

**GeoSmartCity Workshop, Oeiras, May 11, 2016**

# **Gendering time-space mobilities in the Lisbon Metropolitan Area (GenMob project)**

**IGOT Universidade de Lisboa**

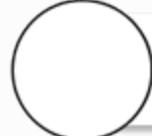
**Margarida Queirós (coord.)**



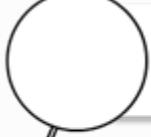
Presenting GenMob project: general information, partners, goals, expectations, assumptions



State of the knowledge on gender time use



The GenMob methodology: from the pilot study to the volunteers data collection



GenMob database (the volunteers sample and the Web GIS of the outputs)



Results analysis (statistics: daily mobility profiles; index of space-time disparity; gender sensitive indicators for a “conciliation policy”; dissemination strategies of the outputs ( 2D video); sectoral and territorial policy guidelines

# OUTLINE

# PROJECT INFORMATION

## TEAM

MARGARIDA QUEIRÓS, PhD  
NUNO MARQUES DA COSTA, PhD  
PAULO MORGADO, PhD  
ISABEL MARGARIDA ANDRÉ, PhD  
MÁRIO VALE, PhD  
PATRICIA GOUVEIA, PhD  
IAIN SUTHERLAND, PhD  
MIKHAILA BURGESS, PhD

## Contributors

JÚLIA GUERREIRO, BSc  
FÁBIO RODRIGUES, MSc

## Technical Support

SUSANA SIBORRO  
PAULO FERREIRA

**GenMob Project is designed to respond to the PT07 (2nd Open Call) under the European Economic Area Financial Mechanism (EEA GRANTS), 2009-2014**



**Focal Point Portugal: Commission for Citizenship and Gender Equality (CIG)**



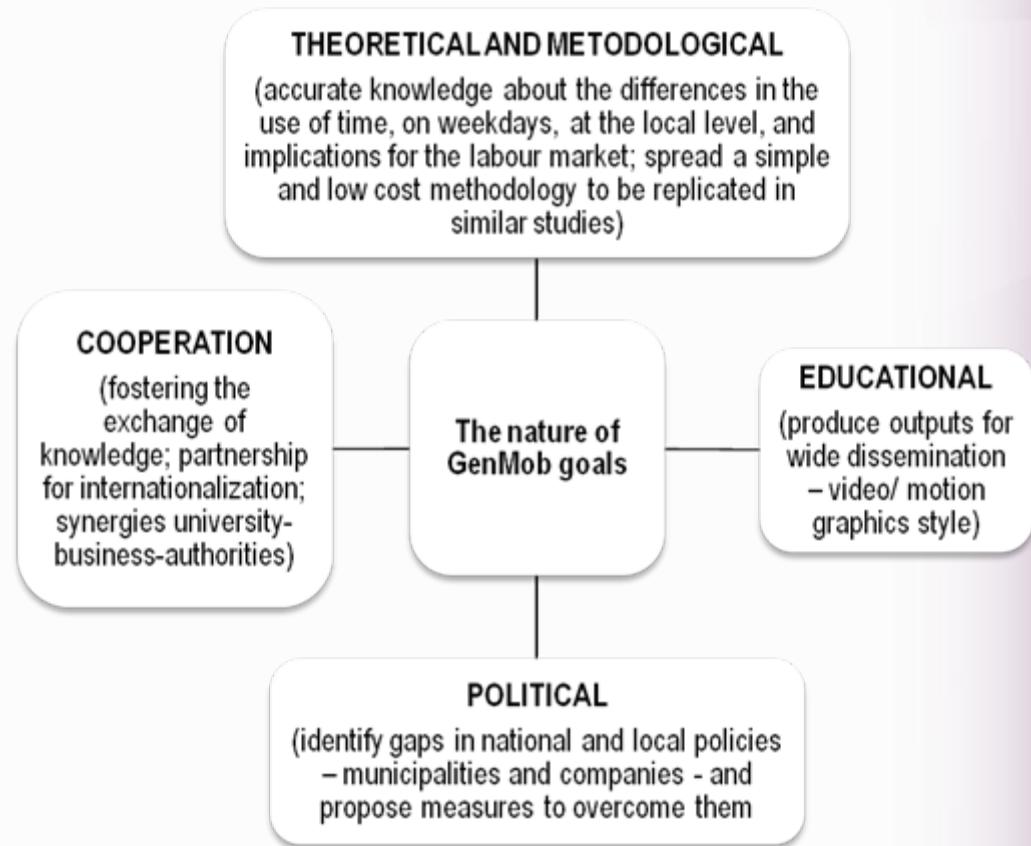
# PARTNERS ROLES AND RESPONSIBILITIES

GenMob relies on the concept of Triple Helix (Henry Etzkowitz) to explore university-business-government relations

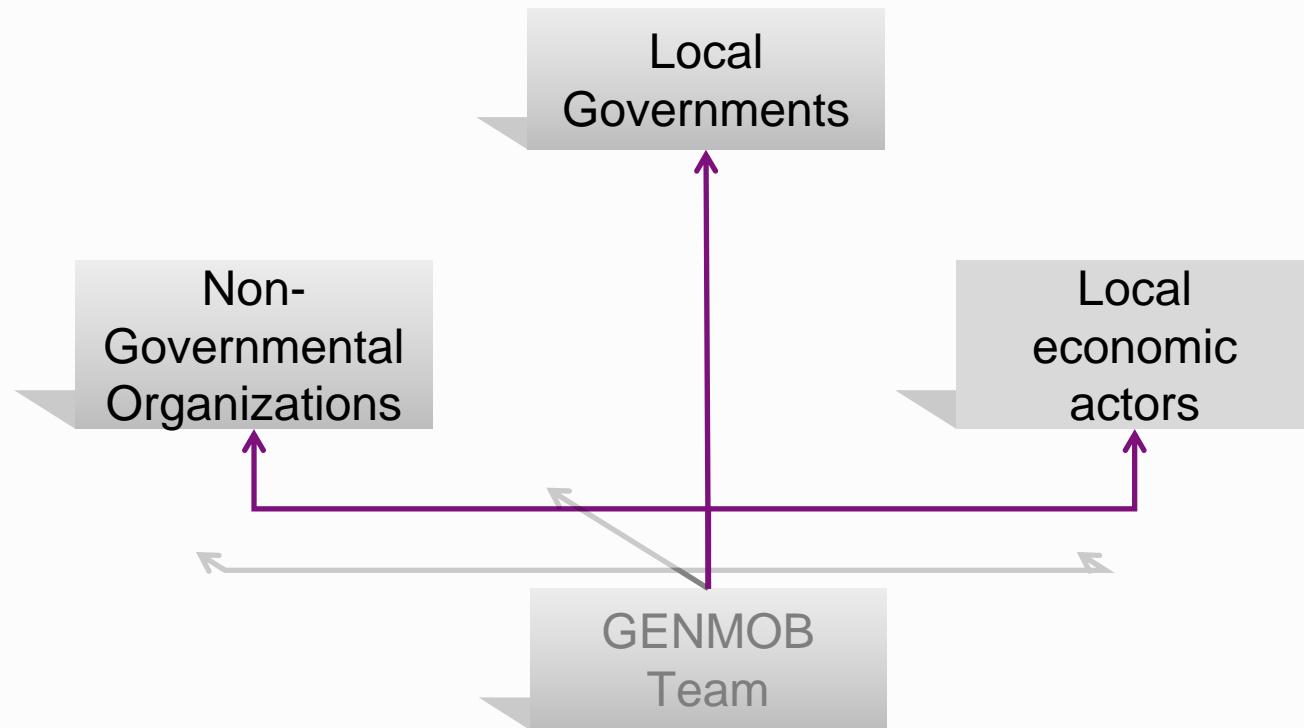
- **IGOT (Institute of Geography and Spatial Planning), CEG (Centre of Geographical Studies), University of Lisbon:** Scientific coordination and administrative support
- **Noroff University College:** Scientific support (data protection and security; interactive media)
  - **MUNICIPIA, SA:** Technical Support – Personal Trackers & Smartphone Apps
  - **Visual Effects / Animation Company:** Technical Support – Designing and animating the final outputs of the project for dissemination
  - **Other Partners** of the project: ***municipalities*** (municipal/local authorities); private and ***enterprises*** (big, small and medium) and ***NGOs*** at the local level, voluntarily join the sample and data collection

# GOALS

- Complying with objectives **Europe 2020** (smart, sustainable and inclusive growth), Community directives and regulations, Portuguese Constitution, Portuguese laws
- Combining **smart cities** and **big data analysis** with **qualitative research**
- Developing **tools and methods** for **balancing professional/private life** with a **gender perspective** at the local level



# MAIN ACTORS INVOLVED



# EXPECTATIONS

**To assist the development of public and private strategies that promote local work-life balance**

**To bring a human-centred perspective to the delivery of public products and services, and spatial interventions wherever networked information technology intersects the urban condition, for the benefit of everybody who lives, works, strives in the city**

**To inform public policies**

support the development of instruments to promote gender equality in reconciling professional activity, family and personal life, at the local level

**To influence cultural and social changes**

practices, attitudes of institutions (private and public)

deepen knowledge on space-time geographies and influence more inclusive social policies (targeted to private and public organizations) and mobility policies

**Propose Smart Cities and Big Data concepts and methodologies combined with Qualitative Research in gender studies towards cities sustainability**

provide an innovative methodology in gender studies

# Technology making data, technology making things, technology making places

That machines now run the world on our behalf is not just a technological revolution, is an historic shift in how we build and manage cities.

