Experimentation Ecosystem for Development of Digital Services

Sara Mendes - Porto

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Agenda

• Porto Digital - A Toolbox for Innovation and Digital Transition in Porto
• Experimentation Activities
  • Explore Porto
  • Desafios Porto
• Porto as a Living Lab
• Q&A and Learnings from other cities
About Porto Digital

Porto Digital aims to promote the creation of a digital community that values innovation and experimentation in the context of the city of Porto and its metropolitan area and positions itself as the toolbox for Porto’s Innovation and Digital Transition.

Part of our main goals are:

• to promote open innovation and the cross fertilization of ideas between city stakeholders;

• to boost the city as a living lab.
Mission

Innovation and Digital Transition as accelerators of the city transformation, contributing to more efficient public services and with an impact on increasing citizens' quality of life and sustainable development.
Strategy

Connect → Technology

Co-create → Innovation and Experimentation

Collaborate → Partnerships
Porto Digital
A Toolbox for Innovation and Digital Transition in Porto

Technology
- Fiber and Communications Network (Wi-Fi)
- Networks and sensors
- Urban platform and digital services for the city
- Data analytics and artificial intelligence

Innovation Management and Experimentation
- Innovation workshops
- Connection to the Scientific and Technological System
- Open innovation for the city
- Service design and product management
- Technological pilots and demonstrators

Partnerships
- Funded Projects
- International Partnerships
# Porto Digital

## A Toolbox for Innovation and Digital Transition in Porto

### Connect

- **Technology**

### Co-create

- **Innovation and Experimentation**

### Collaborate

- **Partnerships**

#### Initiatives

- Explore Porto
- Urban Platform
- Porto Free WiFi
- Call for Activities
- Porto Innovation Hub
- Stepping Out Innovation
- City Cafes
- Hackacity
- ICC - Intelligent Cities Challenge
- Living in EU
- OASC
- ENoLL
- EuroCities/KSF
- Cities Coalition for Digital Rights

#### Projects

- Portal do Município
- Porto Citizen Card
- (...)
- Asprela +
- World Data League
- European Innovation Academy
- Entrepreneurial Act
- City Catalyst
- Synchronicity
- C-Streets
- CC4 Digital
Methodology

Through Human-Centered design, we propose the creation of solutions in a collaborative approach through multidisciplinary and tangible ideas.

Value creation: interaction between citizen and the Municipality
Porto Digital projects and initiatives
Track record - Experimentation Activities

- **Desafios Porto.**
  - 2015: 13 startups, 9 corporate, 31 meetings
  - 2016: 17 startups, 15 corporate, 81 meetings
  - 2017: 24 startups, 18 corporate, 95 meetings
  - 2018: 25 startups, 25 corporate, 120 meetings
  - 2019: 25 startups, 33 corporate, 248 meetings

- **Synchronicity**

- **EMBERS**

- **Doing Business**
  - 2015: 13 startups, 9 corporate, 31 meetings
  - 2016: 17 startups, 15 corporate, 81 meetings
  - 2017: 24 startups, 18 corporate, 95 meetings
  - 2018: 25 startups, 25 corporate, 120 meetings
  - 2019: 25 startups, 33 corporate, 248 meetings

- **Growth Champions**
Track record - Experimentation Activities
A Global Digital Single Market for IoT-enabled Urban Services

20 m€ (3 m€ Open Call); 38 partners; 13 countries; 36 months

Develop foundations through large scale urban IOT pilots in 8 European cities

- Create a **level playing field** for standards-based **innovation and procurement** to avoid vendor lock-in and city lock-in.
- Supports **city centric scalability** and mainstreaming through **interoperability**, i.e. replaceability, portability and comparability as well as reusability and replicability.
- Allow the development of **sustainable** business models.
- Address both sides of the market, not just in the principle but **in practice**.
- **In line with OASC** – the vision is to create an open smart city market **based on the needs of cities and their communities**.
Cities

8 core cities

Partner cities in
- Brazil
- France (Bordeaux)
- Mexico (Léon)
- South Korea (Seongnam)
- USA (Portland)
Partners
Scope
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Explore.Porto (https://explore.porto.pt/) is a service created by the municipality to challenge citizens and visitors to know and explore the city. It aims to provide information on points of interest and mobility solutions (bus stops) through a web application and signaling devices - points - spread throughout the city. A citizen, or visitor, equipped with a smartphone can instantly get information on the place where he/she is standing and its surroundings, as well as the best route to get anywhere.
How was the service co-created?

