DOXA
INNOVA & SMART

Smart City Vision: an opportunity for urban transformation

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Decalogue for building a Smart City

SMART CITY VISION IN 10 IDEAS

1. Global challenge: urbanization - 21st Century: Century of cities
2. Technology as an enabler; necessary, but not goal itself
3. Local challenge: citizens
4. Transformational city project
5. Long term vision and leadership
6. Strategic plan: holistic, breaking silos
7. Measure and Evaluate impact
8. Alliances: cities in competition but need to collaborate, industry partnerships
9. Governance model: inside and outside
10. Focus is on Citizens' active participation

Scaling the Barcelona Smart City Model to LAC

MOBILE WORLD CAPITAL BARCELONA

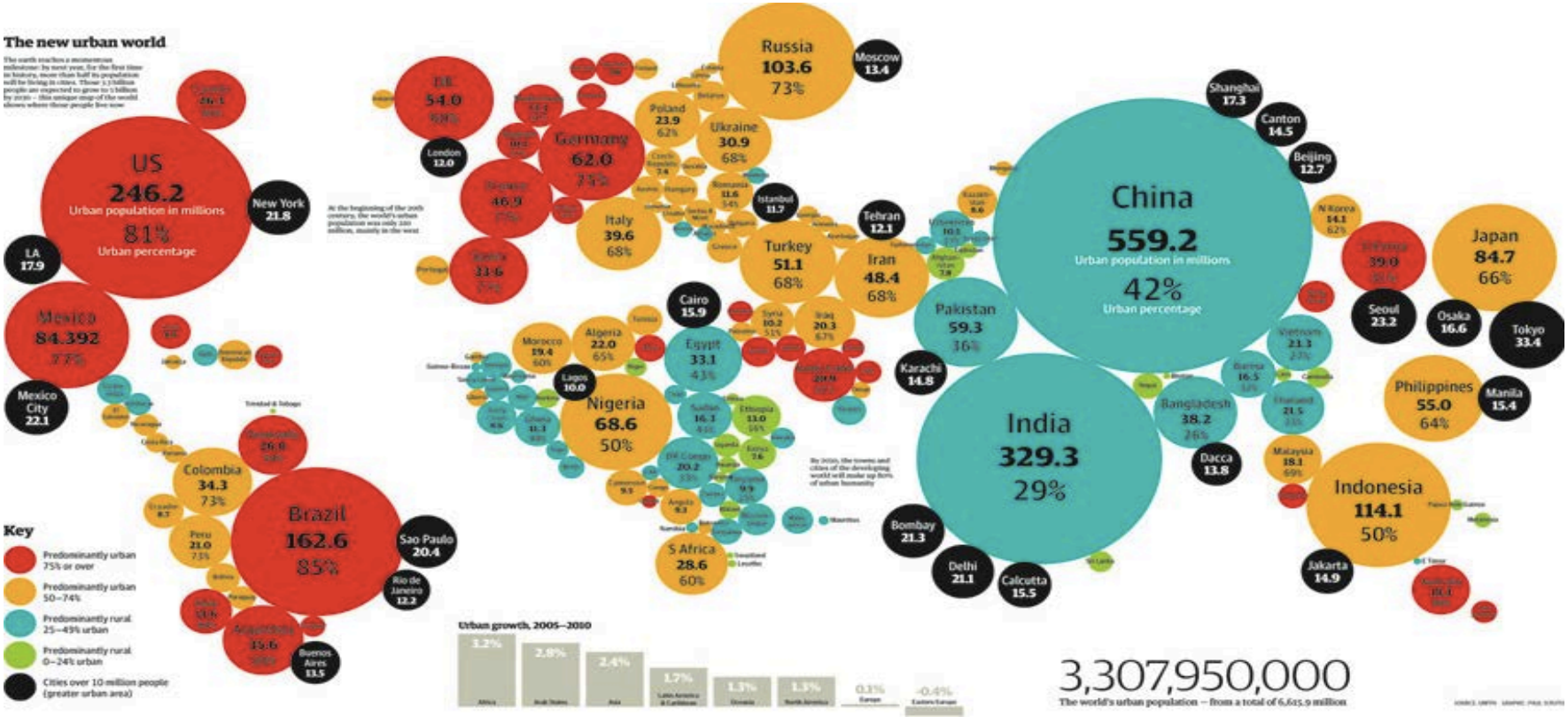
UN HABITAT
FOR A BETTER URBAN FUTURE

UNITED NATIONS
ECONOMIC COMMISSION FOR EUROPE

Barcelona iCapital
2014 - 2016

The World Bank

1. THE 21st CENTURY: CENTURY OF CITIES



1. THE 21st CENTURY: CENTURY OF CITIES

The World's Top 100 Economies

	Country/City/Company	GDP/Revenues		Country/City/Company	GDP/Revenues		Country/City/Company	GDP/Revenues
1	United States	14,204	35	ExxonMobil	426	69	Chevron	255
2	China	7,903	36	Osaka/Kobe, Japan	417	70	Toronto, Canada	253
3	Japan	4,354	37	Wal-Mart Stores	406	71	Detroit, USA	253
4	India	3,388	38	Colombia	395	72	Peru	245
5	Germany	2,925	39	Mexico City, Mexico	390	73	Portugal	245
6	Russian Federation	2,288	40	Philadelphia, USA	388	74	Chile	242
7	United Kingdom	2,176	41	Sao Paulo, Brazil	388	75	Vietnam	240
