

# Hybridization, fusing, melting, coalescence and salmagundi



Nicolas Nova - Media and Design Lab / EPFL - Reboot 9 - May 2007

what about hybridization?  
space/place changes  
so what? implications?

this is the outline

# Vocabulary of hybridity

linkage, merging, fusion, linkage, interconnection, binding, assemblage, amalgam, amalgamation, blend, blending, coadunation, coalescence, coalition, commingling, commixture, hybridization, compound, convergence, immixture, integration, intermixture, junction, merger, merging, mixture, melting, synthesis, unification, union, uniting, welding, assimilation, alliance, interfusion, soup, salmagundi

I picked up some synonyms of the word “hybridization”. What we can see here is that: 1) there is a very rich vocabulary to express hybridization, 2) It’s unclear, there are lots of ways to hybridized

research about how to design for **hybridization** led to:

pervasive computing, ubiquitous computing, everywhere, wearable computing, mobile computing, things that think, calm computing, continuous computing, ambient intelligence, digital-physical computing, internet of things, networked objects, augmented reality, mixed reality, geospatial web, locative media, physical metaverse...

(all of these allow the digital-physical convergence)

all these words are propelled by different institutions/people/labs, they all have a different spin (for instance...), they are the stakeholders of the hybridization, fortunately, reality is complex so none of them is right

the premises, however are the ones of ubiquitous computing, expressed by Mark Weiser in 1991: computation that fade in the background/environment

# underlying technologies

- identification (RFID, ipv6, visual tags...)
- sensors
  - positioning (GPS, Wifi, CellID...)
  - other information (pressure, temperature, etc.)
- communication (tcp/ip, BT/ Wifi, zigbee, redTacton...)
- computation



“Media spaces **LINK** physical spaces through digital mediums.  
Mixed reality environments **FUSE** physical and digital environments.  
Ubiquitous computing environments **EMBED** the digital into physical environments.  
Hybrid ecologies **MERGE** multiple environments, physical and digital.”  
(Crabtree and Rodden, 2007)

if we get back to the list of words I mentioned few minutes ago, the one that are important here are the following: link,fuse,embed, merge.  
what I'd like to present here is a list of projects,examples that exemplify these lines.



## visualizing the hybridization

S.O.U.P provides a visual and acoustic representation of the omnipresent wireless communication networks which surrounds us in urban spaces. think of our application as a soup ladle spooning arbitrarily up the boiling air and transforming the data into sound and video. A computer terminal shows a map of the surroundings plus basic points of reference of the city or town that hosts physically our installation. the observer now can jump or fly to some places in the city and choose from different datasets recorded at different daytimes. the software will provide a visual and acoustic representation using surround sound and a beame