Porto Digital worked with co-creation tools, involving the citizens and technicians of the municipality in the design of the solution that best responded to this challenge. In order to ensure that the product/service developed responds adequately to the needs and interests of users, Explore.Porto was developed by applying co-creation and service design methodologies.

Co-creation empower citizens and promotes a citizen engagement in the process allowing a better response to the challenges, as well as the integration of innovation methodologies, from conception to implementation.
• Utilizadores frequentes da rede de transportes públicos — com passe mensal.
• Utilizadores ocasionais da rede de transportes públicos.
Research methods

- **Research** - quantitative and qualitative - is fundamental to know the motivations, interests, expectations and behaviours of the potential users. The quantitative research involves an analysis component and is performed in an indirect and objective way.
- The qualitative aspect involves an in-depth interviews, conducted in a direct and subjective way, involving the physical presence of the user.
**Stakeholder map**

**Stakeholder mapping** is a collaborative process of research, discussion and discussion that draws from **multiple perspectives** to determine a key list of stakeholders in the **mobility and tourism ecosystem**.

This allows us to know who the main stakeholders are, with whom they relate and how they relate.

The map focus is on travellers and commuters in the metropolitan area of Porto. In this first phase this map intends to capture the **main influencers** of the end user in order to be considered during the interviews and research phase.
In order to collect relevant information and significant insights, different types of persona (end users & other stakeholders) were identified for the project.

CITIZEN
- Utilizadores frequentes da rede de transportes públicos — com passe mensal;
  - e utilizadores ocasionais da rede de transportes públicos;
  - Estudantes universitários 6
  - Jovens adultos 6
  - Adultos 3

SECURITY
- Empresa de segurança nas estações de metro.

RENTAL SHOP
- Empresa de aluguer de bicicletas e outros tipos de transporte da cidade do Porto.

ASSOCIATION OF URBAN MOBILITY AND CYCLING
- Associados
- Research secundária — online e offline — de associações de mobilidade urbana e ciclismo.

The research process invited 10 to 15 end users and stakeholders to be participate in this innovation project.
Quantitative research

In order to collect and validate significant information, an online questionnaire was carried out, aiming at reach the maximum number of citizens.

For this phase, we intend to collect information regarding the integration and reception of the bike-sharing service in the city of Porto; what are the basic needs in the area of mobility; what services and features should be integrated into the service; current behavior of the user and how the future behavior will be.

Link: https://portodigital2017.typeform.com/to/0sBHP1
Quantitative research

From the online questionnaire (link to the questionnaire: https://portodigital2017.typeform.com/to/OsBHP1), we were able to obtain more concrete data about the current experiences of citizens in relation to mobility in the city of Porto, as well as what they want for the future of the city.
Research findings

- The insights and opportunities gathered from secondary and primary research were translated in **research findings**. The findings were used to map out business opportunities and **design criteria** to develop **concepts**.

| Mobility is the lifeblood of our city and essential for urban life. Make cities more livable. |
| Urban spaces must be designed for human mobility. |
| New business models are changing traditional mobility patterns. |
| Multimodal mobility services will encourage use of public transportation. |
| We must not just innovate for citizens, we must innovate and co-create with them. |
| Big data can be used to improve planning, processes, deliver of seamless services and increase citizens engagement. |
| New and improved mobility services are making transportation choices more multimodal, on-demand and convenient. |
| Technology as the power to make suggestions and interventions as needed when citizens commute. |
| In-vehicle connectivity can open new possibilities for provide mobility efficiency. |
| Focus on urban interactions, behaviors and experiences. |

Integrate a multimodal mobility system.

Improve public transit with in-vehicle connectivity.

More accessibility and proximity with public transportation.

Add mobility recommendations. Balance between travel speed and convenience.