8	France	2,112	42	Malaysia	383	76	Seattle, USA	235
9	Brazil	1,976	43	Washington, DC, USA	375	77	Shangai, China	233
10	Italy	1,840	44	Belgium	369	78	Madrid, Spain	230
11	Mexico	1,541	45	Boston, USA	363	79	Total	223
12	Tokyo, Japan	1,479	46	Buenos Aires, Argentina	362	80	Singapore, Singapore	215
13	Spain	1,456	47	BP	361	81	Sydney, Australia	213
14	New York, USA	1,406	48	Venezuela	357	82	Bangladesh	213
15	Korea, Republic of	1,358	49	Sweden	344	83	Mumbai, India	209
16	Canada	1,213	50	Dallas/Forth Worth, USA	338	84	Rio de Janeiro, Brazil	201
17	Turkey	1,028	51	Ukraine	336	85	Denmark	201
18	Indonesia	907	52	Greece	329	86	Israel	201
19	Iran, Islamic Rep	839	53	Switzerland	324	87	Ireland	197
20	Los Angeles, USA	792	54	Moscow, Russian Federation	321	88	Hungary	194
21	Australia	762	55	Hong Kong, China	320	89	Finland	188
22	Taiwan	710	56	Austria	318	90	General Electric	183
23	Netherlands	671	57	Philippines	317	91	Kazakhstan	177
24	Poland	671	58	Nigeria	315	92	Volkswagen Group	158
25	Saudi Arabia	589	59	Atlanta, USA	304	93	ENI	158
26	Chicago, USA	574	60	Romania	302	94	AXA Group	157
27	Argentina	571	61	San Francisco/Oakland, USA	301	95	Phoenix, USA	156
28	London, UK	565	62	Houston, USA	297	96	Minneapolis, USA	155
29	Paris, France	564	63	Miami, USA	292	97	Sinopec-China Petroleum	154
30	Thailand	519	64	Seoul, South Korea	291	98	San Diego, USA	153
31	South Africa	492	65	Norway	277	99	HSBC Holdings	142
32	Royal Dutch Shell	458	66	Algeria	276	100	Barcelona, Spain	140
33	Egypt, Arab Rep	441	67	Toyota Motor	263			
34	Pakistan	439	68	Czech Republic	257			

