



Berkeley
UNIVERSITY OF CALIFORNIA



THE FUTURE OF THE PAST IN ACADEMIA AND SOCIETY

Berkeley U. 17-18 September 2022

'Hard' sciences, engineering and social sciences: shaken, not (just) stirred

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Organizers:

Maria Mavroudi (UC Berkeley) and Cornell Fleischer (University of Chicago)

- **What is at stake**
- **Why Transdisciplinarity**
- **Elements of e-Planning theory**
- **Transdisciplinary blues...**
shaken, not (just) stirred

- **What is at stake**
- Why Transdisciplinarity
- Elements of e-Planning theory
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shaken, not (just) stirred

What I would like to contribute here

- **The relevance of transdisciplinarity**, to better understand reality, in particular the role of modern technology and to put it at the service of Humankind
- **The contribution of e-Planning theory**, with a few elements like:
 - de-construction of dominant narratives of free market and free competition;
 - characterization of the intrinsic nature of **ICT** *, and how key new technology developments are contra-natura, artificially mutilating technology to suit their agenda;
- How **Academia** is so ill prepared to **host transdisciplinarity**

* **ICT - Information and Communication Technology**

•What is at stake Concepts

my notes, skip slide

What is Science:

A Human Product, developed because we need to understand how the Universe works, in order not only to survive, but to *"live long and prosper"* and enable *"the pursuit of happiness"*. So this must include 'hard' sciences and engineering, but also social sciences, since society is part of the Universe, although some seem to forget it; and humanities, because, well, try *"the pursuit of happiness"* without them.

Our knowledge has limits, and a most relevant one can be derived from **Gödel** theorems (*incompleteness*) and **Tarski** theorem equations (*undefinability*). A simplistic way of describing it, using Chomsky Grammars, is to state that, in order to fully know a system (a part of our Universe), one needs to be able to fully describe it (and accurately); but you can only do so from a system that encompasses / contains the target system in question, therefore more complex than it. Since we and our brains are a subset of the Universe, it follows the Universe is more complex than our brain, and therefore we cannot ever fully **know** the Universe...

What is Technology:

A Human Product, developed to amplify and complement our biological natural abilities ("built-in"), so that we see further than our eyes, hear further, move weights heavier than our muscles abilities, etc. One relevant aspect that e-Planning theory called to attention, is that computing can be considered a special key technology leap because it amplifies / complements our brain, not just our senses and muscle.

Why it matters here:

It is plain evident how both Science and Technology are interconnected and inter-dependent, and how both are a key factor in shaping power relationships, in function of attributes such as depth and breath, rigor, dissemination, access, etc.

(From e-Planning Research Methodology and Artificial Intelligent courses, 2014-2022, PFA)

QVO VADIS, "market economy"?

Main Stream ACADEMIA goes on teaching:

- *Market Economy => Free Competition + Entrepreneurship ...*
- *Strategic Priorities Proclaimed: Energy Transition + Digital Transition*
- *Values Proclaimed: Democracy, Freedom, Social Justice, Property*
- *Promises: Social Equality Convergence, Armed Strenght brings Peace*

**Portuguese Joke
on current Values**

From: Deus, Pátria, Família
To: ADEUS, Pátria e Família

• Market Economy: Reality Check

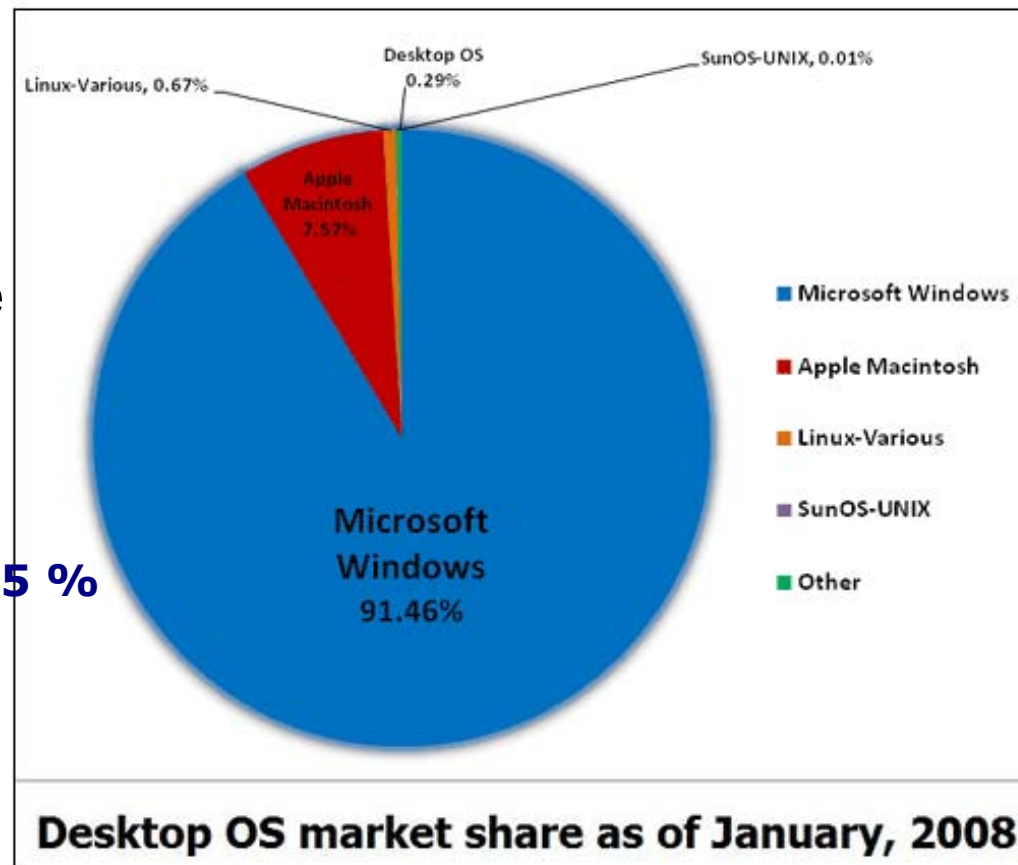
Some examples of e-Planning *Transdisciplinary* Research...

- Market Free Competition & Entrepreneurship is vanishing
- ICTechnology drives **Power** (Economic, Political, Military) more than ever
- ICTechnology Development is biased and distorted to favor current elite

- Market Economy: Reality Check
Free Competition? Entrepreneurship?

World
Computer
OS desktop
market share
2008

Microsoft = 91.5 %



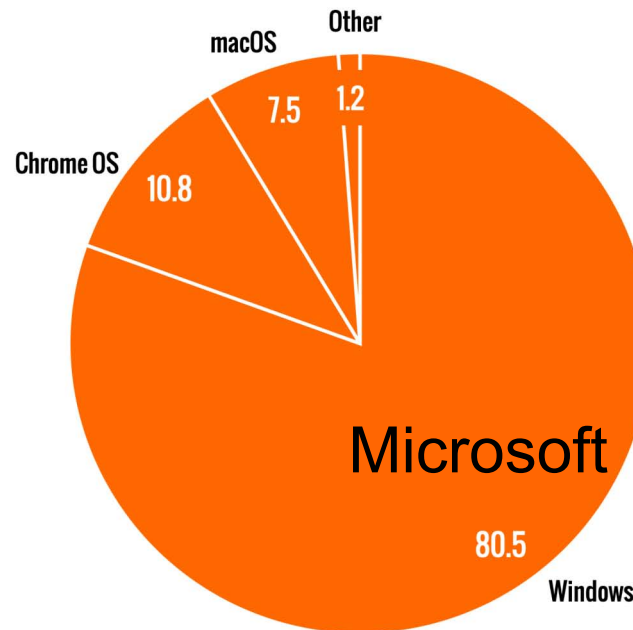
- **Market Economy: Reality Check**
Free Competition? Entrepreneurship?

World
Platform
market share
2021

Microsoft = 80.5 %

OPERATING SYSTEM MARKET SHARE BY PLATFORM

Percent



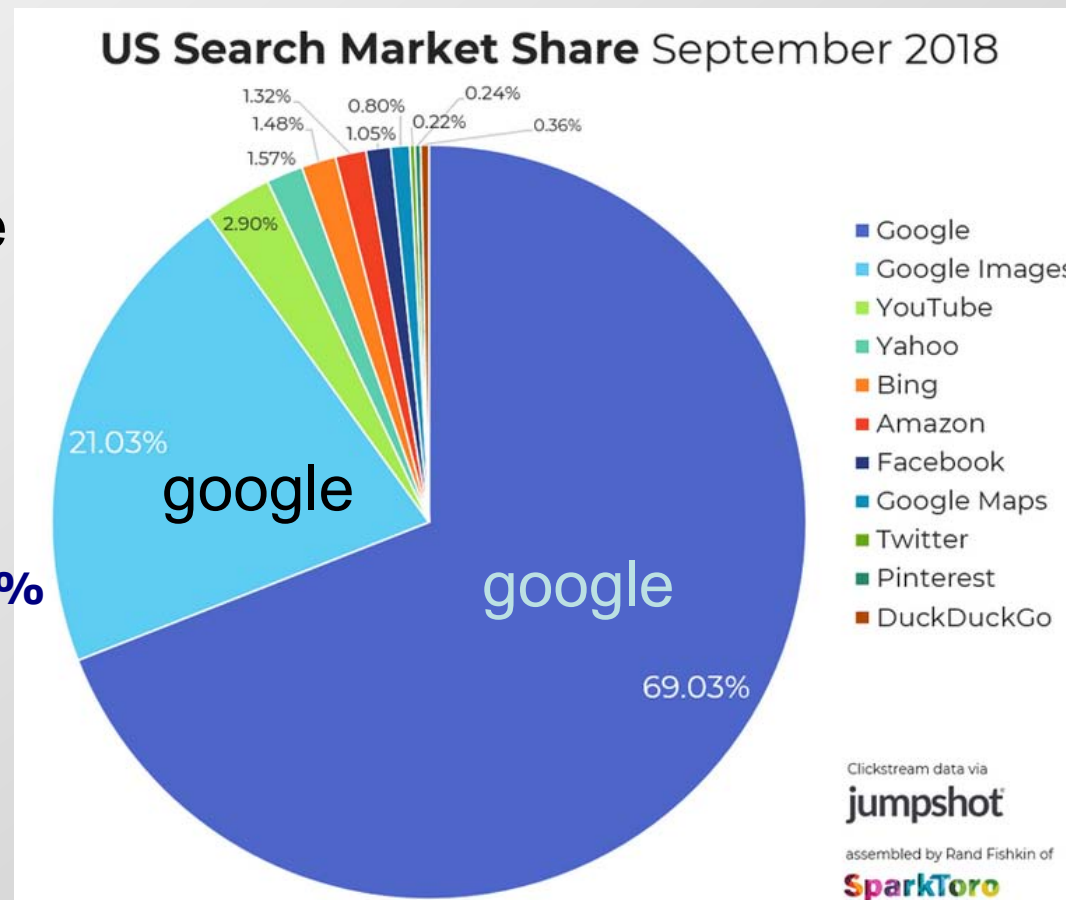
Data source: IDC



- Market Economy: Reality Check
Free Competition? Entrepreneurship?

