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

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1. GenMob: context and overview
2. Methodology
3. Outputs/results
4. Methodology issues
5. Communication strategies

GenMob – Gender and Mobility Space-Time Inequality (June 2015 to December 2016), promoted by CEG / IGOT University of Lisbon, financed by the European Economic Area Financial Mechanism (EEA Grants), Program Area PT07 – Integration of Gender Equality and promotion of the balance between work and professional life (Second Open Call – Development of instruments and methods promoting gender equality at the local level).
1. GenMob: context and overview

GenMob was designed to respond to the PT07 (2nd Open Call), under the European Economic Area Financial Mechanism

**Grounds for the 2nd open call:**

- Development of tools and methods for promoting gender equality at the local / municipal level - balance between work and professional life
- Support for Portuguese gender equality policies - promoting balance between work and private life
- To comply with the Portuguese Constitution, EU directives and regulations and other international commitments, and the National Plan For Equality (V PNI) 2014-2017
- To comply with Europe 2020: increase the employment rate
GenMob Goals

THEORETICAL AND METODOLOGICAL (accurate knowledge about the differences in the use of time, on weekdays, at the local level, and implications for the labour market; spread a simple and low cost methodology to be replicated in similar studies)

COOPERATION (fostering the exchange of knowledge; partnership for internationalization; synergies university-business-authorities)

Nature of GenMob goals

EDUCATIONAL (produce outputs for wide dissemination)

POLITICAL (identify gaps in national and local policies – municipalities and companies - and propose measures to overcome them)
Traditional explanations of mobility patterns, often within the spatial analysis centred on the “rational mobile man” making mobility decisions in which gender is absent, have generated a feminist critique of research and planning of gender-neutral transport, which has led to the geographer Robin Law to label the subject of everyday mobilities as the ‘neuter commuter’.

With the GenMob project, we intend to explore, from a plural perspective, the mobilities of men and women and their time-use, recognizing the need to overcome the "false neutrality" of many studies that support and shape transport and mobility policies in large cities and reproduce visions and practices of patriarchy.

With this project we hope to ‘turn a page’ of our experiences and contribute to the project of a more just society
New and inclusive methodology

Mobile technology

Volunteered Geographic Information (VGI)
The amount of data matters
Velocity, fast rate at which data is received
Variety, many types of data
Integrate, manage, analyze
Why not do we use “XXI century technology” / mobile operating systems?

GenMob project fills this gap tracking data using GPS, using a reliable, original and innovative methodology:

• makes use of smartphones/trackers with GPS and Apps available at no market charge (Moves)

• enables the implementation of the data collected by its application to a digital platform for geovisualization

• the project volunteers are co-producers of information (VGI)
VGI turning people into sensors

TURNING PEOPLE INTO SENSORS

Participatory/Citizen Sensing

Big, messy data ⇒ real-time insights.

The smartphone as a mobile sensor platform...

... and the willingness of people to contribute to data to causes that matter
## 2. Methodology

<table>
<thead>
<tr>
<th>Time use diaries / Surveys</th>
<th>GenMob Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rely on people’s memory</td>
<td>Real-time acquisition</td>
</tr>
<tr>
<td>Subjective: each person’s perception of time</td>
<td>Accurate Georeferenced data</td>
</tr>
<tr>
<td>Census data are home-work or home-school based, by parish and municipality</td>
<td>Detailed spatial statistics</td>
</tr>
<tr>
<td>High cost data acquisition</td>
<td>Low cost data acquisition</td>
</tr>
<tr>
<td>Time consuming data processing</td>
<td>Fast data processing</td>
</tr>
<tr>
<td>Status-quo</td>
<td>VGI – Bottom-up and open data co-creation process</td>
</tr>
</tbody>
</table>

Low cost, fast data acquisition, transferable methodology
Geographical knowledge-based society

The Economic and Social Council (ECOSOC) established the Committee of Experts as the apex intergovernmental mechanism for making joint decisions and setting directions with regard to the production, availability and use of geospatial information within national, regional and global policy frameworks.

Led by United Nations Member States, UN-GGIM aims to address global challenges regarding the use of geospatial information, including in the development agendas, and to serve as a body for global policymaking in the field of geospatial information management.
Selection of the study areas based on location coefficients and employment catchment areas for the Lisbon Metropolitan Area and Alentejo.

Within the areas selected, those of greatest attraction regarding employment were identified, along with their respective employers.

**GenMob geographical scope**

Volunteer recruitment areas.
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 publicize the project and attract volunteers.
Training sessions with the volunteers

• During these sessions an individual questionnaire was administered, concerning the sociodemographic characteristics of the volunteers, their households and daily mobility

• ethics in research: data transfer and protection
Training sessions with the volunteers

Learning and handling of mobile devices and to collect information
How do we address the issue?

Understand the profiles of mobility and time use of the volunteers of GenMob
How did we address the issue?
How did we address the issue?