Country City Company

GDP/Revenues in $ billions PPP, 2008

Data sources: Country data: GDP-PPP from the Development Data Platform time series, World Bank; City data: PricewaterhouseCoopers (PwC). 2009. *Which are the largest city economies in the world and how might this change by 2025?* Economic Outlook; Companies: Data retrieved from http://www.forbes.com/lists/2008/18/biz_2000global08_The-Global-2000_Rank.html (accessed November, 2009)

Cite as: Hoornweg, D., P. Bhada, M. Freire, C.L. Trejos Gómez, R. Dave. 2010. *Cities and Climate Change: An Urgent Agenda.* World Bank.

34 cities
13 corporations
53 countries

2. LOCAL CHALLENGE: FEW, CLEAR OBJECTIVES

1 **CITIZEN WELFARE**

2 **ECONOMY GROWTH**

3 **SUSTAINABILITY**

Different urban realities but common main challenges:

- ✓ Sustainability, scarce resources
- ✓ Environment, energy efficiency
- ✓ Attract activity, more jobs
- ✓ Quality of life

Pressure on resources, welfare distribution, urban planning and environment.

How will cities guarantee a balance between growth and sustainability in the long run?

3. TECHNOLOGY IS AN ENABLER, NOT THE GOAL

Big Data, mobile technology, applications and cloud services, sensorization, hyperconnectivity, 3D printing, digital fabrication… and

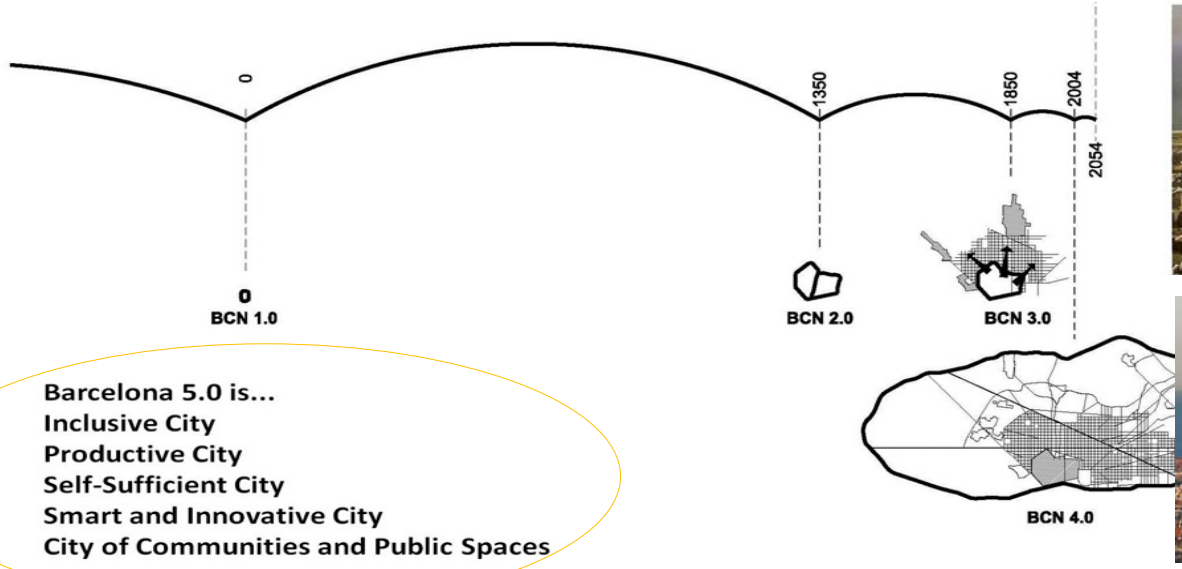
50% of global population still does not have regular access to Internet.

