The Barcelona Urban Lab
Innovative and Smart Cities

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Agenda

1. Framework
2. Barcelona Urban Lab
3. Open Challenges
4. Conclusions
1. Framework
Framework: Smart City
Framework:
Smart City - Energy

CHALLENGES

- EFFICIENCY
- SELF GENERATION
- PRODUCTION
- DISTRIBUTION
- NETWORK
- GRIDS

FRAMEWORK

Source: City Protocol
Framework: Smart City – Mobility

CHALLENGES

• INTERMODALITY
• CONGESTION
• POLUTION - CARBON
• CAPILLARITY
• COMMUTING

FRAMEWORK

Source: City Protocol
Framework:
Smart City – Material & Waste

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Source: City Protocol
Framework: Smart City - Water

CHALLENGES

- TRANSPORTATION
- DEPURATION
- RECYCLING
- CONSUMPTION
- WATERING

FRAMEWORK

Source: City Protocol
Framework: Smart City - Nature

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Source: City Protocol
Framework: Smart City - Information

CHALLENGES

- EMISSION
- DISTRIBUTION
- RECEPTION

Source: City Protocol
Framework: Knowledge City

Knowledge-based Economy

Knowledge Infrastructure

Innovation

Economy

Political Economy

Geography

Framework: Triple Helix + Demand

Framework: Innovation + Internationalization

Framework:
Open Innovation

Open innovation

Internal technology base

Other firm’s market
Licence, spin out, divest

Internal/external venture handling

External technology base
External technology insourcing

Our current market

Our new market

Stolen with pride from Prof Henry Chesbrough UC Berkeley, Open Innovation: Renewing Growth from Industrial R&D, 10th Annual Innovation Convergence, Minneapolis Sept 27, 2004

C 2002 Henry Chesbrough EIRMA SIG III, 2005-10-20
Framework: The Path To Growth

Framework: Cluster Model

Categories of cluster actors

- Government
- Institutions for Collaboration (IFCs)
- Financial Institutions
- Companies
- Research Community

Source: Adapted from Sölvell et al. (2003)
Framework: Ecology of Innovation

- Research Universities
- Entrepreneurs
- Angel Investors
- Venture Capital
- Good Business Climate
- Good Food, Wine and Coffee
- Highly Trained Workforce with Global Access
- Good Infrastructures (Social and Physical)

Source: The Ecology of Innovation, Tapan Munroe, 2008
2. BCN Urban Lab
Barcelona:
open for innovation, open for business
Barcelona Urban Lab: 22@Barcelona

- **Urban renewal**
- **Economic transformation**
- **Social promotion**

- 1500 companies and institutions (45% of new creation)
- 70% of companies in 5 strategic sectors
- 55,000 new jobs
- 10 universities, 25,000 students, 12 R&D centers
Barcelona Urban Lab: The Smart City Infrastructures

- New mobility plan
- Wi-fi and optic fiber
- New energy networks
- Selective pneumatic waste collection
- New heating and cooling system
- Underground galleries
Barcelona Urban Lab: The Demand Side

Government
- The City as a Platform
- The City as Organization
- Public Procurement

University
- Driven Research
- Tech Transfer
- Urban Lab

Industry
- Golden References
- Customer Insights
- Scalability

Demand Side
- City Challenges
- Citizens needs
Barcelona Urban Lab: Main concepts

- Promoting entrepreneurship, growth and business innovation
- Systematization of innovation within the administration itself
- Attracting investment and brand positioning
- Barcelona, the city of people
- Barcelona Smart City
- Efficiency and transparency in government spending

- Open Innovation
- Public Procurement -> Innovative Public Procurement (for SMEs)
Barcelona Urban Lab: Definition

Definition

Urban Lab is a tool to provide a space in the Barcelona to carry out tests and pilots on products and services that have an urban impact.

The idea is to use of the city as an urban laboratory.

Aims

- **INNOVATION**: To foster business innovation and to be a benchmark of innovation for the rest of the city and other cities (administrations and companies).
- **SHORTEN TIME TO MARKET**: To enable companies to trial innovative products in a real place so that if they prove their value they can subsequently be commercialized on a large scale in Barcelona or in other cities in the world.
- **BETTER SERVICES**: To learn and create new products or services that are capable of offering improvements to the citizens of Barcelona.

Is a tool defined by the Barcelona City Council to **foster innovation** in their companies and administration, and based in the power of **public procurement** (16% of EU GPD).
Barcelona Urban Lab: What

What it IS...

- a test space for products that have a direct implication in the operation of the city or in the services provided by Barcelona City Council.
- a test space for hosting projects that provide benefits to the public and that solve unanswered needs.
- a test space for hosting projects that are in line with the objectives, priorities and lines of action of Barcelona City Council.

What it IS NOT...

- a test space for existing products or services in the market or ones that are already being commercialized (showroom).
- a test space for innovative products that have no direct benefit for the City Council’s administration or for the public.
- a source of funding for innovative projects.
- It entails no commitment by Barcelona City Council for the long-term implementation of the solution tested within the framework of Barcelona Urban Lab.
Barcelona Urban Lab: Local and Global

From local to global (internationalization)

and from global to local (foreign investment attraction) ...
Barcelona Urban Lab: Process

**Time**

- **Monthly**
  - Evaluation
    - Entry web
    - Questionnaire
  - Feedback to requesters
    - Technical Innovation Committee
      - Basic criteria
      - Circumstantial criteria
    - Find stakeholders and places to test de pilot proposal

- **For every project**
  - Contact with stakeholders and planification
  - MOU
  - Public presentation of the pilot project
  - Implementation of the pilot project
  - Supervision & Management
  - Presentation of the pilot project results

- **Annual**
  - Communication
  - Memory document
  - Public presentation of the results to press

**Leader**

- City Council
- Municipal affected area

**Barcelona Urban Lab**

**A Barcelona experience: Urban Lab**

- Methodology
- Evaluation
- Communication
- Certification
- Formalization
- MOU
- Pilot Questionnaire
- Questionnaire
Barcelona Urban Lab: Benefits for the target public

1. **Citizens:** More and better products and solutions for better municipal services.

