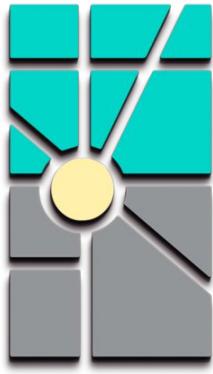


Smart Cities

■

Something to aspire to in the New Normal

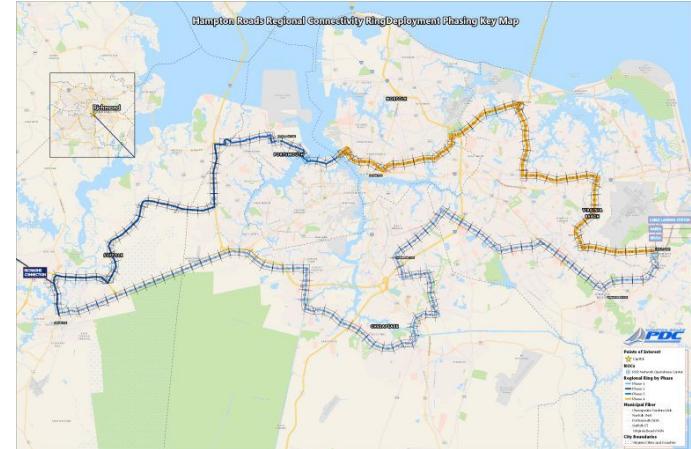




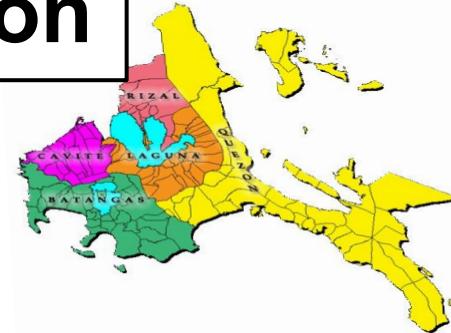
2018 SMART INFRASTRUCTURE CHALLENGE

Challenge:

Regional teams are challenged with creating an innovative smart infrastructure vision and planning framework to compete for grant funding, access to project financing, and support resources to pursue the plan. ***TOP PRIZE: USD 50 million***



Smart Transport Calabarzon



Bringing the best of smart connectivity solutions to Calabarzon's transportation and traffic management professionals

About Smart Infrastructure

The Institute of Electrical and Electronics Engineers (IEEE) focuses on 6 themes for Smart Infrastructure:

- Economy
- Mobility
- Environment
- People
- Lifestyle
- Governance



Smart Infrastructure uses IoT and connectivity to improve those themes for its citizens

IEEE - Core Cities

Casablanca, Morocco	http://www.e-madina.org
Guadalajara, Mexico	http://www.guadalajara.gob.mx
Kansas City, Missouri, USA	http://www.kcmo.gov
Trento, Italy	http://www.comune.trento.it
Wuxi, China	http://www.wuxicqy.cn

Also 12 Affiliated Cities - <https://competitivedevelopmentaffiliates.html>

Venture Smarter & the Smart Infrastructure Challenge



Cutting the chaos out of smart city planning

We are streamlining smart and connected efforts for governments, businesses, and universities. Led by government and technology experts coming from The White House, State Department, Senate, Congress, technology startups, and leading enterprise organizations, our people and platform are dedicated to supporting efforts that create better places to live, work, and visit. You can utilize the brain trust for strategic support, connect with new partners within a trusted community, or engage key stakeholders during an upcoming event or initiative.



Regional teams are challenged with creating an innovative smart infrastructure vision and planning framework to compete for grant funding, access to project financing, and support resources to pursue the plan. ***TOP PRIZE: USD 50 million***

Smart Regions

The "Smart Regions" program supports 13 regions across the Flanders region. In their development into smart cities, including the port of Antwerp, Smart Flanders does this by focusing on real-time open data and shared reference models and aims to stimulate cooperation between cities and actors from the quadruple helix. Leveraging its "learning by doing" approach, Smart Flanders focuses on making data as accessible as possible, with a view to maximum reuse as a basis for smarter services and applications. (source: [The power of collaboration for the digital innovation of Smart Cities](#))

Calabarzon municipalities can benefit from this regional data-sharing & reference model approach



Calabarzon

Population - 14M

Population Density

	Area	Pop
Batangas	2,664,335	960
Cavite	1574.7	3,678,309
Laguna	1,917.85	3,035,081
Quizon	8,989.39	1,856,582
Rizal	2,884,227	210
		2,400

What Problems are we solving?

- Population growth and increased traffic
- 120M people

Exclude cities within National Capital Region (?) or focus on cities outside NCR to determine better transportation plans



- Sensors are expensive, require expert operation and may only be needed temporarily in the planning process

- A lack of regional Scale collaboration and data-sharing can be a barrier to the planning Trajectories - Measure of time for traveling between two or more locations.

