Disruptive Strategies in the PostDigital City

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UAB

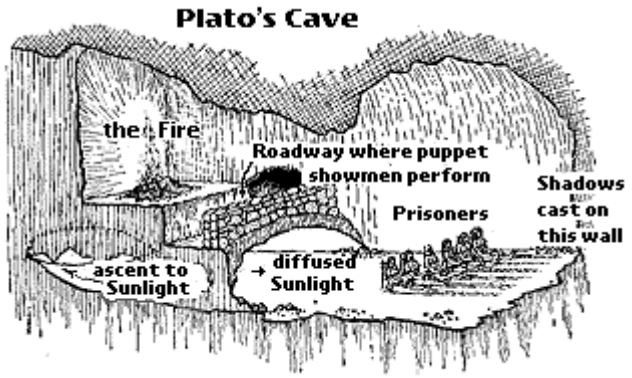
DISRUPTION

ISEA 2015

PhD title: ***PostDigital City: Aesthetics and Politics in the space of Embodied Virtuality***

- Theoretical background:
  - The Virtual
  - The Computer as an Assemblage
  - Embodied Virtuality
  - Algorithmic Management vs Hackability
- Ubiquitous Computing and the Internet of Things
- Urban Space and New Media
- Visualization and Urban Computing
- The PostDigital; new approach from art practice
- PostDigital Projects
- The emergence of new collectives and citizen participation: The Right to the City

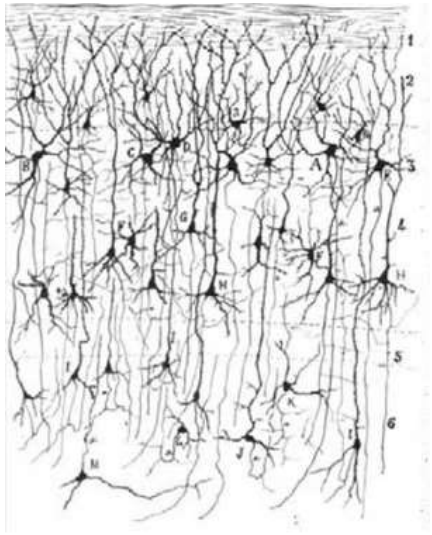
Background overview:



Transcendence ⟺ Immanence

Metaphysics ⟺ Ontology of Becoming

Representation ⟺ Simulacra



Aesthetics: Follow up of how things reach existence
Knowledge: Speculative activity, based on experimentation
Things: Assemblages, problematic

Bergson – Simondon – Deleuze – Delanda – Massumi- Software Studies

Theoretical Background: **The Virtual**

"Potential" and "virtual" are not at all in opposition to "real"; on the contrary, the reality of the creative, or the placing-in-continuous variation of variables, is in opposition only to the actual determination of their constant Relations"

Gilles Deleuze and Félix Guattari:
"A thousand plateaus. Capitalism and schizophrenia"

Multiplicities and the intensive space:

Deleuzian multiplicity takes as its first defining feature these two traits of a Manifold: its variable number of dimensions and, more importantly, the absence of a supplementary (higher) dimension imposing an extrinsic coordinatization, and hence, *an extrinsically defined unity*.

Manifold, the space of possible states which a physical system can have.

Manuel Delanda:

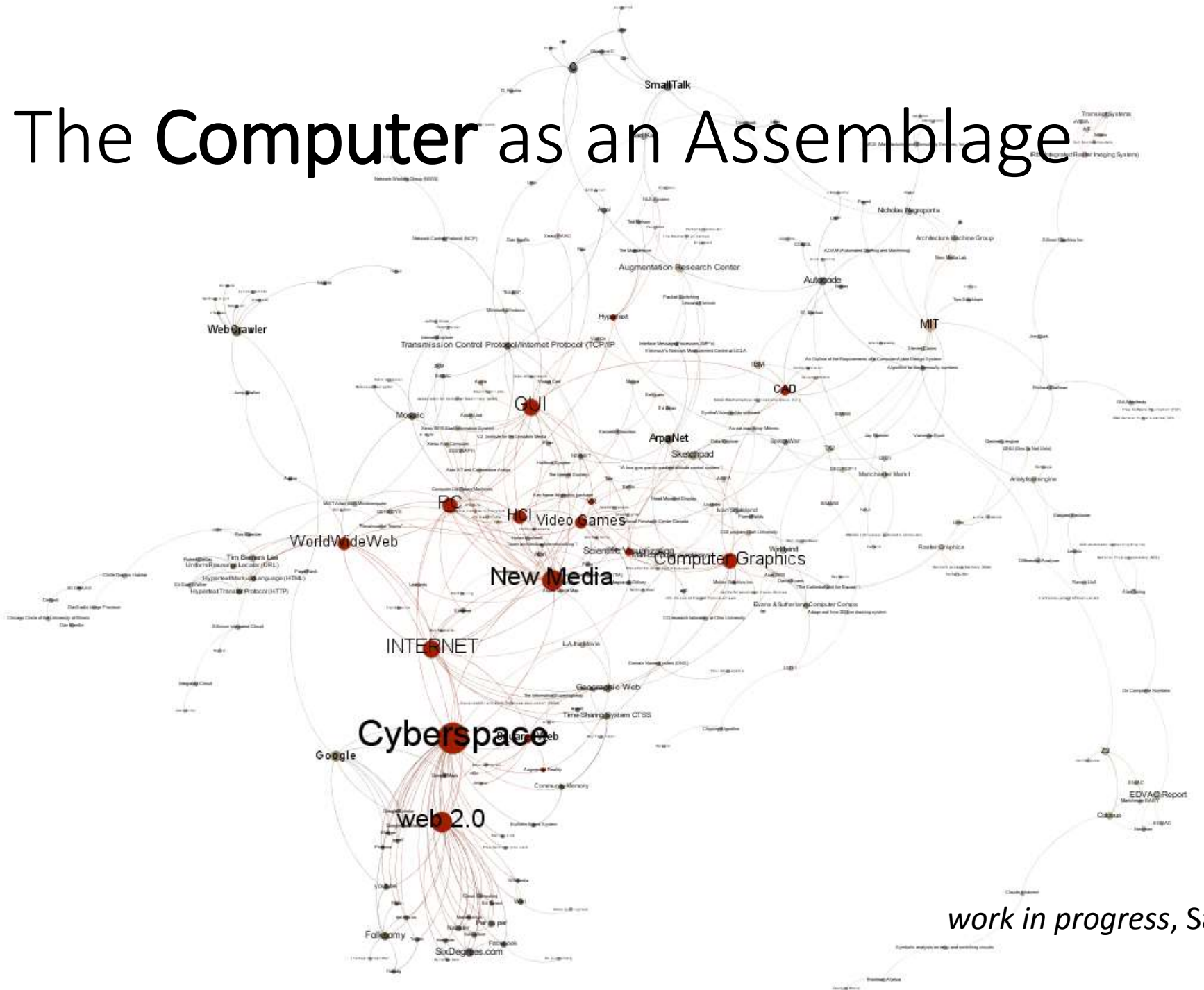
"Intensive science and virtual Philosophy"

Theoretical Concepts: **Assemblage**

An **Assemblage** is an emergent aggregate, whose identity is produced historically, initiated and sustained by the interactions between its constituent parts. A complex whole that cannot be deduced of the addition of its parts.

The **Assemblage** can conform systems, bodies and milieus and it is the way in which matter emerges from the Virtual to conform the meshwork in which we are immersed as our reality.

The **Computer** as an Assemblage



work in progress, Sandra Alvaro, Build with Gephi

Assemblage with a high capacity of virtualization (discretization and programmability)

- The computer has emerged from the encounter of multiple technologies and diverse fields of research:
  - First calculating machines and programming languages
  - Internet and the World Wide Web
  - Simulation and Human Computer Interaction

- And has disseminated towards all the practices of our culture:
  - Scientific research
  - Design and production
  - Economy and management (globalization)
  - Entertainment industry
  - Production of knowledge and social interactions (social networks, wikis…)
  - The management of the urban space (*smartcities*)

Theoretical Concepts: **Embodied Virtuality**

“The "virtuality" of computer-readable data -- all the different ways in which it can be altered, processed and analysed -- is brought into the physical world” .

