provide in-depth information on the participants' family structure and the details of their everyday life, thus expanding GenMob's georeferenced database.

To ensure the protection of all the participants' data, a consent form was drawn up according to Data Protection Law (nr. 67/98) and signed by the team and the volunteer

whenever a survey was completed, and a personal tracker was handed out or access credentials to the Moves platform were given. The security of the data of all volunteers was considered throughout, regarding information collected via the survey and especially regarding information gathered during monitoring. Apart from security issues that might arise from using the application – which is a free app that exists in the market and could therefore result in problems beyond the team’s ability to solve – anonymizing the data was always a concern. Anonymization becomes impossible with unprocessed data, since monitoring provides data like an individual’s address and workplace. For this reason, GenMob assumes that unprocessed data (raw data) are never disseminated or shared, only previously processed data.

5. Final considerations

The fact that there are significant differences in men’s and women’s mobility is a challenge to the way public transport policies should be designed, implemented, monitored and evaluated. The methodology used by GenMob generates information to support policies for reconciling occupation, family and personal activities, transport policies responsible for safe and accessible urban mobility, policies for responsible urban development focused on people (women and men) that embraces diversity, commits to full employment opportunities in cities, recognizes informal jobs, etc.

This methodology measures, records, organizes, analyses and views relationships, patterns and trends, combining citizen science, new information technologies with geographic information systems. With the data that is collected, it is possible to: a) systematize information with the local detail that enables the creation of scenarios; b) produce a georeferenced database with an interactive interface (set of queries and dashboard) on gender inequality in reconciling personal and professional life; c) formulate indicators to assess disparities in the use of time and space in professional and personal life; d) build indices on the risk of disparities occurring (high, medium, low); e) develop a typology of territories according to space-time use (cluster analysis). Data capture allows for the creation of a geographic database differentiated by gender and other socio-professional characteristics, with the purpose of delineating and mapping profiles/daily travel patterns.

This method of collecting spatiotemporal information is more efficient, faster and more accurate than traditional studies on time use (surveys), since it is not based on individuals’ memory and perception of previously carried out activities, but on synchronous recording of geographical location, trips and the time spent at sites and between them (for each volunteer). In addition, it provides useful information to help develop policies, strategies and actions designed at a local level, especially in the field of promoting work-family-personal life balance.

Because the information is provided by individuals without formal training, the quality and reliability of the VGI approach is a topic for debate. However, the assurance of reliability and quality is given by the GenMob research team, who tests and seeks to

control and improve the accuracy of the data collected. The issues of property, privacy and data protection are also up for debate and must be anticipated by the legal framework regarding data protection. VGI shows that it provides positive emotional value to users, not only in terms of functionality but also regarding satisfaction, social connection and ethics.

The validity of the results is also a critical issue in this project. Given its exploratory nature, it is clear that this study does not comply with all the valid requirements of a sample. However, there are some aspects that should be taken into account: i) methodological triangulation (Denzin 1978; Knafl and Breitmayer 1989; Krefting 1991) is a practice often used in the social sciences that basically means using different independent sources or working methods that confirm the results; and in fact, the study results confirm the results of previous statistical surveys based on valid samples. Furthermore, the questionnaires made it possible to corroborate the results and discuss causes and effects, and the results are based on trips that were actually undertaken – instead of reported after the fact – by participants in the study; ii) the innovative method that was used is experimental and proves that it is possible to obtain reliable results using a sample that has the necessary requirements for the validation of the results per se, at a lower cost and with the possibility of obtaining information more regularly. Based on the consistency of the data that was found, we can safely say that the results are robust and comprehensive.

The everyday practices of men and women show differences in how the former and the latter use space and time, but the widespread “lack of knowledge” about the specific circumstances of women and men (a legacy of the Athens Charter?) has led to disadvantages and imbalance in reconciling paid and unpaid work. Nowadays the technologies used in smartphones, mobile Applications and the Global Positioning System make it possible to get acquainted with these specifics by measuring travel routes, locating points of interest (stops), cross-referencing them with time use and its reasons in a systematic, synchronous and objective manner. The GenMob project shows exactly that. The abovementioned measuring, sensitive to gender differences, can be carried out in many ways; however, the use of VGI shows itself to be a bottom-up open process of co-creating information that can lead to innovative and meaningful ways of planning a city from the perspectives of multiple communities and people in their similarities and differences. Evidently, in a holistic and up-to-date perspective on cities and the extensive process of urbanization, we will have to debate to what extent these technologies will be part of the solutions to urban problems, seeking answers to the questions: how do we want a smart city to be?, who and to what ends will technologies help?, how can we shape the technology we use in cities for a fairer and more balanced everyday life between men and women?

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