Smart cities are places where information technology are handled to address problems old and new, they can adapt on the fly, by pulling readings from vast arrays of sensors, optimize balances of flows, keep transportation networks moving, maintain a vigilant watch, use technology to do more with less...

Reasoning as **Adam Greenfield** or **Anthony Townsend**, “the smart city” is a collection of technologies that, once deployed, will function consistently and uniformly and in most cases are managed by private corporations – Cisco, IBM, Siemens, among others, have crafted a seductive pitch...

# People making data, people making things and people making places

Cities, are rather products of specific geographies, social milieus and inhabitants...

We are part of this information revolution, we are no more a cog in a vast machine, we are part of the mind of the smart city itself and this gives us the power to shape the future

**Look in your pocket: you already own a smart-city construction kit**

**The smartphone is a platform for reinventing cities from the bottom-up**

**And smartphones are just a start – open government data, open source hardware, free networks, powering designs for cities of the future that are far smarter than any industry mainframe**

**So we are finding a grassroots transformation already at work**

# TIME USE: state of the art

Scientific research (Sanchez de Madariaga, 2013), the Eurostat (2009) and the Statistics in Focus (2006) reveals differences between men and women in time-use patterns and with different expressions between countries in the EU

On average, women aged 20-74 years spend much more time than men on domestic work, and this difference is greater in the countries of Southern Europe (no data for Portugal)

	<b>Women (Household activities)</b>	<b>Men (Household activities)</b>
Spain	4.5h /day	1.4h /day
Italy	5.2h /day	1.3h /day
UK	4.1h /day	2.2h /day
	<b>Men in paid employment (average)</b>	<b>Women in paid employment (average)</b>
Spain	4.2 /day	2.6 /day
Italy	4.1h /day	1.5 /day
UK	4.1 /day	2.2 /day

A marked asymmetry in the sharing of unpaid work (housework and family care) between women and men, preventing a greater participation of women in the labour market and in the pursuit of high responsibility management/administration positions

# TIME USE: state of the art

In Portugal there is a gap (Queirós & Costa, 2012): there are no systematic studies on mobility and the use of time with a local expression

the **National Statistics Institute** makes this survey at high costs and without a stabilized frequency, only produces mobility national statistics by a survey where a limited number of users are asked to annotate their tracks with the activities they have done the previous day

traditionally, this information is collected by **hand filled questionnaire** where a limited number of users are asked to annotate their tracks with the activities they have done (*it is also difficult to know whether respondents are answering what they feel or respond according to what they think are our expectations*)

**Today tracking data, made possible by the widespread use of GPS devices (a smartphone), enables - in real time - the analysis of raw positioning data for social studies**

GenMob project fills this gap tracking data using GPS: as the case studies reflect these variations using a reliable, original and innovative methodology:

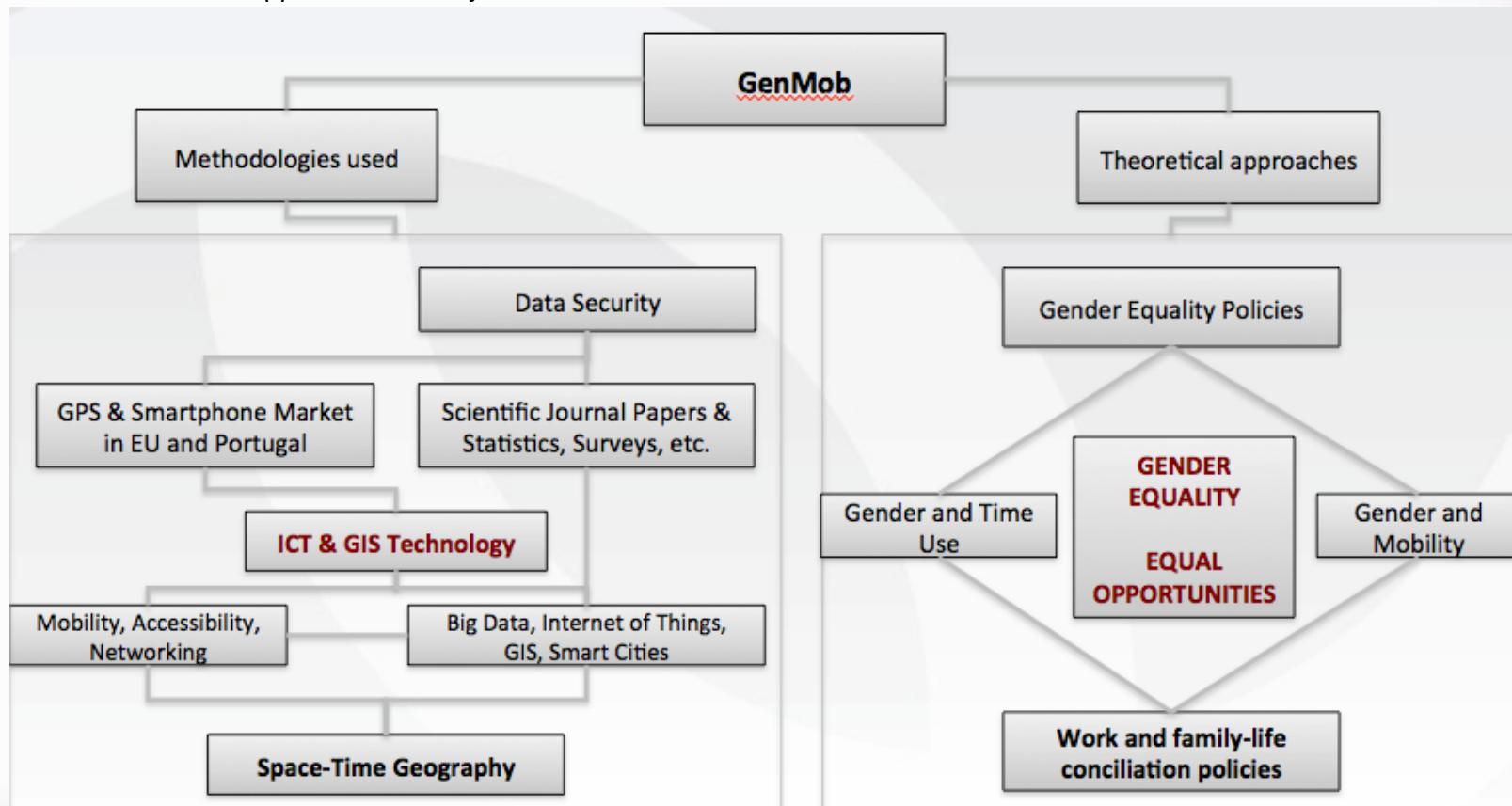
- i) makes use of smartphones with GPS and APIs available at no market charge*
- ii) enables the implementation of the data collected by its application to a digital platform for geovisualisation*
- iii) the project recipients are co-producers of information (people making data)*

# TIME USE: state of the art

Decomposing the definitions and bibliography orientations for the subject:

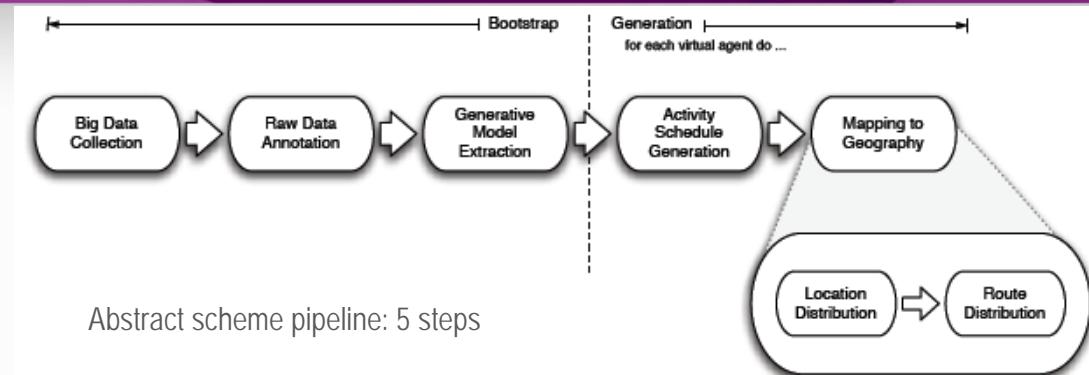
Gender and Mobility

Pathway followed for defining concepts, methodologies, theories and tools for building a strong scientific and technical support for the Project



