

Lisbon's Path towards a Smarter City

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Portugal

- Lisboa E-Nova - Lisbon's Municipal Energy and Environmental Agency
- Motivation and Problem Area
- Research objectives
- Methodology
- Projects
- Major Outcomes and Results
- Conclusions and Outlook

Contribute to Lisbon's sustainable development through the promotion and dissemination of good practices in energy and environment.

- 25 Affiliates
- 11 employees
- 8.000 Mailing list subscribers
- 30 Communication actions/year
- 25 Current projects



AFFILIATES



Areas of expertise



- Lisbon is the capital and largest city of Portugal.
- Extending over 84,7km², Lisbon is the home for approximately 500.000 inhabitants
- Lisbon is confronted with problems in terms of housing, transport, climate, infrastructure, security;
- Lisbon faces the ageing of population in combination with economic downturn
- The current economic crisis is even making it harder for the city and its citizens, neighbourhoods and businesses to realize their goals;



- In over 30 years, 1981 to 2011, the city's population has decay from more than 800.000 inhabitants to less than 500.000 inhabitants nowadays;
- Lisbon receives daily over 2 million people coming from the Metropolitan area;
- Lisbon region is the second most important financial and economic centre in the Iberian Peninsula



Decentralization of resources that needs to be put into place due to the increasing urban sprawl

Use of the infra-structures dimensioned to face a certain demand, what puts their economic viability at stake

The dynamics involved in planning and managing a capital city sets out numerous challenges in terms of the city's liveliness and capacity to support and offer the quality of life its citizens expect.

- **The challenges:** Economic and financial crisis, citizens distrust, growing social needs, ageing population, sustainability.
- **The opportunities:** ICT, data systematization, citizens participation, social networks, renewable energies technologies in the urban environment.
- **The goal:** *“Facilitate creativity, providing citizens, small enterprises, start-ups and civil organizations the tools needed to create, to innovate, to enable social innovation, centring the citizen as a co-producer/partner of the City”*

Lisbon City Councillor Graça Fonseca

- **an international hub for world scale companies;**
- **a pole for creativity and innovation;**
- **a prospering atmosphere for entrepreneurs, new ideas and business;**
- **a dynamic city for exhibitions, events and cultural activities;**
- **a center for excellence in investigation and R&D;**
- **an inclusive city for its citizens, fostering a cooperative environment between the local authorities and the citizen.**

Which measures under the current situation can

- **attract citizens?**

an inclusive city for its citizens, fostering a cooperative environment between the local authorities and the citizen

- **foster entrepreneurship?**

a pole for creativity and innovation, with a prospering atmosphere for entrepreneurs, incubator for new ideas and business models, a centre for excellence in investigation and R&D

- **and increase sustainability?**

focused on achieving excellence in the efficient use of its resources, bearing in mind the compromises assumed within the Lisbon's Energy-Environment Strategy and the Covenant of Mayors

LISBON'S CONCEPT OF A SMART CITY







PARTICIPATION

- PARTICIPATORY BUDGETING
- 21st AGENDA
- IN MY STREET
- BIP/ZIP

ENTREPRENEURSHIP

- START UP LX
- CO-WORK LISBOA
- OPEN DATA
- FAB LAB
- LISBON ACADEMY

SUSTAINABILITY

- ENERGY LIVING LABS
- SOLAR LISBON
- ECO-NEIGHBOURHOOD
- SUSTAINABLE MOBILITY

PARTICIPATION

PARTICIPATORY BUDGETING

- ☐ 580 Proposals
- ☐ 89 Projects
- ☐ 5 Winners
- ☐ 1101 Voters

- ☐ 533 Proposals
- ☐ 200 Projects
- ☐ 12 Winners
- ☐ 4719 Voters

- ☐ 937 Proposals
- ☐ 291 Projects
- ☐ 7 Winners
- ☐ 11570 Voters

- ☐ 808 Proposals
- ☐ 228 Projects
- ☐ 5 Winners
- ☐ 17887 Voters





MUDE
MUSEU
DESIGN
MODA

MUSEU
MUSEUM
MUSEO
博物馆
Музей
מוזיאון
متحف

MUDE
MUSEU DE DESIGN E MODA

PARTICIPA NESTE
MUSEU CONCERTO
NA PARRA

PARTICIPA NESTE
MUSEU CONCERTO
NA PARRA

UNICO
E MULTIPLO

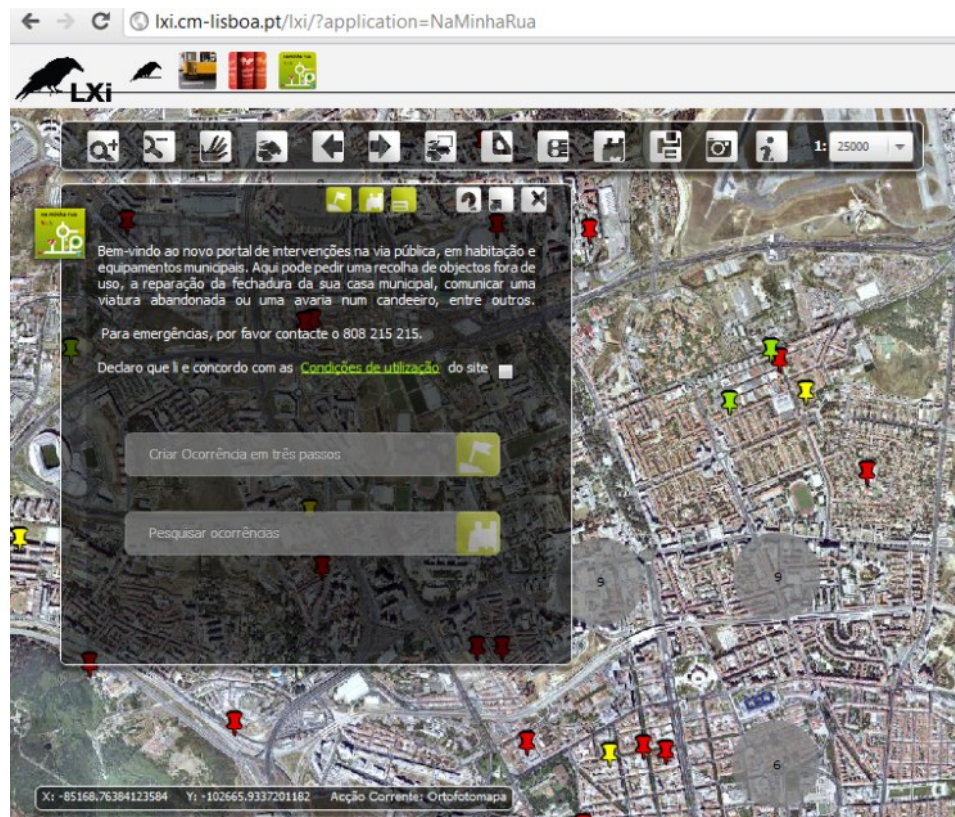
MUSEU
MUSEUM
MUSEO
博物馆
Музей
מוזיאון
متحف