**SMARTPHONE App**

**GPS TRACKER**

**SURVEYS**

**DATA ORGANIZATION**

**TRACKING SPATIAL DATA:**
- Creation of a geographic database for GPS Tracking Data and Smartphone Tracking Data
- Disaggregating the whole table and dividing by participant
- Importing tables to GIS Software and Converting into shape files for spatial analysis
- Disaggregating Time column and dividing into Day, Hour and Decimal Hour
- **Coding Tracking Data into two different files:**
  - *Points of Interest*: Coding activities; Calculation of the duration of each participant on each activity; (note: calculation of 25mt buffer for counting points on each activity)
  - **Coding Paths:**
    - Paths: Coding Activities and Modes of Transportation; Calculation of Starting and Ending Time of the Path, Duration and Distance

**SURVEY DATA:**
- Coding each question and answer
- Importing to a matrix
- Importing to a database for crossing with spatial data collected
Moves raw JSON Export

Format JSON (JavaScript Object Notation): Id; Lat; Long; Duration; startTime; endTime; Distance
GIS features attributes

- Fid
- Shape
- Start Time
- End Time
- X; Y
- Gender
- Duration
- Device (App or Tracker)
- Activity realized based on EIGE classes
- Place
- Home based municipality
- Work based municipality
- Age
- Qualifications
- Children (yes or no);
  - If yes then < 13 years old; 13-18 years old
- Income
- Job class
- Volunteer profile
- Type of activity realized before work; at work-break; after work
- People of just do: home-work-home

...
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.
What do we get?

Accurate data on people’s movements through space and time.
What do we get?

Accurate data on people’s movements through space and time.
What do we get?
Accurate data on people’s movements through space and time
What do we get?
Accurate data on people’s movements through space and time
Travel Motives

% Women and Men

Mobility: travel | trips | distances | duration and modes
1: Average distance of trips before work, by Motive, per week

2: Average distance of trips during work break, by Motive, per week

3: Average distance of trips after work, by Motive, per week

Mobility: travel | trips | distances | duration and modes
Average duration of the Activities performed before work, per week (includes travel time)

Average duration of the Activities performed after work, per week (includes travel time)
Results: 4 types of mobility and time use profiles in LMA

From the 16 active variables related to mobility and time use of our sample, that defined the factors and the configuration of the final clusters, and 12 illustrative variables, related to the biographic profile of the volunteers, we could find 4 clusters.

The final result reveals a balanced group distribution with 29 individuals in the first one, 43 on the second, 27 on the third and 24 on the fourth.

Type 1
Luísa has 58 years, lives in Alvalade and works at Av. da República, in Lisbon.
Luísa has not completed high school, with only the former 7th year (actual 11th grade).
She is divorced and her children no longer live with her.
Luísa makes few and short daily trips.
Paid working time is reduced and she spends a lot of time at home. She doesn’t have a driver’s license and does not use the car for daily trips. She walks to work and, when she need to, use public transport.

Type 2
David has 41 years, lives in Massamá and works in Lisbon.
He lives with his wife and two children of 8 and 13 years.
David has a middle course in hotel management and use his car for daily trips.
His commuting trip is long and takes a lot of time. He does not use public transport.
Paid working time is too long, therefore reduced the time at home.
David spends some time in sport and leisure activities.

Type 3
Sara and Rafael are a couple, they both have 36 years and do not have children.
They live in Loures and work in Cascais. Both have a high school degree and have a housemaid.
Commuting is the only trip that they do usually, and it is long and consumes a lot of time.

Type 4
Sónia has 46 years and lives with her husband and a 10-year-old daughter.
Sónia has a degree in chemistry and lives and works in Barreiro.
During the day, she makes several short and quick trips. She spends a lot of time at home and in sports and leisure activities.
Sónia will walk to work and usually don’t use the car for daily trips.
<table>
<thead>
<tr>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women do more trips by public transportation and walking, although</td>
<td>Men have longer path distances than women, but they do fewer trips</td>
</tr>
<tr>
<td>this is more so when they don’t have any children</td>
<td>a day</td>
</tr>
<tr>
<td>Women have shorter path distances but more daily trips than men,</td>
<td>Men tend to use cars in their daily trips, which are essentially</td>
</tr>
<tr>
<td>which means a travel pattern associated with social and family care</td>
<td>home-work, work-leisure and shopping-related trips</td>
</tr>
<tr>
<td>activities</td>
<td></td>
</tr>
<tr>
<td>Women spend about 03:00h a week on care activities</td>
<td>Men spend about 01:40m a week on care activities</td>
</tr>
</tbody>
</table>

But there is more...
4. Methodology issues

Technical:
short battery life and/or loss of signal of the device

Human:
providing the team with the wrong MOVES app e-mail or password, forgetting to turn the device on, forgetting to charge their device
4. Communication strategies

- Reports and Articles in Scientific Journals and dissemination in national and international Conferences
- Public events for dissemination, press releases, media kit
- Video/digital animation
- Database of the sample
- WebGIS of the outputs
- Index of space-time disparity and Indicators for a “conciliation policy”
- Daily mobility profiles

The project dissemination strategy and multiplier effects (initial)
Communicating the results: Website, Dashboard, Film animation

OBJECTIVES
- Reach the most and widest public possible

STRATEGY
- Produce a short and appealing video animation (<3min)
  - Give a broad overview of the methodology
  - Include simple and brief information and show some results
  - Distribute video on social networks
PRODUCTION FASE 1

- Script

- Concept drawings and character studies  
  (inspired by Stephan Schmitz illustrations)

- Sound speech reference

- Animatic
PRODUCTION FASE 2

- Character animation
- Motion graphics
- Color grading
- Sound mixing
GenMob Dashboard
• Bottom-up methodology and synchronic data production
• Turning people into sensors (VGI, the willingness of women and men to contribute to data collection, sharing and ... to causes that matter)
• Creating knowledge on gender time-space mobility and influencing more engaged, inclusive and shared urban social policies
• Place-based indicators for place based gender balanced policies

WRAP UP: simple and transferable methodology results
GenMob Team

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Carlos Almeida
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Thanks for receiving and listening to me!