- ✓ Better decisions and policy-making
- ✓ More efficient resource allocation
- ✓ Citizen/ stakeholder empowerment
- ✓ More open, transparent and participatory
- ✓ Opportunity to do things differently. In a *smarter* way

In fact, technology is core in the current (r)evolution: digital cities

4. TRANSFORMATIONAL CITY PROJECT

Smart city is about a transformational city project; a plan.
That is, another opportunity to transform the city.



Barcelona 5.0 is...
Inclusive City
Productive City
Self-Sufficient City
Smart and Innovative City
City of Communities and Public Spaces

5. LONG TERM VISION AND LEADERSHIP

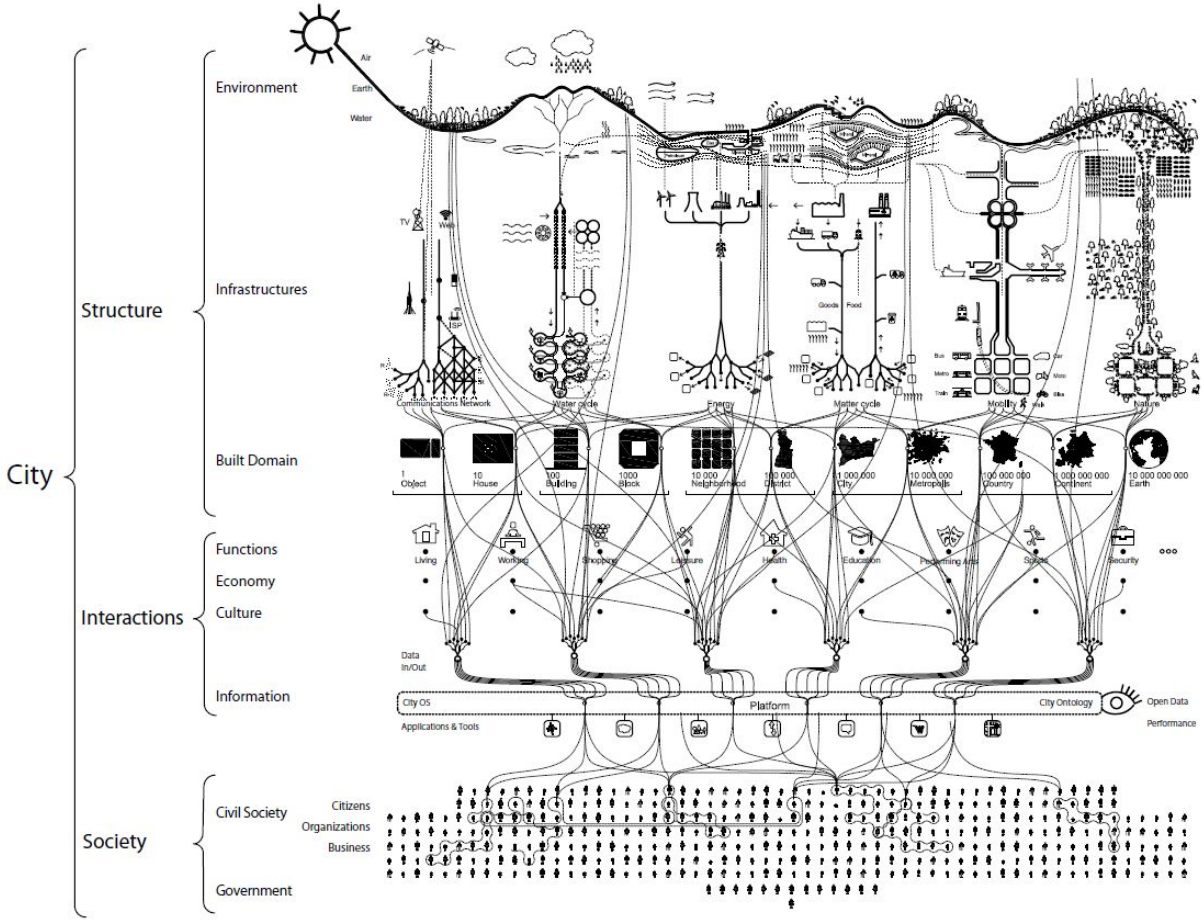
A long term ambitious vision is highly valuable.
It must address the question
what do we want to become, as a city, in 20 or 30 years' time?