Mark Weiser (1991) The Computer for the 21st Century

Embodied Virtuality is the term I proposed in the *“Postdigital City…”* to describe the convergence of the three assemblages of computation, communication and the technical reproduction of the audio-visual, in an integrated system, which is promoting new ways of involvement, perception and action. This new physical milieu becomes programmable by means of virtualize and modulate our reality, it entailing a big capacity for both control and hackability.

Algorithmic Management

"…the judgments of value and aesthetics that are built into computing programming's own subcultures and its implicit or explicit politics; or the tightly formulated building blocks working to make, name, multiply, control, and interrelate reality"

Mathew Fuller: Software Studies

Algorithm = abstraction + control

Nowadays, computers are involved in the processing of all that can be reduced to data, algorithms have become so fundamental that they may be imperceptible to most users; they prescribe ways of thinking and doing that escape out of the domain of logic and move into everyday life.

Hackability

“Through the production of new forms of abstraction, the hacker class produces the possibility of the future - not just 'the' future, but an infinite possible array of futures, the future itself as virtuality” .

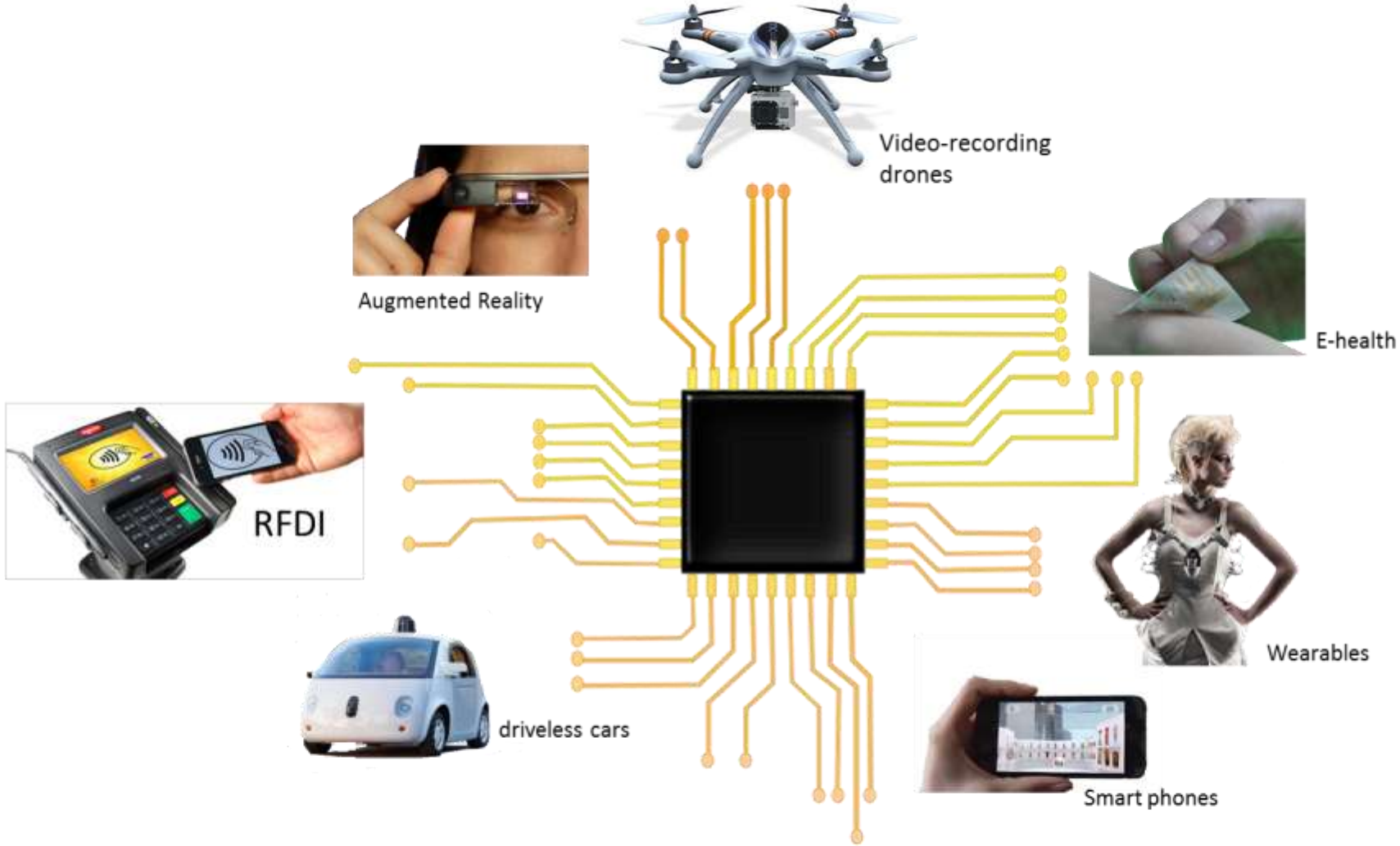
McKenzie Wark: A Hacker Manifesto

Hackers consider the computer as a programming environment and programming as a speculative activity socially engaged that modify the established codes and produces its own culture. Working in an open environment suitable for collaboration, hackers will open the space behind the screen and will disrupt the created systems showing their arbitrariness. They recuperate the Virtual and its possibilities towards new assemblages and ways of involvement and relation with our world.

PostDigital Space

"Like air and drinking water, being digital will be noticed only by its absence, not its presence...- the Digital Revolution is over"

Nicholas Negroponte 1989

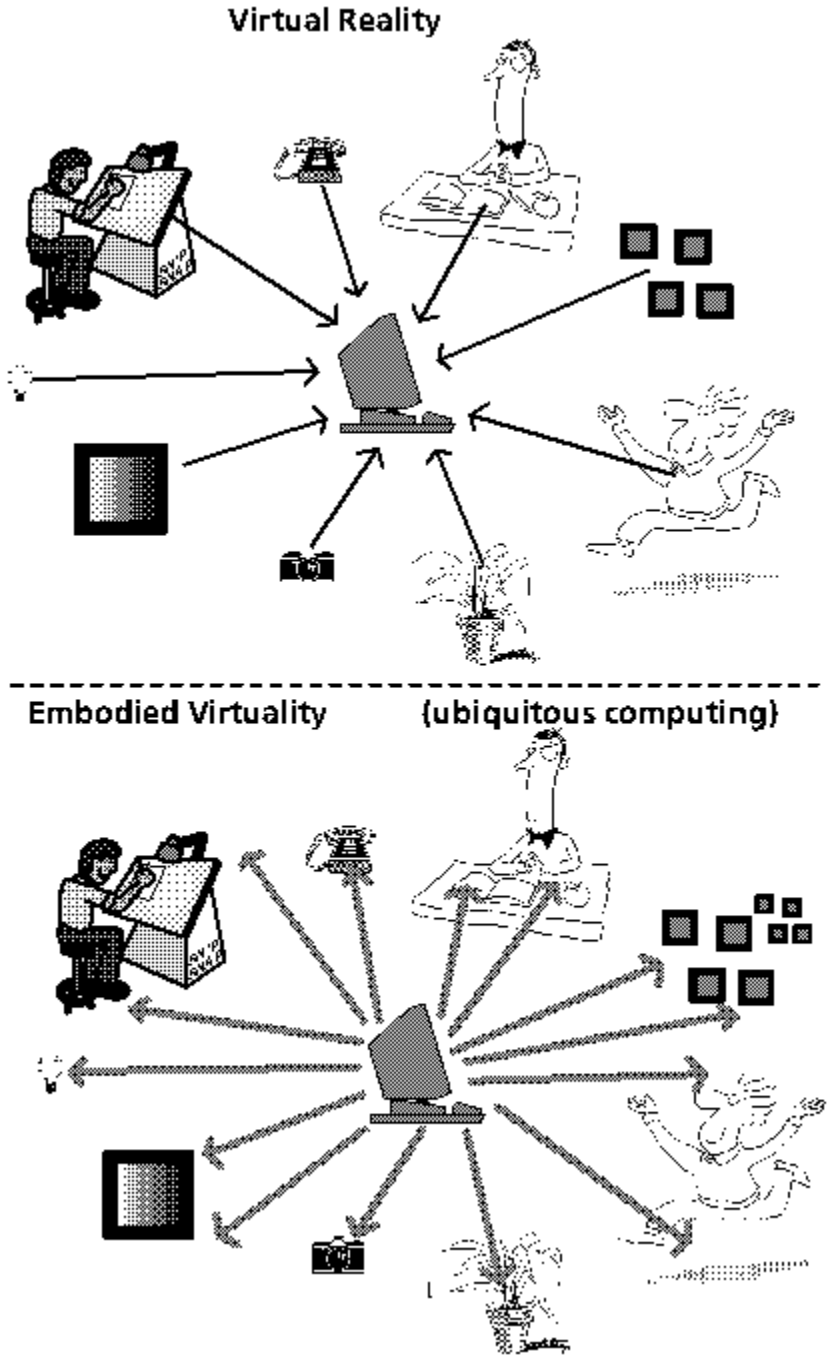


The fascination for the interface and personal computers is substituted by the realization of the dream of Weiser : the vanishing of computation in the background of daily life