Ghorpade et al, 2015; Zunzunegua et al, 2015; Rizzoli et al, 2014; Jariyasunant et al, 2012; Ythier et al, 2012; Djemâa et al, 2012

# METHODOLOGY



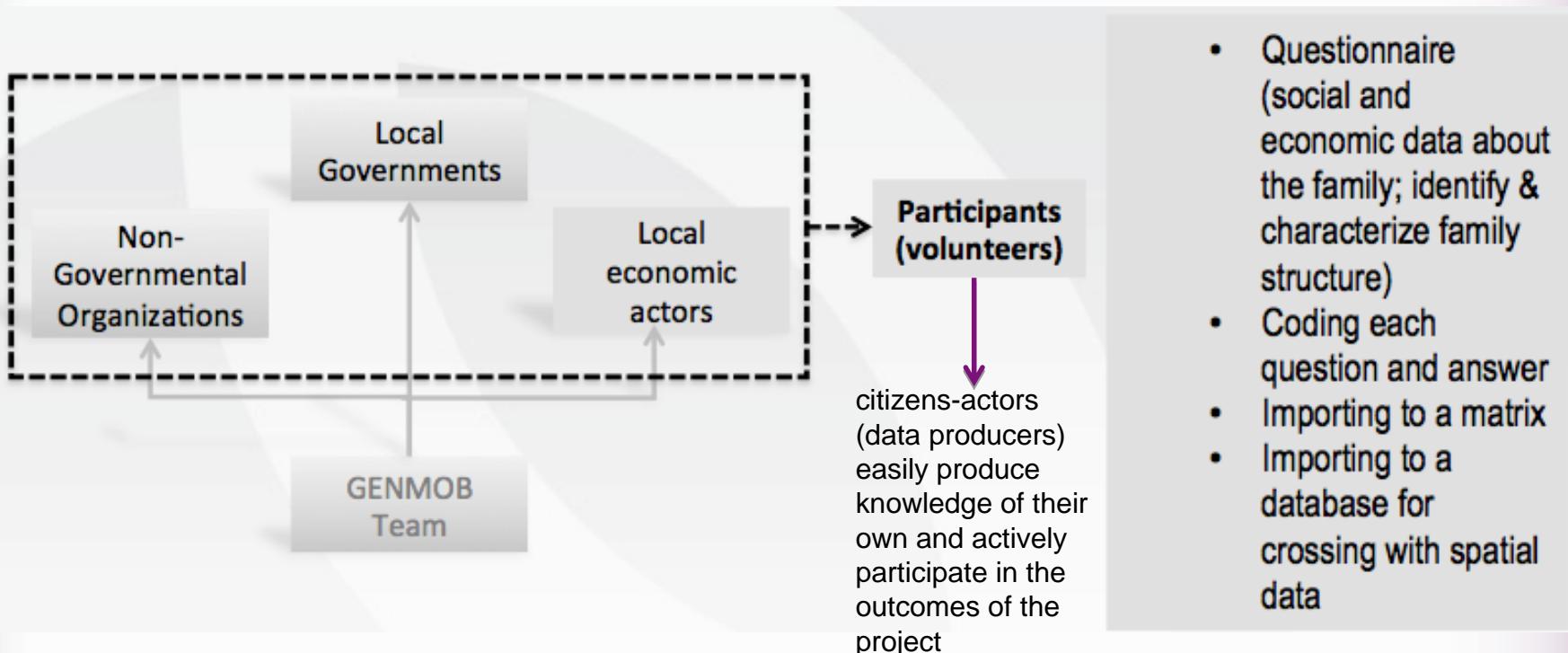
**Capturing geographical and temporal data: track individuals (volunteers) activity as accurately as the technology allows in order to infer travel and work patterns of the different participants. This may be further supplemented by additional surveys**

**Measure, record, organise, analyse and visualize:** combining ICT through the use of smartphones, API, GPS and GIS to generate information transposed in indicators, indexes, infographics and video formats

Automated collection on individual travel from personal or wearable devices (**origin-destination, distances, time of day, movement time/stop, mode of transportation**) on week days based on a sample of man and women defined according to urban-metropolitan territories selected and justified

The collected data identifies the daily-based mobility pattern: **1) time spent at home; 2) destinations and time of travel; 3) time spent at intermediate locations; 4) modes of transportation**

# METHODOLOGY for data gathering



SURVEY –  
PERSONAL  
DATA

# METHODOLOGY for data collection

## Data collection is supported by:

The use of GPS trackers

The use of the MOVES APP to mobile devices available for iOS and Android

This option automatically records all made personal trajectories (moves) and links the different daily activities to the route, the stopping points, the transportation mode and the times and has an accurate reading through Google Maps

This platform is configured in various georeferenced maps and these are associated with different personal daily activities

The result will be obtained through Excel files in XLS or GPX format



raw trajectory collected by a smartphone or a GPS tracker

# METHODOLOGY for data organization



GPS TRACKER

SMARTPHONE  
APP

SURVEYS

DATA  
ORGANIZATIO  
N

## TRACKING 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

# METHODOLOGY for data organization

	A	B	C	D	E	F	G	H	I	J
1	OBJECTID	Id	StartTime	EndTime	Distance	Motive	Mode	Duration	COD_Part	Shape_Length
2	1	0	9.043889	9.376111	7612.638017	7	2	0.332222	PT_021	7612.638017
3	2	0	22.565	22.836389	27960.13657	1	2	0.271389	PT_021	27960.13657
4	3	0	18.543611	18.582222	131.1870432	9	2	0.038611	PT_021	131.1870432
5	4	0	17.240556	18.393889	379.3570786	9	2	1.153333	PT_021	379.3570786
6	5	0	14.246389	14.578056	1002.152543	9	2	0.331667	PT_021	1002.152543
7	6	0	11.48	11.524722	193.2722925	9	2	0.044722	PT_021	193.2722925
8	7	0	11.12	11.153056	95.92861207	2	2	0.030356	PT_021	95.92861207
9	8	0	11.219722	11.302778	175.2366431	2	2	0.083056	PT_021	175.2366431
10	9	0	10.125278	10.208333	593.4369599	9	2	0.083055	PT_021	593.4369599
11	10	0	9.719722	9.780556	2382.821496	9	2	0.060834	PT_021	2382.821496
12	11	0	9.043889	9.376111	29518.26522	6	2	0.332222	PT_021	29518.26522
13	12	0	18.720833	18.864722	2922.191737	9	2	0.143889	PT_021	2922.191737
14	13	0	15.265556	16.825278	347.8600803	9	2	1.559722	PT_021	347.8600803
15	14	0	12.534444	12.686944	506.7674759	4	2	0.1525	PT_021	506.7674759
16	15	0	9.59611111	9.689166667	507.4835507	2	1	0.093055556	PT_002	507.4835507
17	16	0	9.899166667	10.13916667	398.521387	2	1	0.24	PT_002	398.521387
18	17	0	13.35138889	13.51777778	811.9529081	2	1	0.166388889	PT_002	811.9529081
19	18	0	13.70638889	13.72305556	84.27963684	2	1	0.016666666	PT_002	84.27963684
20	19	0	13.72861111	14.45416667	22355.50116	9	2	0.725555556	PT_002	22355.50116
21	20	0	14.45972222	14.51777778	178.4719868	9	1	0.058055556	PT_002	178.4719868
22	21	0	15.70972222	15.79833333	333.1515366	9	1	0.088611111	PT_002	333.1515366
23	22	0	16.33777778	17.05527778	23315.05547	9	2	0.717500001	PT_002	23315.05547
24	23	0	17.28527778	17.43194444	546.5402443	9	1	0.146666667	PT_002	546.5402443
25	24	0	18.00527778	18.06055556	198.0421168	3	1	0.055277778	PT_002	198.0421168
26	25	0	18.35555556	18.52166667	734.0132004	3	1	0.166111111	PT_002	734.0132004
27	26	0	18.60833333	18.87416667	3219.170574	3	2	0.265833333	PT_002	3219.170574
28	27	0	18.92555556	19.26083333	1495.890296	3	1	0.335277778	PT_002	1495.890296
29	28	0	20.69666667	20.79888889	578.8558782	4	1	0.102222222	PT_002	578.8558782
30	29	0	21.05388889	21.11472222	247.669294	1	1	0.060833333	PT_002	247.669294
31	30	0	8.118055556	8.433888889	409.9931532	2	2	0.315833333	PT_003	409.9931532
32	31	0	8.576111111			1	0.138611111	PT_003		510.3994506
33	32	0	7.515833333			1	0.574444444	PT_003		3694.210849