PARTICIPATION

IN MY STREET

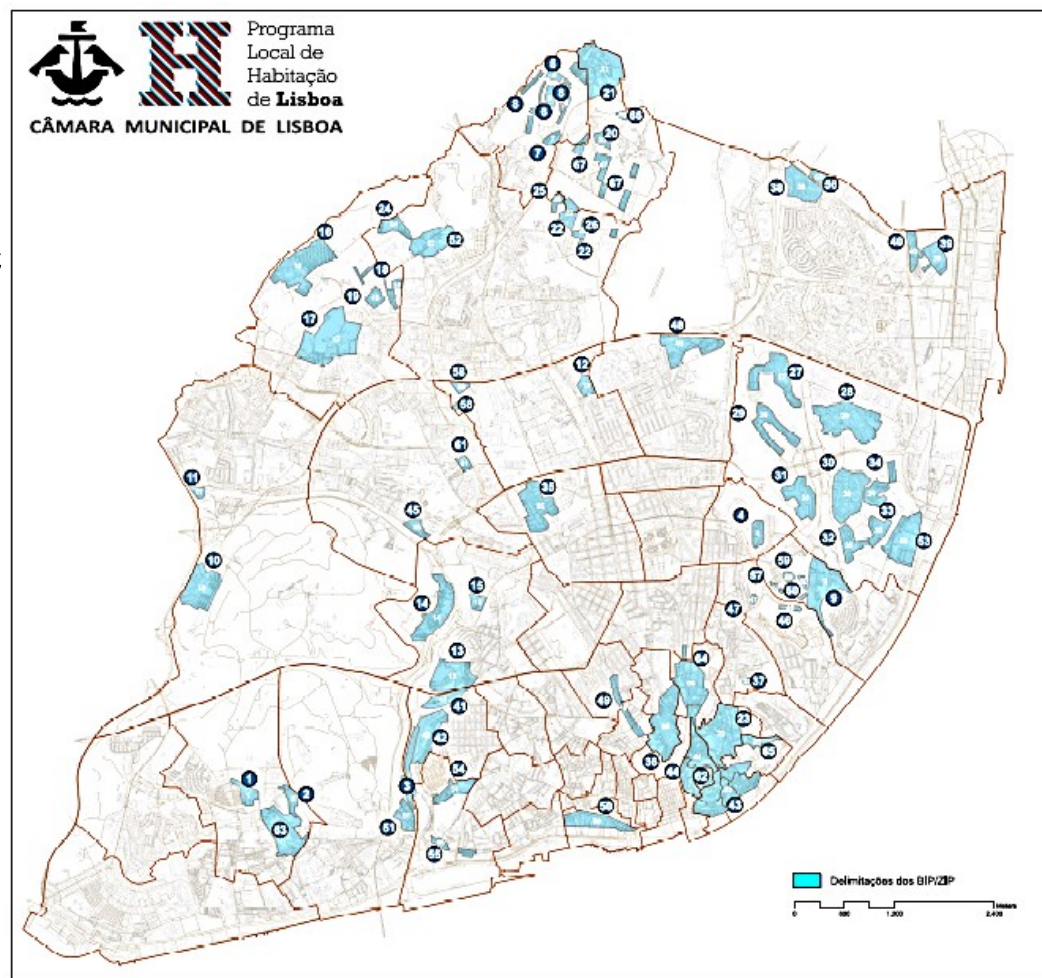
- Citizens are invited to report problems/situations that need the municipality's attention.
- The occurrences are presented to everyone in the portal, identifying their state:
 - reported,
 - analysed,
 - solved.
- Successful instrument for citizens reporting/communicating the city status and identifying gaps in the city management.



PARTICIPATION

BIP/ZIP

- The Lisbon Municipality mapped the most critical neighbourhood in the city according to social, economic and environmental criteria;
- To those neighbourhoods it launched a financing programme to foster the requalification of the areas;
- A partnership programme where the Municipality invites local/ neighbourhood organizations to develop projects that respond to the citizens specific needs.



Projecto BIP/ZIP vence Prémio Future Cities da Bienal de Veneza

30-08-2012



Foram anunciados em Veneza os três premiados do Prémio Future Cities, Planning for the 90 per cent, que contou com mais de 100 participações de diversos países. E o projecto '**PRODAC Norte em Movimento**', inserido no programa BIP-ZIP (bairros/zonas de intervenção prioritária) da Câmara de Lisboa, é um dos três premiados.

ENTREPRENEURSHIP

LX START UP

- Result of a proposal in the Participatory Budget of 2010;
- Opened in March 2012;
- 30 micro-companies are hosted by the Lx Start Up;
- Mostly in the areas of creative industry and ICT;
- Offers counseling, training, visibility, access to investors...



Start up Lisboa Incubadora de Empresas

Gosto 3024 gostos. Regista-te para veres aquilo de que os teus amigos gostam.

Visita-nos no facebook

Cerimónia de Entrega de chaves a mais 15 empresas
Terça, Maio 8, 2012 - 12:00
Cerimónia pública, aparece e vem conhecer-nos

1ª Semana do Empreendedorismo de Lisboa
Segunda, Maio 7, 2012 (All day)
1ª SEMANA DO EMPREENDEDORISMO DE LISBOA
7 a 11 Maio
Celebrar o Empreendedorismo em Lisboa!