Ubiquitous Computing and the Internet of Things

Ubiquitous Computing was first introduced by **Mark Weiser** in *1991*, in his paper "**The Computer for the 21th century**

What characterizes Ubiquitous Computing is the new interaction paradigm it lays out. Human-Machine interaction is displaced from the simulated environments projected onto screens to the richness of the physical world. Ubiquitous Computing does not create a world inside the computer; instead, it looks for the **enhancement of the actual world by means of embedding information into it**

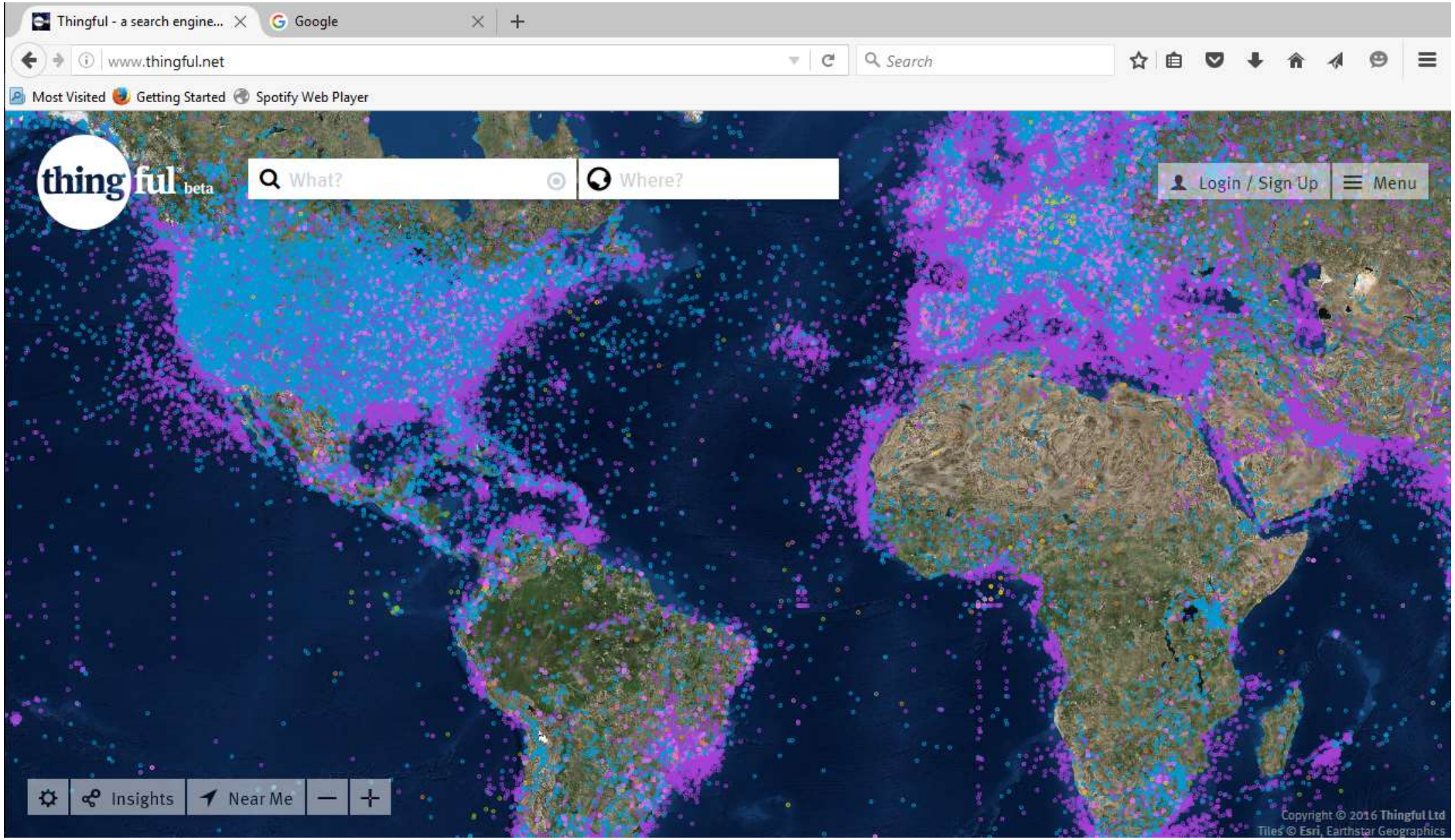


The Internet of Things

The Internet of Things is a tag to identify the set of technologies that are connecting the enhanced objects of Ubiquitous Computing to the internet. Kevin Ashton, from the Auto-ID Centre at MIT, introduced this term in 1999 in the title of a presentation at Procter & Gamble.

This term comes to denominate a new starting point of technological development **between 2008 and 2009** at the point of time when **more things were connected to the internet than people.** After that, the development of the Internet of Things and its promises to improve life and solve environmental and social problems become a desirable goal fostered by technological companies in their pursuit for market expansion.

www.thingful.net a search engine for the IoT



The Postdigital

“The PostDigital designates a situation where computation has been embedded in our daily environment by means of the dissemination of the networked devices of the Internet of Things. Under those circumstances, computers are not tools, but a new milieu, ubiquitous and responsive. This new assemblage, highly relational and variable is territorializing all the spaces of our live, such as the spaces of knowledge, production, leisure and habitation, which become flattered under the politics of a representation where everything becomes computable data modelled by new cartographies, which are aimed to the efficient management of these spaces”.

Sandra Alvaro(2015): Disruptive Strategies in the Post-Digital City. Proceedings of the 21st International Symposium on Electronic Art.

Urban Computing

Architecture Machine Group MIT_Nicholas Negroponte

"The Architecture Machine: Toward a more Human Environment"

Participatory Urbanism 1975 book, Soft Architecture Machines, was the first explicit reference to the idea, means and methods of computer aided participatory design.

Seek 1970 at "SOFTWARE. Information technology: its new meaning for art", curated by Jack Burnam.

“the crucial issue before us is not one of putting in place the digital plumbing of telecommunications links and associated electronic appliances, nor even of producing content for electronic delivery, but rather one of creating electronically mediated environments for the kinds of lives that we want to lead” .

