



SUMMARY - NC Clean Tech Pre-Summit Event, Wednesday February 17, Chapel Hill

SMART CITIES FROM A SYSTEMS PERSPECTIVE

How to move from separate issues to an integrated vision and actionable, scalable and measurable projects that connect



For Who?

Local governments, developers, industry, and others involved with “place”

- that understand that various Smart City ideas hold promise to greatly improve operations, efficiency, citizen well-being and safety
- that need to hone their vision and guiding principles so they work in today's Smart City context
- that want to scale up *and integrate* isolated pilots, technologies and concepts with measurable costs and results.

As well as UNC students and faculty, invited to join the morning program.

Why?

Smart Cities are hot. But what are they and what is really behind the concept? Individual tech and IT firms may have brilliant ideas, but how do we know that these will work in your community, without impeding other important issues and initiatives? How do we embed accountability? How do we work from a wide systems perspective that includes all important themes, structures and stakeholders?

Program

Registration

Big picture: why an integrated, systems approach for smart cities

State of the art: what's the status of smart cities in the U.S. and Europe

Voices from the field: challenges, barriers to implementation, solutions (panel discussion)

Workshop Session 1: Experience applying a practical model - practising with systemic bottom-up and top-down approaches

Workshop Session 2: Plenary Discussion, results, and next steps. Closing remarks.

Outcome

- Update on state-of-the-art smart city developments in North Carolina, the United States and globally.
- Understanding why Smart City solutions can't be addressed or implemented in isolation and the framework to be more systems-oriented.
- A practical model to apply a systems approach to making your city smart(er).
- Networking with leaders and systems thinkers in the integrated Smart City field.

Speakers

Welcome by Prof. Gary Marchionini, Dean of the School of Information and Library Science, UNC.

Keynote: Mr. Russ Vanos, SVP Strategy and Development Itron. Keynote speaker

International Expert: Drs. Ing. Cor Rademaker, MBA, Visiting Scholar Smart Cities UNC; CEO Strateq, Netherlands

Panel Discussion

- Trevor Clements, Director Water, Tetrattech
- Dwayne Campbell, CIO, City of Fayetteville, NC.
- Dr. Arcot Rajasekar, professor, Information Sciences, UNC
- Maurice Ferrell, Asst. Director for the Center of Public Technology, UNC School of Government
- Jonathan Estes, CEO Smart Game Systems, Inc.

Panel and Workshop Facilitator
Michiel Doorn, Strateq USA

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Presentation summary



EXPERIENCE SMART CITY, Europe

Drs. Ing. Cor Rademaker, MBA,
Visiting scholar smart cities UNC,
CEO Strateq

Power to the cities - some quotes

“More than half of the world’s population lives in cities, a figure expected to rise to 70 per cent by 2050”

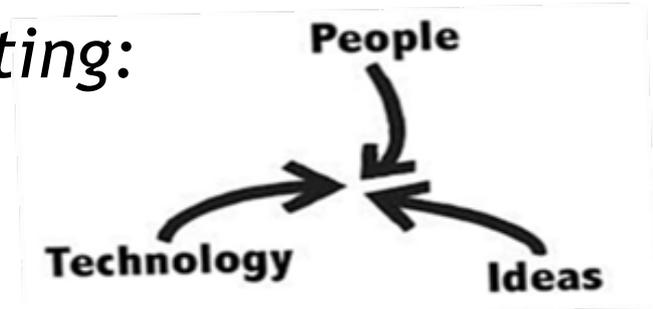
“It might seem as though the science of cities should aspire to an integrated theory... this is a mirage”



*From Manchester to Barcelona:
Europe's smartest cities put
citizens first*

theguardian

HOW DO WE CREATE A SMART CITY? by connecting:



TOP DOWN

Mayors | City Councilors | Municipal Departments



*Developers
Entrepreneurs
Business Improvement Districts*

*Advocacy Organizations
Artists
Planning + Design Firms*

BOTTOM UP

Citizen Activists | Community Groups | Neighborhood Organizations

European Smart City Topics

1. PRACTICAL MODELS

- EU SC model (*also used in afternoon workshop*)
- Focus points model

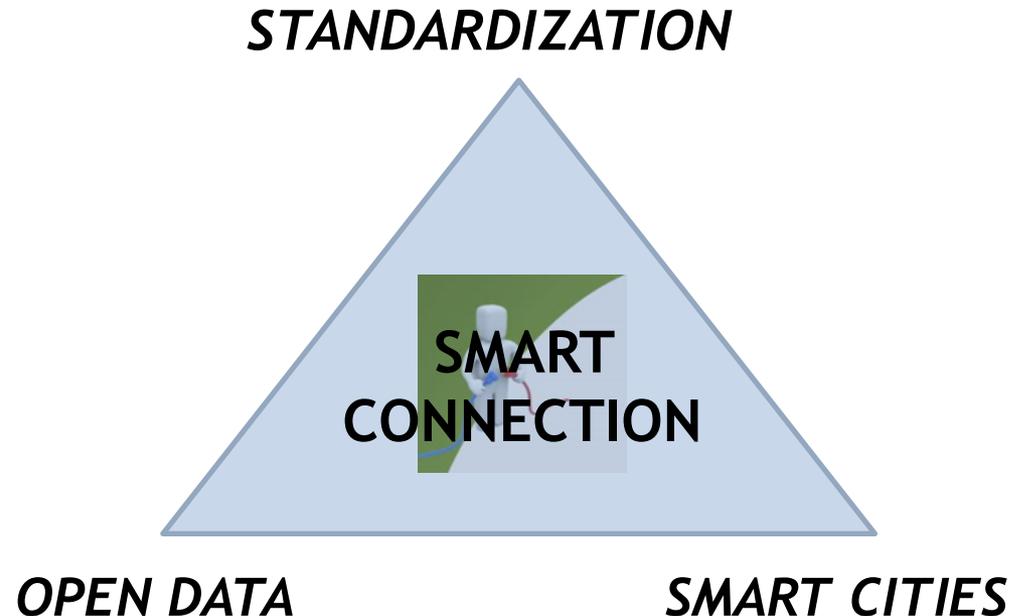
2. STANDARDS

3. EUROPEAN SUPPORTING INITIATIVES

FOCUS POINTS MODEL



SMART CITIES THROUGH STANDARDIZATION



- BSI PAS 181 Smart city framework. Guide to establishing strategies for smart cities and communities,
- ISO 37120, clearly defined city performance indicators and a standard approach for measuring each,
- BREEAM for developments (<http://www.breeam.com>)
- LEED for neighborhoods (<http://www.usgbc.org/LEED/>)

EUROPEAN SUPPORTING INITIATIVES

The European Innovation Partnership on Smart Cities and Communities (EIP-SCC)

Aim:

- To contribute to the EU's 20/20/20 climate action goals
- Connecting cities, industry and citizens to improve urban life through more sustainable integrated solutions.

How:

- Strategic partnerships between industry and European cities.

The European Technology for Electricity Network of the Future

- European forum for the crystallization of policy and technology research and development pathways for the smart grids sector, as well as the link between EU-level related initiatives

<http://www.smart-cities.eu/>

GROWSMARTER PROGRAM: TRANSFORMING CITIES FOR A SMART, SUSTAINABLE EUROPE

<http://www.grow-smarter.eu/home/>

- 12 Smart Solutions
Together with 20+ Industry
- 3 Lighthouse Cities
Stockholm, Cologne and Barcelona
- Targets and Evaluation
Economic, Social, Environmental
- Knowledge Replication
5 follower cities, Graz, Cork, Suceava,
Valetta, Porto



2015 European Top 10 Main Cities Examples



COPENHAGEN

- the lowest carbon footprints/capita in the world (less than two tons/capita).
- most ambitious carbon reduction plan of any major city in the world. They aspire to achieve carbon neutrality by 2025.

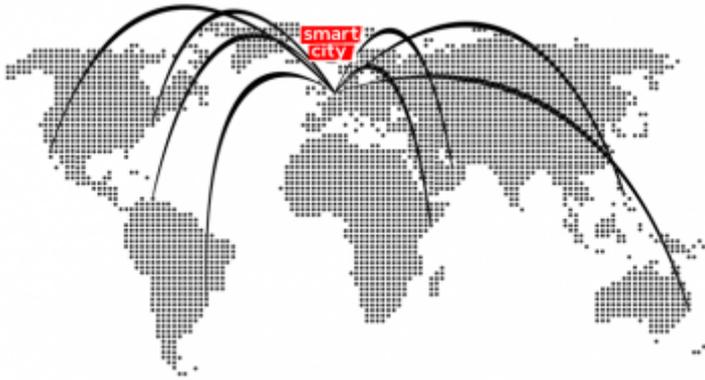
Approx. 40% of all commutes are conducted by bicycle

- Using data
 - as a tool to reduce energy consumption
 - as a platform to develop new solutions to help change behavior related to energy consumption.

i.e. real-time info on issues of air contamination and traffic congestion for cyclers

- Creating an integrated end-to-end energy model

AMSTERDAM



In recent years, Amsterdam has stepped up its pace to be a leading smart city.