Re-imagining urban spaces while user waits for transport.
How might we use mobility as a catalyst to enhance and enrich the experience of urban space for citizens?

How might we get citizens to engage with sustainable transport options?
How might we improve public transit with in-vehicle connectivity?

How might we improve accessibility for people with mobility issues in the city of Porto?
How might we improve the tourist journey in the city of Porto through mobility?

How can we create more attractive public spaces for citizens to encourage authentic urban experiences?
Stakeholders map
Opportunity for design

- The research findings were **translated to opportunities** which is going to be used to develop the design criteria for the solutions development.

<table>
<thead>
<tr>
<th>Urban space experience</th>
<th>Mobility experience</th>
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<tr>
<td>Engage citizens and communities to innovate and co-create urban experiences.</td>
<td>Provide a realtime recommendations, interventions and timetable/fares info.</td>
</tr>
<tr>
<td>Create new uses for existing urban spaces (stops &amp; stations, parks), in the mobility context.</td>
<td>Develop an end to end mobility solution, combining public and private transports.</td>
</tr>
<tr>
<td>Use technology (e.g. beacons) to provide interactive behaviors and experiences.</td>
<td>Connect to a payment provider (e.g. Anda, Via verde)—mobility wallet.</td>
</tr>
<tr>
<td>Digital screen for information placement; “urban space bot”.</td>
<td>Develop a web application (web app) and mobile application.</td>
</tr>
<tr>
<td></td>
<td>Provide a realtime recommendations, interventions and timetable/fares info.</td>
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<tr>
<td></td>
<td>User-generated content for more up-to-date and local information.</td>
</tr>
<tr>
<td></td>
<td>Realtime data (big data), of traffic, POI’s, parking, transports (public/private) and disruptions.</td>
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Customer journey map | First version
What impact has the service had?

Companies / local administration:

Formation of partnerships and establishment of networks for the development of projects:

Explore.Porto is a creation of the Municipality of Porto and the result of a collaboration between the various departments of the Municipality, Porto Digital, STCP (Sociedade de Transporte Colectivos do Porto), Metro do Porto, ATP (Association of Porto and North Tourism), Tourism of Porto and North and private entities, in the case of Taxis. This partnership proved to be essential for the development of an integrated service focused on the needs and interests of the citizen/visitor. International partnerships are also noteworthy. The use of the Digitransit platform is the result of networking with Helsinki, which resulted in a first version of the platform.
What impact has the service had?

Open Source and Technology:

The project to create the ROPI (Official Repository of Points of Interest) and the Explore.Porto application are part of a digital innovation strategy based on integrated development and open source, which has being implemented by the city of Porto. ROPI, the official repository of information on points of interest (POI) and events in the city of Porto, aims to centralise information and make it accessible in an open way through databases that feed other products such as Explore.Porto, maintaining an open data interface for public consultation. The integration of data from various departments and entities (namely from Turismo do Porto e Norte or private taxi companies) through digital processes allows centralized access and constantly updated to tourism and mobility information. The creation of an integration, conversion and interoperability API allows data from different sources to be integrated into the Explore.Porto.
What impact has the service had?

For citizens:

The platform offers a remarkable added value to the tourist level, whether the tourist has a pre-defined plan or prefers a more circumstantial discovery of the city. Facilitating convenient, safe and real-time planning.

• Itinerary suggestions: plan a route, get real-time information about public transport
• Alerts on temporary changes to the normal operation of public transport routes
• Identification of points of interest near the current location
• Selection of favourites: save routes or points of interest that we want to have available
• Exploration of points of interest in the city: with access to description, history, address and opening hours and relevant updated information
• Possibility of categorising points of interest by those who introduce them to the platform
• Provide useful and reliable information on mobility and points of interest in the city of Porto;
• Moving from planned information (GTFS) to real-time information (GTFSRT).
What impact has the service had?

Positive impacts generated and/or induced by the project on **tourism development**:

Porto has been asserting itself as a highly sought after city in terms of tourism and with a strong development in this area and, in this sense, Explore.Porto offers a remarkable added value, whether the tourist has a pre-defined plan or prefers a more circumstantial discovery of the city. Following the trend of tourist growth and the importance of serving the resident citizen, the platform is available in both Portuguese and English. By bringing together public and private partners, who provide services of public interest, Explore.Porto breaks with the type of services designed in the light of existing structures (which tend to be compartmentalised) to focus them on the user, which has a considerable impact on the adoption of local services.