BARCELONA
"To become a self-sufficient city of productive neighborhoods at human speed, inside a hyper-connected zero emissions Metropolitan Area"

STOCKHOLM
"In 2030, Stockholm will be a versatile city, offering top-class education and business opportunities, alongside unspoiled nature at your doorstep - a unique combination that will continue to attract visitors fromaround the world"

6. STRATEGIC, HOLISTIC PLAN: BREAK SILOS

CITY ANATOMY



6. STRATEGIC, HOLISTIC PLAN: BREAK SILOS

DOXA INNOVA & SMART

MUNICIPAL ORGANISATION
DEPARTMENT SILOS

Barcelona Smart City Program Deck

1	Telecommunications networks	12	Citizenship
2	Urban Platform	13	Open Government
3	Smart Data	14	Barcelona in the pocket
4	Smart Light	15	Smart Garbage Collection
5	Energy self-sufficiency	16	Smart Regulation
6	Smart Water	17	Smart Innovation
7	Smart Mobility	18	Health and Social Services
8	Renaturation	19	Education
9	Urban Transformation	20	Smart Tourist Destination
10	Smart Furnishings	21	Infrastructure and Logistics
11	Urban Resilience	22	Leisure and Culture

7. MEASURE & EVALUATE IMPACT

IMPACT EVALUATION: ROI AND ROS

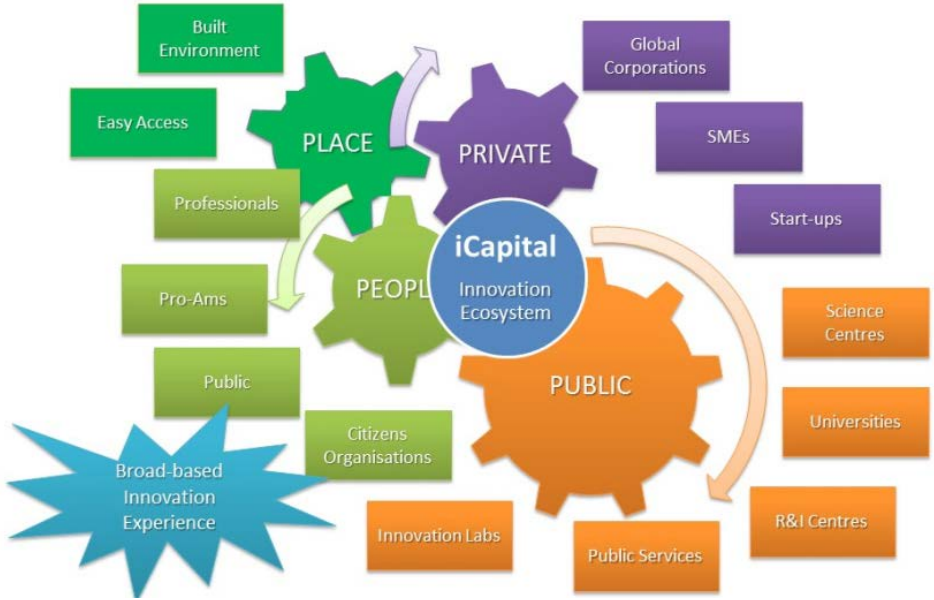
Implementation of a WiFi City Network Ahorro 13,5M€ PIB 1,4M€	Smart Lighting Ahorro 1M€ PIB 6,7M€	Energy Efficiency Ahorro 10M€ PIB 57,2M€	Smart Water Ahorro 0,5M€ PIB 0,5M€	Smart Mobility Ahorro 0,2M€ PIB 4,7M€
Open Data Ahorro 9M€ PIB 0,2M€	Smart Innovation NEW Ahorro PIB 0,9M€	BCN in your pocket Ahorro 3M€ PIB 0,7M€	Social Services & Education Ahorro 4,2M€ PIB 11,5M€	Smart Urban Furniture Ahorro 1,5M€ PIB 1,7M€