USA
search
market share
2018

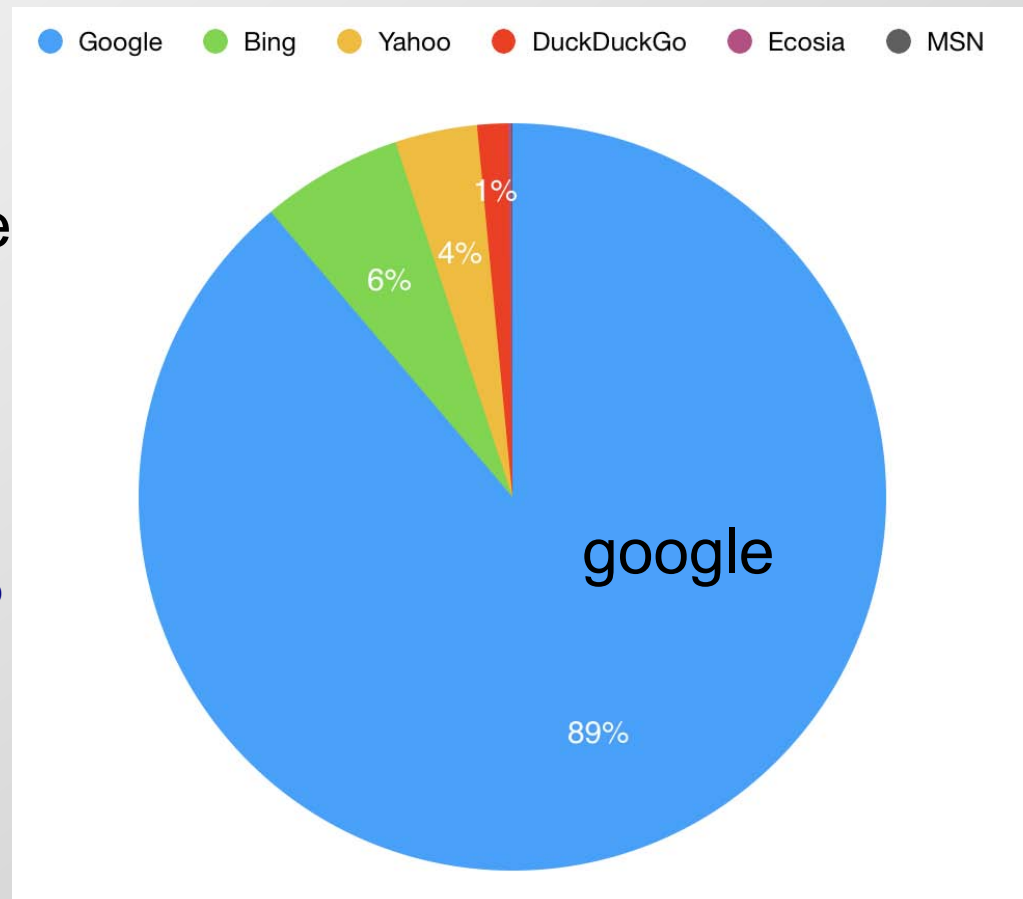
Google = 89.1 %



- Market Economy: Reality Check
Free Competition? Entrepreneurship?

USA
search
market share
2020

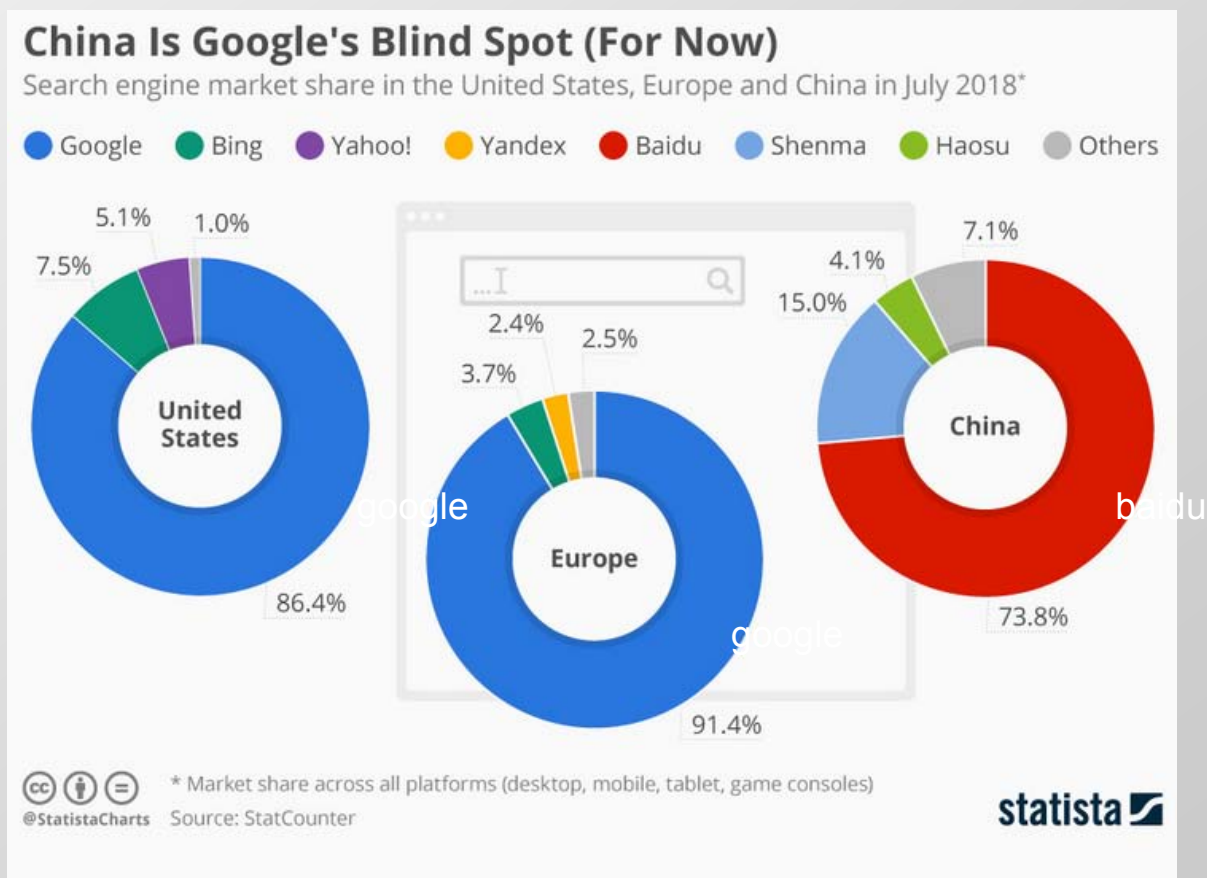
Google = 89 %



• Market Economy: Reality Check

Free Competition? Entrepreneurship?

USA
EU
China
search
market share
2018



• Market Economy: Reality Check

Free Competition? Entrepreneurship?

USA
on-line
shopping
market
share
2018

Amazon = 41%



- Market Economy: Reality Check
Free Competition? Entrepreneurship?

World
Top-10
Companies
2021

Rank	Company name	Location	Sector
1	APPLE INC	 United States	Technology
2	SAUDI ARAMCO	 Saudi Arabia	Energy
3	MICROSOFT CORP	 United States	Technology
4	AMAZON.COM INC	 United States	Consumer Discretionary
5	ALPHABET INC google	 United States	Technology
6	FACEBOOK INC	 United States	Technology
7	TENCENT	 China	Technology
8	TESLA INC	 United States	Consumer Discretionary
9	ALIBABA GRP	 China	Consumer Discretionary
10	BERKSHIRE HATHAWAY	 United States	Financials

Showing 1 to 10 of 100 entries

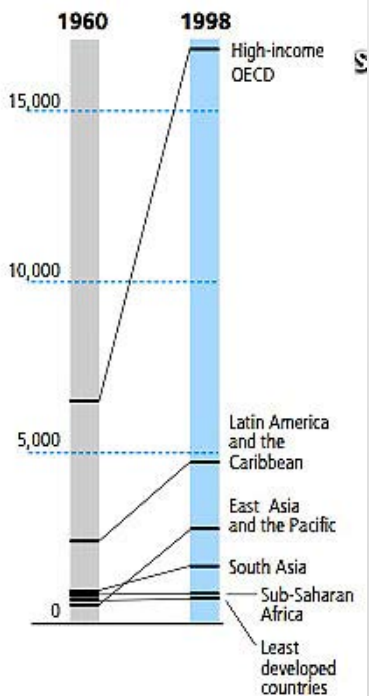
Note: Data as of March 31, 2021.

• Market Economy: Reality Check

Progress? World-wide convergence?

Widening income gap between regions

GDP per capita (1985 PPP US\$)



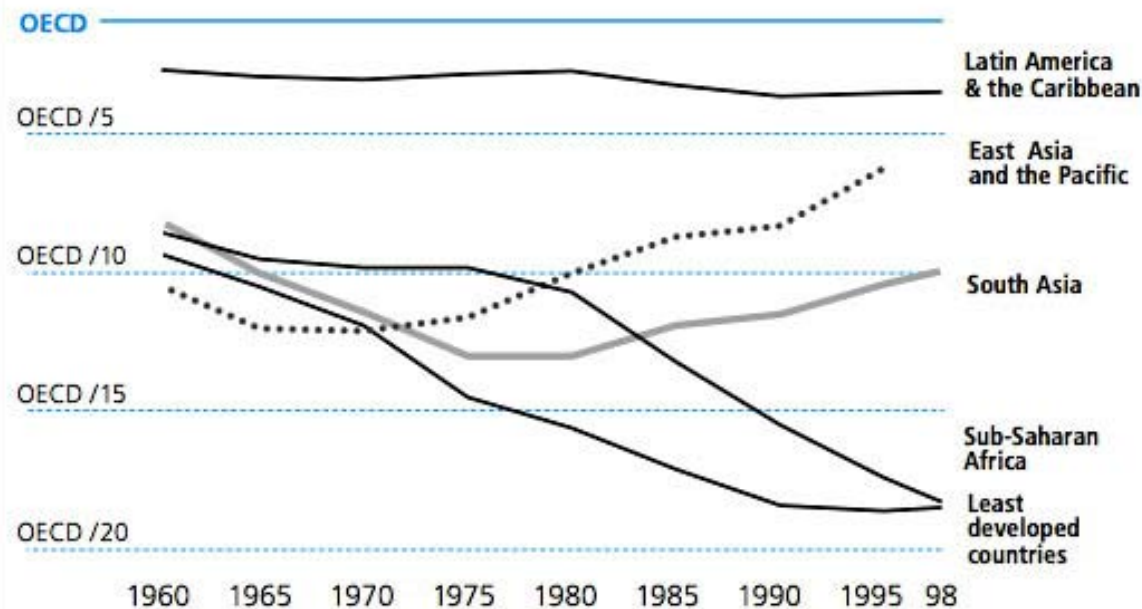
Source: Human Development Report Office calculations based on World Bank 2001g.

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FIGURE 1.5

Comparing incomes—developing regions and high-income OECD

Regional average GDP per capita (1985 US\$ PPP) as a ratio of that of high-income OECD countries



Note: High-income OECD excludes OECD members classified as developing countries and those in Eastern Europe and the CIS. See the classification of countries.

Source: Human Development Report Office calculations based on World Bank 2001g.

• Market Economy: Reality Check

Social Progress? Equal Opportunity?

*"The **socio-economic divide** has been on the **rise** in Europe over the **past decades**, and has intensified since the onset of the global financial crisis. **High and rising inequality** harms our societies in many respects."*

UNDERSTANDING THE SOCIO-ECONOMIC DIVIDE IN EUROPE

26 January **2017**, OECD



21/10/**2008** - The **gap between rich and poor has grown** in more than three-quarters of OECD countries over the **past two decades**, according to a new OECD report.

OECD **2019**'s Growing Unequal? finds that the economic **growth of recent decades has benefitted the rich more than the poor.**

Launching the report in Paris, OECD Secretary-General Angel Gurría warned of the dangers posed by inequality

• Market Economy: Reality Check

Social Progress? Equal Opportunity?

*"globalization also had a dark side. Lurking behind it was a **large and growing chasm between rich and poor - especially within countries.**"*

Dominique Strauss-Kahn, Managing Director,

International Monetary Fund (IMF)

Agadir, November 1, 2010



"Income inequality has been rising in many parts of the world in recent decades."

At The Peterson Institute for International Economics
Washington, D.C., March 13, 2014

David Lipton
First Deputy Managing Director, International Monetary Fund (IMF)



• Market Economy: Reality Check

Market Failures Increase,

- shrinking "free" competition, larger monopolies / oligopolies
- growing dominance by the **"technology giants"**

Inequality Increase,

- increased the gap between rich and poor countries
- increased the gap between rich and poor within each country

Is Technology to Blame?

- Market Economy: Reality Check

Market Failures Increase, Inequality Increase

But

Before we answer the question on Technology's role, we must ask:

How is it possible that this plain evidence is being ignored in today's teaching, that keep preaching "*free market*", "*free competition*" theory as sound?