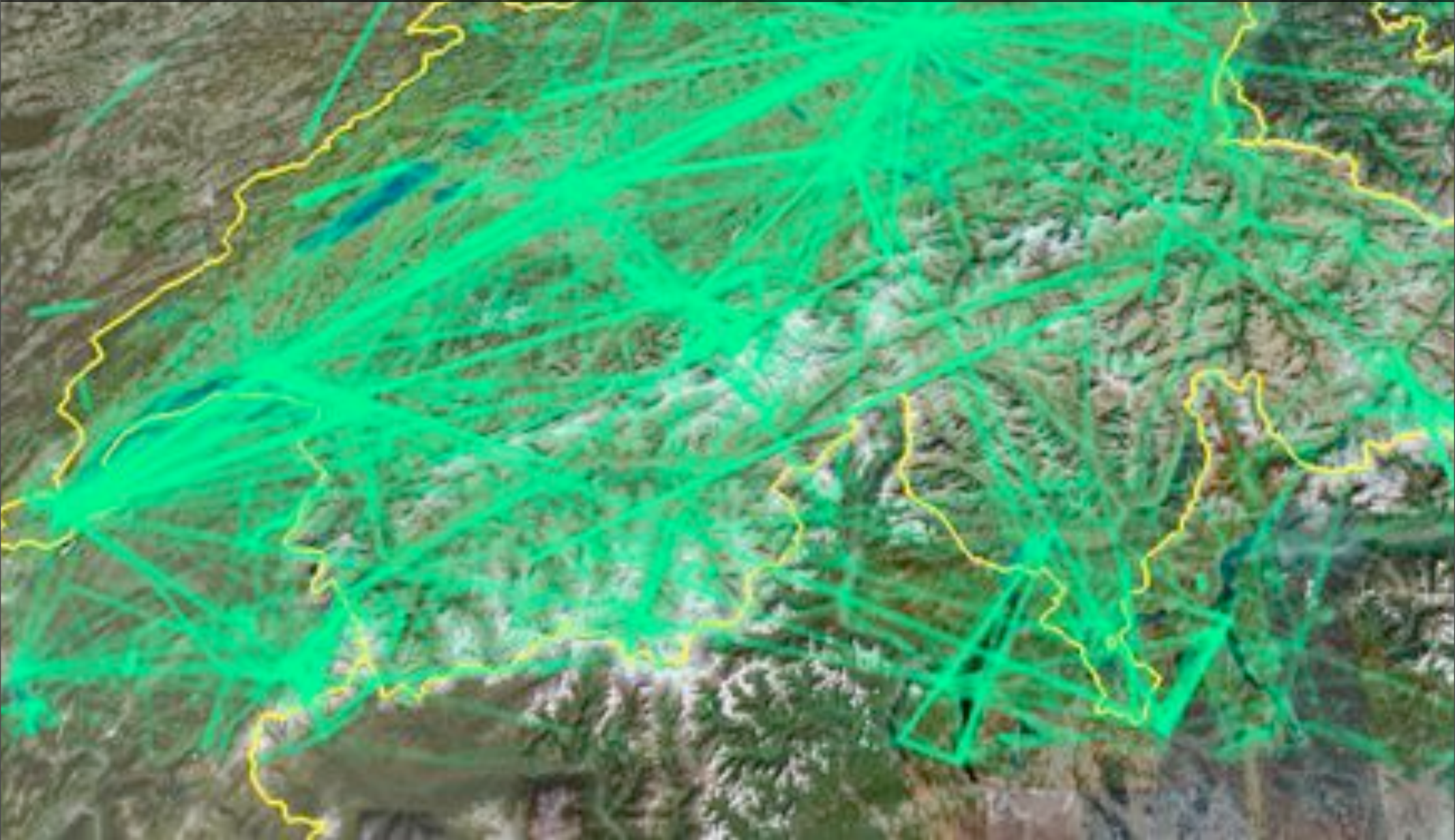
Sky Ear is a non-rigid carbon-fibre "cloud", embedded with one thousand glowing helium balloons and several dozen mobile phones. The balloons contain miniature sensor circuits that respond to electromagnetic fields, particularly those of mobile phones. When activated, the sensor circuits co-ordinate to cause ultra-bright coloured LEDs to illuminate. The 30m cloud glows and flickers brightly as it floats across the sky.



visualizing our activity in space

Carlo Ratti et al. <http://senseable.mit.edu/realtimerome/> The yellow lines represent buses in real time and the red corresponds to density of people. Sep 2006

# visualizing our activity and the connections



(Girardin, 2007)

This project called “Tracing the visitors’ eye” (<http://www.girardin.org/fabien/tracing/>) aims at understanding tourists dynamic by looking at picture uploaded by people on Flickr. The point is to see “Flickr as a contemporary open platform where location and time sensitive data can be uploaded and accessed (mainly from an historical, archiving, awareness, sociality functions). The platform offers news approaches to collect data revealing patterns of tourists and their usage of a city (points of interests) and a region (flow between urban and natural attractions)” Also have a look at what Carlo Ratti is doing: <http://senseable.mit.edu/>



explicit invisible/implicit phenomena

(Beatriz da Costa, 2006)

How to use technologies to make certain phenomena that are implicit/invisible more explicit. Example: the blogging pigeon project (UC Irvine) that use GPS/sensors on pigeons to detect pollutions on the city of San José and give the citizens a representation of the environment.



**Title:**

A Manifesto for Networked Objects — Cohabiting with Pigeons, Arphids and Aibos in the Internet of Things

**Short Title:**

Why Things Matter

**trackbacks:**

Bruce Sterling. *Shaping things*. MIT Press, Cambridge, Mass., 2005.

Donna J. Haraway. *The companion species manifesto: dogs, people, and significant otherness*. *Prickly Paradigm*, University Presses Marketing, Chicago, Ill., 2003.

Bruno Latour. *We have never been modern*. Harvard University Press, Cambridge, Mass., 1993.