1º Jantar - Festa da Startup Lisboa

QUEM SOMOS
EMPRESAS
PARCEIROS
CONSULTORES

GoClapp
T&F
fermento
CV film

<http://www.youtube.com/watch?v=8NkJ9OrO2xo>



Start up Lisboa

Município de Lisboa

Lisboa

LAPMEI

2017

Start up Lisboa

LisbonLovers

Start up Lisboa

Incubadora
de Empresas



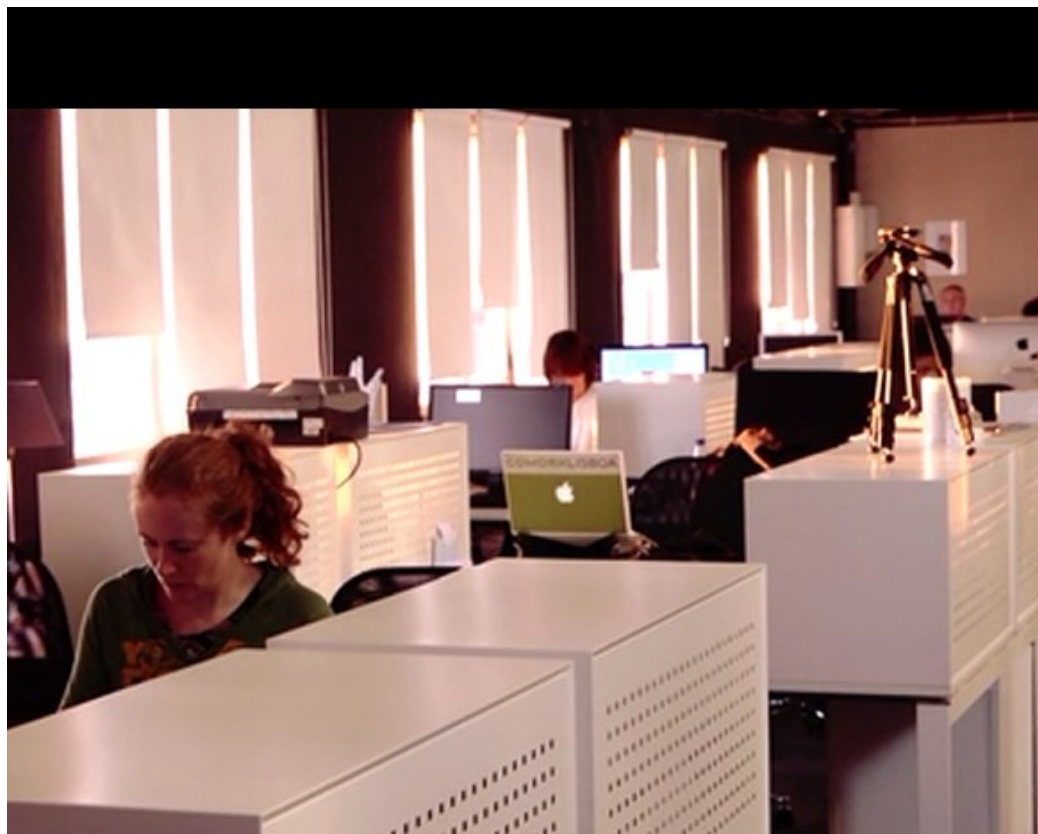




ENTREPRENEURSHIP

CO-WORKING

- Growing demand and offer of spaces;
- Private and public initiative
- Individuals and Micro-companies



ENTREPRENEURSHIP

OPEN DATA

- More than 50 data collections;
- Available to the public;
- Build new services and functionalities based on the city's reality



The screenshot shows the 'LISBOA PARTICIPA' website with a focus on 'OPEN DATA LX'. The page features a search bar, a list of popular search terms (e.g., 'solar', 'Restaurantes', 'estátuas'), and a grid of data collections. Each collection includes details such as 'Data', 'Formato', and 'Categoria'.

Nome do Dado	Data	Formato	Categoria
Parques e Jardins	19-04-2012	Webservice REST	Ambiente
Arquitetura Premiada	19-04-2012	Webservice REST	Cultura
Arquitetura Nobre	19-04-2012	Webservice REST	Cultura
Arquitetura Industrial	19-04-2012	Webservice REST	Cultura
Arquitetura de Água	19-04-2012	Webservice REST	Cultura



ENTREPRENEURSHIP

LX ACADEMY



...benefit from the scientific knowledge and investigation to answer some of the questions that are addressed in Lisbon's environment, benefiting from the living environment Lisbon represents...

Lisbon City Councilor
Graça Fonseca

SUSTAINABILITY

LIVING LABS

Residential buildings

Promote energy efficiency and behaviour change through the use of smart meters and practical accompaniment towards the adoption of more energy efficient actions and empowered and skilled households to manage and save energy


Energy efficiency based in smart metering and feedback mechanisms (user empowerment through information)





The presence of a display that shows the real time energy consumption,

 My profile

 Dashboard

 Power Plugs

 Electricity

 Logout

Dashboard

DASHBOARD



POWER IN USE

UNTIL NOW:

0.40 €

0.83 kWh

PERFORMANCE:

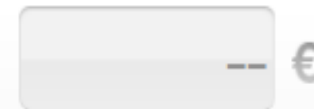
23.50%

DAILY AVERAGE:

0.08 €

0.61 kWh

MONTHLY OBJECTIVE



7.53 €



Monthly Objective accomplished

THIS MONTH



UNTIL NOW

7.53 €

28.72 kWh



MONTHLY OBJECTIVE

-- €



PREDICTION FOR THE END OF THE MONTH

15.16 €

81.88 kWh

ECO STEP



(Emissions)



(Trees)



(Cars)