Intersections, Counters, Studies Available

Studies Available

Roundabout count - Total sum of turning movements from origin to destination.

Road volume data - Count of vehicle and bicycle volumes on a road segment.

Vehicle gap data - Measure of headway time between vehicles in seconds.

Pedestrian & bicycle pathway count - Count of pedestrian and bicycle volumes on sidewalks, paths, or intersecting paths.

Vehicle classifications - Measure provides full vehicle classification and can provide custom classifications on request.

Right-turn on red - Meet the requirements of the 2010 HCM by adding RTOR data to your intersection counts.

Crosswalk data - Combine pedestrian and bicyclist volumes for each of the four crosswalk counts.

Phase 1 - End of 2018

- Short-term leasing of AI-enabled smart traffic counting technologies for institutions and LGUs
- Provide assistance to smaller LGUs and municipalities with the preparation of Transport Modernization Plan (TMR) pilot study reference model for other municipalities
- Data warehousing and custodianship by State Universities for incorporation into regional scale studies and planning
- Regional-scale data-processing and warehousing procedures at State Universities



State University Contributions

- GIS data compilation and grooming
- Regional to city scale studies on natural hazards and transport
- Next-generation disaster response technologies including the [TOAD developed by BSU](#)



P3 Partnerships

Public-Private-People Partnerships are a means for generating financing for public infrastructure projects.

- Private-equity firms in the Smart-City space have financed projects at ZERO-COST to the cities involved

- Projects can often accommodate the inclusion of safety & environmental projects which are non-revenue



According to Zack Huhn (Venture Smarter, IEEE Smart City Planning Committee):

P3s are particularly important in the USA because our local governments are in gross amounts of debt and lack the resources or capital to move forward without a private sector to share burden on the taxpayer.

Source: www.venturesmarter.com

For enquiries:



Project Co-ordinator

Allan Gray
Director Product Development/R&D - sunEtrike



Academic Engagement Lead

Eng Albertson Amante
VP R&D/Extension - Batangas State University



Government Engagement Lead

JR Fajardo
Chairman - Binhi Producer's Cooperative



Transport Industry Engagement Lead

Edmund Araga
VP - Electric Vehicle Association of the Philippines

IEEE Smart Cities Conference

IEEE Core Cities

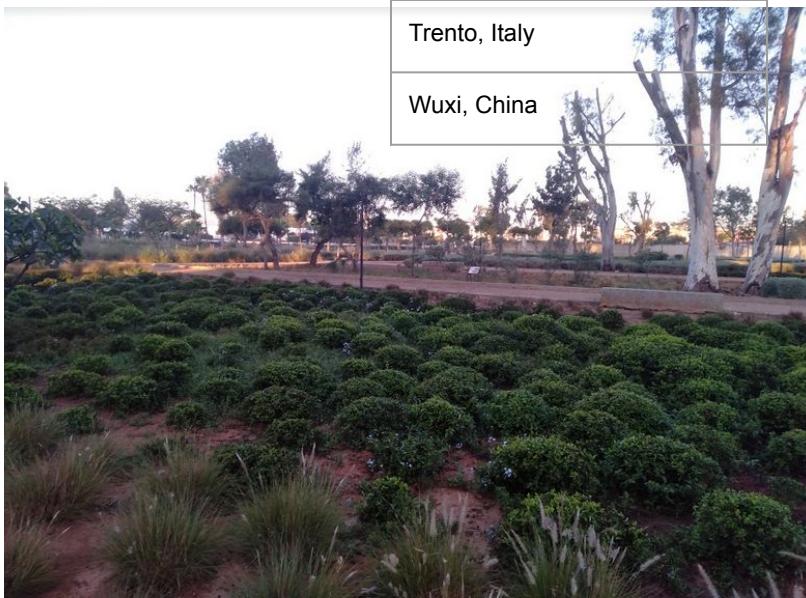
Casablanca, Morocco

Guadalajara, Mexico

Kansas City, Missouri, USA

Trento, Italy

Wuxi, China



The banner features the IEEE logo and the tagline "Advancing Technology for Humanity". It also includes the IEEE Smart Cities logo. The main title is "IEEE P2784" followed by "The Smart City Planning and Technology Guide". The background is a night scene of a modern city skyline with illuminated buildings.