Mode

Walking	1
Automobile	2
Bus	3
Underground	4

Motive: Travel  
Activity: Points of Interest

	A	B	C	D	E	F
1	OBJECTID	Id	COD_Part	Activity	Duration	
2	1	1	0 PT_002	1	12.4	
3	2	2	0 PT_002	2	5.69	
4	3	3	0 PT_003	2	13.7	
5	4	4	0 PT_003	1	6.5	
6	5	5	0 PT_004	1	13.35	
7	6	6	0 PT_004	2	8.64	
8	7	7	0 PT_005	2	12.39	
9	8	8	0 PT_005	1	10.63	
10	9	10	0 PT_006	2	15.2	
11	10	11	0 PT_006	1	8.12	
12	11	12	0 PT_010	2	13.04	
13	12	13	0 PT_010	1	9.98	
14	13	14	0 PT_011	1	13.04	
15	14	15	0 PT_011	2	9.58	
16	15	18	0 PT_013	2	13.84	
17	16	19	0 PT_013	1	8.21	
18	17	20	0 PT_014	2	9.64	
19	18	21	0 PT_014	1	13.28	
20	19	28	0 PT_008	1	11.92	
21	20	29	0 PT_008	2	6.15	
22	21	30	0 PT_008	7	2.34	
23	22	31	0 PT_002	3	1.9	
24	23	32	0 PT_002	4	0.22	
25	24	36	0 PT_003	3	1.19	
26	25	37	0 PT_010	1	9.98	
27	26	38	0 PT_003	6	0.16	
28	27	39	0 PT_005	6	0.13	
29	28	40	0 PT_017			
30	29	42	0 PT_017			
31	30	43	0 PT_017			
32	31	44	0 PT_017			

Activity

Home	1
Work	2
Leisure	3
Shopping and services	4
School	5
Transportation	6
Health	7
Others	8
In Service	9
Sports	10

# METHODOLOGY for data organization

The screenshot displays the CARTRACK software interface, which is a fleet management and tracking system. The main window shows a map of the Iberian Peninsula, specifically focusing on Portugal and parts of Spain. The map includes major roads (A1, A2, A3, E1, E2, E3, etc.) and geographical features like the Oceano Atlântico (Atlantic Ocean) and various rivers. Several vehicles are tracked, with their routes highlighted in orange. A red circle marks the location of Évora, Portugal. The interface includes a sidebar for vehicle filtering, a toolbar with various icons for navigation and geofencing, and a bottom panel for route planning and historical data.

**Frota:**

- CK10053
- CK10055
- CK10067
- CK10068
- CK10070
- CK10071
- CK10072
- CK10073
- CK10074
- CK10075
- CK10076
- CK10077
- CK10078
- CK10079
- CK10080
- CK10081
- CK10082
- CK10083**
- CK10084
- CK10085
- CK10086
- CK10087
- CK10088
- CK10089
- CK10090

**Mapa:**

**Localização:**

- Início: Rua Vasco da Gama, Igrenha, Arraiolos, Évora, Portugal.
- Fim: Rua de Olivença, Évora, Évora, Portugal.
- Hora: Início 2016-03-23 05:20:10+00 Fim 2016-03-24 14:58:59+00
- Percuso: Duração 1 day 09:38:49 Distância -

**Frota**

**Percursos - CK10083**

**Comparação de Rotas**

**detalhes**

**Informação Alarme**

**Mensagens Recebidas**

**Histórico Rota Planeada**

**Gráficos**

**Distâncias POI**

**Alertas**

**Lembretes**

**Percuso Actual**

**Seleccione Percuso**

**Zoom para Todas as Posições**

**Reproduzir Viagem**

**Exportar para Google Earth (.kmz)**

**GPX trip download**

Estado	Ações	Data	Hora	Longitude	Latitude	vel.	Conta Quilôm...	Localização	País
OK		2016-03-24	14:57:19+00	-7.909365	38.572667	0	0.00	Rua de Olivença, Évora, Évora	Portugal
OK		2016-03-24	14:57:39+00	-7.909427	38.572641	1	0.00	Rua de Olivença, Évora, Évora	Portugal
OK		2016-03-24	14:57:39+00	-7.909331	38.572653	0	0.00	Rua de Olivença, Évora, Évora	Portugal
OK		2016-03-24	14:58:19+00	-7.909286	38.572649	0	0.00	Rua de Olivença, Évora, Évora	Portugal
OK		2016-03-24	14:58:39+00	-7.909322	38.572680	0	0.00	Rua de Olivença, Évora, Évora	Portugal
OK		2016-03-24	14:58:59+00	-7.909333	38.572784	2	0.00	Rua de Olivença, Évora, Évora	Portugal

Tracker Platform of data recording

# METHODOLOGY for data organization

A	B	C	D	E	F	G	H	I	J	K
1	Voltar Visão Geral									
2	Estado	Data	Latitude	Longitude	Vel.	ta Quilóme	Força G Lin	Força G Lat	Localização	
70		16-02-15 14:30	-9.01549	38.74155	71	0	0	0	Ponte Vasco da Gama (A12/IP1/E90),	
71		16-02-15 14:30	-9.01225	38.73913	70	0	0	0	Ponte Vasco da Gama (A12/IP1/E90),	
72		16-02-15 14:30	-9.00885	38.73664	71	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Alcochete, Setúbal, Portugal	
73		16-02-15 14:31	-9.00521	38.73433	73	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Alcochete, Setúbal, Portugal	
74		16-02-15 14:31	-9.00143	38.73227	71	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Alcochete, Setúbal, Portugal	
75		16-02-15 14:31	-8.99738	38.73046	75	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Alcochete, Setúbal, Portugal	
76		16-02-15 14:32	-8.99321	38.72867	71	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Alcochete, Setúbal, Portugal	
77		16-02-15 14:32	-8.98915	38.72701	73	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Alcochete, Setúbal, Portugal	
78		16-02-15 14:32	-8.98467	38.72589	75	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Alcochete, Setúbal, Portugal	
79		16-02-15 14:33	-8.98019	38.72544	70	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Alcochete, Setúbal, Portugal	
80		16-02-15 14:33	-8.97527	38.7249	79	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Montijo, Setúbal, Portugal	
81		16-02-15 14:33	-8.97101	38.72377	67	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Montijo, Setúbal, Portugal	
82		16-02-15 14:34	-8.96666	38.72238	71	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Montijo, Setúbal, Portugal	
83		16-02-15 14:34	-8.96243	38.72089	73	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Montijo, Setúbal, Portugal	
84		16-02-15 14:34	-8.9583	38.71936	68	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Montijo, Setúbal, Portugal	
85		16-02-15 14:35	-8.95397	38.71821	68	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Montijo, Setúbal, Portugal	
86		16-02-15 14:35	-8.9499	38.7173	66	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Montijo, Setúbal, Portugal	
87		16-02-15 14:35	-8.94594	38.71683	56	0	0	0	Ponte Vasco da Gama (A12/IP1/E90), Montijo, Setúbal, Portugal	
88		16-02-15 14:36	-8.94288	38.71496	71	0	0	0	IC32, Montijo, Setúbal, Portugal	
89		16-02-15 14:36	-8.94019	38.71214	71	0	0	0	IC32, Montijo, Setúbal, Portugal	
90		16-02-15 14:36	-8.93936	38.70858	74	0	0	0	IC32, Montijo, Setúbal, Portugal	
91		16-02-15 14:37	-8.94015	38.70504	69	0	0	0	IC32, Montijo, Setúbal, Portugal	
92		16-02-15 14:37	-8.94174	38.70218	54	0	0	0	Montijo, Setubal, Portugal	
93		16-02-15 14:37	-8.9442	38.70223	20	0	0	0	Montijo, Setubal, Portugal	
94		16-02-15 14:38	-8.9446	38.70129	48	0	0	0	Montijo, Setubal, Portugal	
95		16-02-15 14:38	-8.94467	38.69885	49	0	0	0	Montijo, Setubal, Portugal	
96		16-02-15 14:38	-8.94567	38.69677	53	0	0	0	Montijo, Setubal, Portugal	
97		16-02-15 14:39	-8.94861	38.69485	75	0	0	0	Estrada do Pau Queimado, Montijo, Setubal, Portugal	
98		16-02-15 14:39	-8.95116	38.69378	49	0	0	0	Rua Vasco da Gama, Afonsoeiro, Montijo, Setubal, Portugal	
99		16-02-15 14:39	-8.95344	38.69602	58	0	0	0	Rua Cidade da Praia, Afonsoeiro, Montijo, Setubal, Portugal	
100		16-02-15 14:40	-8.95567	38.69827	50	0	0	0	Rua Vasco da Gama, Afonsoeiro, Montijo, Setubal, Portugal	
101		16-02-15 14:40	-8.95761	38.7002	48	0	0	0	Rua Vasco da Gama, Afonsoeiro, Montijo, Setubal, Portugal	
102		16-02-15 14:40	-8.95953	38.70199	40	0	0	0	Rua Rui de Pina, Montijo, Setubal, Portugal	
103		16-02-15 14:41	-8.96191	38.70283	55	0	0	0	Rua José Joaquim Marques, Montijo, Setubal, Portugal	
104		16-02-15 14:41	-8.96336	38.70311	0	0	0	0	Rua José Joaquim Marques, Montijo, Setubal, Portugal	
105		16-02-15 14:41	-8.96363	38.70314	0	0	0	0	Rua José Joaquim Marques, Montijo, Setubal, Portugal	
106		16-02-15 14:42	-8.96365	38.70315	0	0	0	0	Rua José Joaquim Marques, Montijo, Setubal, Portugal	
107		16-02-15 14:42	-8.96414	38.70322	26	0	0	0	Rua José Joaquim Marques, Montijo, Setubal, Portugal	
108		16-02-15 14:42	-8.96634	38.70349	26	0	0	0	Rua José Joaquim Marques, Montijo, Setubal, Portugal	
109		16-02-15 14:43	-8.96849	38.70374	31	0	0	0	Rua José Joaquim Marques, Montijo, Setubal, Portugal	
110		16-02-15 14:43	-8.97039	38.70401	33	0	0	0	Rua José Joaquim Marques, Montijo, Setubal, Portugal	
111		16-02-15 14:43	-8.97224	38.70424	39	0	0	0	Rua José Joaquim Marques, Montijo, Setubal, Portugal	
112		16-02-15 14:44	-8.97431	38.70453	30	0	0	0	Rua José Joaquim Marques, Montijo, Setubal, Portugal	
113		16-02-15 14:44	-8.97472	38.70465	0	0	0	0	Rua José Joaquim Marques, Montijo, Setubal, Portugal	
114		16-02-15 14:44	-8.9749	38.70472	18	0	0	0	Rua Miguel Pais, Montijo, Setubal, Portugal	
115		16-02-15 14:45	-8.97567	38.70425	17	0	0	0	Travessa dos Cais, Montijo, Setubal, Portugal	