What does that say about Academia's allegiances... to Science and Society, or to Private interests?

- What is at stake
- **Why Transdisciplinarity**
- Elements of e-Planning theory
- Transdisciplinary blues...
shaken, not (just) stirred

• **Why transdisciplinarity** (Concept) my notes, skip slide

"Transdisciplinary: creating a unity of intellectual frameworks beyond the disciplinary perspectives. "

Jensenius, A.R. (2012)

"we (...) embrace the concept of transdisciplinarity, in what is simple, clear and consensual:

1) Complex problems may require more than traditional disciplinary approach, or even more than "light" multi-disciplinary (collaboration between a few connected disciplines);

2) Dealing with complexity that engages a wide-breath multi-disciplinary range, such as engineering with social sciences, require more than the sum of the parts: we need also "organization and contextualization of knowledge", while preserving "the peculiarities of each area of knowledge".

We called it "dense multi-disciplinarity"; but it fits well with this definition of transdisciplinarity and it is therefore useful to adopt it."

"Towards an integrated research approach: The problem life-cycle and transdisciplinary frameworks", in Ferraz de Abreu, P. et al (2020) e-Planning & Ubiquity, Book, C-Press

We will see how understanding the next issues, require elements of engineering, physics, political science, sociology, history, humanities (classic greek), economy, business, administration, law, strategy, etc., but with an integrated scientific framework - we called it e-Planning

- Digital Transition: Reality Check



*Technology is created in
response to market
pressures—not the needs
of poor people, who have
little purchasing power*

HDR 2001, UNDP, ONU

HDR - Human
Development
Report - 2001

United Nations
Development
Programme

- Digital Transition: Reality Check



UN

*"New and rapidly developing **technologies** such as artificial intelligence, biotechnology, material sciences and robotics hold incredible promise for the **advancement of human welfare**. They also hold the potential to generate **more inequality and more violence**."*
(A. Guterres, UN Secretary-General's Strategy On New Technologies, 2018)

But then, what makes the difference?

• Digital Transition: Reality Check

inequalities and violence...

Then, is Technology *per se* to Blame?

e-Planning research evidence is clear: *per se*, **No**.

Since 1994, we accumulate evidence:

- Technology non-"neutrality" is designed and fabricated;
- The problem is not just **how** it is **used**: also **how** it is **designed, developed and deployed**.
- The issue is: who **controls** research, development and diffusion strategies and priorities. In other words: who controls
Funding & Ownership (property rights).

Ref: www.citidep.net • www.e-planning.org • Advanced e-Planning Research (PhD & pos-grad).

• Digital Transition: Reality Check

Some
recent
examples

Assymetric Bandwith & No Net-Neutrality

Citizen vs. Consumer standing in the Digital Era:

- "upload" speed / bandwith is critical to send, sell, produce for others;
- "download" speed / bandwith is critical to receive, to buy, from others;
- inter-communication (like video-conference **teaching** or **democratic debate**) require **symmetric** bandwith: the **lowest speed, sets the quality** of the communication.
- However, **Internet Operators** offer higher *download* and lower *upload*, because they also sell contents, and do not want to facilitate competition nor entrepreneurs.

BUT with Fiber Optics, *Light* is as fast going download or upload

(From e-Planning PhD courses, 2009-2022, PFA)

• Digital Transition: Reality Check

Some
recent
examples

Open Networks vs. "Walled Gardens"

Citizen vs. Consumer standing in the Digital Era:

Pro-citizen empowerment, open standards:

- Internet - developed & funded by public moneys; internet protocol open
- world wide web - developed by CERN Researcher (Tim Lee), open, public domain

Citizen turns consumer -> pro-business empowerment, proprietary standards:

- Microsoft Browser "extensions", to destroy open standards and compatibility freedom;
- Facebook, benefits from open & free web, to erect "Walled Gardens" and monetize;
- Apple, Google, build closed "eco-systems" to trap consumers and curtail competition;
- Growing business model of appropriating citizen data to monetize it ("Cost of Free")

BUT today's ICT enables true net interaction & freedom from walls

(From e-Planning PhD courses, 2009-2022, PFA)

• Digital Transition: Reality Check

Some
recent
examples

- Facebook: from *Cambridge Analytica*, to *Frances Haugen*

*"hate
speech
drives
profit"*

*"facebook...optimizing for content that gets engagement (...)
content that is hateful, that is divisive, that is polarizing"*

Frances Haugen, cbsnews, 4 October 2021

***"Politicians can't control the digital giants
with rules drawn up for the analogue era"***

Rawnsley, Andrew, The Guardian, 25 March 2018

(From e-Planning PhD courses, 2009-2022, PFA)

• Digital Transition: Reality Check

Some
recent
examples

- Facebook, Whatsup, Google, Twitter, Skype, etc.

The Cost of "Free"... Advertising transfers costs also to non-users.
So, market rules of competition do not hold.
BUT it is not just advertising; "profiling" with personal data leads profit

Cambridge Analytica scandal is not a "fluke", a "mistake";
it is **the new prevailing business model** in Tech industry

Pedro Ferraz de Abreu, e-Planning Workshop, Feb. 2019

(From e-Planning PhD courses, 2009-2022, PFA)

• Digital Transition: Reality Check

Some
recent
examples

- Facebook, Whatsup, Google, Twitter, Skype, Apple, etc.

Pseudo-Networks:

Herding people to "Bubbles" or Lines of "Followers" ("Influencers")
vs. True Network (nodes in graphs) empowerment

The "Curator" model

Content censorship ("regulating") power by private corporations
vs. citizen power, through democratic institutions

constant messaging, alerts, etc

"Smart" phones, etc

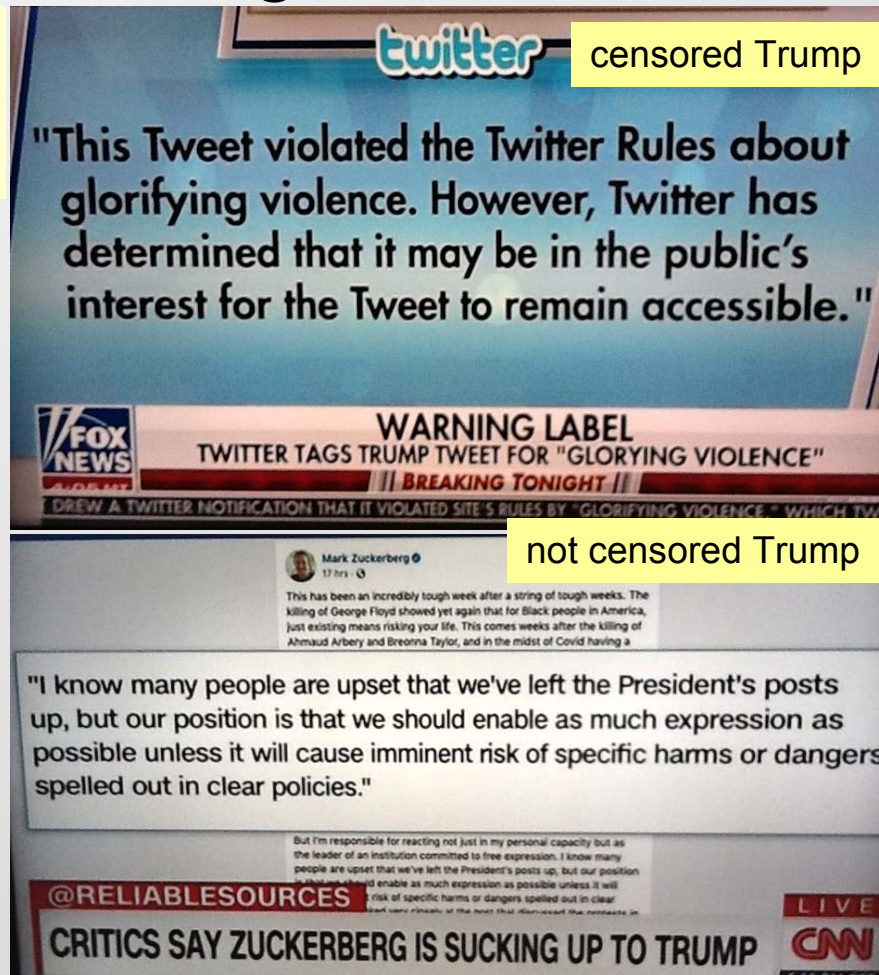
"Push" technology / hardware designed as a **consumption vector**
vs. free choice, privacy and real entrepreneur empowerment

Software as service (subscription), forceful ads, profile monetizing
vs. true ownership (**consumer property rights erosion**)

(From e-Planning PhD courses, 2009-2022, PFA)

• Digital Transition: Reality Check

Some recent examples



Twitter (arrogantly) has **"determined"** (sic) what may be in the "public interest",

with the applause of the Left.

Facebook (arrogantly) states it **"should enable as much expression as possible"** (sic) **"unless"** (sic) it will cause **"specific harms... spelled out in clear policies"** (Facebook "policies")

with the criticism of the Left

• Digital Transition: Reality Check

Some
recent
examples

- Government, Private Corporations that rely on ICT* (most of them)

Erosion of Privacy and Appropriation of Personal Data

- **Government PRISM known (and predictable) before Snowden disclosure**
- **Microsoft "phone home" opens "pandora box"; Visio TV, Siri is listening, etc.**
- **Private Sector Privacy invasion and manipulation even larger than State**
- ***BigBrother* real scale and depth makes Orwell look like a naif simpleton**

ICT **Ubiquity** is not just *enabling* this, it is increasingly *designed* for this

*** ICT-Information & Communication Technologies**

(From e-Planning PhD courses, 2009-2022, PFA)

• Digital Transition: Reality Check

Some
recent
examples

- Facebook, Whatsup, Google, Twitter, Skype, Apple, etc.

Twitter-Whatsup style interaction is building obscurantism

- **The *Manufacture of Consent* theory (Chomsky), stands**

- **Einstein warning on oversimplification, stands**

- **"Social Justice" in #248 characters = "Kangaroo courts"**

- **Political & economic marketing manipulation reign (Bolsonaro case study)**

So called "post-truth", "alternative facts" thrive on this "Twitter-mode"

(From e-Planning PhD courses, 2009-2022, PFA)

- Digital Transition: Reality Check

On **Technology Developments**, we must ask
just like did Roman Consul **Lucius Cassius**:

Cui Bono ?

(From e-Planning PhD courses, 2009-2022, PFA)

- Academia & Society: Reality Check



*There is a glaring contrast
between the world's
research agenda and the
world's research needs*

HDR - Human
Development
Report - 2001

United Nations
Development
Programme

HDR 2001, UNDP, ONU

- What is at stake
- Why Transdisciplinarity
- **Elements of e-Planning theory**
- Transdisciplinary blues...
shaken, not (just) stirred

e-Planning Analysis on Technology

"(...) e-Planning science could predict early on, from the simple laws of thermodynamics, entropy (Boltzman), negentropy (Shannon), that the computer would become ubiquitous (...), and would profoundly affect the entire society. For good - and for bad.

However, if we consider the **intrinsic nature** of the components of the current generation of information and communication technologies (ICT) - microprocessor, satellite network and optical fiber, we can see that it is **symmetrical** and tends to be **easily accessible and disseminated**. Unlike mainstream technology in the "broadcast" Era (radio, television), the microprocessor serves equally well as both a transmitter and a receiver; as support for consumption or as support for productive activity. In fiber optics, light obviously has the same speed to support "download" as it does to "upload" on the internet; The positional "high ground" of a satellite, equally serves the surface points within its reach.

This means that the current generation of ICT favors a balanced dynamic, with broad access and symmetrical use, which tends to promote equality, not inequalities. Therefore, the paradox of witnessing a spiral of inequality in the world does not derive from technology per se; unless it is artificially (and deliberately) distorted, to favor some, over others."