- **85M €** impact on GDP (Barcelona, 2014)
- **1,870 jobs created** as result of the Smart City program
- **53.7M €** municipal investment
- **0.53 €** of additional private sector investment for 1€ Municipal investment
- Saving **9,700 tons of CO2** and **600,000 liters of water** per year.

*Barcelona, 2014.

8. ALLIANCES: COMPETITION & COLLABORATION

INDUSTRY PARTNERSHIPS & ECOSYSTEM



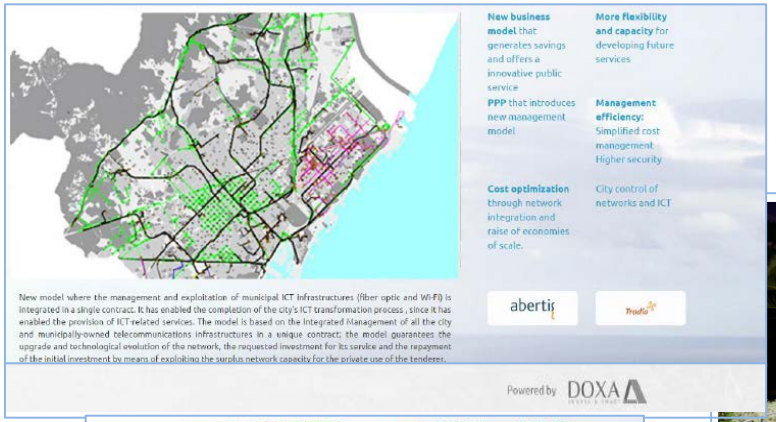
✓ Developing standards
✓ Scaling solutions
✓ Gaining critical mass: one solution, specific tuning
✓ Generating new markets: industry opportunities worldwide

✓ Creating ecosystems
✓ Developing economic tissue and growth: economy and competitiveness
✓ Opportunities: jobs, talent, FDI, new companies, start-ups

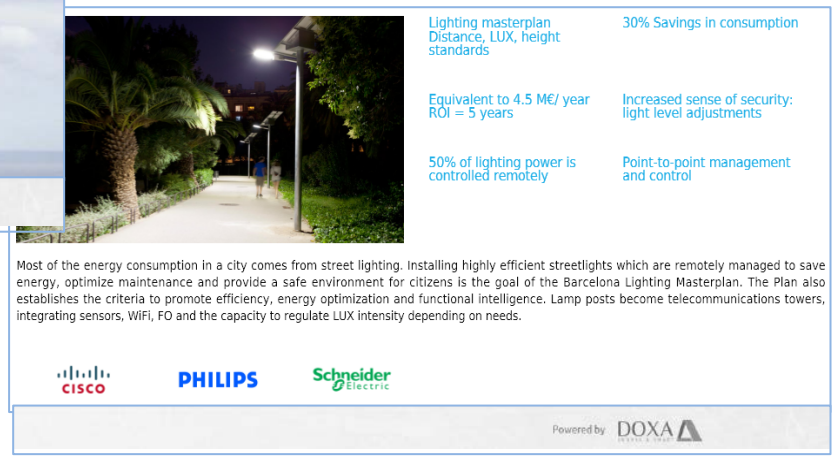
8. ALLIANCES: COMPETITION & COLLABORATION