William J. Mitchell (1995) City of Bits.
Space, Place, and the Infobahn

Ubiquitous Computing in Urban Space

- Wearables and the quantified self
- Mobile Based Services and pathfinding apps
- Intelligent buildings able to inform about its inner mechanisms and new digital morphologies where surface and structure meet
- Urban Computing projects related to the weaving of new integrated systems towards an urban ecology that is changing our notions of space and time

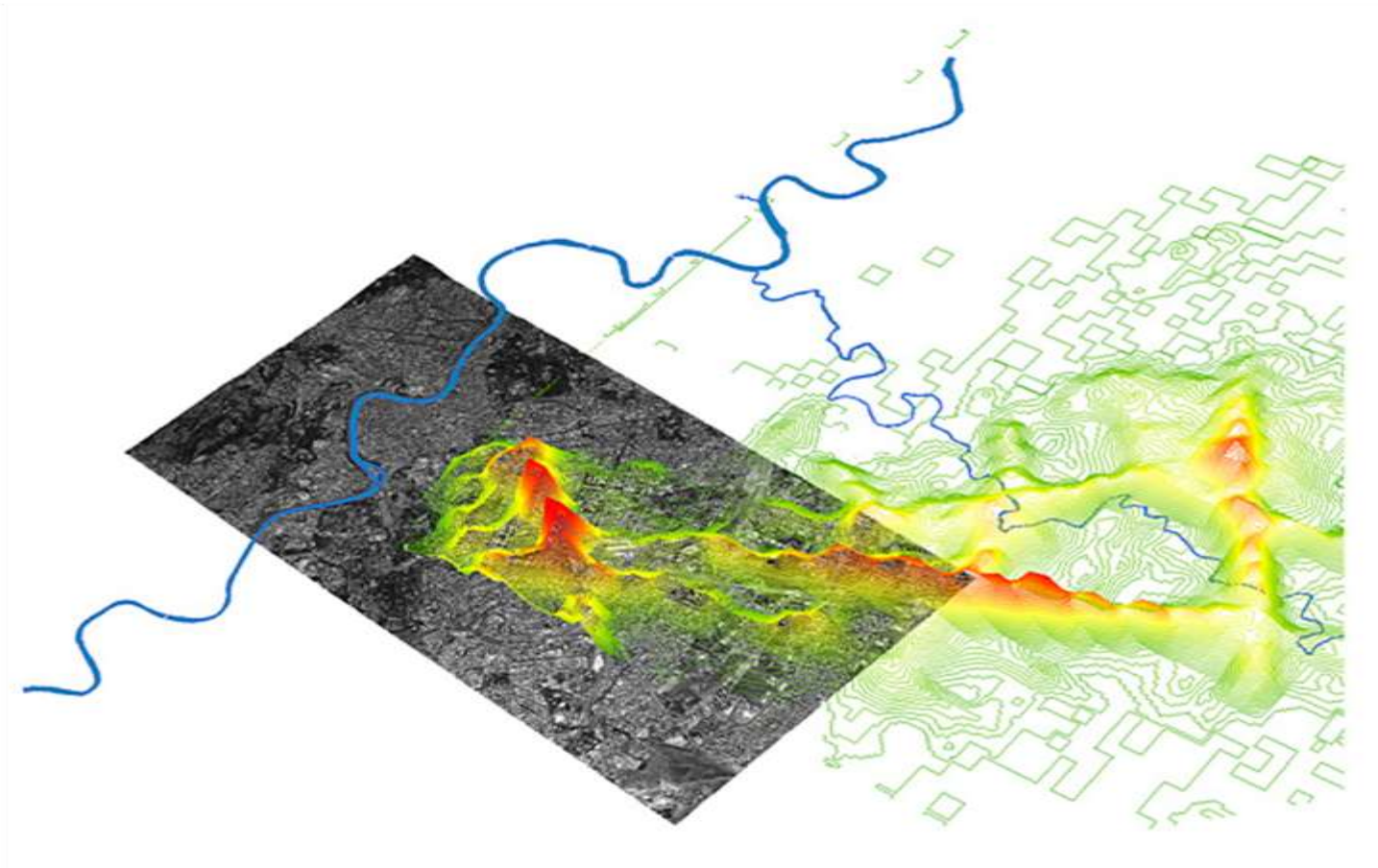
Mapping Urban Space

Kinds of data:

- Transient data generated by users wearing connected devices as smartphones
- Real-time data from distributed sensors
- Open Data and crowdsourced data
- Social Computing

MIT Senseable City Lab: REAL TIME ROME, 2006

http://senseable.mit.edu/realtimerome/

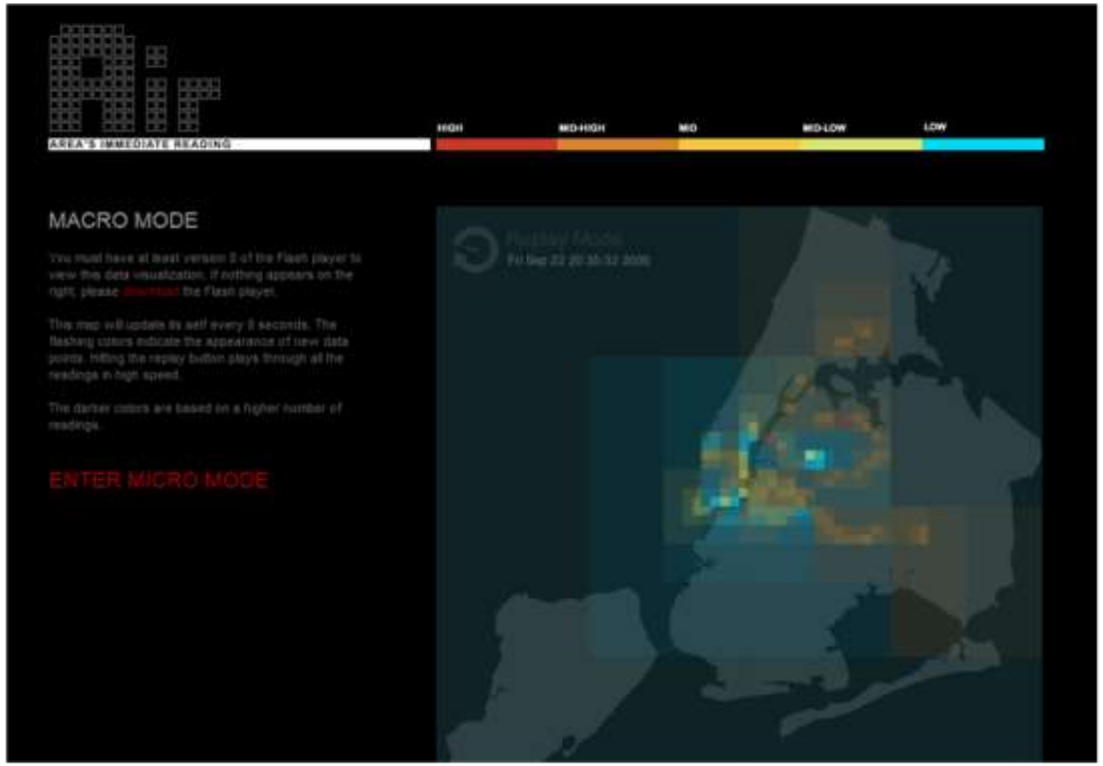


Real Time Rome is the MIT SENSEable City Lab's contribution to the 2006 Venice Biennale, directed by professor Richard Burdett. The project aggregated data from cell phones (obtained using Telecom Italia's innovative Lochness platform), buses and taxis in Rome to better understand urban dynamics in real time. By revealing the pulse of the city, the project aims to show how technology can help individuals make more informed decisions about their environment. In the long run, will it be possible to reduce the inefficiencies of present day urban systems and open the way to a more sustainable urban future?

- Data Drive, Singapore _ Science Center_ 2014
- Live Singapore 2011_Singapore Art Museum on April 8th
- CurrentCity (Aaron Koblin), 2009

Preemptive Media Project: Air, 2006

http://www.pm-air.net/



AIR is a public, social experiment in which people are invited to use Preemptive Media's portable air monitoring devices to explore their neighborhoods and urban environments for pollution and fossil fuel burning hotspots.

Participants or "carriers" are able to see pollutant levels in their current locations, as well as simultaneously view measurements from the other AIR devices in the network. An on-board GPS unit and digital compass, combined with a database of known pollution sources such as power plants and heavy industries, allow carriers to see their distance from polluters as well. The AIR devices regularly transmit data to a central database allowing for real time data visualization on the website.