Fog Computing

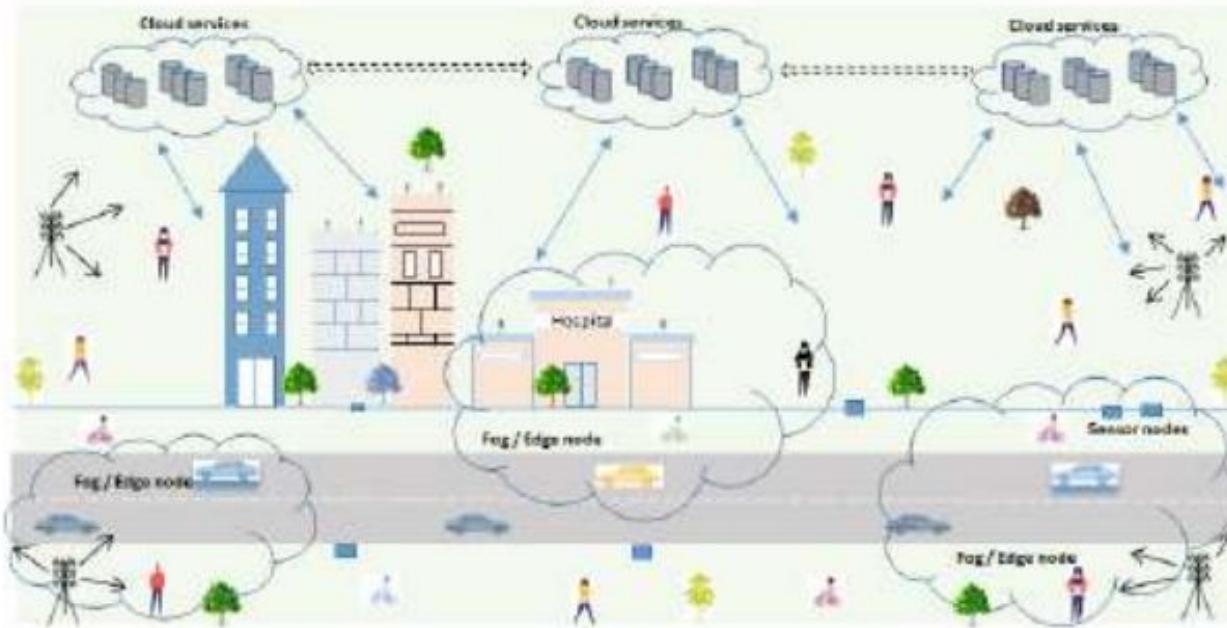
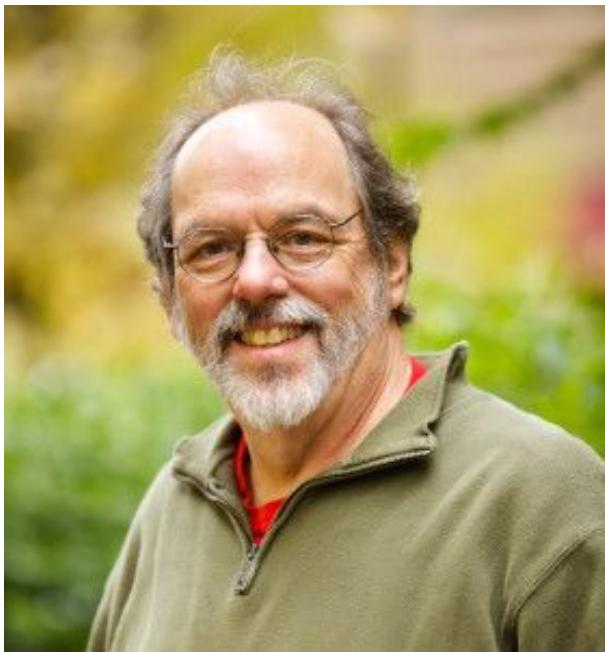


Fig. 1. An illustrative example of a Smart-City-Fog (SCF) model with Fog / Edge nodes and 5G technology.

Federated Computing



After 20 years of watching the wiki develop and being disappointed in some regards, I think I know what the answer is: what I call a [Federated Wiki](#).