**tag cloud:**

spimes, spime, things, thing, lift06, ubiquitous computing, design, object, objects, rfid, arphid, arphids, pervasive networks, blogject workshop, near-field communication, nfc, web 2.0, world 2.0

**permalink:**

Ever since this "blogjects" topic has started circulating, I've been asked lots of things, but two questions have come to the fore. First, why would objects want to just blog? Second, why would I care if objects "blog"?

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# blogject (blog-objects)

blog – object: an object that would be able to create and circulate its own content based on its interactions with the environment and people

# pedometers beyond lifelogging



Teku Teku angel and v-migo

# from lifelogging to new interaction partners



(Picture found on the Internet)

new interaction partners? Julian Bleecker and myself are working on this project: how to engage new partners such as pets on the social web: we have a dwarf on World of Warcraft that is played by a dog (sensors track its physical activities).

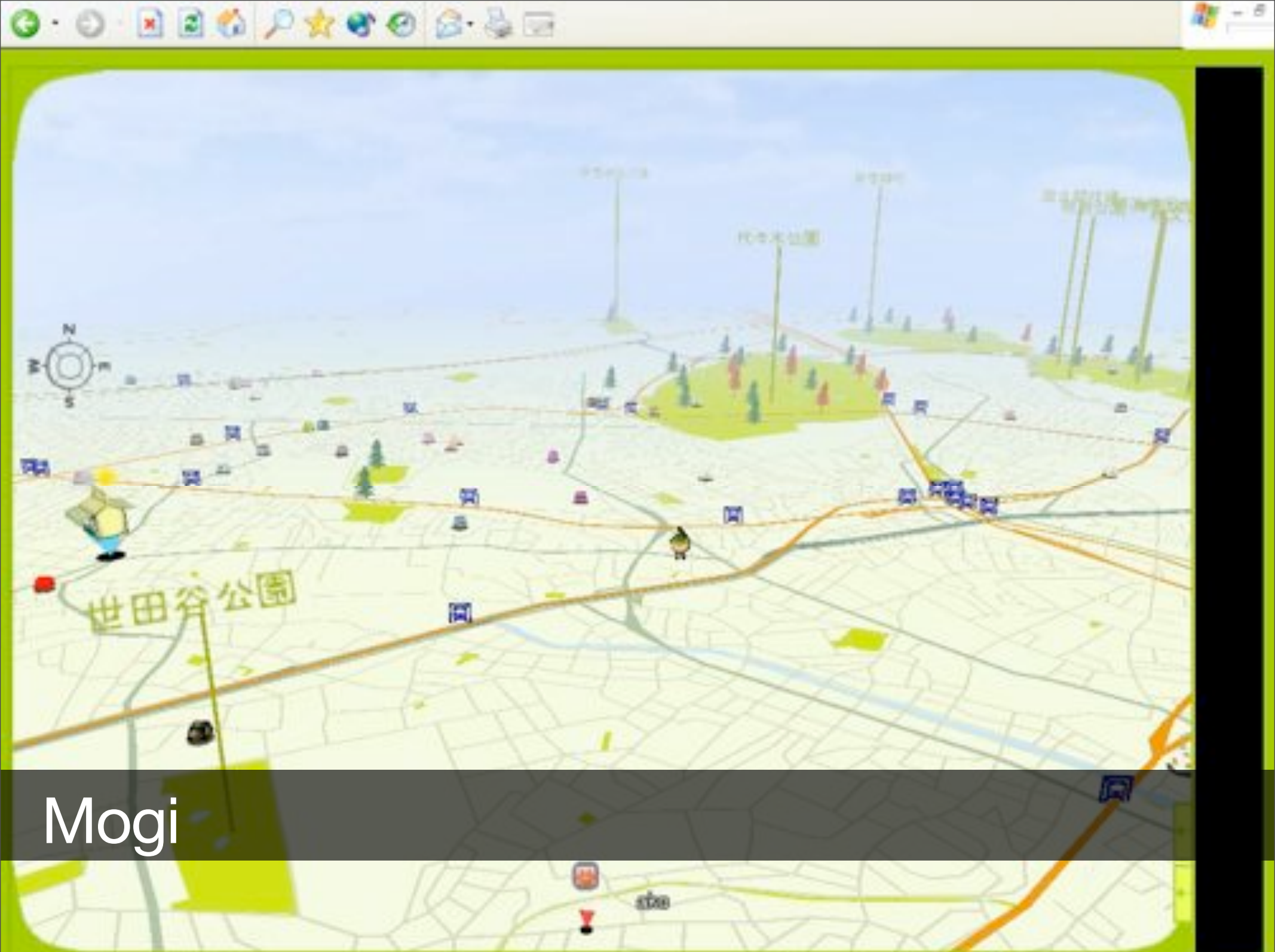
# (some) spatial changes caused by technologies

not exhaustive  
will describe CASES not general rules  
these spatial changes have social and cognitive consequences