Laboratoire Paragraphe CITU: Le montre verte/City Pulse, 2009/2012 http://www.citu-paragraphe.univ-paris8.fr/spip.php?article1780

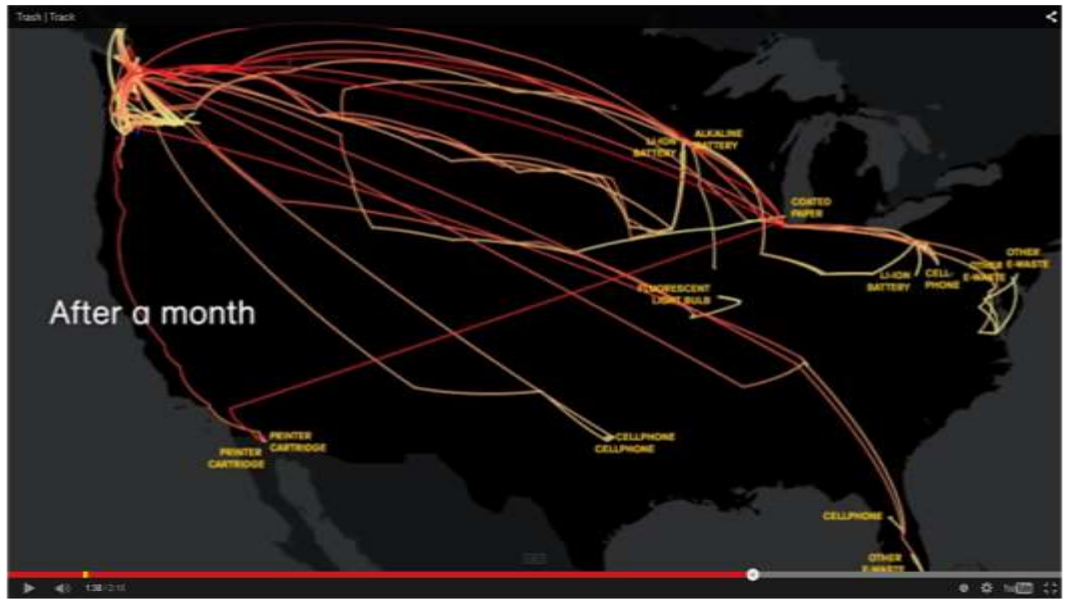
The green wristwatch is a collaborative project, aimed to the creation of a first wearable prototype able to share urban environmental measures.

- participative experimentation and dynamic on-line cartography -

CityPulse is a federated web platform allowing to collect, retrieve and visualize environmental urban data from diverse sources.

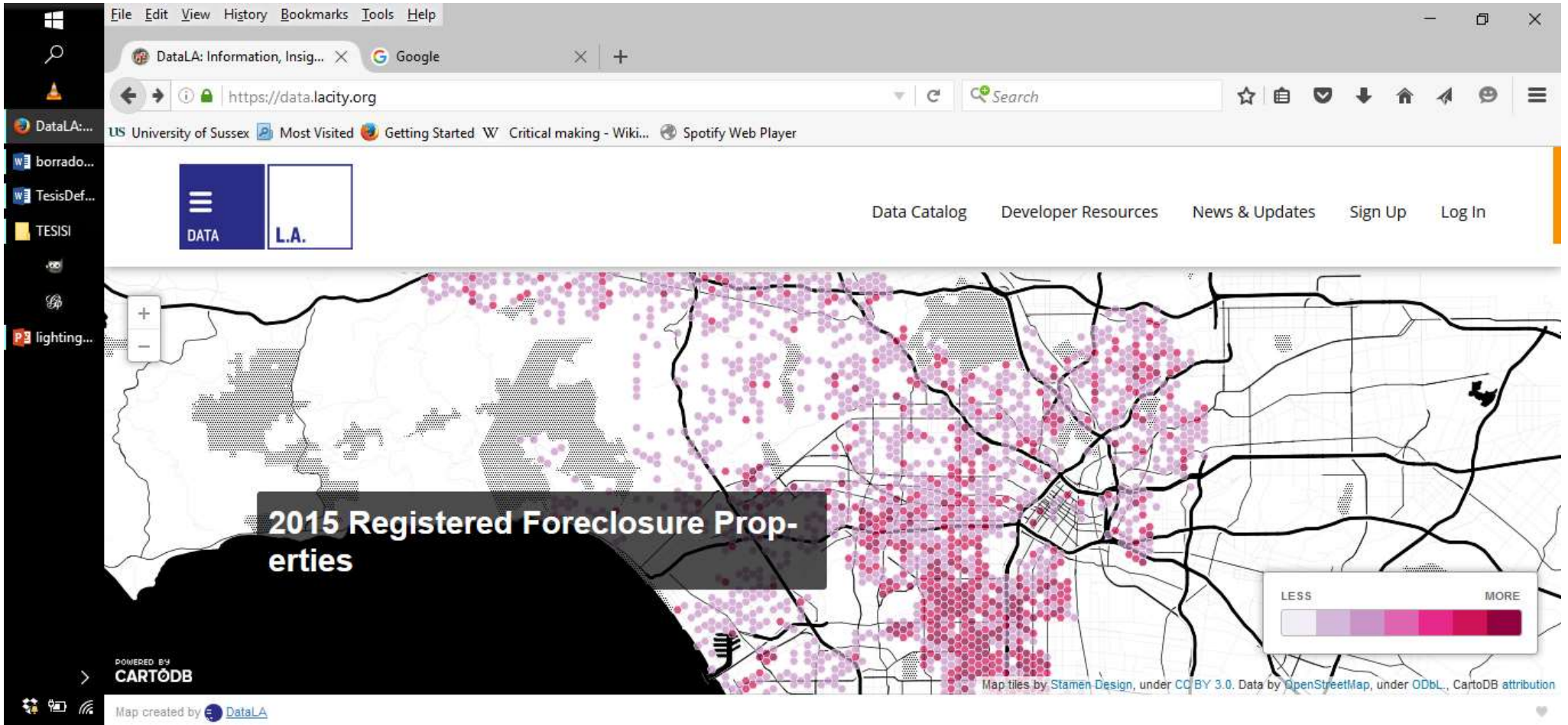
MIT Senseable CityLab: Trash Track, 2009

http://senseable.mit.edu/trashtrack/



Imagine a future where immense amounts of trash didn't pile up on the peripheries of our cities: a future where we understand the 'removal-chain' as we do the 'supply-chain', and where we can use this knowledge to not only build more efficient and sustainable infrastructures but to promote behavioural change. In this future city, the invisible infrastructures of trash removal will become visible and the final journey of our trash will no longer be "out of sight, out of mind".

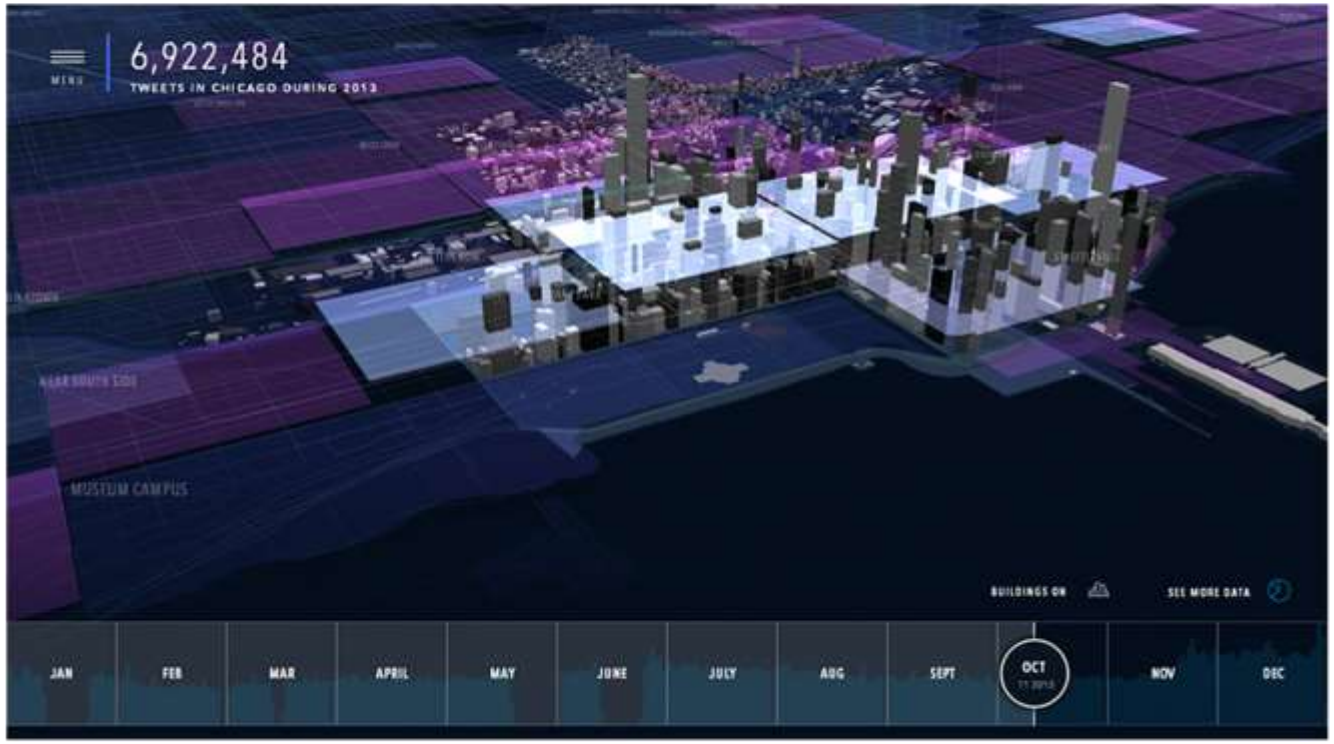
TrashTrack uses hundreds of small, smart, location aware tags: a first step towards the deployment of smart-dust - networks of tiny locatable and addressable micro-electro-mechanical systems. These tags are attached to different types of trash so that these items can be followed through the city's waste management system, revealing the final journey of our everyday objects in a series of real time visualizations