Amsterdam Smart City is a public private partnership focused on using the city as an urban laboratory for the use of open data, new mobility solutions and ultimately improved quality of life for all residents and visitors.

Supporting 43 different smart projects in the city



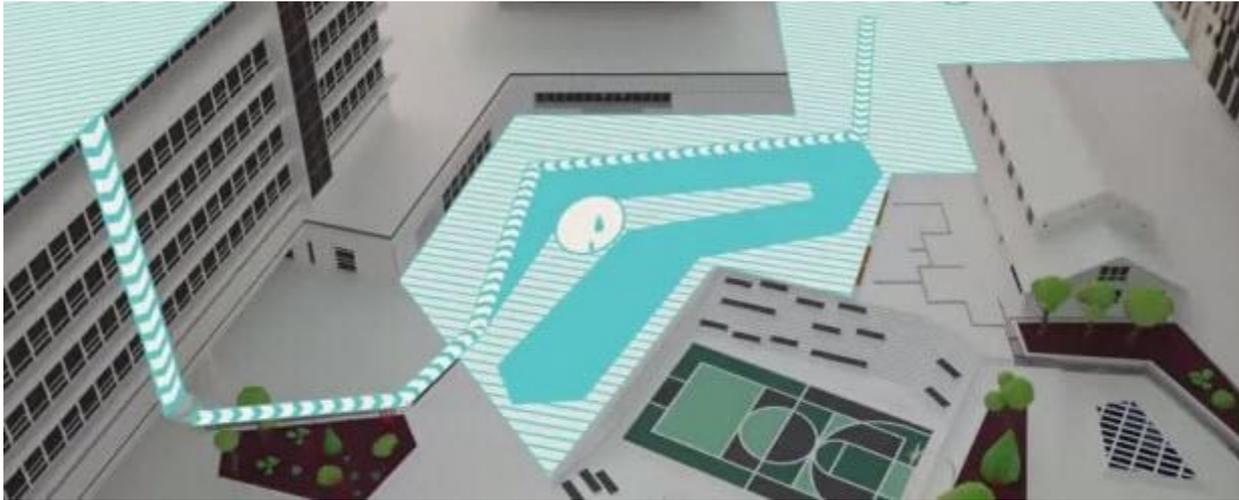
Smart city Amsterdam is based on 5 themes:

- Living
- Working
- Transport
- Public facilities
- Open data

Three focus areas

ROTTERDAM

INNOVATIVE FLOOD-PROOFING: Sponge-zone



Benthemplein Water Square - also water retention basin. First of its kind in the world, according to C40