THIS MONTH

10.1 Kg

57

86


LAST MONTH

27.2 Kg

156

233

Consumption

 My profile

 Dashboard

 Power Plugs

 Electricity

3 kWh

Thursday, 4 / October / 2012

Now

Daily

Weekly

Monthly

Annual

2 kWh

Thursday, 11 / October / 2012

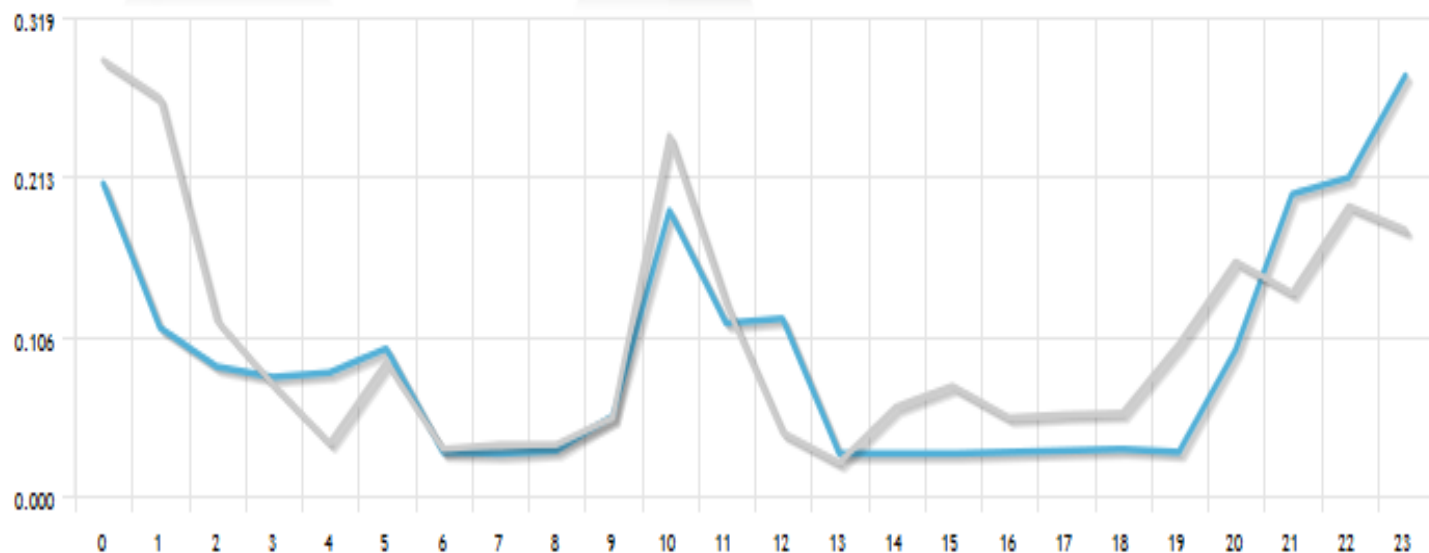
Consumption (kWh)



CONSUMPTIONS

KWh

€



— Thursday, 4 / October / 2012

— Thursday, 11 / October / 2012

* Prediction based on the average consumption

SUSTAINABILITY

LIVING LABS

Service Buildings

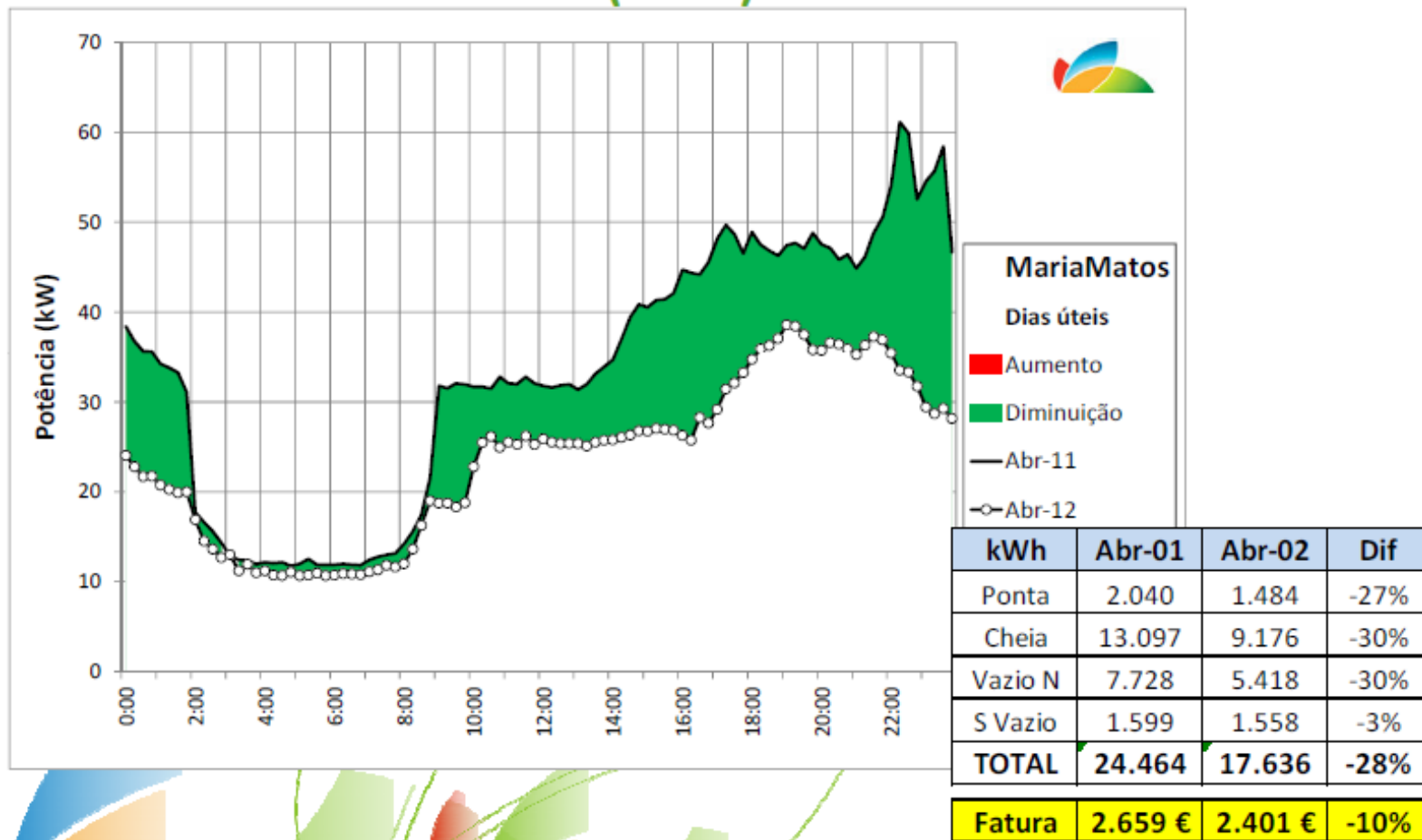
Focused on improving buildings' energy efficiency through the analysis of static and real time data together with the building energy manager and the building users.