LOS ANGELES OPEN DATA

IBM: City Forward, 2014

http://bigdata.architecture.org/highlights/

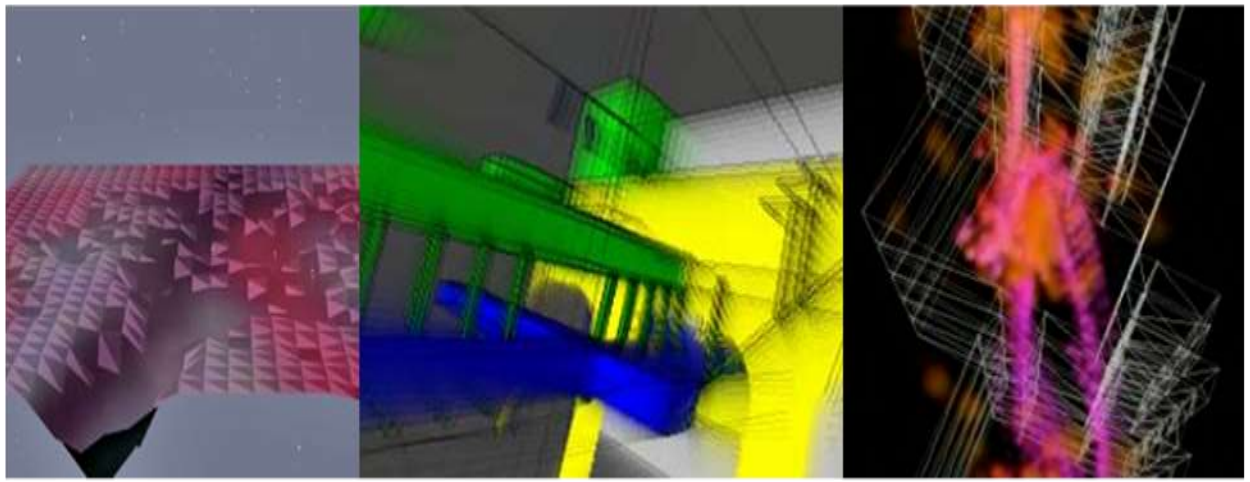


City Forward will continue to power the interactive dashboard at the Chicago: City of Big Data exhibit which is presented by the Chicago Architectural Foundation.

IBM partnered with CAF through its City Forward initiative, a free web-based platform developed and powered by the company as a civic resource, to develop Chicago's first interactive dashboard. The content generated on two dashboards, designed and built by experts in IBM Interactive Experience's Chicago lab, displays the city's vital statistics to passersby.

Arch-OS_ Operative System for Buildings

http://arch-os.com/



The Arch-OS is part of the i-DAT Operating Systems project which is managed by the Institute of Digital Art & Technology, and produced by members of the Centre for Media Art & Design Research, in collaboration with members of the School of Computing & Mathematics at Plymouth University.

Arch-OS represents an evolution in intelligent architecture, interactive art and ubiquitous computing. An 'Operating System' for contemporary architecture (Arch-OS, 'software for buildings') has been developed to manifest the life of a building and provide artists, engineers and scientists with a unique environment for developing transdisciplinary work and new public art.

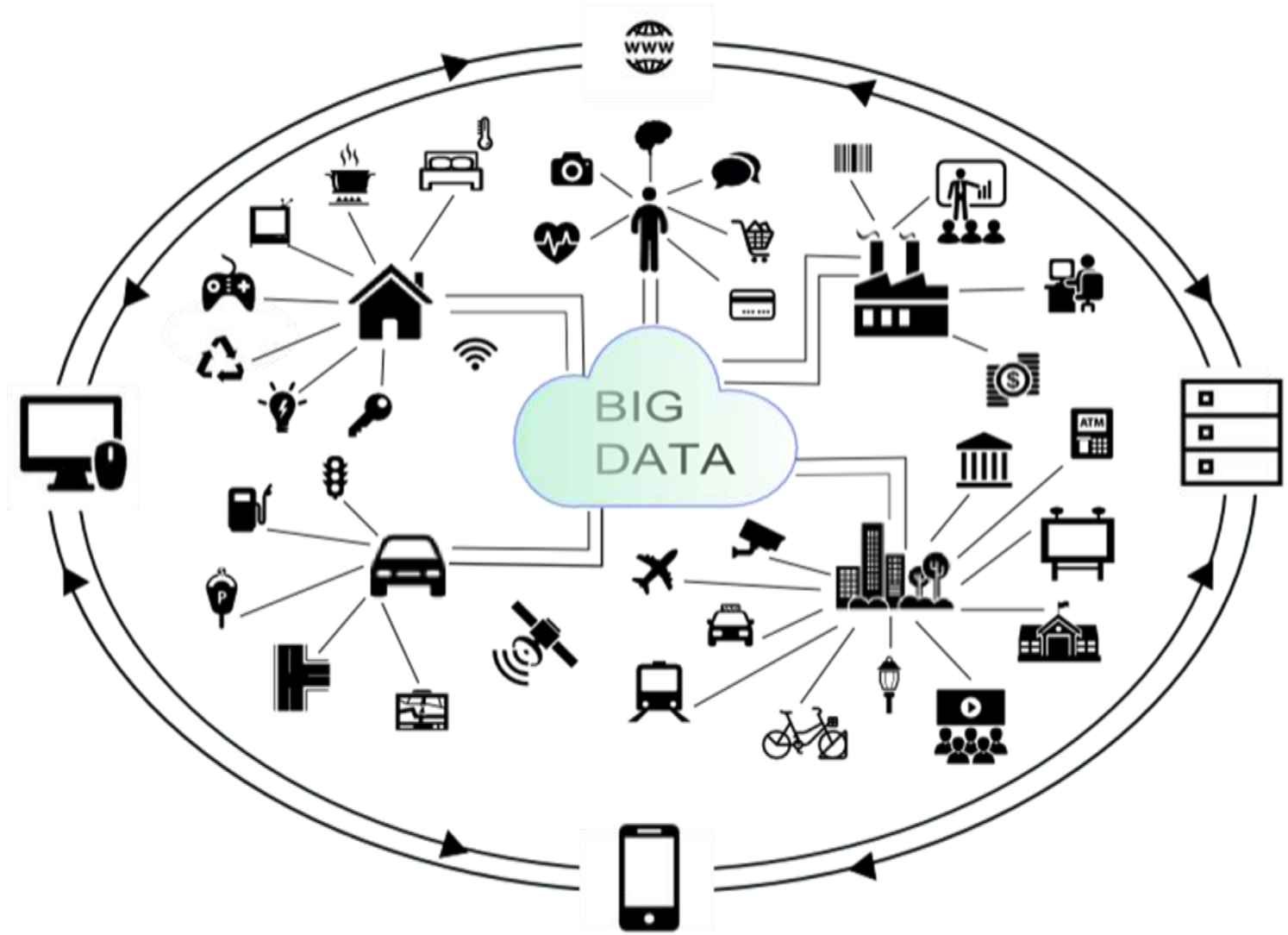
The Arch-OS experience combines a rich mix of the physical and virtual by incorporating the technology of 'smart' buildings into new dynamic virtual architectures.