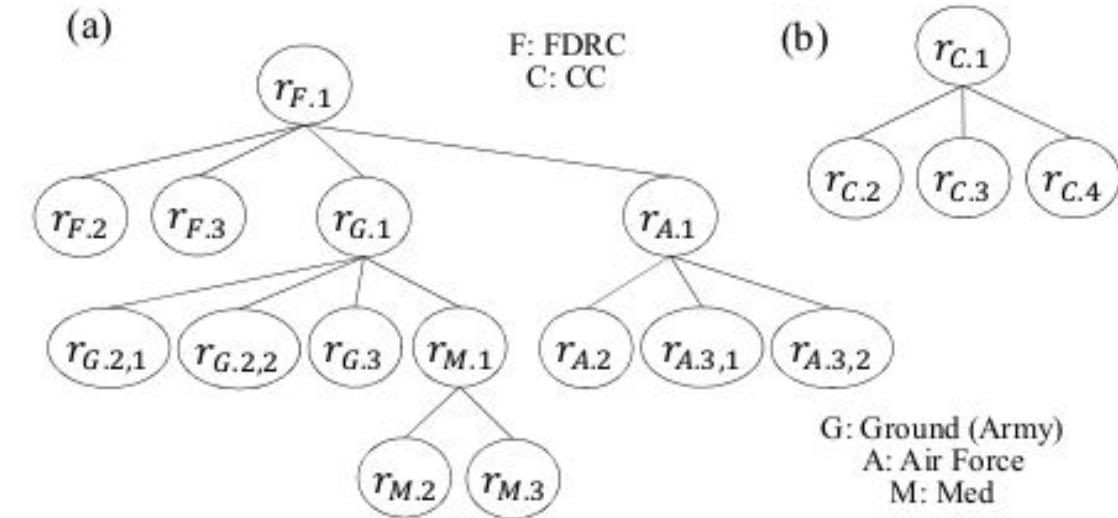
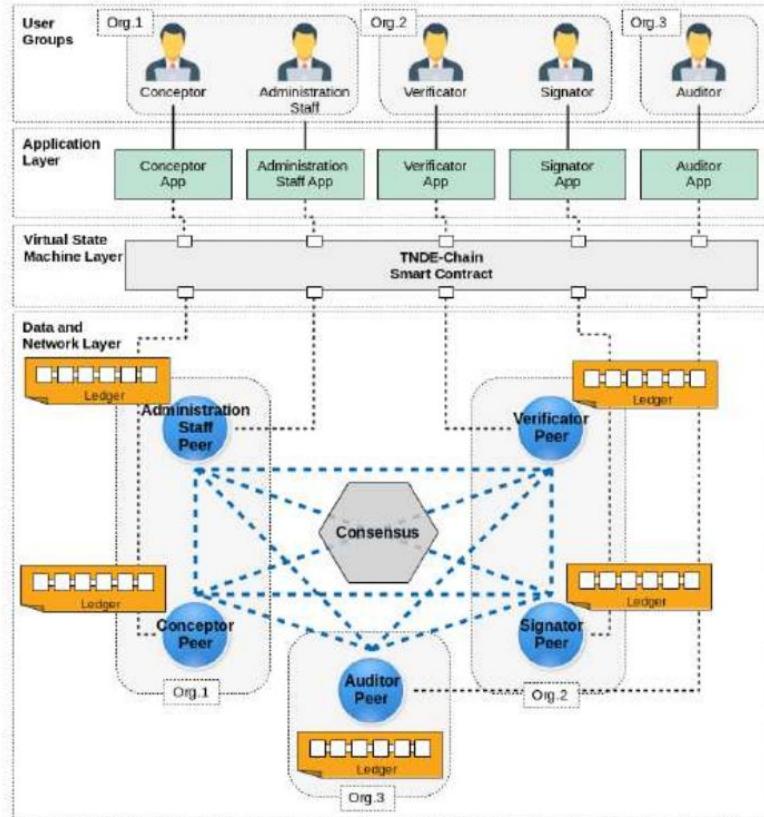


Fig. 3. The role hierarchies of FDRC and CC.

Smart Contracts for Gov't Services



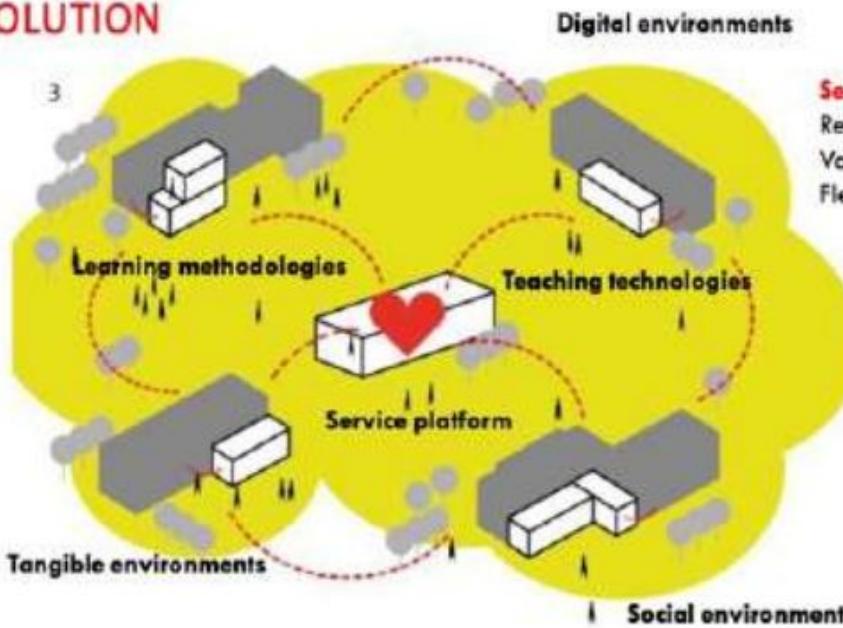
Online Learning Resources

SCHOOL AS A SERVICE SYSTEMIC SOLUTION

School is using available shared resources within the community.