SUSTAINABILITY

LIVING LABS – ENERGY REMOTE MANAGER TOOL

TEATRO MARIA MATOS (-28%)



SUSTAINABILITY

PUBLIC LIGHTING



Enable

Time based

Location

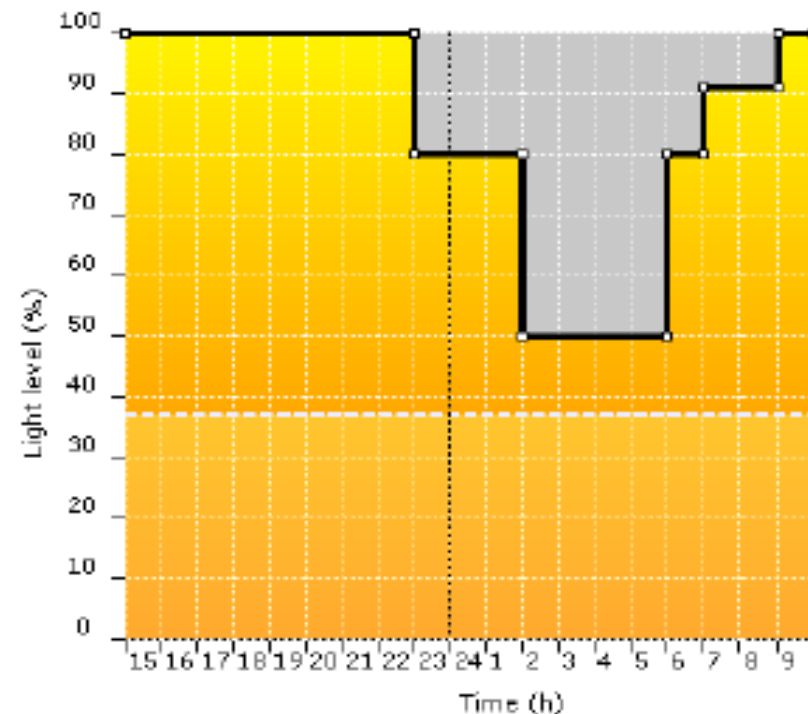
No location

Custom...

Schedule

+ - [Icon]

Time (hh:m)	Light level (%)	Fade time (s)
23:00	80	180
02:00	50	180
06:00	80	0
07:00	91	0
09:00	100	0



SUSTAINABILITY

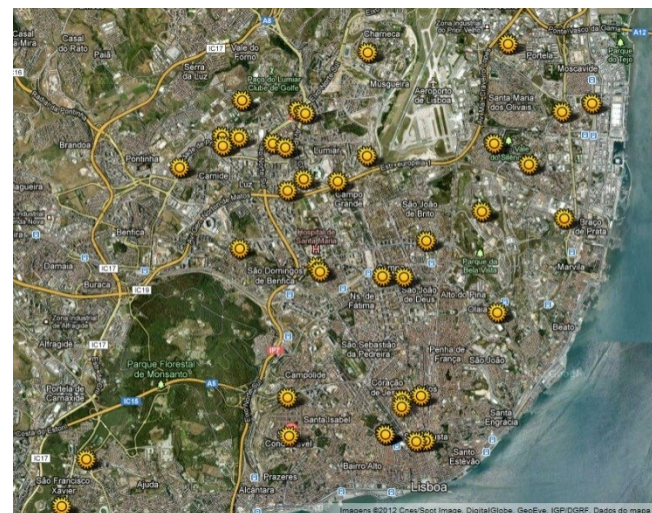
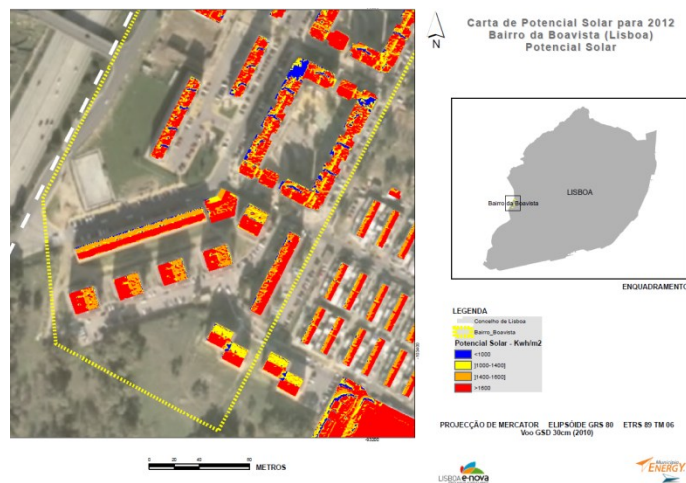
SOLAR LX

Lisbon is the European capital with the highest number of sun hours;