MIT Senseable CityLab: The world's eyes, 2009 http://senseable.mit.edu/worldseyes/

Through data mining and visualization techniques the "world's eyes" uncovers the evolutions of the presence and flows of tourists. As photos pill up to reflect the intensity of the tourist activity, they uncover where tourists are, where they come from and what they are interested in capturing and sharing from their visit. The analysis and mapping of this data allows understanding the attractiveness of leisure cities and their points of interest. In contrast it also reveals the unphotografied regions of Spain still free from the tourist buzz.

PostDigital Strategies

This technologically enhanced environment is becoming a new “apparatus” , which evolves into a system relational, modular and emergent in which we are engaged without being real users



The PostDigital

“The “post-digital” describes an approach to digital media that no longer seeks technical innovation or improvement, but considers digitization something that already happened and thus might be further reconfigured”

Florian Cramer. (2013) “Post-Digital Aesthetics.”

In the pervasive space of ubiquitous computing, where technology vanishes in the background, the PostDigital art practice is working to resurface the digital medium and test its possibilities. At this way, art practice becomes an experimental research that relates the material conditions of the digital medium with the new forms of knowledge and production arising from it.

Lev Manovich at “Generation Flash” characterises the PostDigital as a return to modernism and as software critique practiced by artist producing their own software. In it software becomes an empowering tool and programming a form of politics. Manovich includes among the PostDigital procedures the use of data visualization as a medium to unveil the inner connections and rules that codify our society.

“Post-Digital strategies challenge the Apparatus that produces and maintains our contemporary space. These strategies start in a reflexive analysis encompassing not only the devices and their functioning but also the processes, social relations and politics in which they are merged. With this aim, their practitioners refuse general standardized solutions to focus on situated issues arising from local communities. They do not accept information as a fact to be consumed passively and appropriate the spaces of knowledge and production for the common space. These strategies arise from research as production and are aimed at producing things that embody information and its processes, objects capable of invading the public space producing unexpected results and transforming the programmable space in writable information, where it becomes an interpretative experience open for creative intervention”.

Sandra Alvaro(2015): Disruptive Strategies in the Post-Digital City. Proceedings of the 21st International Symposium on Electronic Art.

PostDigital Strategies

Visualization models are used to redesign our environment towards an increasing efficiency and sustainability. However, they operate at an abstract level, disembodied from the reality that produces this data they normalize people, reduce differences, discriminate parts of the reality, and support concrete institutional frameworks and kinds of knowledge. Opposing these models we can find projects that produce new ways of interfacing information, making it tangible towards an increasing of our awareness and literacy of the communication process we are immersed in.

Embodiment of Interfaces

Intensification of space and its speculative production

Embodiment of social processes

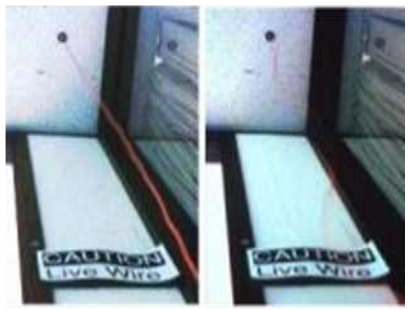
Speculative production consists of the exploration of all the possibilities of space. It produces new things with new powers of assembly, where the noise produced by the playful actions of people is transformed into signals interacting in an open communication system towards the emergence of unexpected assemblages; a poetics of connectivity that occupies the space with ephemeral or more stable unexpected structures.

Following the tradition of Free and Open Source Software, we find collective projects that engage people in the remixing, production and sharing of things. The open hardware connects with social processes such as the Do it YourSelf and Do it with Others, fostering new ways of sociability and reuniting people around the experimentation with the engineered objects interfacing our reality.

Natalie Jeremijenko: Live Wire, 1995

http://www.nyu.edu/projects/xdesign/mainmenu/archive_livewire.html

The movement of the dangling wire is proportional to the number of packets on the network. That is, the more traffic on the local area network, the higher the frequency of the "wiggles." The transceiver plugs into the network, and the dynamic behavior of the wire become an intuitive peripheral representation of the network activity. In contrast to a screen based graph of ethernet activity this device is a shared social display of information.



- 1995 Ethernet transceiver;
- local area network;
- 10baseT;
- peripheral display;
- thanks to: Ed Richley and Lawrence Butcher

- exhibited at Xerox PARC 95-99; Exploratorium 96- ; Siggraph '95; Postmasters '99; and others

Julian Oliver: Border Bumping, 2012 http://borderbumping.net/

Border Bumping (2012) is a work of dislocative media, an app that situates cellular telecommunication infrastructures and redraws national borders according to the disparities between virtual and political territories.

Dislocative Media, Tele-Cartographic Intervention, 2012

Border Bumping commissioned by the Abandon Normal Devices Festival as part of their 2012 Mobile Republic program.

Julian Oliver: Transparency Grenade_ 2012

http://transparencygrenade.com/

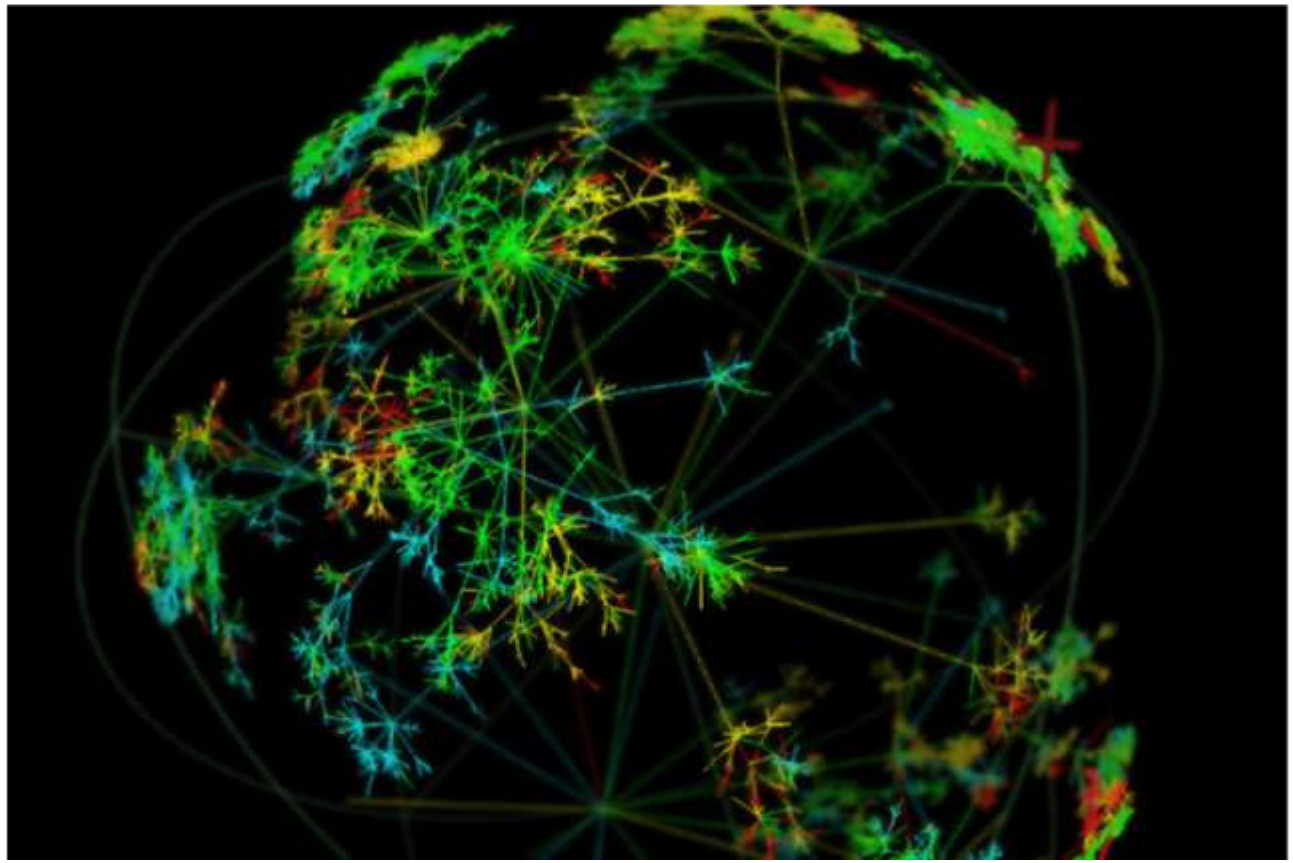
The lack of Corporate and Governmental transparency has been a topic of much controversy in recent years, yet our only tool for encouraging greater openness is the slow, tedious process of policy reform.