Mogi

Screenshot of Mogi (Newt Games) taken from "The Network is the Game: Social Trends in Mobile Entertainment" (Talk by Amy Jo Kim)



# Mogi

Screenshot of Mogi (Newt Games) taken from “The Network is the Game: Social Trends in Mobile Entertainment” (Talk by Amy Jo Kim)

There are interesting concerns lately about whether location-based services might modify behaviors and practices in cities. Results from the MogiMogi game test showed very interesting behaviors: players who wander around in the city using their car or the metro when new objects are released; or once a player complained because he went to a place where he thought an object would be but it was not present since it was just there when the moon was full.



mobility lowered by location-awareness

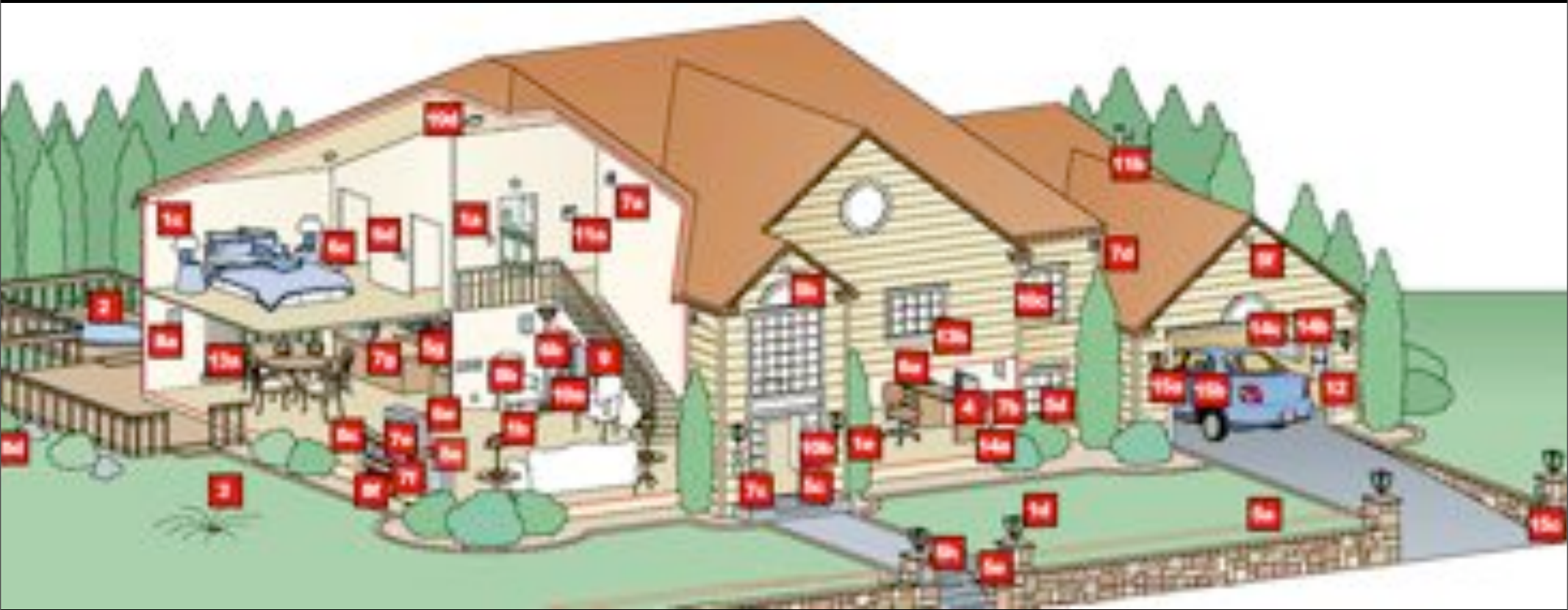
but... it can also lowered movements... Catchbob experiment (<http://craftwww.epfl.ch/research/catchbob/>), people moving less and than others when given a location-awareness tool



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# fragmented locus of interactions



computers, not switches!