2. **Businesses:** Real-life testing space for easier market access. Learn, shorten time to market and increase their competitiveness.

3. **Science and Technology:** It’s a powerful tool for technology transfer, both locally and internationally.

4. **Public administration:** Facilitate the introduction of new solutions. Innovation as a brand related to Barcelona. Transparency and efficiency in public procurement.
Barcelona Urban Lab:
Some results

- **Starting date**: 2008
- **Pilot proposals received**: 43 pilot proposals + 250 in international specific calls
- **Pilot tested or testing currently**: 14 pilots
- **Domains**: Environment, Mobility, Telecom, ...

Some of the pilot projects that have been trialled to date are:
- Implementation of 12 outdoor public **street lighting** points Eco Digital 2009
- Implementation of 2 **charging points** for electric cars. 2009
- Pilot trial of 1 **electrically and solar powered motorbike**. 2010
- **Traffic control** cameras. 2008
- **Metering**: gas, electricity and water meters without presence. 2009
- **Fibre optics** in homes (FTTH). 2008
- **Bicycle** lanes. 2008
- Presence sensors for the public **parking payment** areas. 2010
- Barcelona **Noise-map**. 2010
- **Sensors in containers**. 2011
- **Traffic control sensors**. 2011
- Among others...

[www.bcn.cat/urbanlab](http://www.bcn.cat/urbanlab)
Barcelona Urban Lab: The case of Connecthings

Challenge LLGA 2012 BCN:
Enhancing Visitors’ Experience in Cities
Winner: Connecthings
Pilot: NFC Experience during Mobile World Congress 2013 (25-28 February 2013)

Deployment of smartposters at:
• Welcome and Welcome Back Barcelona Airport
• Touristic attractions of Barcelona: MNAC, MACBA, CCCB, Miro Foundation, Tapies Foundation, Museu Picasso, La Pedrera, Sagrada Familia

IMPACT ON CONNECTHINGS:
• High visibility during the Mobile World Congress
• Deploying smartposters inside the grounds of MWCongress under contract with GSMA
• Possibility of other contracts with City Hall, museums, airport, etc.
• Currently: they decided to open subsidiary in BCN
Barcelona Urban Lab: Testimonies
Barcelona Urban Lab: Some tips

1. **Multidisciplinary work teams:** Involve the “owner” or “owners” from the very beginning (definition of challenge, member of the jury, management of the implementation).

2. **Open to any ideas vs. calls related to specific Challenge:** Be sure is balanced. Take into account: the effort you can put in this process (€, HR, ...), the type of solution you are looking for and the timing.

3. **Solutions vs Challenges:** Don’t ask for a solution, expose a challenge to be solve.

4. **Legal aspects:** Be sure that you take into account the legal framework for “buying innovation” in your country. From the first moment decide if you are looking for ideas, if you want to pilot or you are willing to buy a product/service.
3. Open Challenge
BARCELONA ALIGNS INNOVATION WITH PUBLIC PROCUREMENT
BCN|Open Challenge

International call, with CityMart, to invite local and international SMEs to submit their innovative solutions to 6 published challenges for the city of Barcelona.

BCN|Open Challenge is a new program:

• to **open up the city administration** and services to businesses and entrepreneurs from all around the world delivering solutions that can transform (Business growth, entrepreneurship)
• and **improve public services** and create a more inclusive city (quality of life)
• **accelerate innovation** and **leverage public spending** more effectively to deliver better services (efficiency, transparency in Public administration)
• while **attracting investment** to Barcelona and generate brand.
Barcelona: Open for business, open for innovation.

3 Actions:

- CALL FOR SOLUTIONS (6 Challenges)
- 1 MILLION EURO START FUND
- BARCELONA GROWTH SERVICES

www.bcnopenchallenge.org
THE CHALLENGES

- To reduce bicycle thefts in the city to a minimum
- Social care system through mobile devices
- Monitoring the flow of pedestrians in the city (applicable to flows in cultural activities, and tourist or commercial flows)
- To increase the presence of the documentary collections of museums and archives in Internet: tools for digitization and crowdsourcing
- Automatic system of detection and alerts of damaged paving
- Increasing the competitiveness of commerce of proximity through Technology
www.bcnopenchallenge.org
4. Conclusions
Conclusions

• **PUBLIC PROCUREMENT:**
  Learning before Buying

• **FROM LOCAL TO GLOBAL:**
  From Pilot to Global Scalability

• **THE CITY AS A OPEN INNOVATION PLATFORM:**
  Connecting Large Corporations with new entrepreneurs

• **THE CITY CHALLENGES:**
  The Agenda of Innovation of the City

• **KNOWLEDGE CITIES ON SMART CITIES**
  Urban, Economic and Social transformation
Thank you!

Eager to know more?

www.bcn.cat/urban.lab
www.bcnopenchallenge.org
www.bcn.cat/barcelonagrowth

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