Presented in the form of a Soviet F1 Hand Grenade, the Transparency Grenade is an iconic cure for these frustrations, making the process of leaking information from closed meetings as easy as pulling a pin. Equipped with a tiny computer, microphone and powerful wireless antenna, the Transparency Grenade captures network traffic and audio at the site and securely and anonymously streams it to a dedicated server where it is mined for information. User names, hostnames, IP addresses, unencrypted email fragments, web pages, images and voice extracted from this data and then presented on an online, public map, shown at the location of the detonation.

This is a one-off object created in January 2012 by Julian Oliver for the Studio Weise7
exhibition at Labor 8, Haus der Kulturen der Welt, Berlin, curated by Transmediale 2012 Director, Kristoffer Gansing.

Julian Oliver: The OtherNet Workshop

http://criticalengineering.org/courses/othernet/



Workshop intensive (with Daniil Vasiliev) on the installation, deployment and administration of tools that implement decentralisation of network services, favouring locally owned and controlled - including 'home served' - solutions

Usman Haque: Pachube, 2007-2011

http://www.haque.co.uk/pachube.php https://xively.com/

Pachube is a web service that enables you to store, share & discover realtime sensor, energy and environment data from objects, devices & buildings around the world. Pachube is a convenient, secure & scalable platform that helps you connect to & build the 'internet of things'.

As a generalized realtime data brokerage platform, the key aim is to facilitate interaction between remote environments, both physical and virtual. Apart from enabling direct connections between any two responsive environments, it can also be used to facilitate many-to-many connections: just like a physical "patch bay" (or telephone switchboard) Pachube enables any participating project to "plug-in" to any other participating project in real time so that, for example, buildings, interactive installations or blogs can "talk" and "respond" to each other.

Pachube enables people to monitor and share real time environmental data from sensors that are connected to the internet. Pachube acts between environments, able both to capture input data (from remote sensors) and serve output data (to remote actuators). Connections can be made between any two responsive environments, facilitating even spontaneous or previously unplanned connections. Apart from being used in physical environments, it also enables people to embed this data in web-pages, in effect to "blog" sensor data.

DcD City (Data Citizen Driven City), 2012

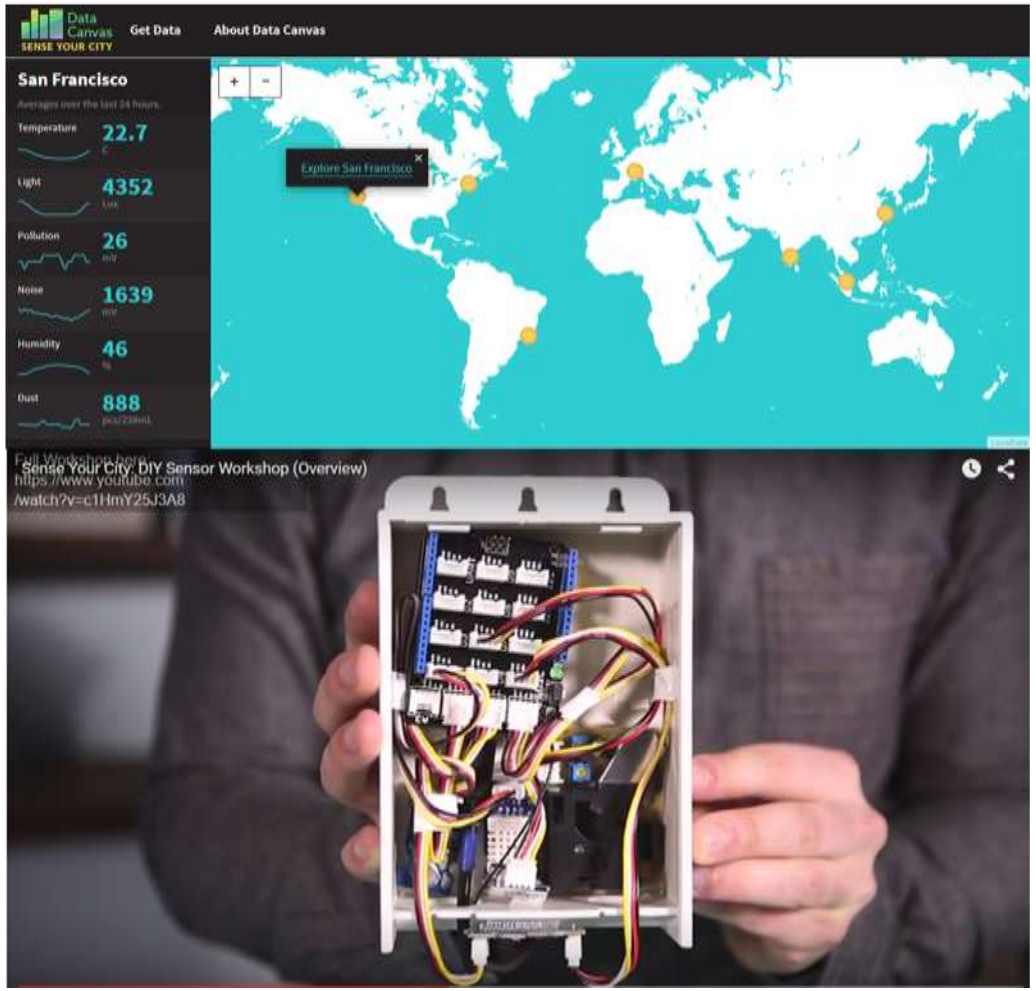
http://thedatacitizendrivencity.com/?page_id=4

This project consists on a technical, social and urban process that is taking place in Medialab-Prado in Madrid. Its goal is to create a distributed network of citizens that aims to know more about their environment using realtime sensors and tools.

The data-citizen driven city project was developed by Sara Alvarellos, César García, Jorge Medal and Sara Thomson on September 2011. With this project, produced by a multidisciplinary team consisting of an IT System Administrator, an Industrial Designer, an Artist and an Architect, we really started considering how data can empower communities and catalyze social change. We presented The data-citizen driven city project for the 4Th ADVANCED ARCHITECTURE CONTEST "CITY-SENSE: Shaping our environment with real-time data" by The Institute for Advanced Architecture of Catalonia on the 26Th September.

Sense Your City /DataCanvas, 2015

http://datacanvas.org/



To empower citizens to sense and make sense of their environment, we created a DIY sensor network to measure pollution, dust, light, sound, temperature, and humidity. We created an interactive map, opened the data, and asked you to use it to narrate a story about your city.

Over the course of four months across seven cities in three continents, we engaged over 120k people and got to know more than 700 people who participated in our workshops and events. 98 citizens assembled and deployed sensors on their residences, offices, universities and local hackerspaces, and 340 people exchanged ideas online.

Usman Haque: Marling, 2012

http://www.haque.co.uk/marling.php

In Marling the voices of citizens are given form through spectacular effects that hang in the air above the crowd, forming a delicate, intricate ceiling of animated colour.
People become players on the urban stage, together bringing the space to life through their actions and sounds, and building a shared public memory of collaboration that, hopefully, will last long after the event.

Marling is a mass-participation interactive urban spectacle, sited in a public square in Eindhoven, Netherlands,

The Right to the City

“Considering urbanism, the PostDigital concerns the construction of the programmable space, not as unrooted, homogenized and fragmented nowhere, jeopardized by the fuzzy relational systems of an imperceptible apparatus, but as a transactional environment populated by human and non-human agents, a space rooted in the specifics of the local and able to embrace difference; a space populated by open systems that foster participation, empowering citizens, that can be appropriated for new uses and where everybody can be engaged in its social production”.

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“There is not subjectivation without the production of an appropriated space”

Lefebvre