Ferraz de Abreu, P. et al (2020) , "Introduction", in "ePlanning & Ubiquity" Book

Why are ICT* so deeply structural in our society? How?

e-Planning Theory - why and how

1. Understanding ICT Qualitative Leaps

We can identify ICT **Qualitative Leaps**, identifying each ICT **intrinsic attributes**,
Each ICT Leap has identifiable **societal impacts**, through the **enabling** function

2. Understanding the structural role of *Information* itself

Information as **negative entropy** (*Shannon & Boltzman equations*)
Information as a **physical entity**, and a key component of the Universe (*Thermodynamics*)
Information computing as an **engine** of higher entropic efficiency

3. Understanding detailed ICT role & transversal societal impact

e.g. on economy, business models, sovereignty, regulation and administration

*** ICT-Information & Communication Technologies**

(From e-Planning PhD courses, 2009-2022, PFA)

1. New ICT represent a new Qualitative Leap

e-Planning theory shows the implications of IC technology innovation leaps

Table 7.3.1.-1 - Period before broadcasting

>600 BC	The abacus (=arithmetic unit of CPU) is invented in China
387 BC	Foundation of Plato's Academy
1450	Printing press invented (Johannes Gutenberg)
1876	First telephone patent (Alexander Bell)

Table 7.3.1.-2 - Period between broadcasting and microcomputer + world wide network

1906	First broadcast of human voice, AM radio (Reginald Fessenden)
1930	18 million radios owned by 60% USA households
1936	Regular TV broadcast begins in UK
1956	72 % USA households own a TV
1968	First ARPANET (IMP), installed at UCLA (precursor to INTERNET)

Table 7.3.1.-3 - Period after microcomputer + world wide communications network

1971	First microcomputer in USA
1972	Created the InterNetwork Working Group, creating the INTERNET
1975	First Personal Computer (PC) introduced
1991	First Internet Web Server and Web Browser (CERN)
2001	529 million people on-line (Internet)

In (Ferraz de Abreu) ,
2002
"New Information
Technologies in
Public
Participation: A
Challenge to Old
Decision-making
Institutional
Frameworks". PhD
Thesis, MIT

1. New ICT represent a new Qualitative Leap

ICT- Information & Communication Technology

“*enabling* factor”

In (Ferraz de Abreu) , 2002
"New Information Technologies in Public Participation: A Challenge to Old Decision-making Institutional Frameworks".
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Information Technology	Features / Attributes	Decision Models
Voice Manuscript	<ul style="list-style-type: none"> • from "few" to "few" • limited reach • without auxiliary processing • cheap, potentially universal access (low cost to enter the market) • low control / regulatory costs 	<u>Direct Democracy</u> Heterogeneous Empires
Press Radio TV	<ul style="list-style-type: none"> • from "few" to "many" • non-limited reach • with processing in source • expensive, restricted access (high cost to enter the market) • average control / regulatory costs 	<u>Representative Democracy</u> Homogeneous Dictatorships
Satellite network Fiber optics net µcomputer Internet	<ul style="list-style-type: none"> • from "many" to "many" • non-limited reach • with processing in source and destination • moderate access cost, potentially universal (low cost to enter the market) • high control / regulatory costs 	<u>Participatory Democracy</u> Technocrat Dictatorships

Information Technology	Features / Attributes	Decision Models
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Press	<ul style="list-style-type: none"> • from "few" to "many" • non-limited reach 	<u>Representative Democracy</u>
Radio	<ul style="list-style-type: none"> • with processing in source 	Homogeneous Dictatorships
TV	<ul style="list-style-type: none"> • expensive, restricted access (high cost to enter the market) • average control / regulatory costs 	
Satellite network	<ul style="list-style-type: none"> • from "many" to "many" • non-limited reach 	<u>Participatory Democracy</u>
Fiber optics net	<ul style="list-style-type: none"> • with processing in source and destination 	Technocrat Dictatorships
μcomputer	<ul style="list-style-type: none"> • moderate access cost, potentially universal (low cost to enter the market) 	
Internet	<ul style="list-style-type: none"> • high control / regulatory costs 	

e-Planning deals with qualitative leaps of new IC technologies and their deep & wide impacts

Democracy cannot extend beyond the reach of a man's voice

(Plato, according to Wriston)

Who will serve (the state) as its herald unless he has the lungs of a Stentor?

(Aristotle, Polit., VII, 1326 b, 7-11)

an emerging transdisciplinary field

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e-Planning deals with qualitative leaps of new IC technologies and their deep & wide impacts

In the "Broadcast Technology" Era, (TV, Radio) those who are at the microphone, have their voice's reach amplified, all others are restricted to listen - or not. The best we can do is **rotate access** and give it to representatives (*representative democracy*)

In the "Inter-Network Technology" Era (micro-computer + fiber optics + satellite), any one at a network "node" can listen and / or speak, in equal terms, so everyone's voice reach is amplified. (*enabling participatory democracy*)

Thus the critical importance of distinguishing between technology's intrinsic attributes and social constraints - or deliberate distortion of those attributes by who controls technology

Information Technology	Features / Attributes	Decision Models
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e-Planning deals with qualitative leaps of new IC technologies and their deep & wide impacts

Shifting paradigms...

- From
 - centralized broadcast dissemination (e.g. TV, Radio)
 - "bigger is better" in computing power (e.g. mainframes)
- To
 - decentralized network interaction (e.g. internet, web)
 - "small & ubiquitous" in computing power (e.g. pc, smart phones)

.. impact everywhere...

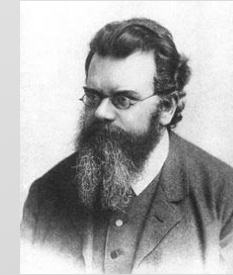
economy, finances, business models,
environment-health, safety, wars,
learning, education, arts, institutions,
regulation, participation, **power**

*... and require in-depth new
knowledge on both
Technology and Society*

an emerging transdisciplinary field

2. The Nature of Information itself

e-Planning Theory - why and how

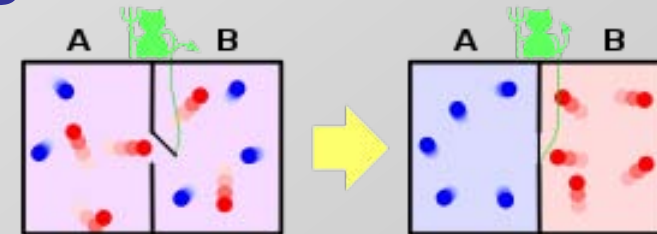
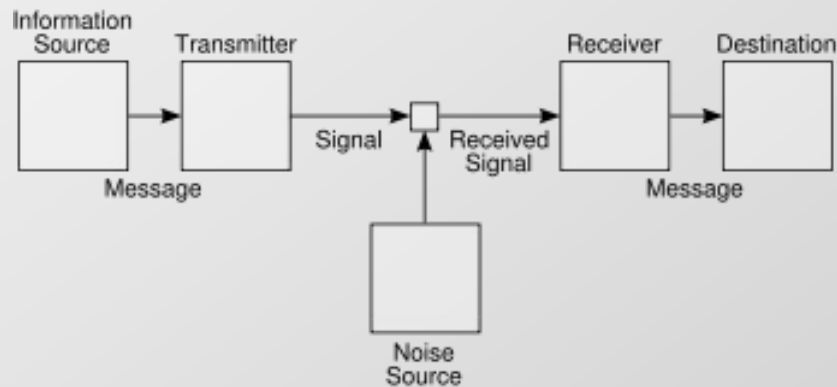


- Thermodynamics and information theory (negative entropy)

Shannon 1948

Boltzman 1906

$$(\mathbf{I} = \log_2 1/P ; \quad \mathbf{S} = K \log_e P \quad K \rightarrow \text{Ct. Boltzman})$$



Maxwell's Demon

- Engine** efficiency gains / energy transfers (heat transfer measured by entropic exchange)
- Engine** acting as an Extension of brain vs. Extension of muscle. (regulated systems, Watt)

(From e-Planning PhD courses, 2009-2022, PFA)

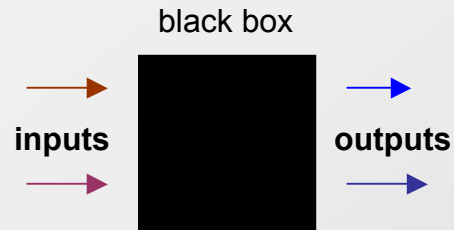
3. ICT Role and transversal Societal impact

e-Planning Theory - why and how

(e.g. economy, business, sovereignty, regulation and administration, etc.)

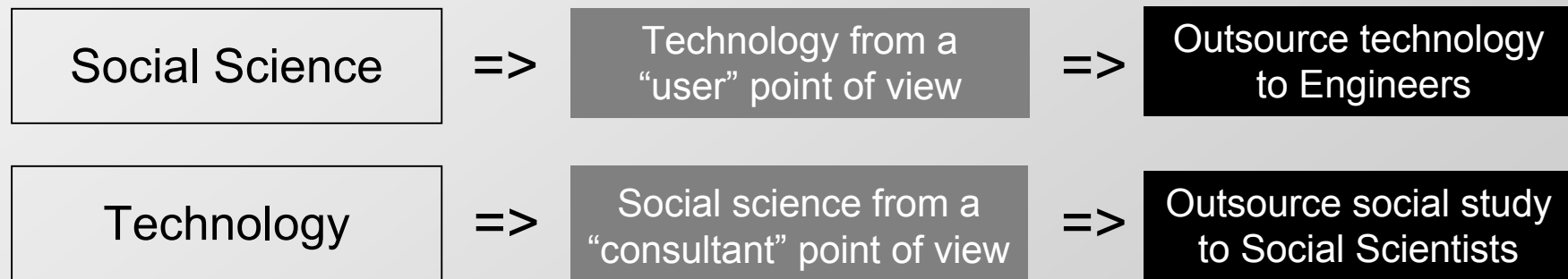
- **New Production Modes** (ex. fabric & stock of "hardware" products vs. software cloning; added-value and appropriation of innovation, new (re)production of Capital)
- **New Competition Modes** (ex. Changing brand vs. software learning curve + standard compatibility; e-escolas, captive markets; cost of market entry; the cost of "free")
- **New Business Models** (ex. Microsoft vs. OpenSource; temporal contract lock; ISPs non-neutrality; "free" vs. advertising, profiling monetizing; programmed obsolescence)
- **New Organization Modes** (ex. Time-shared mainframe vs. PC; "chain of tenure" -> paper vs. email; network vs hierarchy; remote work; erosion of privacy, ICT ubiquity)

(From e-Planning PhD courses, 2009-2022, PFA)

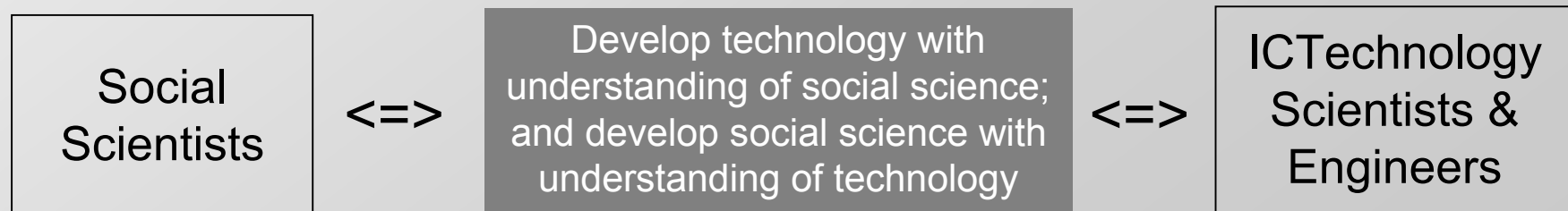


e-Planning embodies a new paradigm
of Technology with Social Sciences

Going past the traditional “blackbox” disciplinary approach...