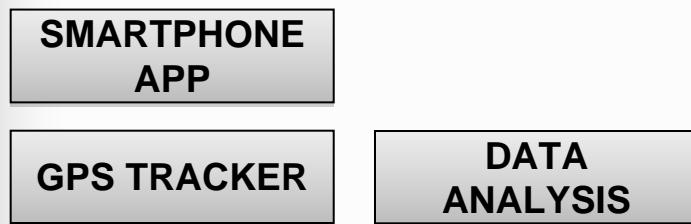
Extracted Table from Trackers

# METHODOLOGY for data organization

Nome	Tamanno	Tamanno com...	Modificado	Criado	Acedido	Atributos	Encriptado	Comentario	CRC	Metodo	Sistema operat.
Àbout Moves Data Export Formats.pdf	88 161	88 171	2016-03-24 15:16			-			5B02B814	Deflate	FAT
csv.zip	742 864	742 974	2016-03-24 15:16			-			21728453	Deflate	FAT
geojson.zip	1 928 273	1 928 563	2016-03-24 15:16			-			9F402F38	Deflate	FAT
georss.zip	2 272 960	2 273 305	2016-03-24 15:16			-			16DB81B7	Deflate	FAT
gpx.zip	2 579 320	2 579 710	2016-03-24 15:16			-			BA78ADF2	Deflate	FAT
ical.zip	1 900 769	1 901 059	2016-03-24 15:16			-			9DADBA8B	Deflate	FAT
json.zip	1 925 207	1 925 497	2016-03-24 15:16			-			834AF7D7	Deflate	FAT
kml.zip	2 170 352	2 170 682	2016-03-24 15:16			-			37C62296	Deflate	FAT
kml_ge.zip	3 735 947	3 736 517	2016-03-24 15:16			-			0AFF1EDB	Deflate	FAT

Extracted Table from MOVES APP

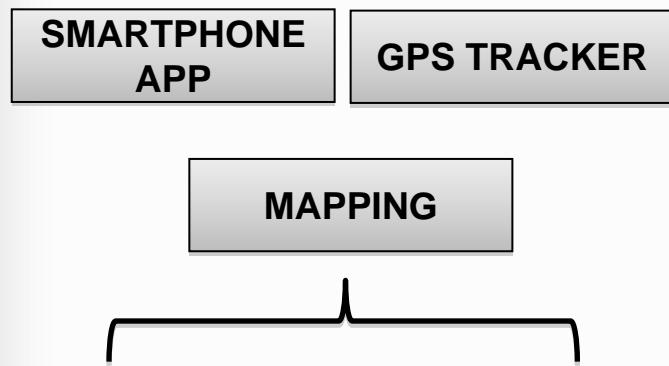
# METHODOLOGY for data analysis



## STATISTICAL DATA:

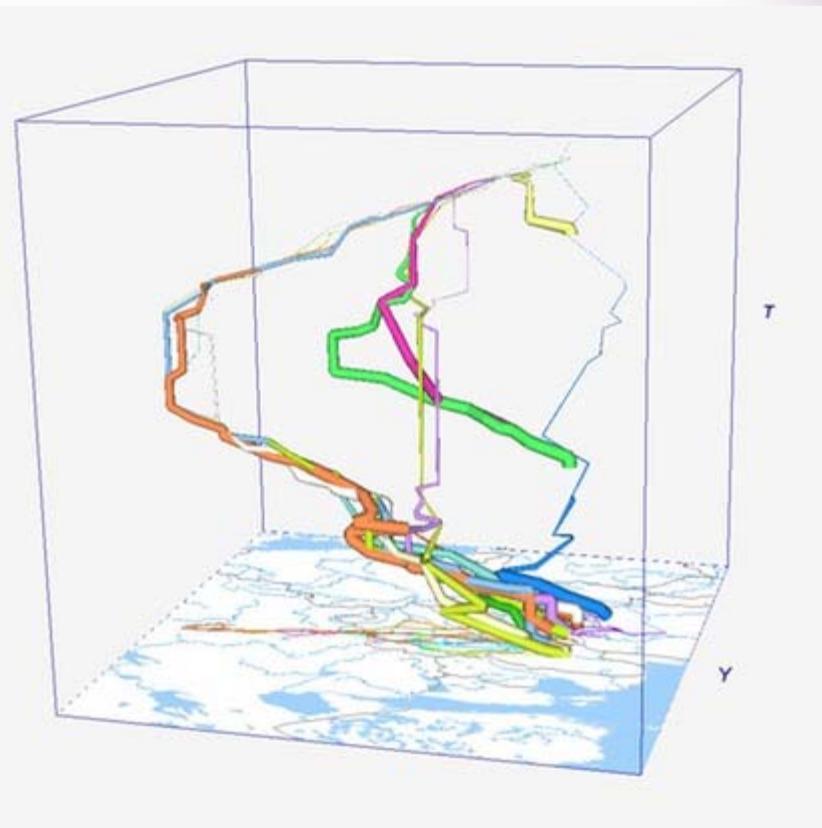
- Analysis of Points of Interest (PoI) and Paths (number of stops, length of paths, average stops, average of length per gender, etc.)
- Spatial Analysis – Space and Time mapping
- Creation of Gender Trip Profiles

# METHODOLOGY for data analysis



## GEOSPATIAL DATA:

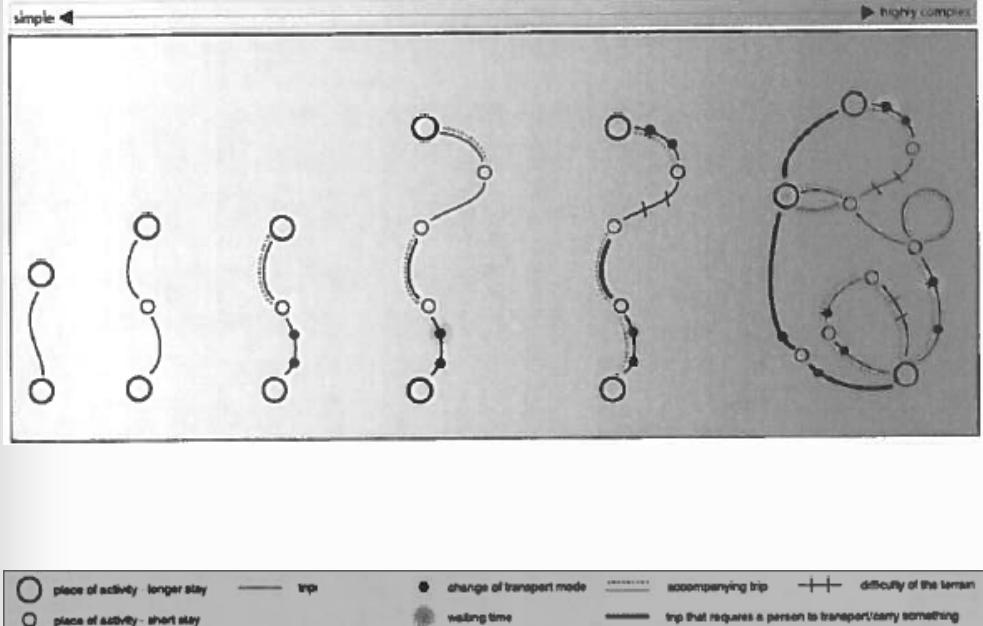
- Mapping Gendered Mobility Patterns
- Profiling and Mapping Mobility Patterns according to demographic factors and social-economical factors
- Heat map of mobility's patterns and profiled patterns
- Space-time Mapping