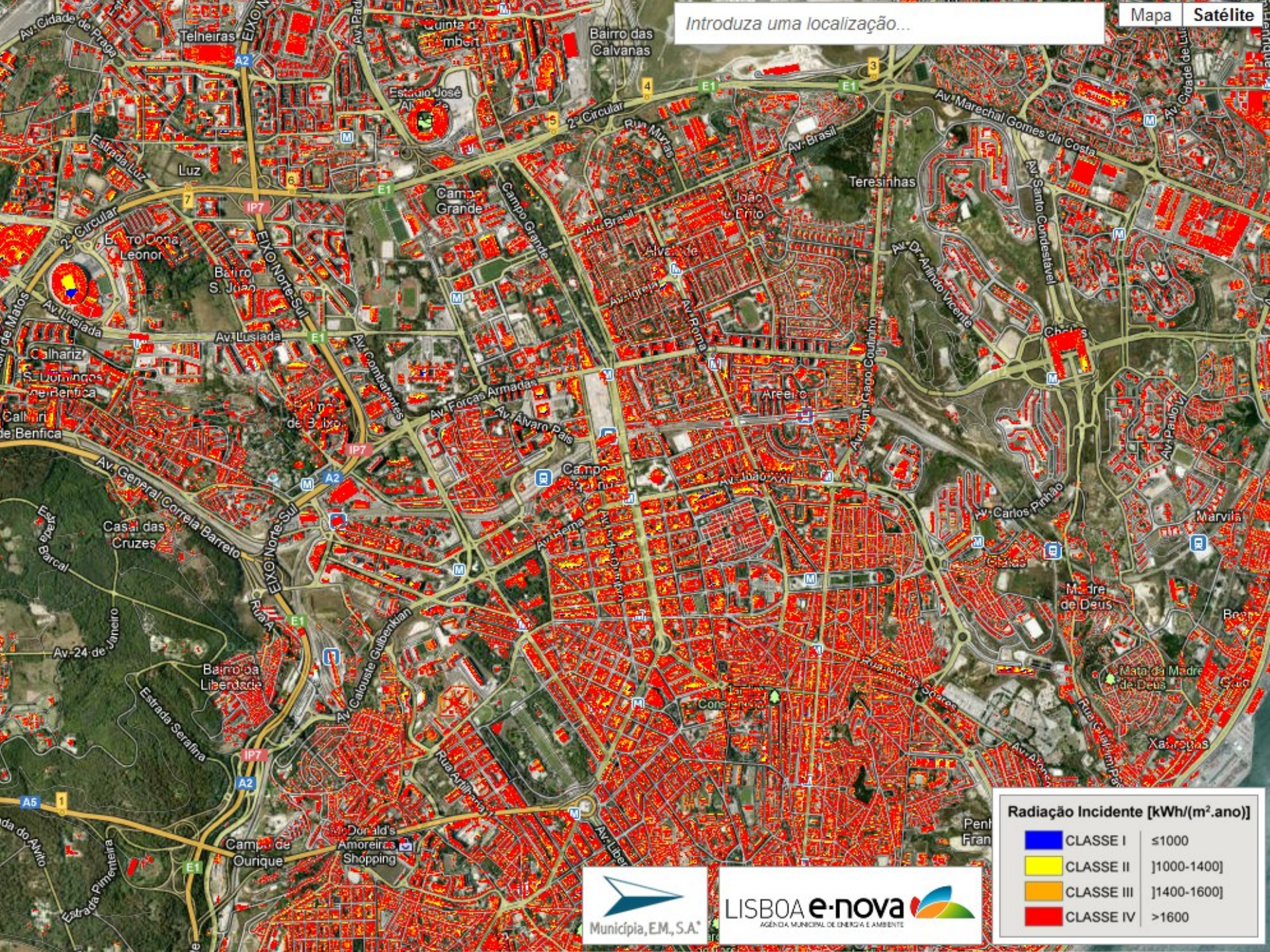
- Evaluation of Lisbon's patrimony solar potential;
- Online tool to present the solar potential;
- Straighten the relation between building owners, investors and utilities;
- Monitor the performance of the existing solar systems,
- Compare potential with effective monitoring results;

Strengthen Lisbon's efficient use of its' resources.



<http://www.lisboaenova.org/pt/cartasolarlisboa>



Introduza uma localização...



Radiação Incidente [kWh/(m².ano)]

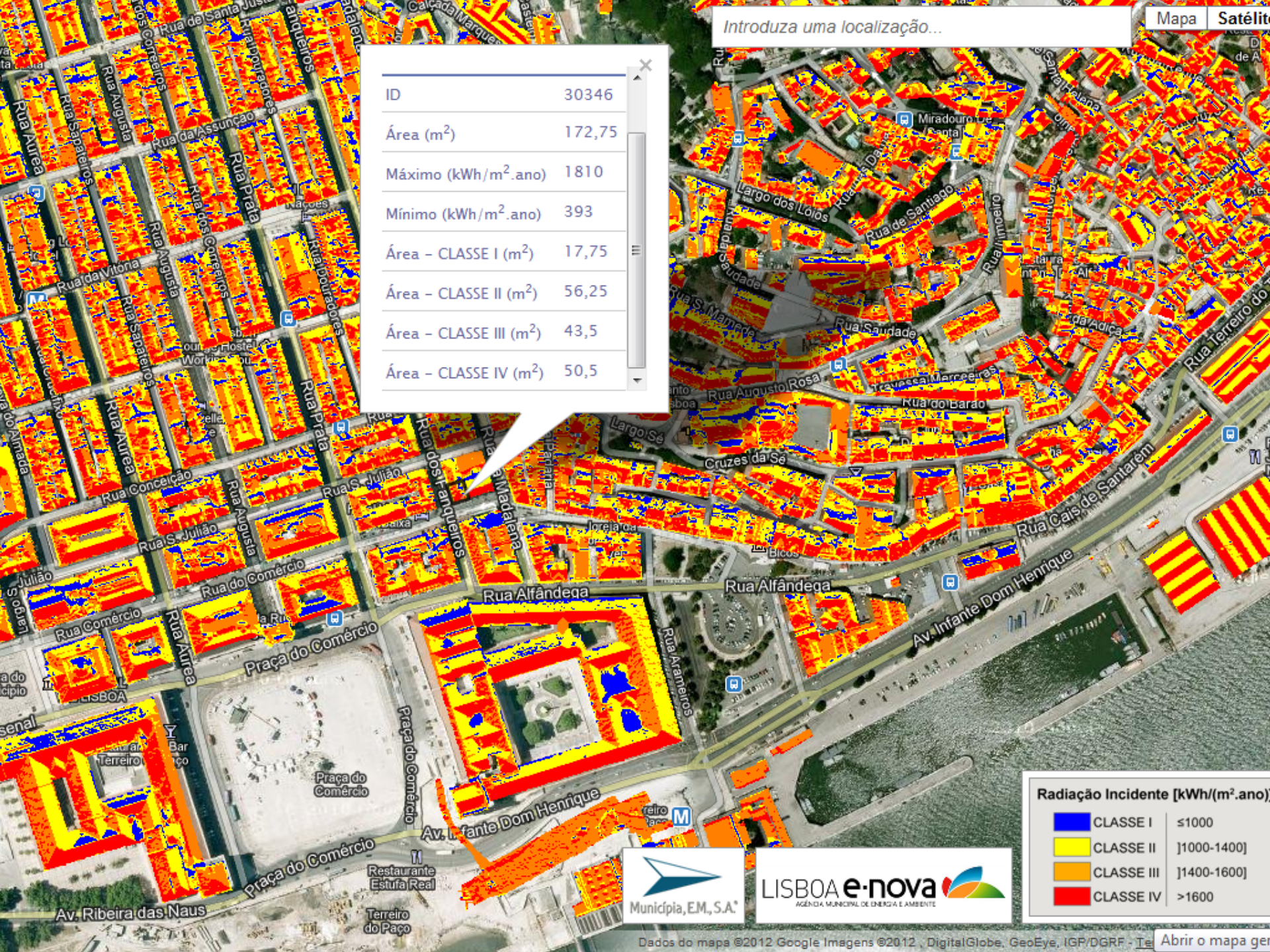
	CLASSE I	≤1000
	CLASSE II]1000-1400]
	CLASSE III]1400-1600]
	CLASSE IV	>1600