*... the new **e-Planning** synoptical transdisciplinary approach:*



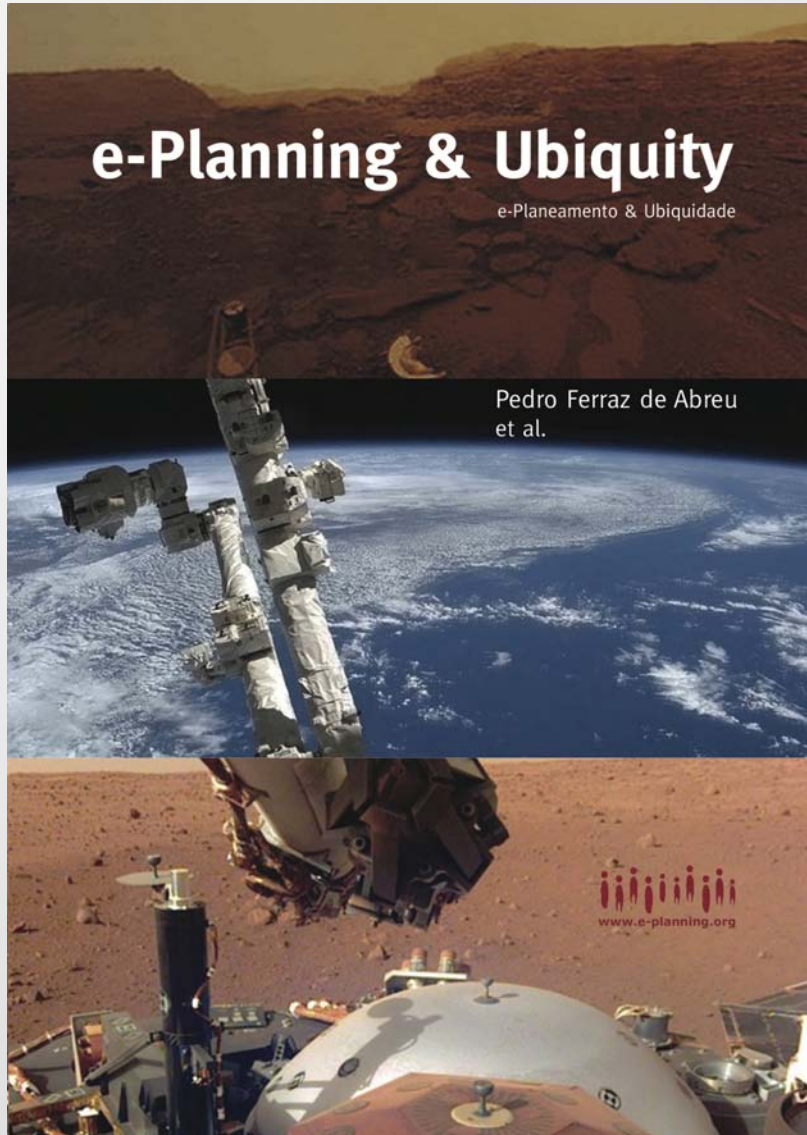
(From e-Planning PhD courses, 2009-2022, PFA)



www.e-planning.org



www.e-planning.org/news_e_bookeplanubiq20210219.html



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e-Planning theory: some elements

ICT current Qualitative Leap:
intrinsic pro-equal attributes vs. distorted development to favor unequal empowerment

Asymmetric bandwidth & Non-net neutrality
real rationale & implications on market failures

New property rights framework:
capturing dematerialization and digital flexibility to erode citizen property rights and empowerment

Appropriation of technology innovation added-value

ICT Ubiquity and privacy erosion: dual cause-effect

Cost of "free": advertising as a cost-transfer engine also to non-users, so "consumer-pays" rule is gone

New land-use structural effect of ICT:
new gravity model factors, new distance measure

•Why e-Planning (Designation)

Why the name **e-Planning**, for this transdisciplinary theory

From Social & Political Science:

At the core of any Planning, is Decision-Making

At the core of any Decision, is Power

At the core of any form of Power are People Relationships

At the core of any Relationship is Communication

At the core of any Communication is Information transfer

Thus, ICTechnology plays a key role in all these steps

In modern ICT Qualitative Leap, **electronic** ICT is key

In concrete:

(among alternative paths)

(to implement and enforce)

(acquiescence or violence)

(on the decision and outcome)

(on foundation & evaluation)

(amplifies reach & effect)

Planning => **e-Planning**

From 'Hard' Sciences & Engineering:

Planning's goal is to decrease a degree of chaos (entropy) in society, bringing more predictability in the desired direction (more "organized system"); **e- prefix** depicts information entropic nature and key role.

Planning => Decision => from **n** solution space to 1 => introduce Human & Nature Constraints =>
=> guiding the future => restrict alternative future paths => + organized environment => more
information on predicting future system behaviour => reduce uncertainty <=> **Decrease entropy**

Corollary: (e)Planning **requires** Increase of Information **In all society**, not just planners, decision-makers

ICT - Information and Communication Technologies

- What is at stake
- Why Transdisciplinarity
- Elements of e-Planning theory
- **Transdisciplinary blues...**
shaken, not (just) stirred

•Why transdisciplinarity (Role of)

A few examples we could not understand & build e-Planning theory, without transdisciplinarity:

- Understand in-depth intrinsic attributes and potential of each ICT leap
- Understand the entropy nature of Information, thermodynamic states, signal/noise ratios
- Understand when ICT developments are aligned with intrinsic attributes or distorts them
- Correlate ICT with social and political implications, namely power shift
- Benefit from ancient Greek governance debate and use of ICT in historical context
- Notice the link between "voice" and "reach", as relating power with ICT
- Correlate ICT leaps with changes in transaction costs, on economy and political systems
- Correlate ICT development design and deployment with shifting property rights power
- Correlate ICT design with individual empowerment vs. large organizations and capital
- Understand how ICT leaps challenge "chain of tenure" and "chain of command" structures

These require a comprehensive theory incorporating elements of engineering, physics, political science, sociology, history, humanities (classic greek), economy, business, administration, law, strategy, etc.

ICT - Information and Communication Technologies



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A 4-University Joint e-Planning PhD Program
created a transdisciplinary research agenda

2009>

www.e-planning.org

e-Planning Joint PhD Program

e-Planning
Consortium

4 Universities
UTL, UNL
UL, UA

Network with
MIT+CITIDEP

e-infrastructure	e-planning knowledge infrastructure
e-government	e-planning for the government of the future
e-governance	e-planning for a new governance
e-city & territory	e-planning for the city of the future
e-citizenship	e-planning for a new citizenship

Engineers vs. Social Scientists vs. 'Hard' Sciences

e-Planning Joint PhD Program

"Fluff blabber"
vs.
"Nuts and bolts"

The ***"Real Science"***
Courses...
vs.
"Lack of the big picture" courses

e-infrastructure	e-planning knowledge infrastructure
e-government	e-planning for the government of the future
e-governance	e-planning for a new governance
e-city & territory	e-planning for the city of the future
e-citizenship	e-planning for a new citizenship

Engineers vs. Social Scientists vs. 'Hard' Sciences

e-Planning Theory - why and how



Value Systems - Cultural Choc

- Conservation vs. Development (Olmstead)
- Road Cross - Blessing or Curse

Engineering vs. Social Sciences vs. 'Hard' Sciences

Transdisciplinary Blues...

Who are our peers to review our work?

Who are the jurors to certificate our degrees?

Where do we apply for research funding?

Where do e-Planning students apply for grants?

Which College / Department hosts e-Planning?

Academia is not ready to host transdisciplinarity

Engineering vs. Social Sciences vs. 'Hard' Sciences

e-Planning, The wandering tribe...

- At **ISCSP** (Superior Institute of Social & Political Sciences), University of Lisbon

"You (PFA & e-Planning team) would be better at Técnico (School of Engineering)"

Science Council Meeting, 2011

- At **FCL** (Faculty of Sciences), University of Lisbon

"You (PFA & e-Planning team) should be at ICS (Institute of Social Sciences)"

Science Council Meeting, 2014

Documented at www.labtec-cs.net

Engineering vs. Social Sciences vs. 'Hard' Sciences

Even so, **e-Planning Team** Demonstrated capacity for multi-disciplinary excellence

FCT - DEPARTAMENTO DE FORMAÇÃO DE RECURSOS HUMANOS			
Concurso para a atribuição de Bolsas Individuais de Doutoramento e Pós-Doutoramento 2010			
Charlotte Yolande Luce J. De Kock	Mérito das condições de acolhimento	Classificação (min=1;máx=5)	5
Referência: SFRH/BD/71493/2010			
Bolsa avaliada na área de Ciências da Comunicação e Informação			
Orientador: Pedro Ferraz de Abreu	(considerar tanto a Instituição como o Responsável pelas actividades)	Centro de Investigação (5), Orientador (5)	
Unidade de Investigação : CAPP-TSG			
Concurso para a atribuição de Bolsas Individuais de Doutoramento e Pós-Doutoramento 2010			
Francesca Savoldi	Mérito das condições de acolhimento	Classificação (min=1;máx=5)	5
Referência: SFRH/BD/69221/2010			
Bolsa avaliada na área de Arquitectura, Urbanismo e Design			
Orientador: Pedro Ferraz de Abreu	(considerar tanto a Instituição como o Responsável pelas actividades)	Centro de Investigação (5), Orientador (5)	
Unidade de Investigação : CAPP-TSG			
Concurso para a atribuição de Bolsas Individuais de Doutoramento e Pós-Doutoramento 2011			
Lanka Elvira Horstink	Mérito das condições de acolhimento	Classificação (min=1;máx=5)	5
Referência: SFRH/BD/80126/2011			
Bolsa avaliada na área de Ciência Política	(considerar tanto a Instituição como o Responsável pelas actividades)	Centro de Investigação (5), Orientador (5)	
Orientador: Pedro Ferraz de Abreu			
Unidade de Investigação : CAPP-TSG			
Concurso para a atribuição de Bolsas Individuais de Doutoramento e Pós-Doutoramento 2011			
Marta Ferreira Mendes de Sousa Rocha	Mérito das condições de acolhimento	Classificação (min=1;máx=5)	5
Referência: SFRH/BD/79928/2011			
Bolsa avaliada na área de Geografia	(considerar tanto a Instituição como o Responsável pelas actividades)	Centro de Investigação (5), Orientador (5)	
Orientador: Pedro Ferraz de Abreu			
Unidade de Investigação : CAPP-TSG			

"One of the greatest challenges faced by a multi-disciplinary research unit such as the **e-Planning Lab (CAPP-TSG)**, is scientific peer review, and grant application. Referee Panels, both national and international, are always organized by **specialized scientific area**. To which one should we submit for e-Planning evaluation & grants?

The (rare) qualification, for obtaining "top grade" (5 in 5) **both for Research Center and Advisor**, from juries with **international referees**, in multiple areas (such as 'Communication Sciences', 'Architecture, Urban planning & Design', 'Political Science', 'Geography') was demonstrated by PhD students, Lab team, and its coordinator, Prof. Pedro Ferraz de Abreu."

(e-Planning *what-why-when-how-who*)

1996 - Foundation of CITIDEP - Research Center on Information Technologies & Participatory Democracy

CITIDEP became an international network active on e-Planning agenda



Slovenia

USA

Mexico

Brasil

Argentina

Belgium

France

Italy

Cabo Verde

Portugal



www.citidep.pt • www.citidep.net



• e-Planning approach...is back at MIT

MIT News

ON CAMPUS AND AROUND THE WORLD



MIT will reshape itself to shape the future, investing \$1 billion to address the rapid evolution of computing and AI — and its global effects. At the heart of this effort: a \$350 million gift to found the MIT Stephen A. Schwarzman College of Computing.

Photo: Christopher Harting

MIT reshapes itself to shape the future

Gift of \$350 million establishes the MIT Stephen A. Schwarzman College of Computing, an unprecedented, \$1 billion commitment to world-changing breakthroughs and their ethical application.

[Watch Video](#)

MIT News Office
October 15, 2018

MIT today announced a new \$1 billion commitment to address the global opportunities and challenges presented by the prevalence of computing and the rise of artificial intelligence (AI). The initiative marks the single largest investment in computing and AI by an American academic institution, and will help position the United States to lead the world in preparing for the rapid evolution of computing and AI.

PRESS MENTIONS

President Reif speaks with Gerry Baker of WSJ at Large about the impact of AI on the future of education and work. "Part of the goal of the [MIT Schwarzman] college is, as we educate people to use these [AI] tools, to educate them in a way that empowers human beings, not replaces human beings," says Reif.