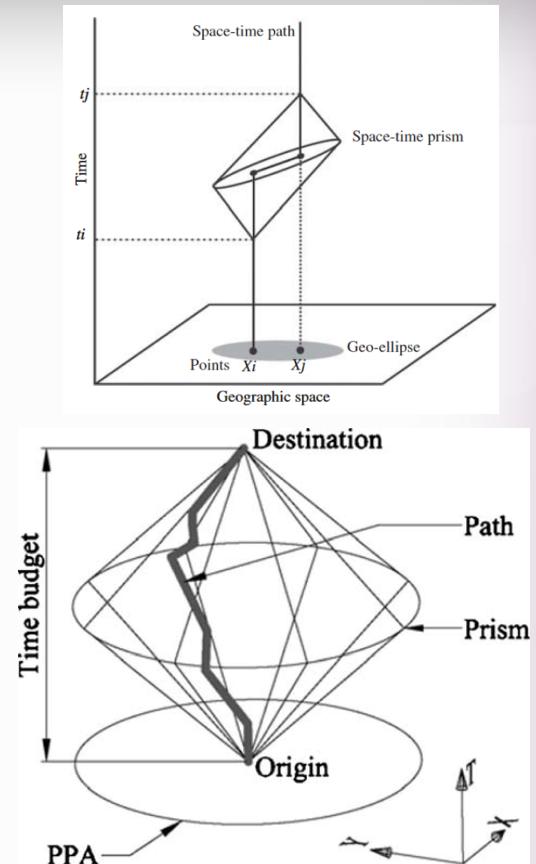
The space-time prism

Kraak, M.-J. <http://www.itc.nl/personal/kraak/move/>

# METHODOLOGY for content analysis



Bente Knoll and Teresa Schwaninger, 2014



experiences on graphic outputs

# AREA SELECTION

*The structural axis located in the Lisbon Metropolitan Area (**Greater Lisbon and Setúbal Peninsula**):*

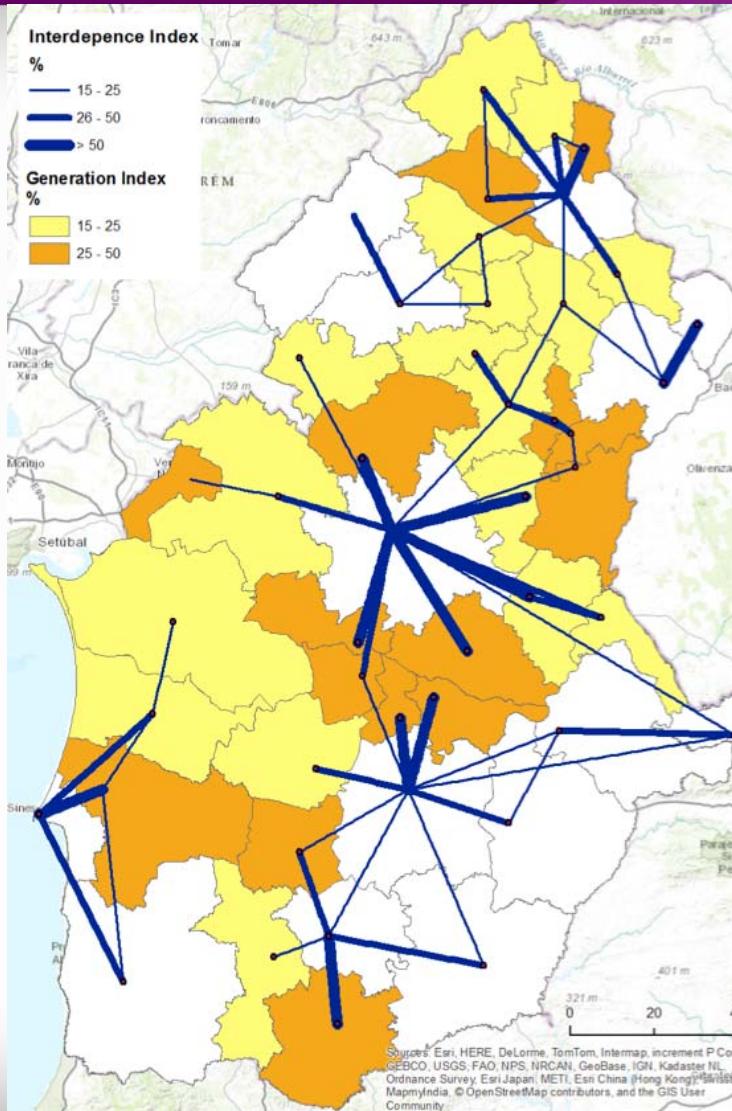
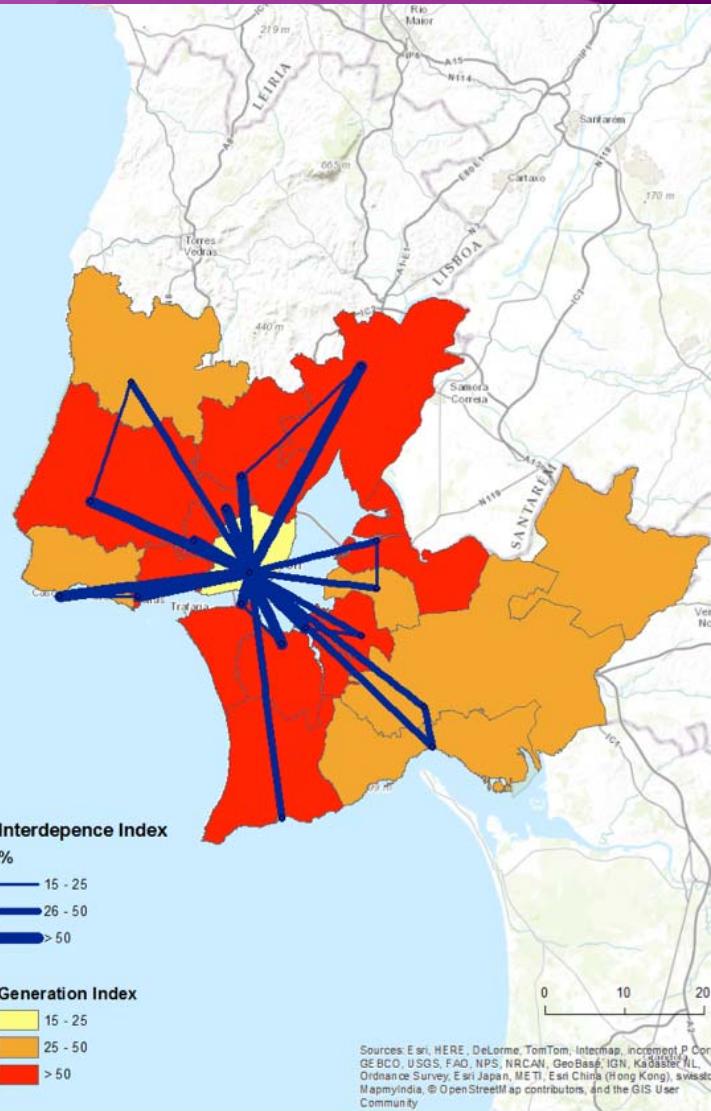
- **Greater Lisbon:** Oeiras–Cascais–Sintra axis; Cacém–Massamá–Mem Martins axis; Vila Franca de Xira–Alverca Carregado axis
- **Setúbal Peninsula:** Palmela de Setúbal axis; Almada- Barreiro axis; Montijo–Alcochete axis

*The structural axes located in **Central Alentejo** and **Baixo Alentejo and Alentejo Litoral**:*