Aspects of social learning are important, school is flexible and scalable.

Learning together.



Service Innovation

Resource operator
Value co creation
Flexible solution

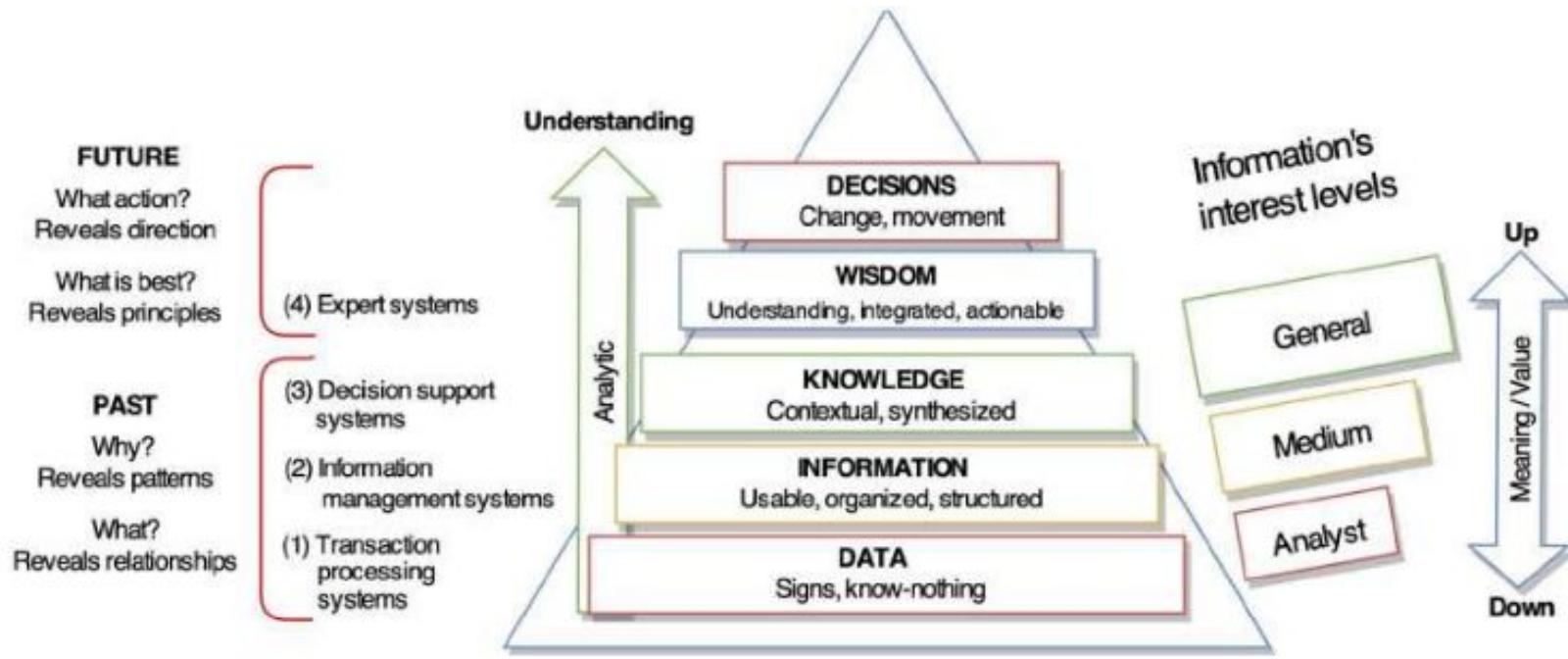
Group Profile:
Group name: M1
Expirement name: Blinking a led
Course name : Micro-controller and Microprocessor

Gallery :