A new MIT "College", 2018

- **1 billion dollars**, 50 new faculty posts, 25 Computation & IA + 25 Social Sciences & others

- Change Computation & IA to include literacy on social science & ethics;

- Change all other to include literacy on Computation & IA)

e-Planning transdisciplinary research agenda
was presented to the Portuguese Parliament



Audiência de delegação e-Planning e CITIDEP
Comissão da Cultura, Comunicação, Juventude e Desporto
26 de Fevereiro de 2019

2019

www.e-planning.org/eplan_ar_cccjd_20190226.html

Pedro Ferraz de Abreu, UA, CITIDEP
João Cabral, FA-UL
José Beirão, FA-UL
José Moreira, CITIDEP





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e-Planning transdisciplinary research agenda
invited hearing at the Portuguese Parliament



2021

Pedro
João
José
José

www.citidep.net/act/audiencia_ccc12_20211019.html



Pedro Ferraz de Abreu, CITIDEP
Joseph Ferreira Jr., MIT
Albino Almeida, ANAM
Vasco Lupi Costa, Rarissimas



- e-Planning approach...was born at MIT

In 2003:

- First *e-Planning Seminar*, a course offered for "urban studies & planning" Master and PhD Programs at MIT, Pedro Ferraz de Abreu & Joseph Ferreira Jr.
- International Conference of Information Technologies & Public Participation, MIT + CITIDEP

In 2018:

A new MIT College

- 1 billion dollars, 50 new faculty posts, 25 Computation & IA + 25 Social Sciences & others
- Change Computation & IA to include literacy on social science & ethics; Change all other to include literacy on Computation & IA)

e-Planning - 20 years building a transdisciplinary scientific area ... First at MIT, then focus in Portugal & Brazil, Now expanded at MIT ... but under siege in Portugal... Next?

e-Planning Agenda, was created at MIT



Professor Ferreira (**Joseph Ferreira Jr.**) was the founding director of the Planning Department's Computer Resource Lab and is now head of Urban Information Systems. He teaches analytical methods and computer-based modeling for planning and urban management including courses involving extensive use of geographic information systems (GIS) and database management. Both Prof. Ferreira's undergraduate degree (in electrical engineering) and his PhD degree (in operations research) are from MIT. His research uses GIS and interactive spatial analysis tools to model land use, transportation, and environmental interactions and to build sustainable information infrastructures for supporting urban and regional planning. He is a past-president of the Urban and Regional Information Systems Association (URISA) and has been principal investigator of numerous research projects studying job-housing balance, urban performance measures, and urban information infrastructure. His current research includes the Future Urban Mobility project within the Singapore/MIT Alliance for Research and Technology where he is the SMART Research Professor of Urban Information Systems."

e-Planning Agenda, was created at MIT
first "e-Planning Seminar" course, 2003



e-Planning Seminar, MIT course, by Prof. P. Ferraz de Abreu, 2003

THE FUTURE OF THE PAST IN ACADEMIA AND SOCIETY

THE END

Berkeley U. 17-18 September 2022

'Hard' sciences, engineering and social sciences: shaken, not (just) stirred

Pedro Ferraz de Abreu

pfa@mit.edu

THANK YOU !

Organizers:

Where you shaken... Or just stirred?

Maria Mavroudi (UC Berkeley) and Cornell Fleischer (University of Chicago)



Links for References:

www.e-planning.org/papers.html

www.labtec-cs.net/faul/papers_pfa.html

www.citidep.net/papers/pfa/index.html

Pedro Ferraz de Abreu

pfa@mit.edu

ferrazdeabreu.link



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For a quick tour
to see a bit more
on e-Planning...



labtec-cs.net

e-Planning Agenda, was born at MIT, with first "e-Planning Seminar" course, 2003



e-Planning Seminar, MIT course, by Prof. P. Ferraz de Abreu, 2003

e-Planning Agenda, was born at MIT, with first "e-Planning Seminar" course, 2003

Session topics: (A- Breadth)

1) Community level: **e-Community Planning**

- Neighborhood Information Systems
- Community Statistical Systems
- e-Neighborhoods
- Community Empowerment

2) City level: **Enhancing City Performance**

- City Knowledge and Meta-Knowledge
- Measuring and Monitoring City Activity and Performance
- Learning about Cities through IT
- The IT infrastructure for City-level e-Government / e-Planning

3) Global level: **The Fading Borders between Regional, National and Local Planning**

- e-Government and e-Planning: new inter-dependencies between national, regional and local plans
- e-social movements and multi-level impacts
- Informal governance and challenges to land-based sovereignty

e-Planning Seminar, MIT course, by Prof. P. Ferraz de Abreu, 2003

Session topics: (B- Issues)

e-Planning Agenda, was born at MIT, with first "e-Planning Seminar" course, 2003

1) Public Participation

- Technologies of Communication for citizen empowerment
- Technologies of Knowledge for responsible citizen participation
- New citizen responsibility with de-regulation
- New role of the planner in governance

2) Privacy, Security and freedoms in the e-World

- Planning, IT and the trade-off between security and freedom
- e-data vulnerability and free flow of information
- New e-manipulation and metadata standards
- Location-based services and data access: (Big-brother vs. efficient monitoring)
- Preserving individual rights (free circulation of information vs. protection from bad uses of that information, safety in travel and accessing city space vs. citizen mobility, privacy in communications - Internet, voice, etc.).

3) Urban Modeling and Urban Design

- The implications of transparent models and increasingly 'sensed urban spaces
- The changing economics of place
- Who benefits from GIS and spatial analysis
- The geography of change in the e-World
- New spatial relationships (e.g., e-abutters)
- Facilitating the sharing of planning models and data

4) Environmental Planning

- Citizen participation in Environmental Impact Analysis
- Kyoto and transportation planning
- The impacts of EnviroMapper as a public information strategy
- Spatial analysis and environmental justice

5) Institutional Reform

- the emergence of new frameworks with real impact in planning and governance, both formal and informal.
- Planning in the knowledge-based society
- e-Accountability
- Shifts of decision centers in e-Government
- IT challenges to hierarchy paradigms in public administration

e-Planning Seminar, MIT course, by Prof. P. Ferraz de Abreu, 2003

e-Planning field was born at MIT, 2003
(ICPPIT03 International Conference, MIT)



Intersecting the *e-Planning Seminar*.
CITIDEP and MIT organized ICPPIT03.
Off-conference networking meetings
led to a Living Labs concept and to an
informal LabTec TS Network Task Force



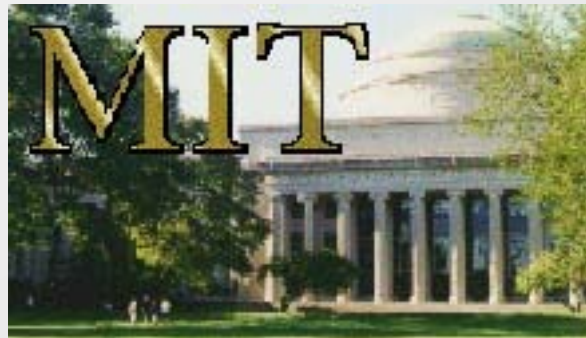
ePlanning proponents: Pedro Ferraz de Abreu & Joseph Ferreira Jr.



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e-Planning field was born at MIT, 2003
(ICPPIT03 International Conference, MIT)



e-Planning field was born at MIT, 2003
(ICPPIT03 International Conference, MIT)



ICPPIT Task Force, USA session

Prof. Larry Vale, Head of DUSP-MIT,
addressed the meeting CITIDEP+MIT (2003)



ICPPIT03 - Launching LabTec TS informal network, Stella Room, MIT, USA, 2003



THE VICE PRESIDENT
WASHINGTON

October 22, 1999

Mr. Pedro Ferraz de Abreu
Massachusetts Institute of Technology
MIT-Room 9-514
Cambridge, Massachusetts 02139

Dear Mr. Ferraz de Abreu:

I am pleased to send my best wishes for your International Conference on Public Participation and Information Technologies. While I regret that I am unable to join you, I trust that the gathering will be extremely informative.

The development of a National and Global Information Infrastructure will advance and enhance the way we live, work, learn, and share information with each other here in the United States and around the world. Communications technologies will play a critical role in a global economy that is ever more dependent upon information for expanded business and trade opportunities.

This Administration is committed to making sure the goal of universal service is met so that all Americans can benefit from the communications revolution. As a nation we cannot tolerate—nor, in the long run, can we afford—a society in which some children become fully educated and others do not, in which some patients benefit from shared medical expertise and others do not, in which some people have access to lifetime learning and job training and others do not.

I know that you share this vision, and I look forward to working with you. Please accept my best wishes for your continued success in the years to come.

Sincerely,



Al Gore

AG/kew

PRINTED ON RECYCLED PAPER

PUBLIC PARTICIPATION AND
INFORMATION TECHNOLOGIES



1999

CITIDEP

UNL

CITIDEP co-Organized ICPPIT99 with UNL
(New University of Lisbon) with MIT guests

Building the path towards e-Planning

www.citidep.net/icppit99/



ICPPIT99 - International Conference on Public Participation & Information Technologies, CITIDEP with UNL, in Lisbon, 1999

CITIDEP itself was born between
USA (MIT) and Portugal, 1995-1999

Building the path towards e-Planning

**CITIDEP - Research Center on Information
Technologies and Participatory Democracy**

www.citidep.net/icppit99/



ICPPIT99 Task Force



ICPPIT99 - International Conference on Public Participation & Information Technologies, CITIDEP with UNL, in Lisbon, 1999

CITIDEP Foundation

1996



Foundation

CITIDEP became an international network active on e-Planning agenda

Vesna Dolnicar	Slovenia
Timothy Sieber	USA
Luis Rionda	Mexico
Jorge Edison	Brasil
Clelia Guinazu	Argentina
Charlotte DeKock	Belgium
Valérie Aillaud	France
Laura Colini	Italy
Ambriseth Lima	Cabo Verde
Pedro Ferraz de Abreu	Portugal



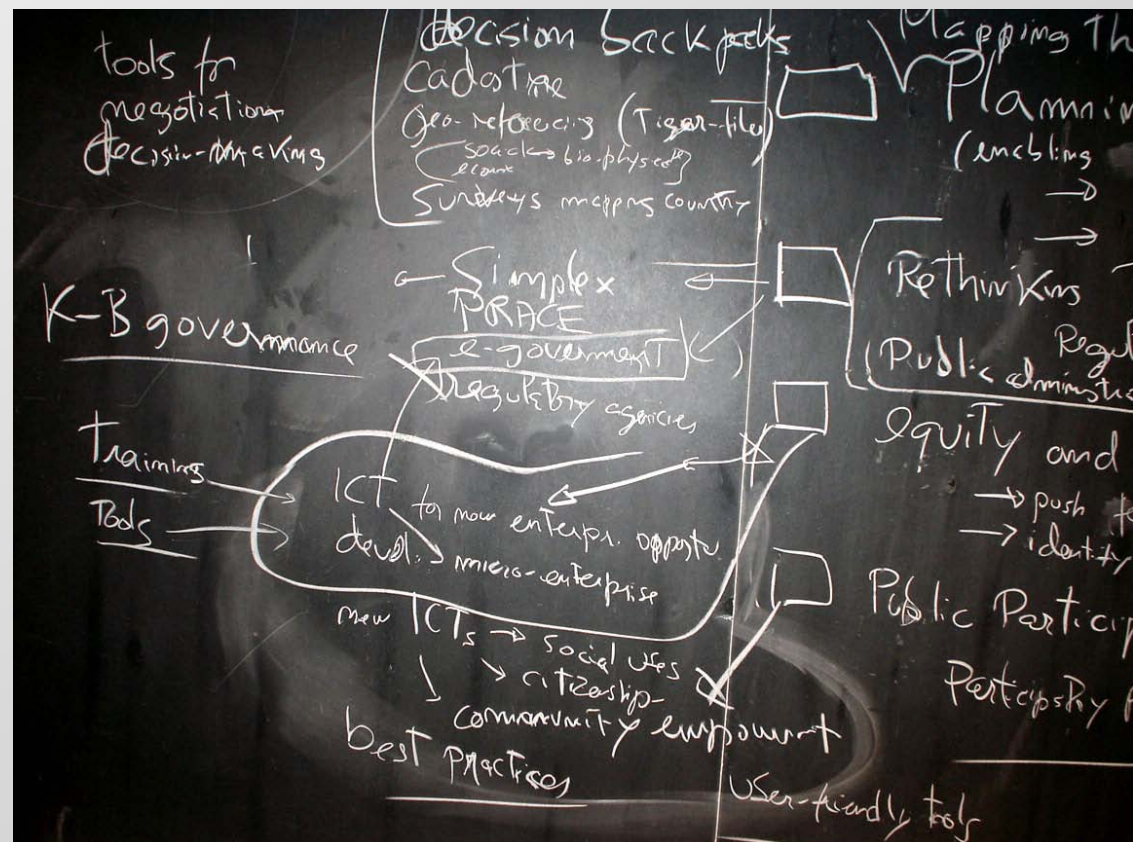
www.citidep.pt • www.citidep.net

CITIDEP - Research Center on Information Technologies & Participatory Democracy, since 1996