- **Alentejo Central:** Évora–Montemor o Novo axis; Vendas Novas axis
- **Baixo Alentejo:** Mértola–Beja axis
- **Alentejo Litoral:** Sines; Odemira



# CASE STUDIES



CASE  
STUDIES  
Travel-to-  
work areas

# PILOT/ Preliminary STUDY (using a convenience sample)

## 1 Data Aquisition



## 2 Data Organization



Import each spreadsheet of each participant to a geographical database and convert to shapefile;  
Creation of two new shapefiles related to Point of Interest and Trips

The preliminar study has 20 **participants** 4 **Municipalities**:

Oeiras      Lisbon      Montijo      Barreiro

19,505 **GPS points**    88 **Points of Interest**    150 **Trips**



55% Male

## 3 Data Analysis



Spatial Analysis of Data  
Space-Time Mapping  
Statistical Analysis

## 4 Final Outputs



Maps

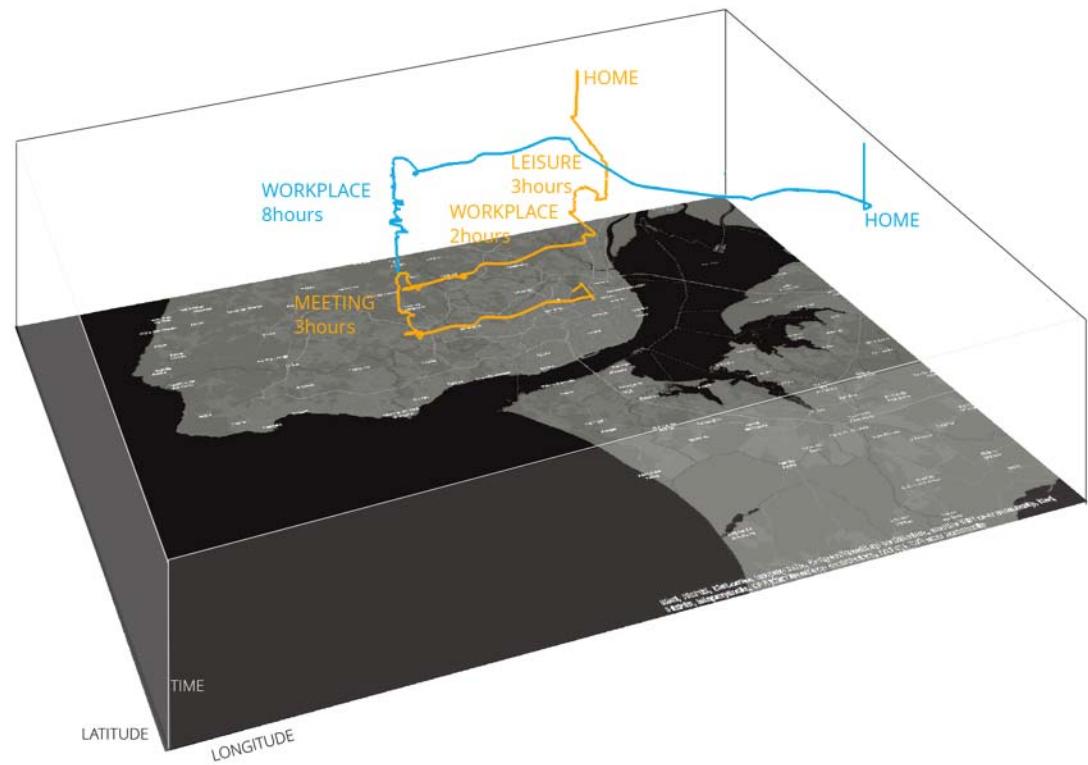
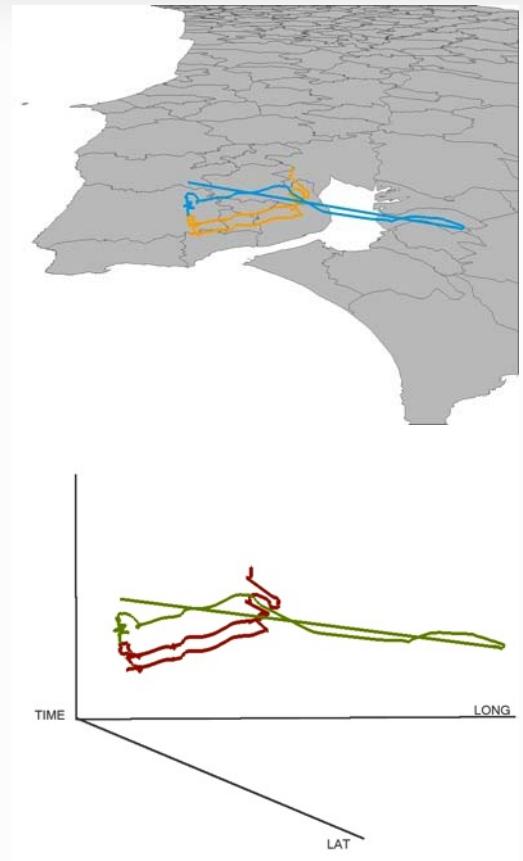


Statistics Policies



Video

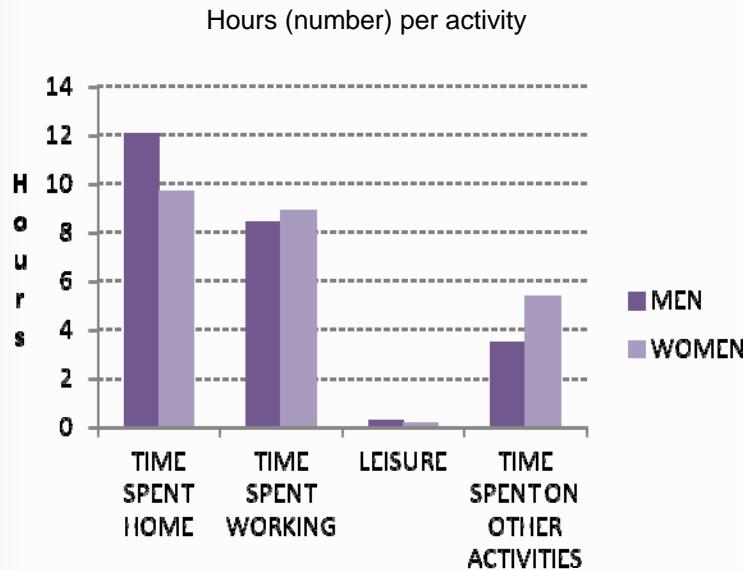
# PILOT/ Preliminary STUDY (experiences on graphic outputs)



Experience of data geovisualisation on 3D graphic outputs, taken from the generated dashboard (blue: women; orange: man)

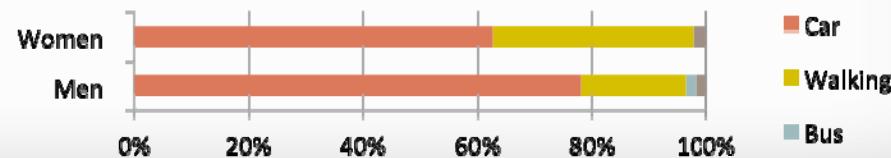
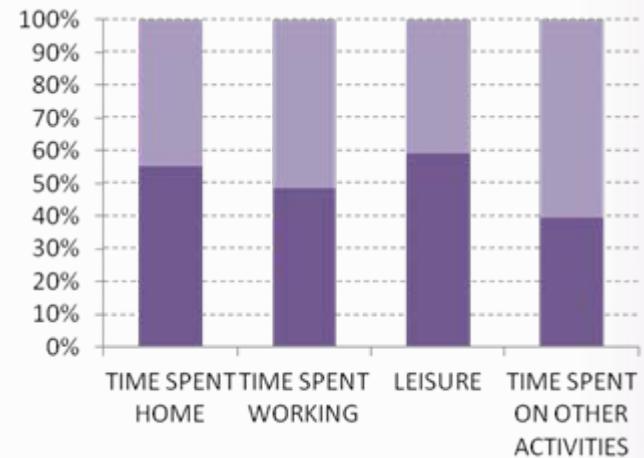
# PILOT/ Preliminary STUDY (results)

	Men	Women
Averages		
Number of trips	9.08	5.38
Traveled distance (meters)	4602.66	6528.73
Travel duration (minutes)	13.22	21.97