When the locus of interaction is everywhere, there are lots of point of entry more difficult to convey a sense... it's then more complex than the thermostat/ light bulbs Because the interaction is in the air, people are not prepared, expectations are more complicated and the purpose of the interaction is less clear (and these points of entry are much more complicated than switches)



(Picture = ARQuake)... the hybridization reshape the “live together” (previously based on be together at the same place). Space is filled with PEOPLE, ANIMALS... that are supposed to live together... new technologies might change this relationship, some persons are puzzled.



hybridization of places



## hybridization of places

This is the project I am working on currently. Given the fact that we can play characters in a virtual world in mobile contexts. My research question here is to understand whether interactions in physical space can afford interactions/activities in the digital space... and the other way around: how interactions in the digital space can afford interactions/activities in the virtual space

Classic interactions can modify things but also... sensors can be used to get some information and feed them back into the digital representations...

this is not new!



This is not new... elevators... not a determinist view of technology BUT the fact that elevators eased the process of going on top floors... Before the introduction of elevators/lift, there was a different social repartition of people in the spatiality of buildings. Rich people were leaving on the first floor, to avoid them having to climb stairs. The higher you went into buildings, the less wealth you had in city-dwellers. The usage of elevators in building where people were living (previously elevator was just used to carry materials such as coal), inverted this repartition: the last floor, now accessible with the technology were for rich people. This is an example of how a technology created a social reconfiguration in space.

and does not require super fancy tech...

↔ SBB CFF FFS

Geneva	Zürich
7:45	10:28
8:45	11:28
9:45	12:28
10:45	13:28
11:45	14:28
12:45	15:28
13:45	16:28
14:45	17:28
15:45	18:28
16:45	19:28
17:45	20:28
18:45	21:28
19:45	22:28

Another kind of effects is of course related to cognition. There are indeed important consequences of having information about public transport now allowed with new technologies (urban information display in the vehicle or on an information board) or the organization and the interoperability of information. For example, I like this example by Vincent Kauffman (urban sociologist here at the school): the regularity of different train schedule (there is a train geneva-lausanne every 20minutes with regular shifts: 7:45, 8:15...) plus the interoperability of transport means (the departure of city bus is coordinated with trains arrivals) allows people to easily remember commuting schedule and hence better predict how they would manage their spatial practices. These new technologies (urban displays) and the organization of information (due to technological advances) impacts cognitive mechanisms (i.e. memory in the example I described). What's next? would such a intelligent system achieve its goal (i.e. facilitating navigation by suggesting all possible alternative shortest route that connect two or more transition points on a map)?

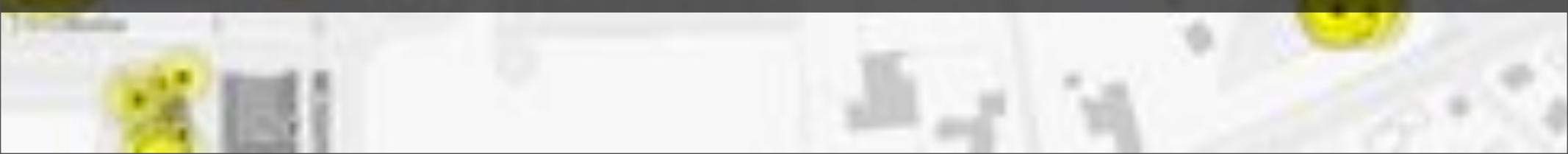


space as a source of coordination

landmarks....  
corridor/bottlenecks...



technology as a source of uncertainty



Picture by Patrick Jermann  
different places, different infrastructures, rugosity

so what?  
implications?  
what to expect?