NEW BUSINESS MODELS AND PUBLIC PRIVATE PARTNERSHIPS

TELECOMMUNICATIONS NETWORKS INTEGRATION



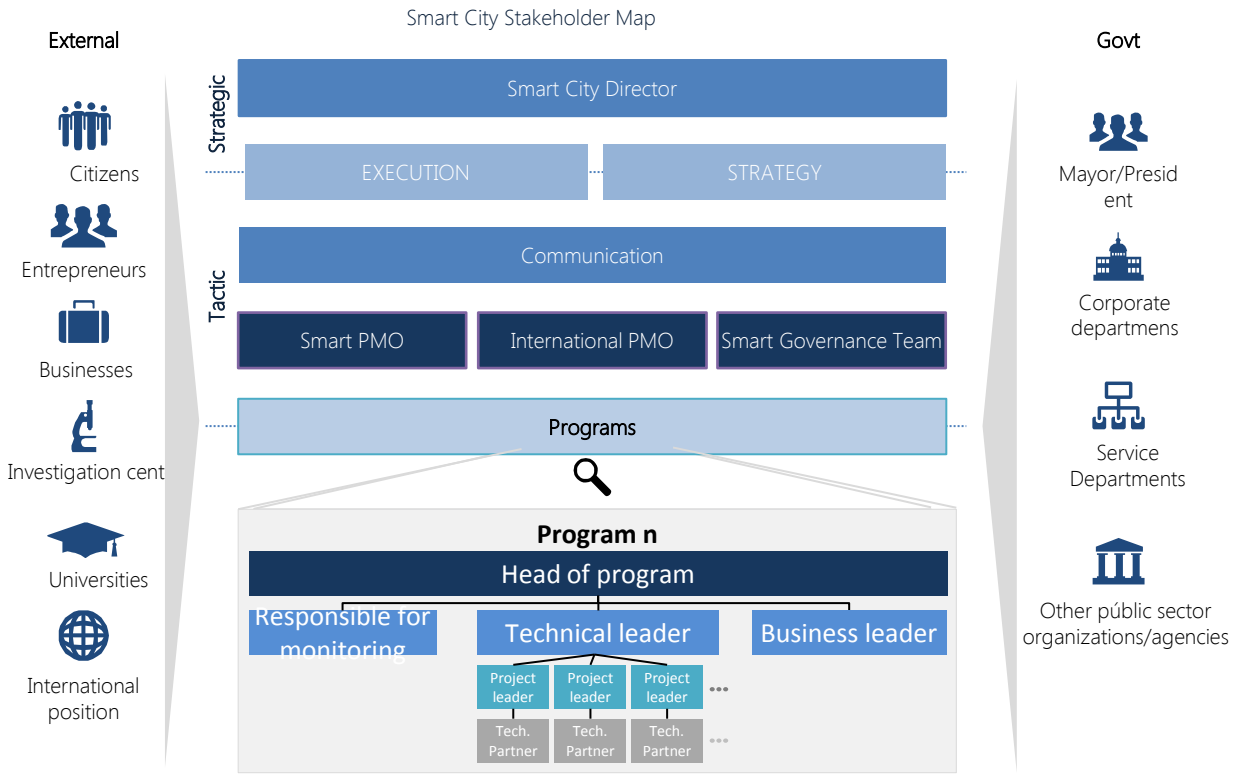
FROM INTELLIGENT LIGHTING
TO TELECOMMUNICATIONS TOWERS



* Barcelona 2014 examples. more information: http://bitbarcelonamodel.com

9. GOVERNANCE MODEL:

RELATIONSHIP & STAKEHOLDER MAPS



10. CITIZEN ENGAGEMENT: FOCUS IS ON CITIZENS

Do it in an OPEN, INCLUSIVE and PARTICIPATORY way

Generate and develop projects TO and WITH the CITIZENSHIP

Engage citizens in the DEFINITION

of the city we want for the future (**Smart Social Innovation**)

and

In the STRATEGY and MANAGEMENT of the city (**Smart Government**)

European Commission

BARCELONA is
European Capital of Innovation
iCapital
2014-2016