Introduza uma localização...

Mapa Satélite

ID	30346
Área (m ²)	172,75
Máximo (kWh/m ² .ano)	1810
Mínimo (kWh/m ² .ano)	393
Área - CLASSE I (m ²)	17,75
Área - CLASSE II (m ²)	56,25
Área - CLASSE III (m ²)	43,5
Área - CLASSE IV (m ²)	50,5



Radiação Incidente [kWh/(m².ano)]

CLASSE I	≤1000
CLASSE II]1000-1400]
CLASSE III]1400-1600]
CLASSE IV	>1600

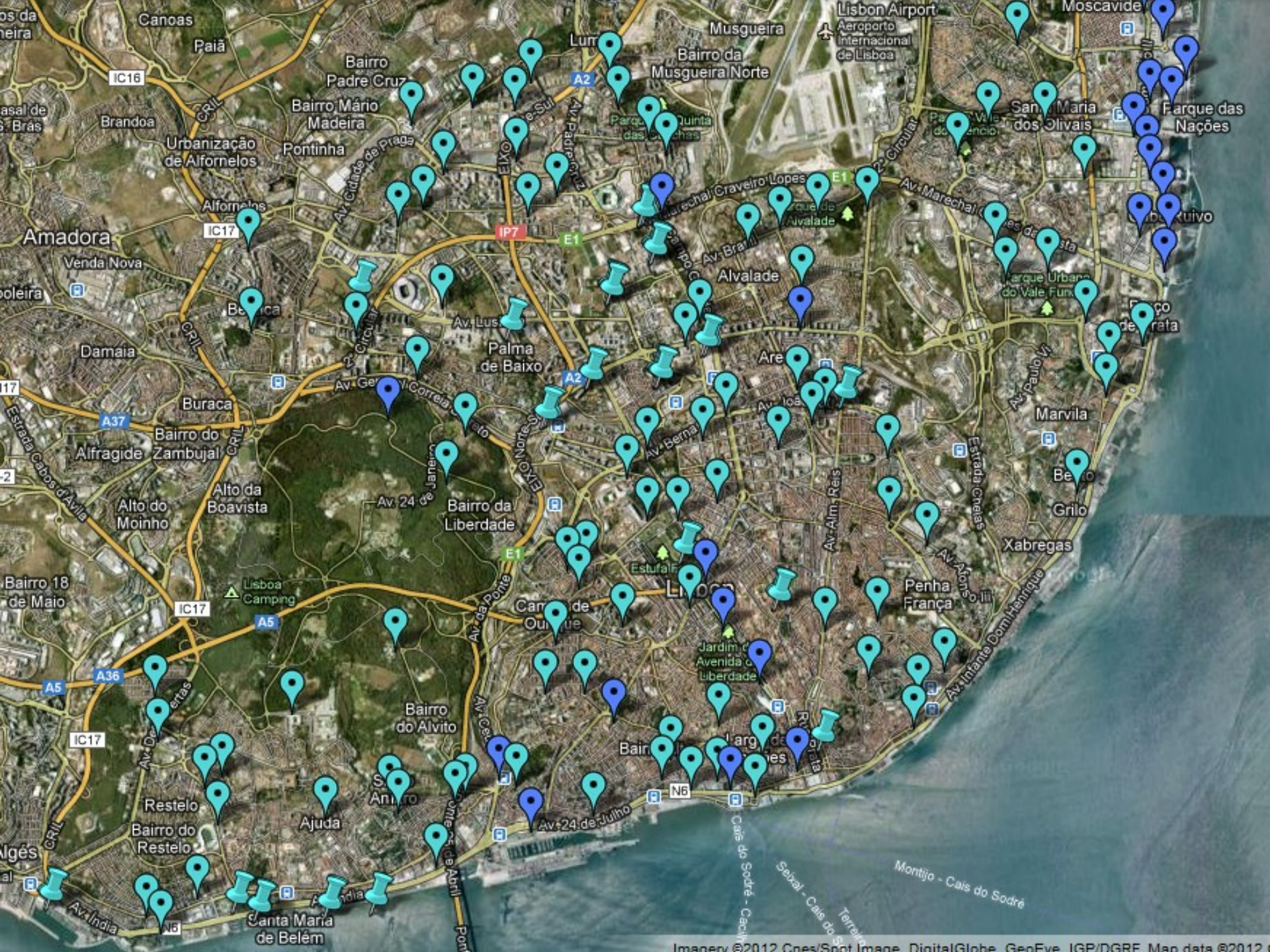


SUSTAINABILITY

ELECTRIC VEHICLES

- Installation of 514 charging points for electric cars in the city of Lisbon.
- The first year is free of charge!
- Interconnection with the public transports system;
- Future: connection with smart grids and bi-directional energy flux.