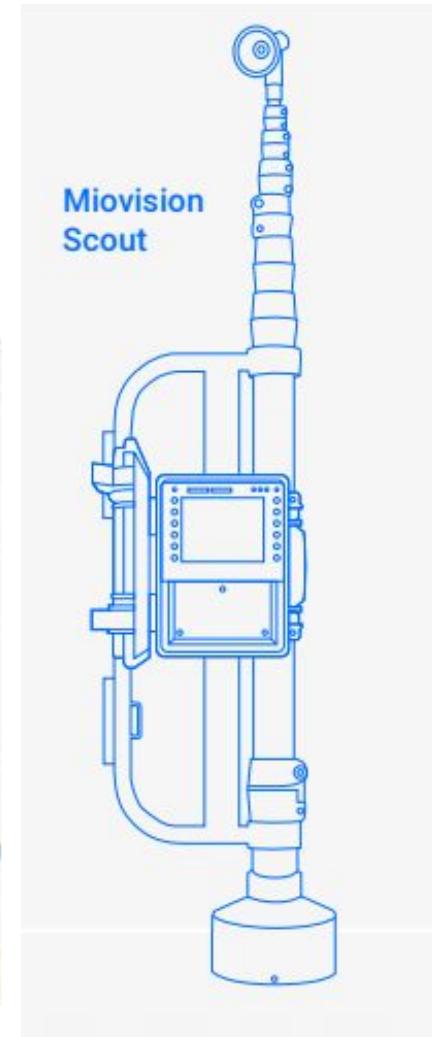
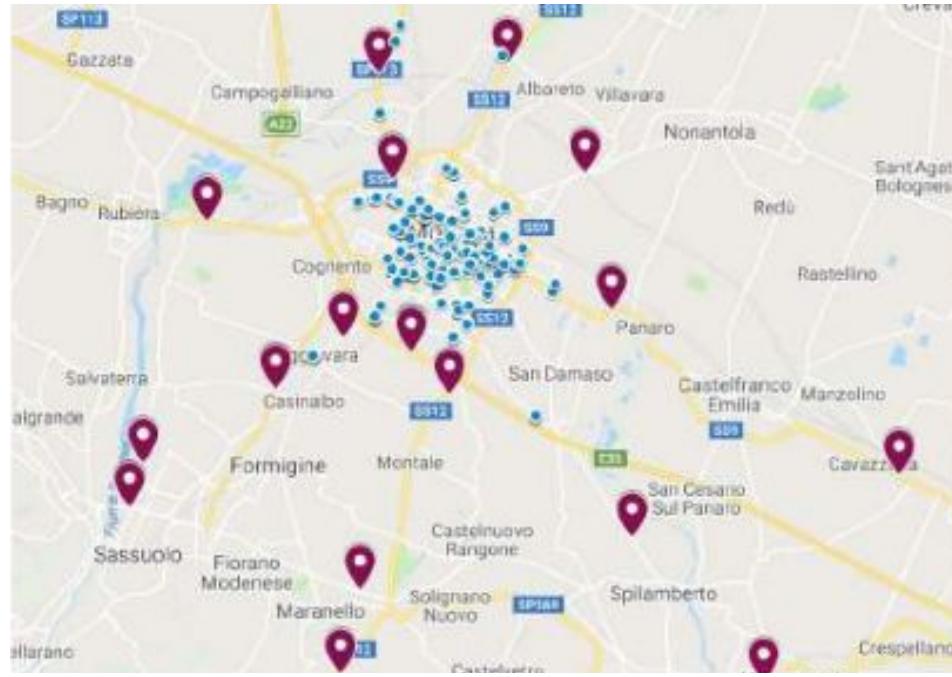
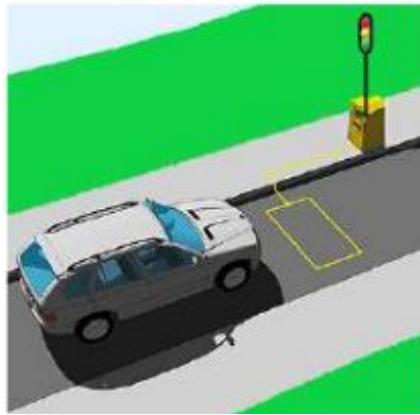
[Export to PDF](#)