 **CAUTION**



**CHAOS FIELD**

opens up design possibilities

Hybridization opens up a new field to develop technologies, design possibilities that can be used positively (computer chaos club) or negatively (time square... physical spam), it expands the field... and you need a new design sensibility

new places (e.g server farms)



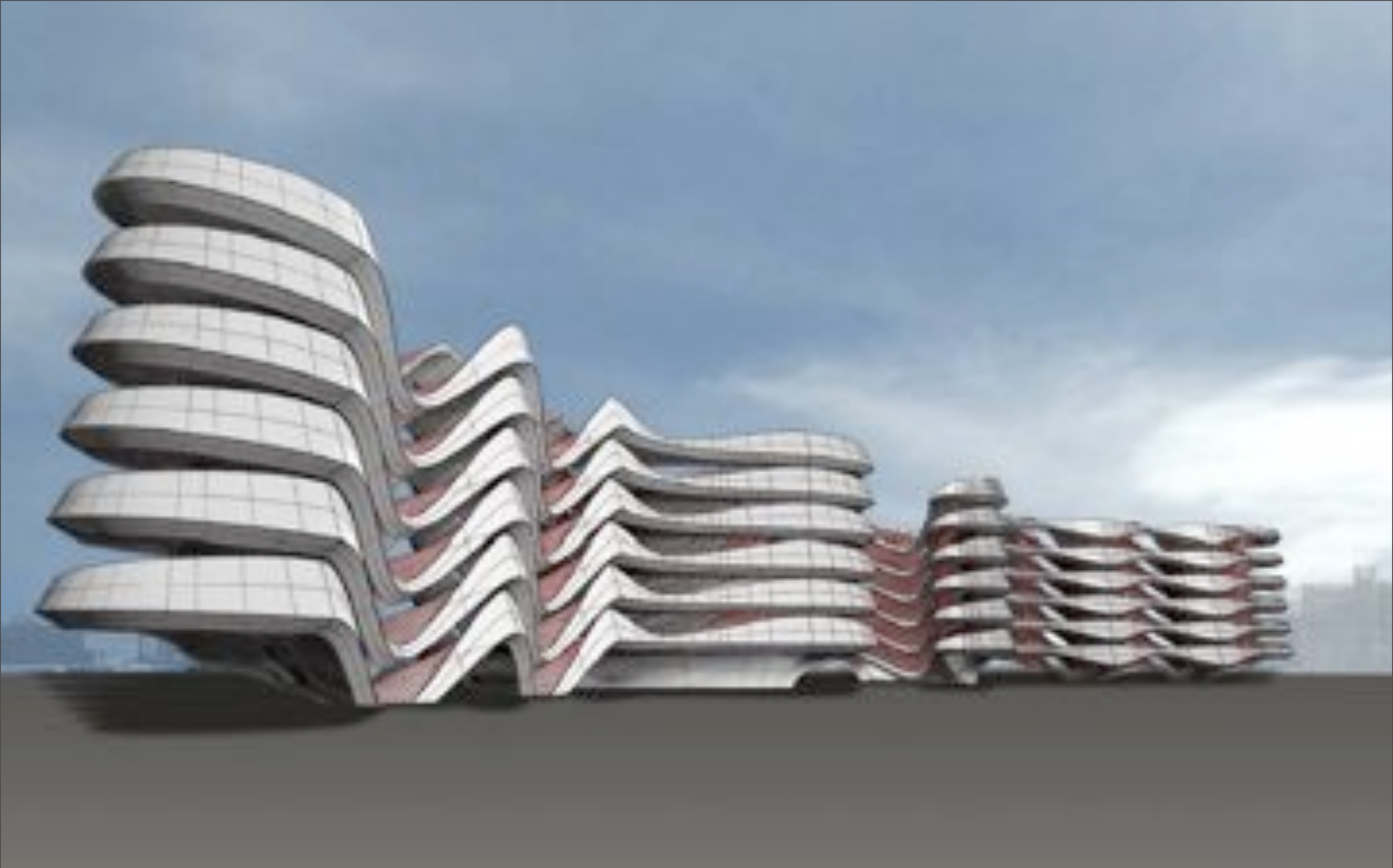
new architectural typologies

new places (e.g warehouses)



new architectural typologies: amazon warehouse... this is what happened when a book shop is "dematerialized"