Circular gates to close of harbor from storm surges

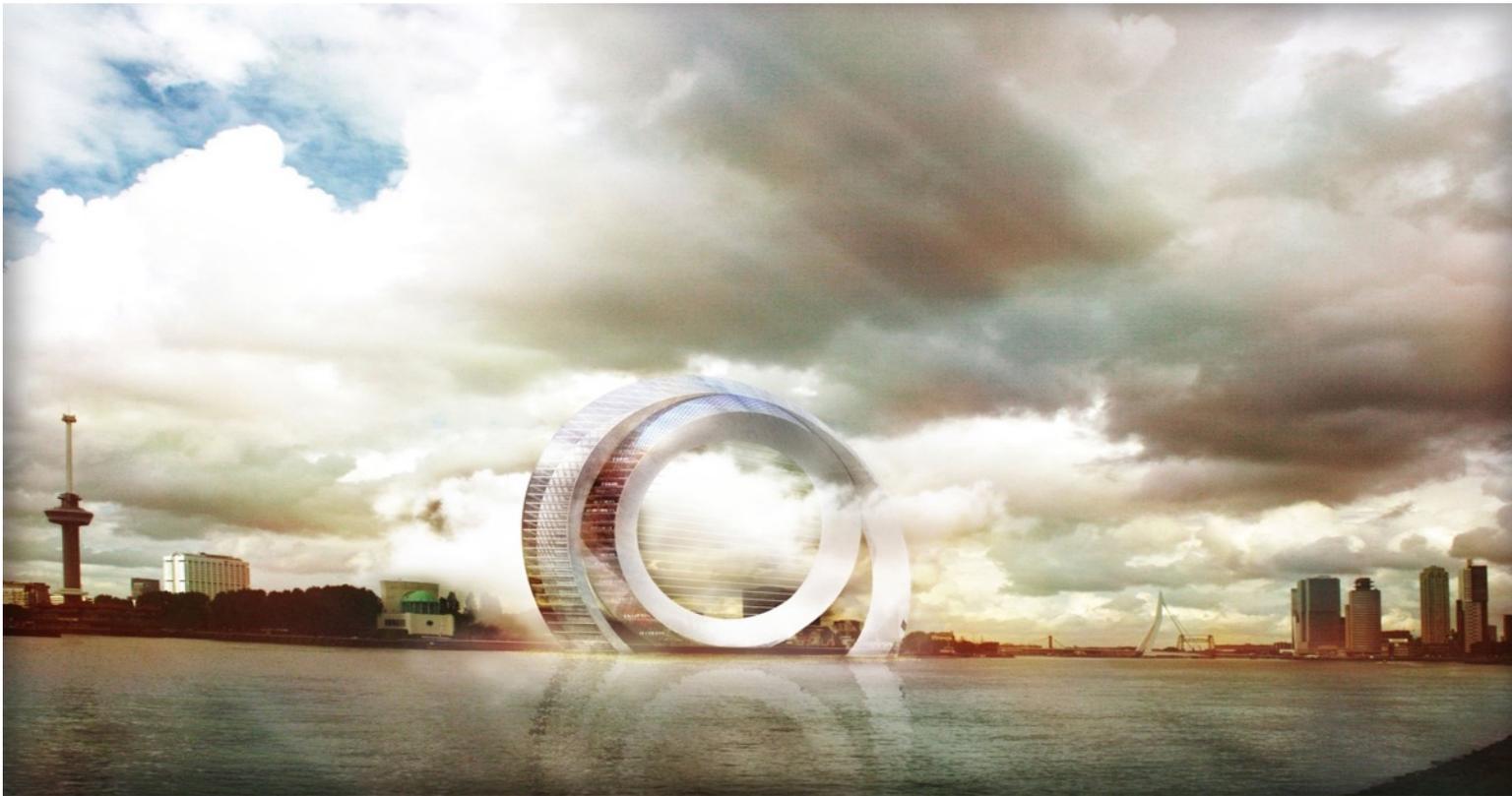


ROTTERDAM

DUTCH WINDWHEEL

WINDENERGY, BIOGAS, WATERRECYCLING

Housing, Offices, Sightseeing, Bars/Restaurants



BARCELONA



- Electric vehicle
- Renewable energy and the smart storage (microgrids)
- New public lighting systems

22@ Innovation District

Endesa is working on upgrading its power supply system in Barcelona where it will roll out a cutting-edge smart grid offering greater savings and more efficient and sustainable management. This will prepare the city for the energy model of the future, based on values which afford economic and social progress. Total investment in this new SmartCity project is estimated to be over 100 million Euro.

Summary:

CITIZENS first, as an integral actor for transformation

**Integrated top down/bottom up approaches:
citizens needs as driver for innovation**

- Through National and EU models and programs creating coherent development
- Including Industry, Cities, Research
- Citizens as the main stakeholder: for, with and by.
- Setting Models, Standards and City Indicators
- Exchanges best practices and upscaling between cities

*EU and USA
cooperation
coming soon!*



PANEL

Voices from the field: challenges, barriers to implementation, solutions



Panel: Impressions

What are the main challenges to making a city smarter?

Single purpose entities and departments, especially administrative ones. e.g. we need program-based budgeting, we need to reward employees differently.

We have prescriptive, single issue regulations that can't deal with multiple objectives, inhibit innovation, and create a regulator vs regulated mentality.

Information, integration, address trust, privacy and quality vs quality. It should translate down and lead to participation and action. Visualize outcomes.

How can we break down the silos?

We need principles that everybody can get behind. Purpose driven decisions.

What's in it for me (WIIFM). Speak from the perspective of the citizens/customers/employees. Tie project outcome to *their* job results.

Panel: Impressions 2

How can we move from project to program management?

If you automate a mess, you get an automated mess.

Start with process improvement. Introduce a project man. system, including data handling.

Engaging citizens

Ask them. Organize “café conversations.

Key is shortterm feedback + action, or you will loose them forever.