SUSTAINABILITY

PUBLIC TRANSPORT

Bus timeline by the minute



Painel ao minuto

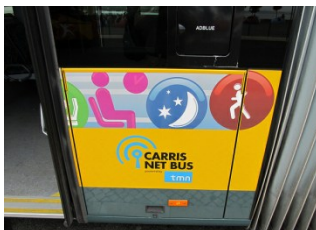


SMS ao minuto



E-mail ao minuto

Net Bus



Carsharing



SUSTAINABILITY

DEDICATED BICYCLE LANE

- Winning project from 2008 Participatory Budget;
- More than 35 km
- Dedicated services
 - Bike bus;
 - Apps;
 - Share bicycle system;
 - Tours







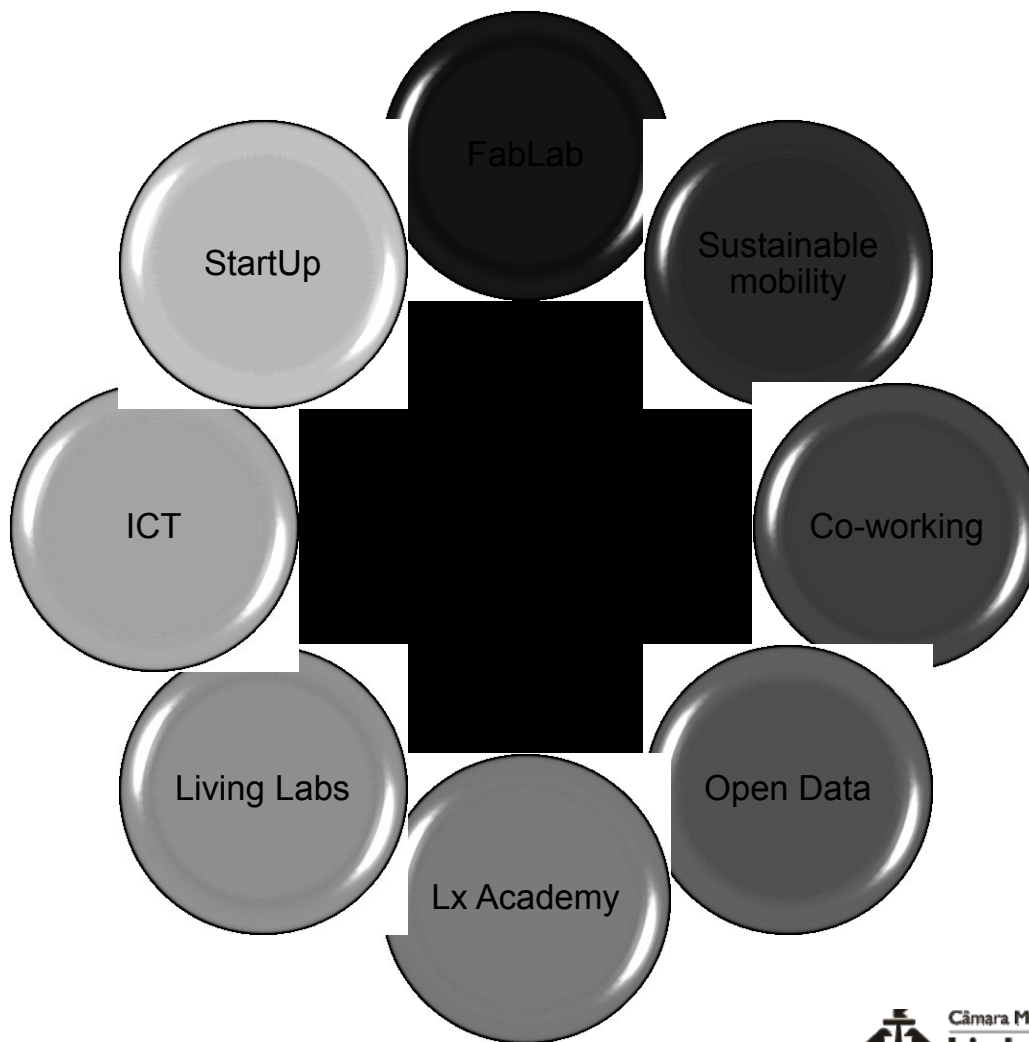
- Users are highly committed to an **active involvement** in the identification and definition of solutions and projects for the city.;
- Citizens capacity to identify market gaps and propose effective projects is acknowledge and should be continually supported via the **participatory budgeting initiatives**;
- users involvement and ability to act as lead role in **energy efficiency** based actions and opportunities was corroborated with the **Living Lab experiments being developed at the energy efficiency level and renewables use and potential.**



- **entrepreneurship** is at the very heart of the Lisbon Smart City Strategy as an advantage the city has to offer to new comers into the services and trading sector;
- **Open Data** is a pillar in the Smart City Strategy, though a strong efforts needs to be in place to assure the use of the data sets and the effective construction of innovative, city based information functionalities;
- **Academia Lx** - the link between Universities and the research that is produced at these investigation poles needs further conciliation, as theoretical ideas aren't directly transposable into the local context;
- **Sustainable** and smart mobility is a hot theme in every city, as it mostly focuses in changing people's habits, which is in fact one of the most difficult challenges in a city management.

- Lisbon's path towards becoming a Smart City is at its very beginning
- Nevertheless positive lessons have already been acknowledged and are the basis for this strategy's continuous improvement, making it more idea intensive, better connected and ultimately more urban
- The pillars are an integrated approach to the city's objectives for its near future, addressing also the current economic crisis that should not be looked upon as a barrier to investment and to the successful development of prospering innovative projects, but as an opportunity for disruptive innovations, based on the next level of innovation, users' involvement

- Concepts to flourish in an innovation environment.



- **OPEN DATA**
new partnerships for workable data
- **CO-WORKING**
a new space promoted by the Municipality in the Forno do Tijolo Market
- **FAB LAB**
real time prototyping in Forno do Tijolo Market
- **CROWDSOURCING**
social network for innovation in Lisbon
- **LISBON ACADEMY**
1st edition 2011/2012
- **LX START UP - BUSINESS INCUBATOR**
1st year of operation
- **CITY SDK**
transfer of Smart City applications from one city to another

Lisbon is setting its path towards being a true open eco-system where ICT systems have the potential to be adopted at the most different levels of usage and engage stakeholders, onto the city's route for becoming a smart and a sustainable city.

SEE YOU
IN LISBON
STARTUP CITY

www.lisboaenova.org
www.lisboaparticipa.pt