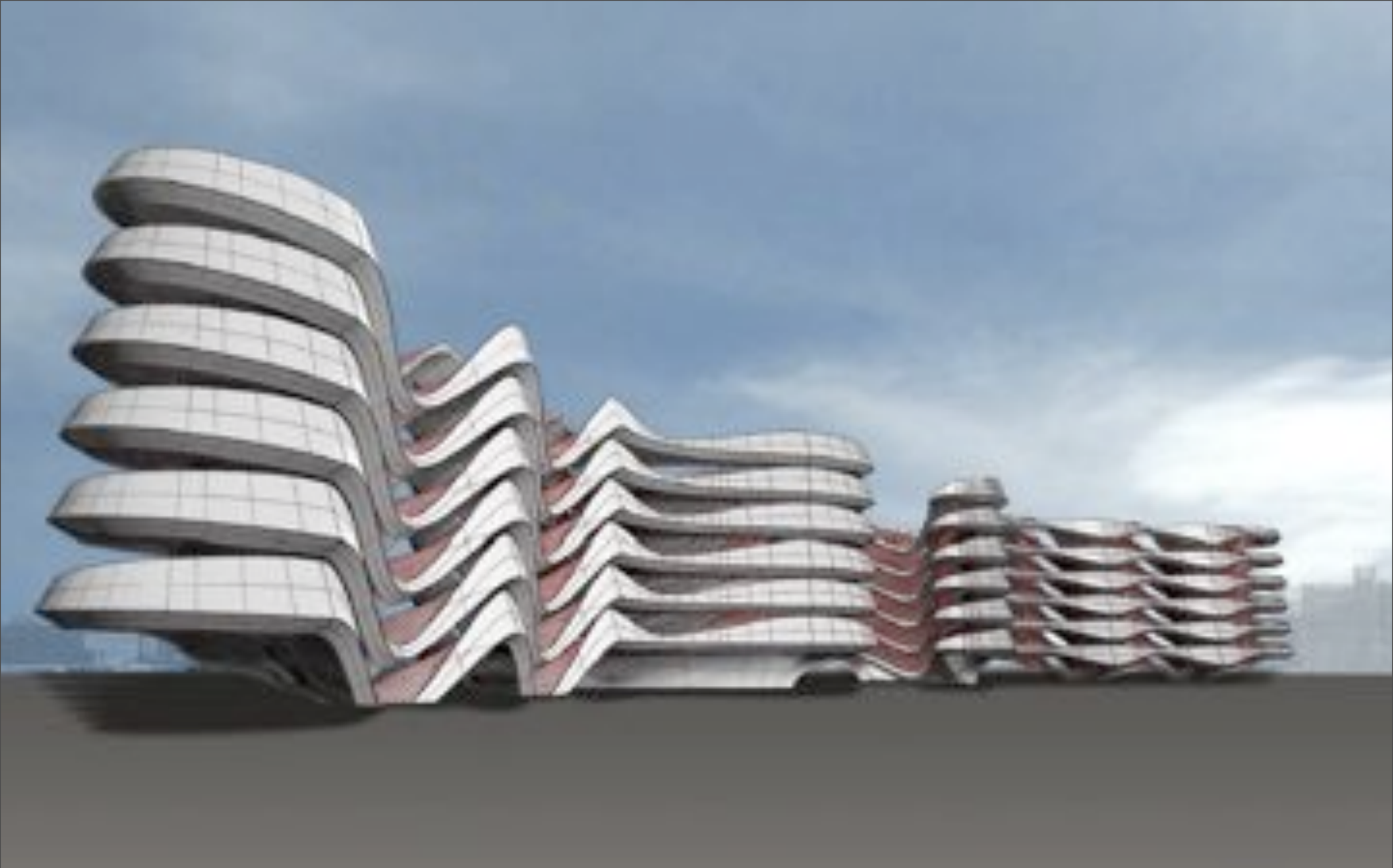
Source: <http://www.bomega.com/2006/12/28/300-dvds/>



new place that take seams into account

(Simon Schleicher, MIT Medialab, 2006)

Also of interest, some project tries to design/build physical structure that would take seams/problems into account (for example GPS holes/network problems...)



but how would this evolve over time?

(Simon Schleicher, MIT Medialab, 2006)

time issue: will things work in 10 years? 30 years?  
metro: 100 years planification  
current IT: 3-4 years cycle  
How to design with that constraint?