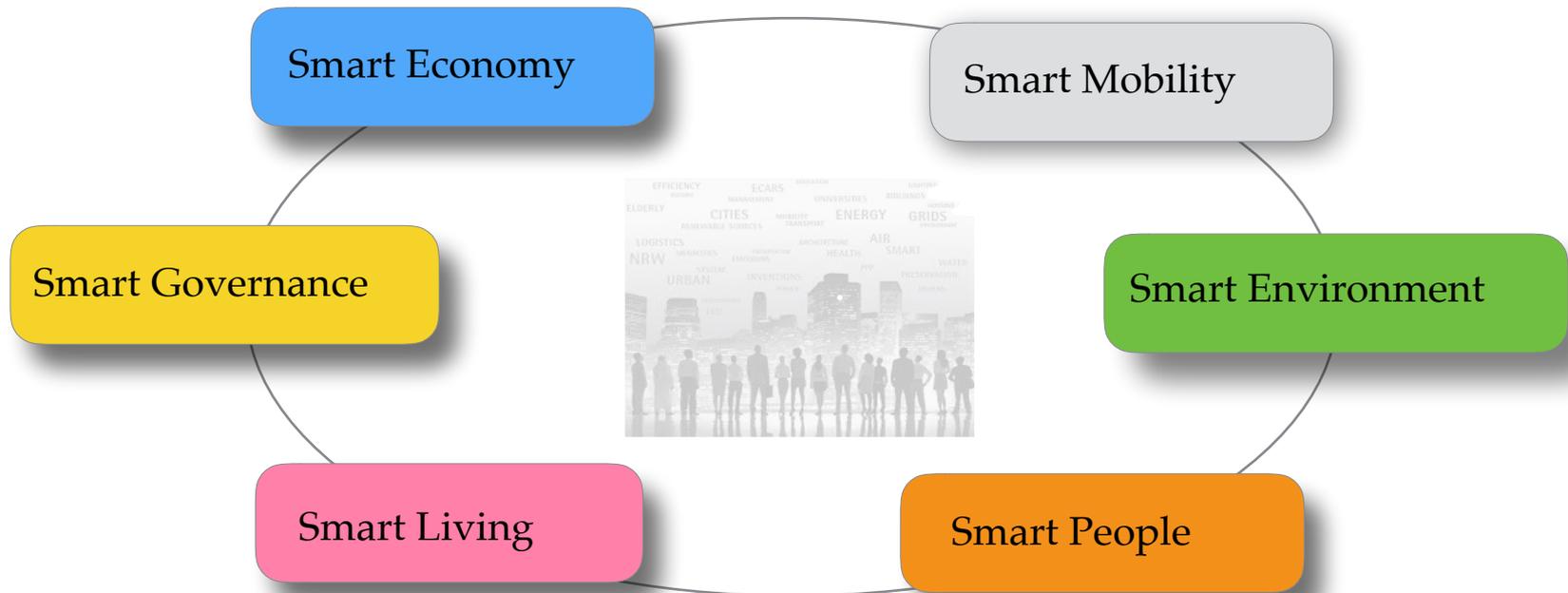
Help people see *personal* implications over the long term.

In a Smart City there is a substantial information flow in both directions.

WORKSHOP IMPRESSION 1

Using the EU Smart Cities Model

These 6 characteristics are also
perspectives to look at the city !



Model was used from a Top down and
a Bottom up perspective.

WORKSHOP IMPRESSION 1.

Downtown mid-size city

Each group of three looks at downtown America from a different perspective



Participants from:

- City of Greensboro,
- Town of Chapel Hill,
- City of Raleigh,
- City of Fayetteville,
- UNC
- EPA's, Sustainable and Healthy Communities Research Program

Working with the EU SC model - Findings

- Develop critical mass,
- e.g. day-time AND night-time activities
- Not just young. bring seniors downtown
- Need amenities, e.g. theater
- Grocery store (Start with coop)
- Educate people about benefits of Local

- Look at impacts
- WIIFM (Free rides?)

Smart Economy

Smart Mobility

Smart Governance

Downtown
mid-size city

Smart Environment

- Engage the community
- Create cultural, educational and physical (green) space
- Policies that encourage all other perspectives (integrated planning)
- be ware of gentrification (affordable housing)
- Accessible council (wo)men

Smart Living

- Begin with end goal in mind
- Create a vision, through a participatory process
- Self assessment, monitoring
- Gaps, Opportunities, Barriers
- Track stability of growth
- Standardize public engagement

Smart People

- Educate!
- Focus on retention
- Diversity through creativity
- Civic participation
 - partnerships
 - link with mobility
 - get feedback

- Track market signals
- Provide information
- Regulatory instruments
- Manage Local vs State dynamics
- Link with public transit
- Sustainable management

WORKSHOP IMPRESSION 2

GAIA - climate change and adaptation serious game with SGS



For more information: www.smartgamesystems.com



<http://ie.unc.edu/cleantech/>



<http://www.ie.unc.edu>

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STRATEGIES FOR SMART
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