CITIDEP promoted the MIT-Portugal e-Planning Consortium Task Force

e-Planning Task Force: created in 2005

- MIT-DUSP
Joseph Ferreira Jr
Pedro Ferraz de Abreu
- CITIDEP
Pedro Ferraz de Abreu
João Joanaz de Melo
Melissa Shinn
- FC-UL
José Manuel Pinto Paixão
Nuno Guimarães
- FCT-UNL
João Joanaz de Melo
- ICS-UL
Luisa Schmidt
- CSJP-UA
Eduardo Anselmo de Castro





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MIT report suggested **e-Planning** to be considered for the MIT-Portugal Program

From: Lawrence Vale <ljvale@MIT.EDU>
Subject: Re: Urgent-Towards e-Planning as part of MIT-Portugal
Date: Wed, 17 May 2006 22:40:08 -0400
To: Pedro Ferraz de Abreu <pfa@mit.edu>
Cc: Joseph Ferreira <jf@mit.edu>

Dear Pedro,

Many thanks for sending along your latest version of the proposal for collaboration between MIT/DUSP and various university programs in Lisbon on the topic of e-Planning and Urban Information Systems. I can confirm the strong interest of the MIT Department of Urban Studies in exploring the exciting dimensions for research and collaboration described in this document. Our joint efforts to link emerging information and communication technologies to initiatives to improve public administration and urban management seem particularly relevant to the challenges of enhancing economic performance and innovation in Portugal. I very much hope that this aspect of joint work can be included in the MIT-Portugal collaboration.

Yours sincerely,
Larry Vale

Lawrence J. Vale
Professor and Head,
Department of Urban Studies and Planning MacVicar Faculty Fellow
Massachusetts Institute of Technology
Room 7-337M
77 Massachusetts Ave.
Cambridge, MA 02139



Massachusetts
Institute of
Technology

2006

ASSESSMENT OF AN MIT-PORTUGAL COLLABORATION MASSACHUSETTS INSTITUTE OF TECHNOLOGY

FINAL REPORT
AUGUST 29, 2006

CONDUCTED FEBRUARY 15 - JULY 15, 2006

PROGRAM DIRECTOR: DANIEL ROOS, PROFESSOR AND FOUNDING DIRECTOR, MIT
ENGINEERING SYSTEMS DIVISION

Although we have received suggestions about many potential projects and focus areas, we mention "e-planning" initiatives in particular because we have received many expressions of interest from faculty in Portugal and MIT. We suggest that the "e-planning" initiatives should be the subject of further analyses during the coming year after the launching of the initial program.

e-Planning Research Agenda - 2008

e-planning knowledge infrastructure	mapping the Portuguese knowledge society / mapping the planning knowledge.
e-planning for the government of the future (e-government)	more efficient and responsive, closer to citizens, better enabling role, better e-government
e-planning for a new governance (e-governance)	better services towards the common good, better institutions, better regulations for a truer market and handling market failures, better balance security vs. freedoms and liberty, more equity and less exclusion
e-planning for the city of the future (e-city)	better quality of life, new functionality, breed innovation, more attractive and competitive
e-planning for a new citizenship (e-citizenship)	enabling a better informed and educated citizen, more participative, more critical, more responsible



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A 4-University Joint e-Planning PhD Program
created a transdisciplinary research agenda

2009>

www.e-planning.org

e-Planning Joint PhD Program

e-Planning
Consortium

4 Universities
UTL, UNL
UL, UA

Network with
MIT+CITIDEP

e-infrastructure	e-planning knowledge infrastructure
e-government	e-planning for the government of the future
e-governance	e-planning for a new governance
e-city & territory	e-planning for the city of the future
e-citizenship	e-planning for a new citizenship



e-Planning Lab Network benefits from, and supports, e-Planning curricula

www.e-planning.org

2019> *Joint Master Program*

e-Planning Consortium

FA/UL

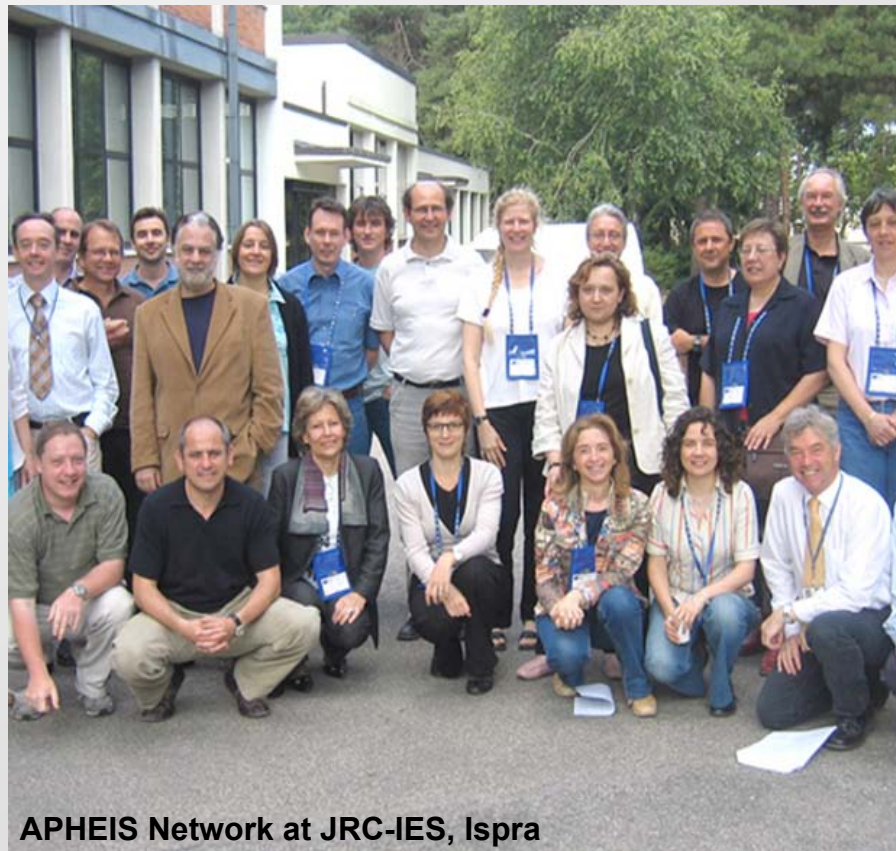
+

FC/UL+...

Network with MIT+CITIDEP

e-infrastructure	- Computer Aided Planning
e-government	
e-governance	- Smart Cities & Territorial Cohesion
e-city & territory	- Networks, Social Capital & Entrepreneurship
e-citizenship	

e-Planning Lab Team integrates EU European Networks of Excellence



APHEIS Network at JRC-IES, Ispra



e-Planning Lab Team integrates the debate on *citizenship*, inside and outside Academia



IBICT - Min. Science of Brasil joining the
e-Planning Consortium, a strategic progress

Consortium e-Planning

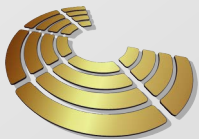


***e-Planning Consortium was joined by the
National Association of Municipal Assemblies***

Consortium e-Planning

www.citidep.net/act/protocolo_citidep-anam_20211106.html

2021
Protocol
signature
e-Planning
CITIDEP
with ANAM



Associação Nacional
de Assembleias Municipais



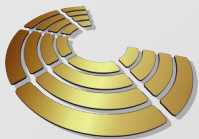
**e-Planning Consortium was joined by the
National Association of Municipal Assemblies**

Consortium e-Planning

2022 Monchique Meeting
"e-Planning Digital Transition
for Social Inclusion"

With Presidents of all Municipal
Assemblies (17) of Algarve region,
ANAM with CITIDEP

www.citidep.net/act/monchiqueanam.html



Associação Nacional
de Assembleias Municipais

cvel.anam.pt/oradores/pedro-ferraz-de-abreu/





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e-Planning Lab Team built its know-how with the e-Planning community in 10 countries

www.labtec-cs.net




The LabTec TS / e-Planning Lab team has a rich portfolio of research and action projects, since 1995, around a core group initially at MIT and CITIDEP, with a sequence of partnerships with research units at different Universities, within an informal e-Planning Consortium. Those projects, and corresponding research, were very different in size, social impact and research domain.


In this section, it is provided a few examples of the know-how acquired through some of these **projects and research lines** in the last 10 years.

e-Planning Team has experience in science research within large european (EU) teams

www.citidep.net/people/



EUROPEAN COMMISSION
Community research



People behind PEOPLE

- P. Pérez Ballesta, E. De Saeger, R. Field, A. Baeza, I. Nikolova, R. Connolly, R., N. Cao, M. Gerboles, D. Buzica **for the Joint Research Centre**
- R. Fernandez-Patier, D. Galán D, S. Garcia Dos Santos, J. Santamaria Ballesteros **for Madrid**
- Pascal DeMulder and Sandrine Bladt **for Brussels**
- Ana Cabral, Pedro Ferraz de Abreu, Francisco Ferreira, Hugo Tente, Luisa Nogueira **for Lisbon**
- Matej Gregoric and Peter Otorepec **for Ljubljana**
- Emilia Nicu **for Bucharest**
- Martin Fitzpatrick, Anne Marie McCarten and Pat Goodman **for Dublin**

The PEOPLE project (2002-2005) is coordinated by the Joint Research Centre with the aim of assessing the exposure of citizens to air pollutants in different European cities

PEOPLE Project Population Exposure to Air Pollutants in Europe

Pascual Pérez Ballesta
Institute for Environment and Sustainability
DG Joint Research Centre
European Commission



e-Planning Team has experience gathering large scale air quality indicators with citizens

www.citidep.net/people/



EUROPEAN COMMISSION

Participating time schedule

PROJECT: SCHOOLS (to 16)

SMOKING BAN

DUBLIN

LISBON

IRISH PUBS

SCHOOLS

- Students
- Students study
- Students join citizens debate

ANGES

ness

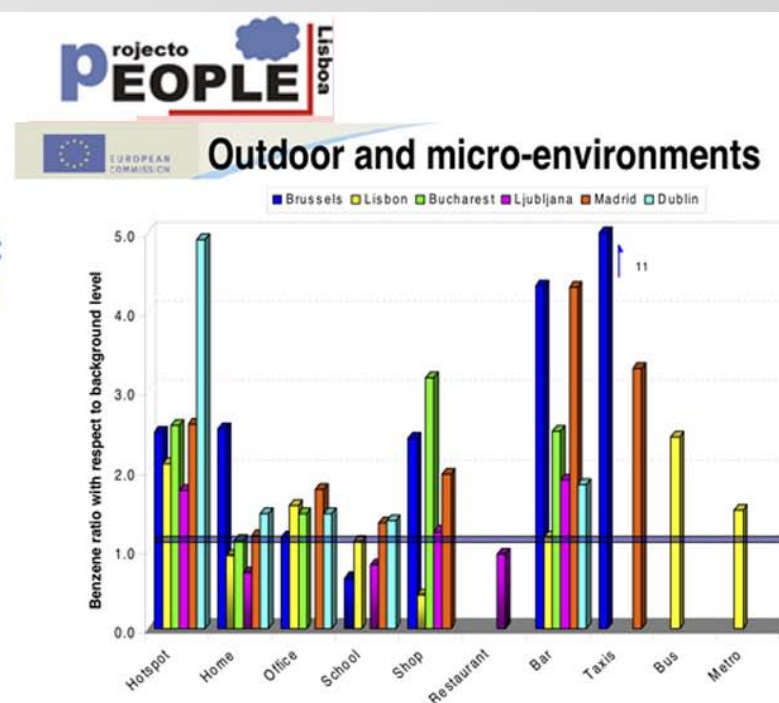
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topic