## digital need infrastructures, room... and energy

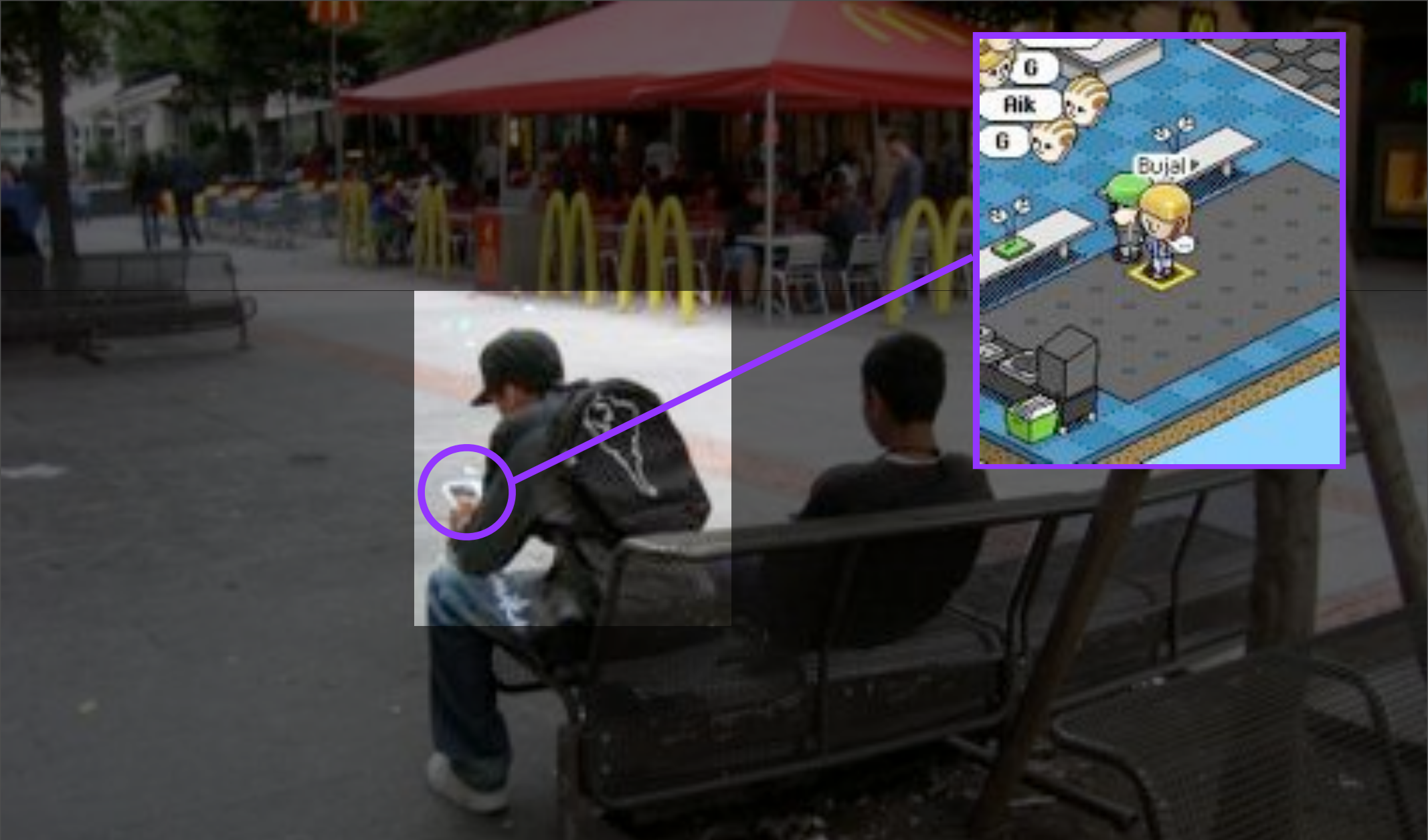
These implications allow to revisit false ideas, revisit the foreseen future and the assumptions the so-called dematerialized digital future takes lots of rooms! you need to put server, cables, stuff And you need energy!



## false assumptions (utilitarian versus less utilitarian)

These implications allow to revisit false ideas, revisit the foreseen future and the assumptions:  
utilitarian/less utilitarian... to go beyond current implementations

people do not necessarily need automation!



do not oppose the digital and the physical (read Goffman)

same substance of interaction!

These implications allow to revisit false ideas, revisit the foreseen future and the assumptions: do not oppose digital/physical because it's a global phenomenon. There are different sort of mediation.... no distinction, only different parameters (read goffman, it's about social action), it's the same substance of interaction. This is why I talk about "digital" not "virtual"



more information stress... loss of autonomy...

loss of autonomy, more information stress

# take-aways

- hybridization of the digital/physical are coming in a large variety of ways
- leads to changes from the cognitive to the architectural levels
- revisit false ideas: do not oppose the digital and the physical, less utilitarian future, digital takes room.
- reality is complex, need to study situations (not just technologies)

thank you

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