Contribution and initiatives promoted by the project aimed at **environmental sustainability**:

The integration of different forms of mobility, smooth mobility, public transport and taxis contributes positively to their valorisation, investing in an innovative way in the promotion of less polluting means of transport and alternatives to the car. The optimisation of routes, proposed by Explore.Porto, favours the reduction of unnecessary environmental emissions. The application’s greatest contribution to environmental sustainability is related to the optimisation of routes and the enhancement of less polluting means of transport.
Esta a ponto de explorar a cidade.
You’re about to explore the city.

1. Procure os mais de 1000 pontos espalhados pelas paragens de autocarros, estações e pontos de interesse. Look for the more than 1000 beacon points spread around bus stops, stations and landmarks.

2. Aproxime o seu dispositivo móvel do ponto ou leia o QR Code com a câmara do seu smartphone. Pode também aceder em: explore.porto.pt
   Hold your mobile device over the beacon or scan the QR Code with your smartphone’s camera. You can also visit: explore.porto.pt

3. Programe o seu trajeto e descubra toda a informação da sua cidade em tempo real. Schedule your route and discover all the information about your city in real time.

Encontre os beacons. Find de beacons.

Descubra o seu caminho. Find the way.
Desafios Porto was a competition in which the main challenges faced by the city of Porto were identified and, later, technological solutions were found with an innovative and scalable response.

This symbiosis between challenges and solutions resulted in a strong impetus to the development of the city’s entrepreneurship ecosystem.

The creation of innovative solutions to improve the quality of life of Porto residents was financed by developing local projects.

Areas of expertise: Health and well-being, Energy, Digital City, Mobility and Environment
The Porto City Hall has launched Desafios Porto, an initiative that aims at solving real city problems identified by the people of Porto.

For over a month, citizens were invited to submit challenges that they face in their daily life and can be solved with the use of technology.

The goal? Make Porto a better place for its people and visitors.

The results? Over 300 challenges were submitted and analysed.

After that, entrepreneurs who owned a tech startup and had an innovative solution were asked to step forward.

The city of Porto has selected 4 challenges for each one of the 4 categories:

* Health & Well-Being;
* Energy;
* Digital City;
* Mobility & Environment;
Uma iniciativa: Com o apoio de:

- WINNING SOLUTIONS
- INVESTMENT
- CONSULTANCY

149 PEOPLE
313 SUBMITTED CHALLENGES

16 CHALLENGES SELECTED

- 130 MOBILITY AND ENVIRONMENT
- 96 DIGITAL CITY
- 16 ENERGY
- 71 HEALTH AND WELLBEING

- 200.000€ INVESTMENT
- 50.000€ CONSULTANCY

Desafios Porto.
Desafios Porto - Solutions

More than 100 solutions were submitted. The Juri evaluation considered the following criteria: **impact that the proposed solution will have on the city**, its **ability to replicate in other places** and also the **impact it will have on the company that submitted it**.

In the Energy area, the following stand out:

- **Omniled** - Intelligent lighting system for public spaces, 100% self-powered by wind and solar energy, prepared to inject excess energy produced into the public electricity grid.

- **Smart IoT Lamppost** powered by wind and solar with integrated energy storage and grid connection that enables multiple integrated applications.

With this, Omniflow systems achieve **dramatic savings** ≥90% compared with regular lighting and even ≥60% with standard LED.
Desafios Porto - Solutions
Desafios Porto - Learnings

• Experimentation Platform before its time
• Fine-tuning the challenges with the organizational structure, with each city department
• Lack of proper results evaluation on possible implementation

• Focus on challenges identification
• Ecosystem Engagement
• Impact evaluation
Porto Innovation Hub

To rethink, encourage, share and innovate the services of the municipality, always taking into account trends and citizens.
SKILLS FOR INNOVATION

Training and development of actions to promote open innovation and co-creation.

Training projects for technical teams to optimize processes in areas of specialization.