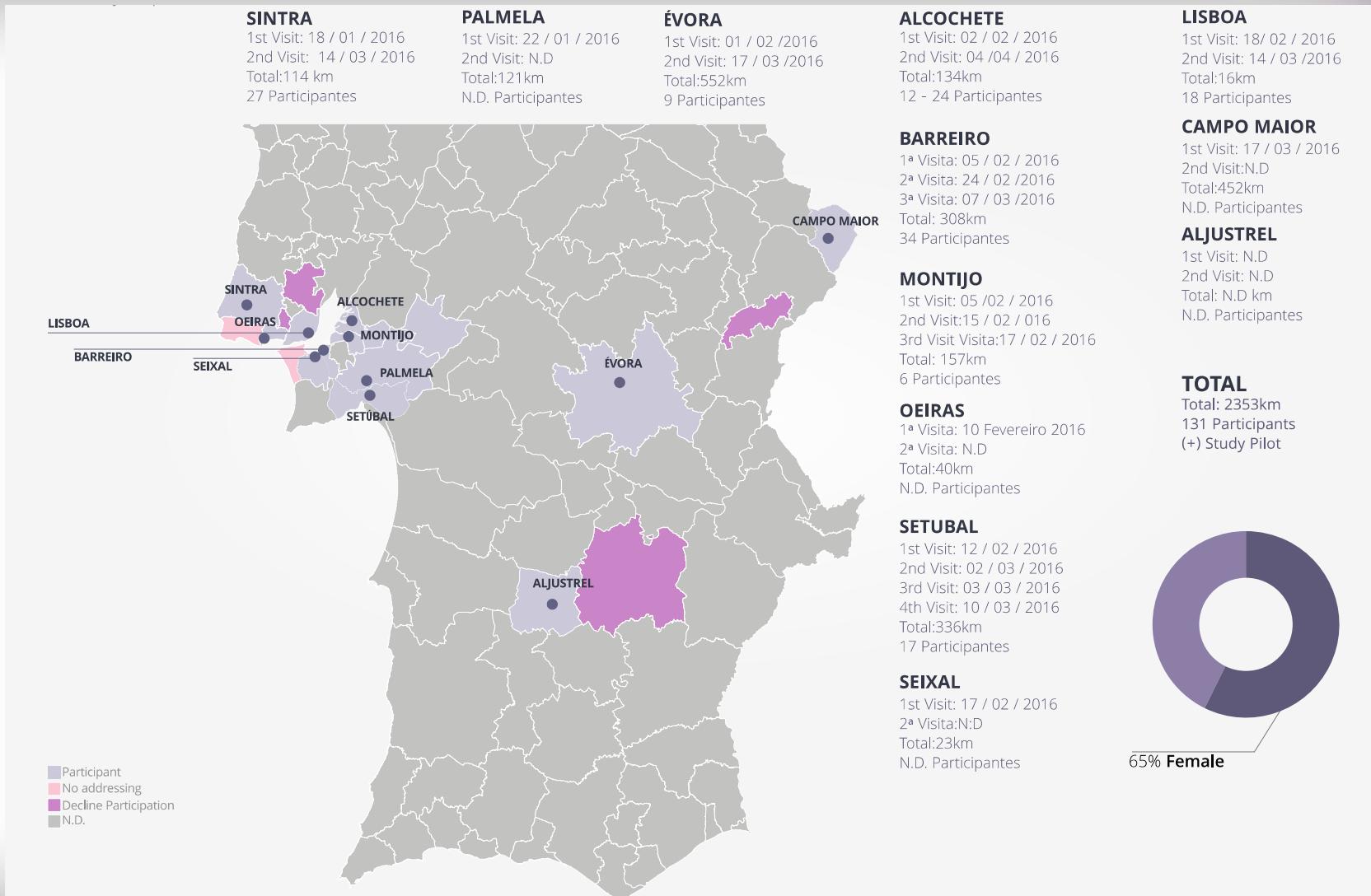


Percentage	Men	Women
Time spent at Home	50.22	40.48
Time spent working	35.18	37.13
Leisure	1.11	0.76
Time spent on other activities	14.60	22.39

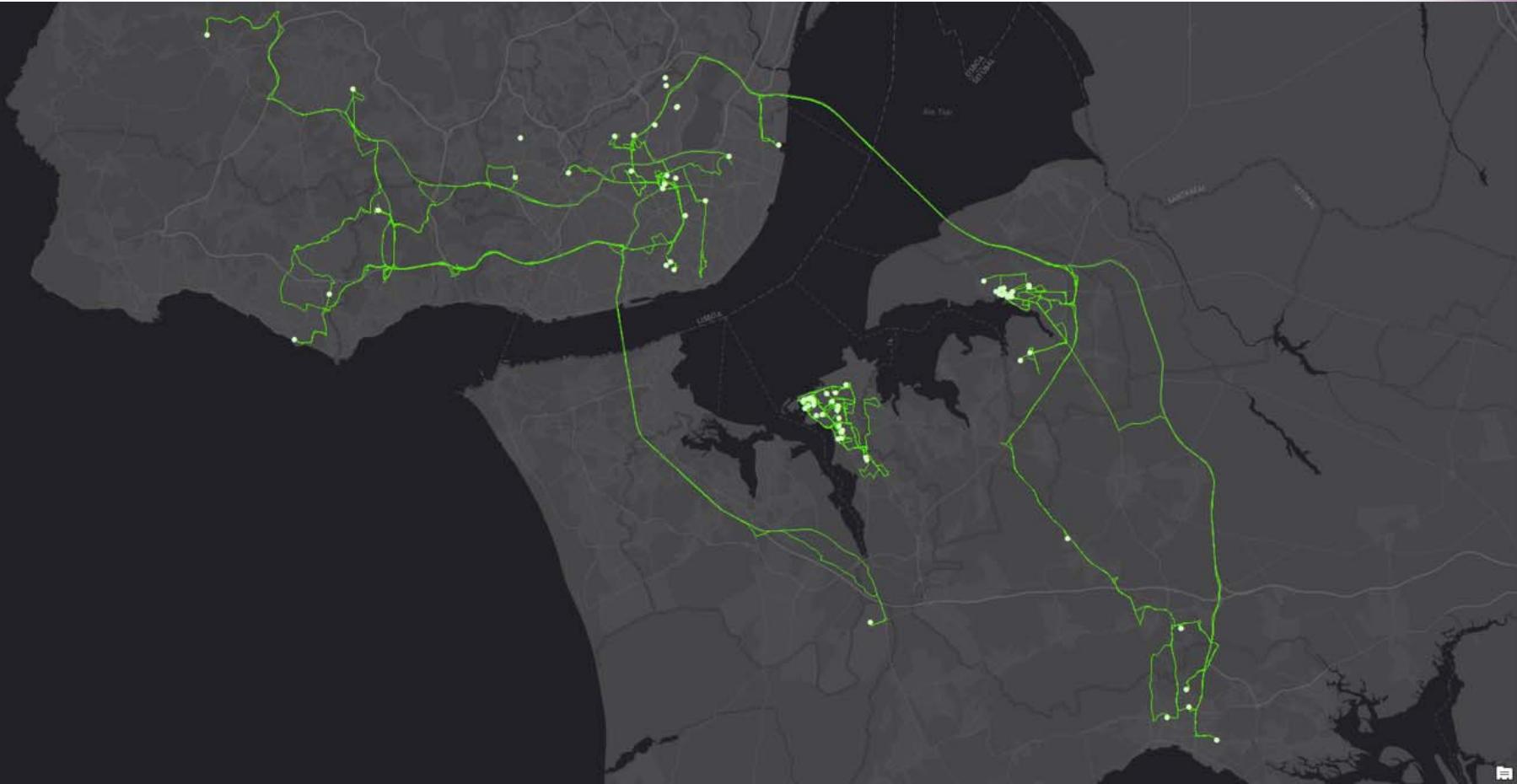
Hours (percentage) per activity



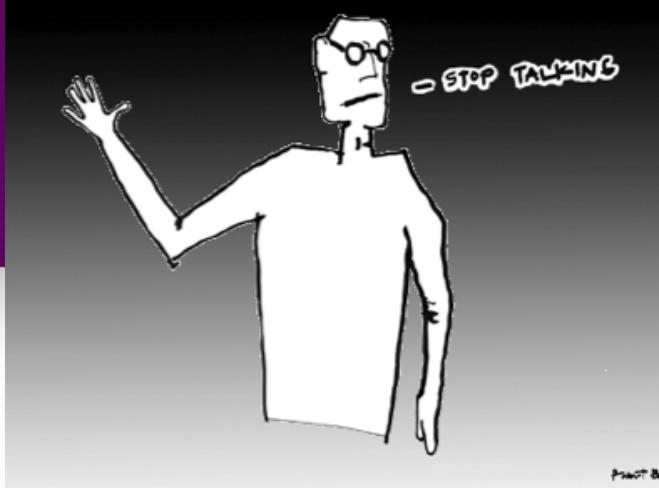
# Participants/volunteers (Jan-Mar 2016)



# Routes collected in LMA (Participants/volunteers, Jan-Mar 2016)



<http://genmob.ceg.ulisboa.pt/>



info.genmob@gmail.com

Thanks for your attention!



GENMOB