Data Aggregation for Decision Making



Automated Traffic Monitoring



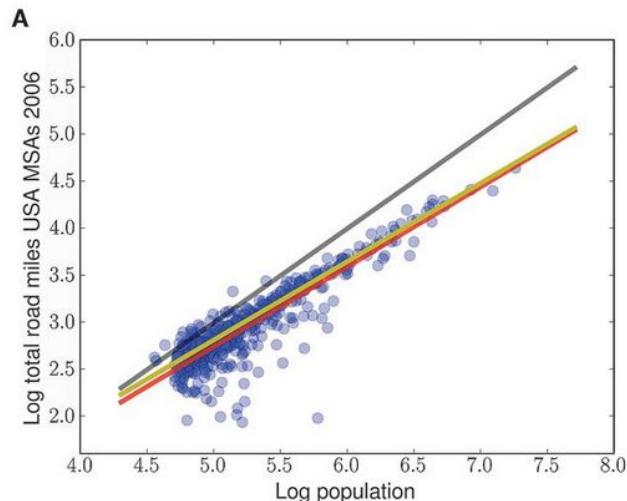
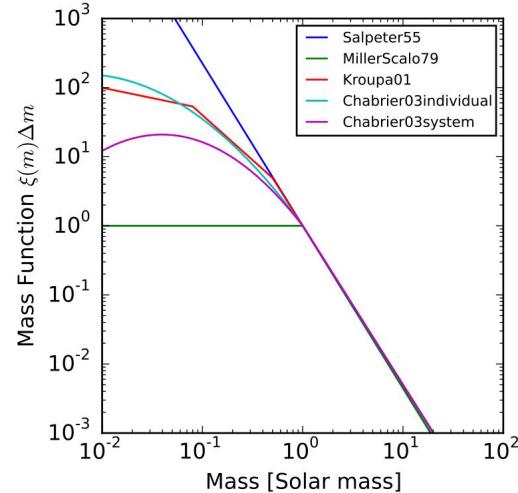
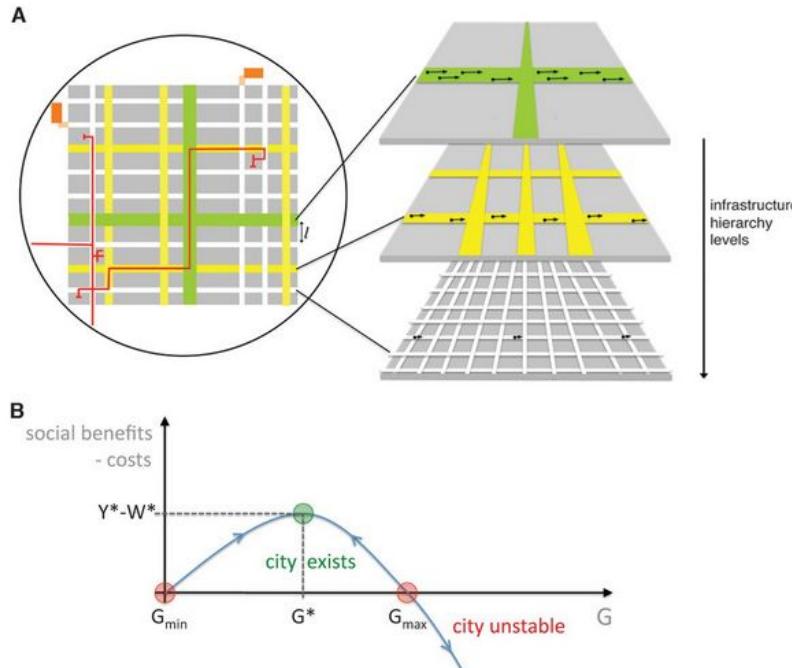
Towards ‘Smart’



Cities as ‘Social Reactors’

The Origins of Scaling in Cities

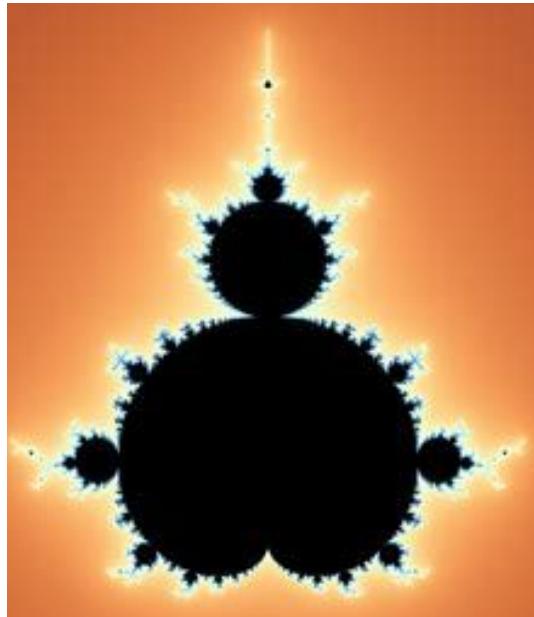
Luís M. A. Bettencourt, Science 21 Jun 2013



Cities as fractals

RANDOM.ORG offers *true* random numbers to anyone on the Internet. The randomness comes from atmospheric noise, which for many purposes is better than the pseudo-random number algorithms typically used in computer programs.

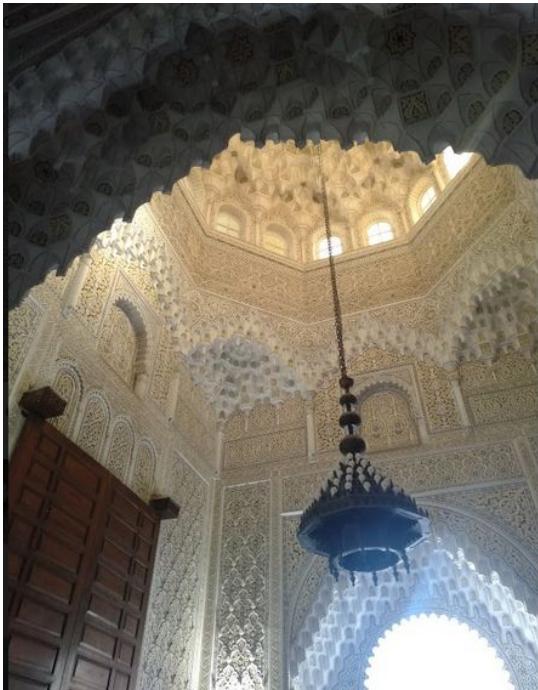
[Ba-lla, Namibia](#)