Creation of manuals and specialized technical guides.

OPEN INNOVATION

Management of programs and initiatives, which aim to bring innovation to the daily lives of the citizens of Porto, fostering a collaborative dialogue and encouraging the sharing of experiences and open innovation in the city.

EXPERIMENTATION ACTIVITIES

This pillar intends to identify opportunities for innovation and develop experimentation activities through the management of collaborative projects. It includes the study and understanding of challenges in the city and evaluation of the relevance of projects together with the Municipality.
ACTIVITIES

SKILLS FOR INNOVATION

+ Innovation Workshops - Municipality Teams
+ Innovation Day
+ City Cafes

OPEN INNOVATION

+ European Innovation Academy
+ Stepping Out Innovation
+ Innovation Cycles

EXPERIMENTATION ACTIVITIES

+ Competitions anchored in city challenges and datasets (Hackacity, Asprela+, WDL)
+ Ideation and co-creation sessions
+ Roadmaps for innovation
Promotion of innovation and service redesign
Strong involvement of the Municipality's employees

- Rethinking public services based on the needs of citizens and employees;
- Learning new working methods and experimenting with ideas.
- Encourage knowledge of creative, collaborative, and sharing disciplines based on co-creation;
- Test and iterate ideas through prototypes
Innovation Workshop – Municipality Teams

Considering innovation as one of its strategic pillars, the Porto City Council, through the Municipal Human Resources Department, is promoting learning sessions and development of this competence in its workers. The training is promoted by Porto Digital, within the scope of the Porto Innovation Hub initiative.

Participants were challenged to work in depth on the topic of innovation, getting in touch with tools that will be useful in their professional context. The objective is that the new skills acquired are capable of creating a positive impact on the development of the city and on the relationship with the citizens.

https://www.porto.pt/pt/noticia/municipio-do-porto-investe-no-desenvolvimento-de-competencias-de-inovacao-dos-trabalhadores
Innovation Guide &
Innovation Toolbox

The “Innovation Guide” aims to be an instrument to support the development and improvement of services and products focused on the needs of citizens and visitors.
The City as a Living Lab

Porto Digital intends to make an innovation living lab that allows "to create products that aim to solve a real problem and that increase the quality of life so that Porto can provide solutions for other cities", developing a platform to support experimentation, replication and scalability of results.
Experimentation - Methodology

1. Focus – Main Area
2. Open Call
3. Pilots Selection
4. Experimentation
5. Scale Up

- Stakeholders Engagement
- Co-creation with the ecosystem
- Sharing experiences and learnings
**Methodology**

**Open Calls or Idea Proposal**

- **Pre-Pilot**
  - Meetings with teams
  - Partnerships with key stakeholders

- **Experimentation**
  - Kick-off
  - Co-creation workshops
  - Meetups with stakeholders

- **Scale Up**
  - Solution implementation
  - Communication of results
  - Planning with stakeholders

**Selection Criteria**

- **Feasibility**: is it possible, even in principle, to try this idea in a near-term, small-scale way?
- **Potential for impact**: does the idea seem like it could, in theory, improve someone’s experience of the city?
- **Potential for scale**: do we think the idea has life beyond the experiment?
Expected Impacts

The effort channeled to these actions has as main objective the creation of a highly technological and innovative industry in Europe, based on the challenges that cities face.

The European strategy seeks to develop new products and solutions with high environmental, social and economic impact.

These activities aim to develop innovative solutions seeking to leverage digital solutions as the main drivers to create more sustainable cities, and thus contributing to increasing the resilience of society and economy.

This collaborative platform will seek to increase the number of pilots of digital products of high technological value, contributing to their validation in real, high-impact scenarios, and providing services that ensure that pilots become commercially viable, sharing knowledge/experience through case studies.
From your side...
What would you prioritize to make innovation happen?

- Culture
- Organizational Structure
- Execution
- Decision Making
- (...)

Priorities / Blockers / Enablers
Priorities / Blockers / Enablers

Go to www.menti.com and use the code 7027 0148

- What happens in an organization that has problems making innovation happen?
- What are the main blockers?

- What are the main enablers to make innovation happen?
Thank you!