[Ron Eglash - The Fractals at the heart of African Designs \(TED Talk\)](#)



Gould's Spandrels



¹³ And now these three remain: faith, hope and love. But the greatest of these is love. I Corinthians (Just add religion)



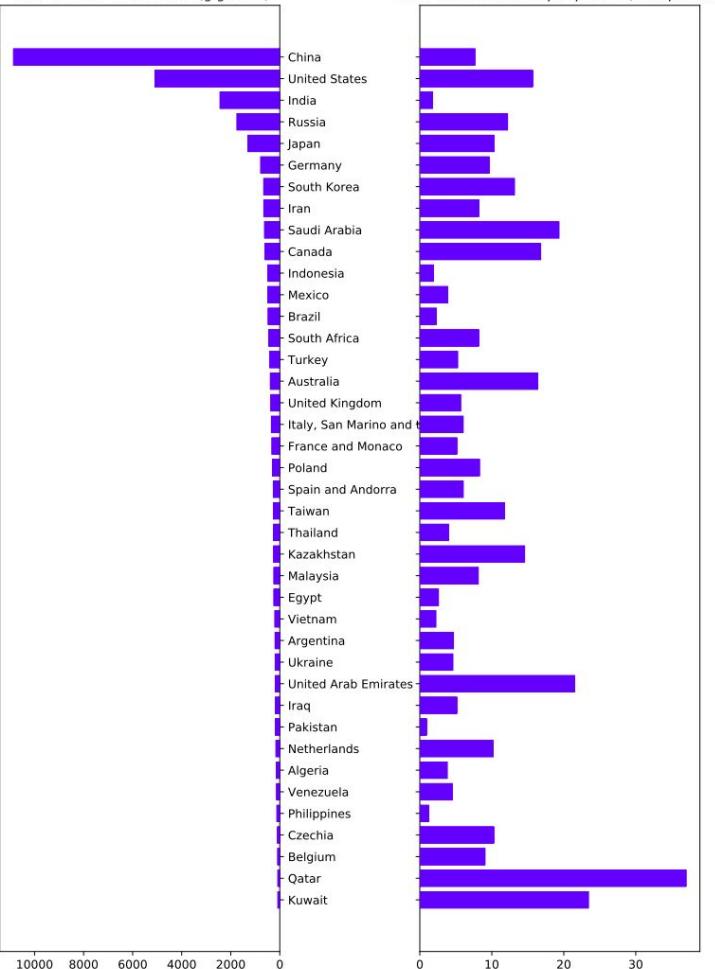
SOLARIMPULSE

FOUNDATION

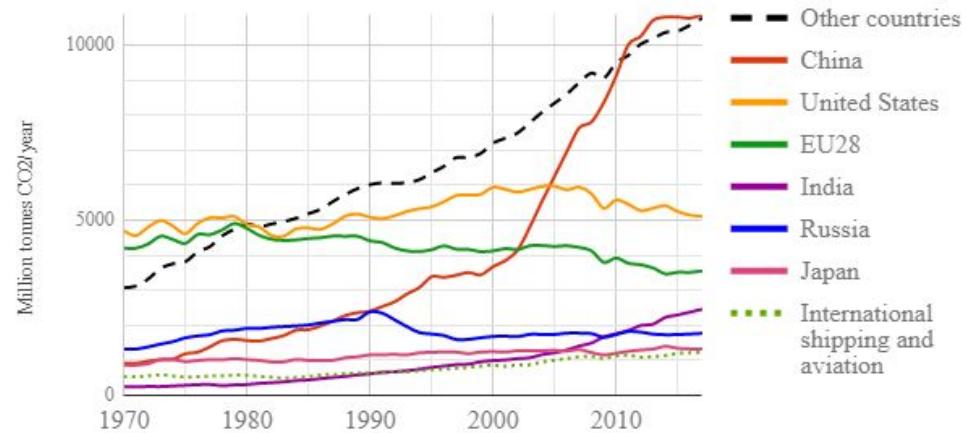
When I was flying around the world in my solar airplane, I remember looking at the sun that was giving energy to my four electric motors and their huge propellers. There was no noise, no pollution, no fuel... and I could fly forever.”

Bertrand Piccard



Total CO₂ emissions 2017 (gigatons)

World fossil carbon dioxide emission 1970-2017



At current consumption, our ‘Carbon Budget’ runs out sometime before 2030

Led by China, the rest of the world is rapidly improving their quality of life.

China is still 50% per capita emissions of the US (Canada & Saudi are higher)



Ottmar Edenhofer - IPCC



THAT'S ALL FOLKS!