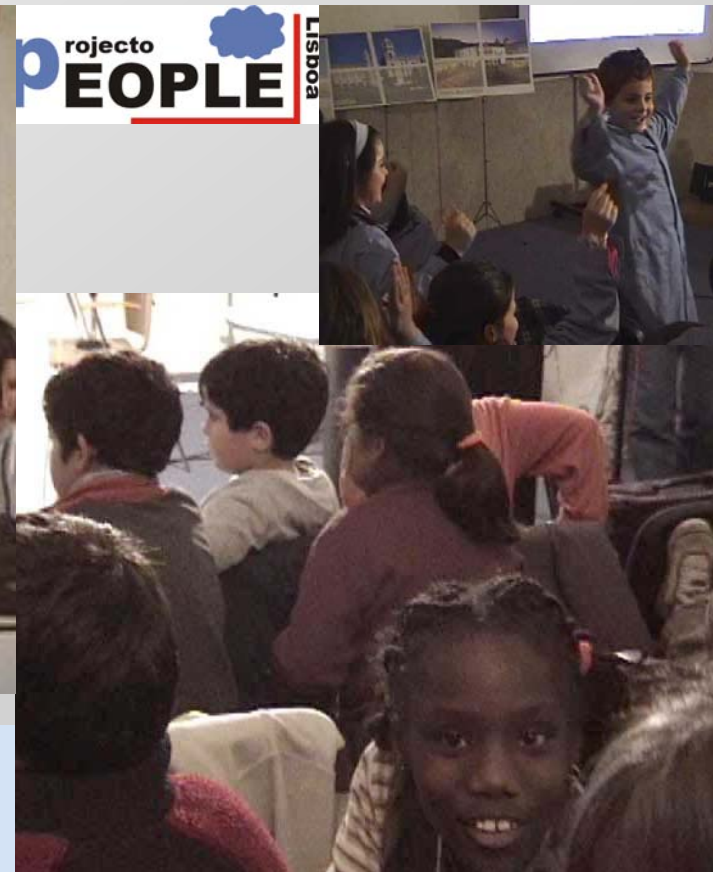
results



Institute for Environment and Sustainability
DG Joint Research Centre
European Commission

e-Planning Team has experience using
advanced technology with kids & schools

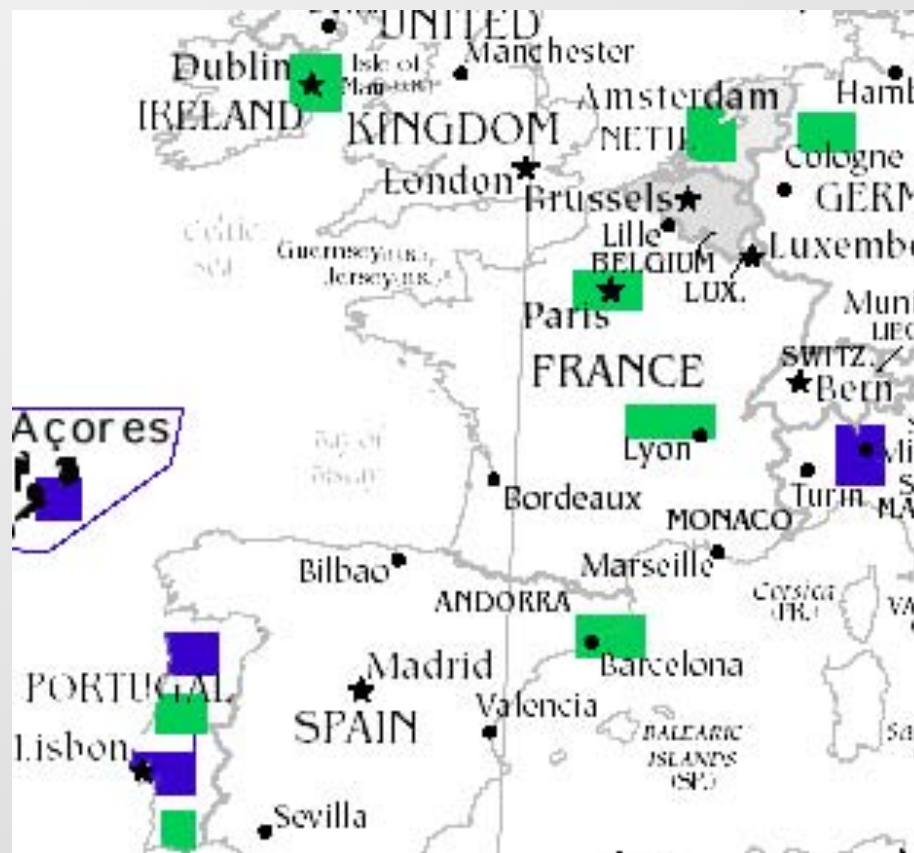
www.citidep.net/people/



Activity:
“ interaction scientists - k12 students”.

e-Planning Team has experience
leading European-wide projects

www.eurolifenet.org



e-Planning Team has experience with
promoting youth participatory science

www.eurolifenet.org



e-Planning Team has experience
with projects with high media impact

www.eurolifenet.org



Expresso



(National TV)

SIC



e-Planning Team has experience
with projects with high media impact

www.eurolifenet.org



Respirar os ares do MIT

» A PALAVRA DE ORDEM EM QUALQUER UNIVERSIDADE É 'REDE'. A provê-lo está outro projecto de alcance internacional e de ambição feita à escala europeia, o EUROLIFE NET (<http://www.eurolifenet.org>). Proposto pelo CITIDEP e de imediato adoptado pelo Centro Comum de Investigação da Comissão Europeia (IES-JRC) para medir a qualidade do ar no Velho Continente, integra em Portugal um grupo dinâmico que cruza pessoas de diversas áreas, sob um denominador comum: cruzar a ciência com a acção. Sempre com o mote do seu grupo de trabalho, o CITIDEP (Centro de Investigação de Tecnologias de Informação para uma Democracia Participativa) em mente, Pedro Ferraz de Abreu define o caminho: «A ciência sem activismo é frívola, o activismo sem ciência é cego».

Ferraz de Abreu coordena o EuroLifeNet com base no LabTec ePlanning no Instituto de Ciências Sociais e Políticas (ISCSP) da UTL e traz consigo o espírito da sua alma mater, o famoso Massachusetts Institute of Technology (MIT, nos EUA), onde esteve quase 20 anos. Ainda é investigador associado, mas de forma «intermittente».

Som-se a esta filosofia – de unir a tecnologia às ciências humanas, de uma forma participativa – a experiência que a equipa de Ferraz de Abreu traz de outra linha de investigação, activa no terreno, o projecto europeu PEOPLE, que persegue o mesmo objectivo, avaliar a qualidade do ar que as pessoas respiram.

As únicas partículas que já eram medidas em larga escala (PM 10), podem chegar aos pulmões, enquanto as que o EuroLifeNet mediu (PM 2.5) entram directamente à corrente san-

A qualidade do ar deixou de ser algo que só preocupa os ambientalistas'

PEDRO FERRAZ DE ABREU

em Portugal ainda aguardam publi-

Mas os problemas eram vários. Por exemplo, como envolver as populações? E, pedindo participação, como avaliar o rigor das observações? Tudo isto tendo em conta «a explosão de doenças respiratórias em crianças» verificada nos últimos anos e o aumento de casos de cancro e o surgimento desta doença em idades cada vez mais precoces. «A qualidade do ar deixou de ser algo que só preocupa ambientalistas», nota Ferraz de Abreu.

O grupo de estudo centrou-se nas escolas. Os alunos de vários estabelecimentos de ensino na Europa triam usar um aparelho para medir as partículas circulares no ar ao longo do seu dia-a-dia. O clique deu-se numa conferência onde se decidiram os pormenores técnicos da experiência. Durante uma visita a um laboratório italiano – é em Itália que se localiza o Instituto do Ambiente e Sustentabilidade do JRC, Comissão Europeia – Ferraz de Abreu encontrou um medidor que era «o último grito em tecnologia». Estava dado o tiro de partida. Ainda assim, houve problemas, principalmente de estilo: «algumas raparigas não achavam cool andar com o aparelho ao pescoço».

A solução veio de uma das cidades que integra o projecto, Milão. Feliz coincidência, a cidade é também uma das capitais da moda – nasce uma bolsa capaz de dar paz à experiência. As meninas estavam conquistadas.



e-Planning Team has experience with
advanced technology training programs

www.eurolifenet.org



EuroLifeNet Project

Participatory Science

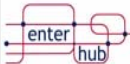
Partnership with JRC-IES



**Training teachers on
sophisticated sensors
for air quality (PM 2.5)**

e-Planning Team has certified expertise
in EU on "smart cities, ICT & participation"


urbact.eu/en/projects/metropolitan-governance/enterhub/homepage/




ENTER.HUB

Thematic Workshop 3. New Technologies - Smart Cities
INTRODUCTION


Lugano, 20-21 February 2014



AN URBACT II PROJECT

 **Pedro Ferraz de Abreu**

Connecting cities
Building successes



Why Smart City?

Beginning with transportation...

What we need

- move faster and safer, for less cost;
- not waste time in poorly articulated inter-modal schedules;
- have more alternatives for each point-to-point travel;
- not waste time buying tickets for each journey leg or transport mode;
- combine personal transport with public system
- make commuting time less wasteful
- faster identification of public transportation system failure and corresponding repair

Etc.


User Needs Assessment

What ICT can do for us

- move faster and safer, for less cost;	ICT for speed performance and engine efficiency, and safety management
- not waste time in poorly articulated inter-modal schedules;	ICT for better information on real-time schedules
- have more alternatives for each point-to-point travel;	ICT to locate nearest pool of cars, bikes, etc. but also to locate nearest public stop / station, according to destination
- not waste time buying tickets for each journey leg or transport mode;	ICT for integrated ticketing
- combine personal transport with public system	ICT to locate parking, its vacancies and pricing, and automate payment
- make commuting time less wasteful	ICT in transient system (both stations and vectors) for tele-work, socializing, entertainment
- faster identification of public transportation system failure and corresponding repair	ICT for monitoring but also ICT for citizen input and link it to standard procedures

Thematic Workshop 3, New Technologies - Smart Cities. 20-21 February 2014
Page 11

Connecting cities
Building successes

 **URB ACT**

e-Planning Team wrote the recommendations for EU on "smart cities, ICT & participation"

urbact.eu/en/projects/metropolitan-governance/enterhub/homepage/



ENTER. HUB - NEWSLETTER N° 5

10 x 2 Recommendations 10 on SMART TECHNOLOGIES AND CITIES

Thematic Expert, Pedro Ferraz De Abreu
Workshop in Lugano, February 2014

SMART ECONOMY (Competitiveness) <ul style="list-style-type: none"> Innovative spirit Entrepreneurship Economic image & trademarks Productivity Flexibility of labour market International embeddedness Ability to transform 	SMART PEOPLE (Social and Human Capital) <ul style="list-style-type: none"> Level of qualification Affinity to life long learning Social and ethnic plurality Flexibility Creativity Cosmopolitanism/Open-mindedness Participation in public life
SMART GOVERNANCE (Participation) <ul style="list-style-type: none"> Participation in decision-making Public and social services Transparent governance Political strategies & perspectives 	SMART MOBILITY (Transport and ICT) <ul style="list-style-type: none"> Local accessibility Inter-national accessibility Availability of ICT-infrastructure Sustainable, innovative and safe transport systems
SMART ENVIRONMENT (Natural resources) <ul style="list-style-type: none"> Attractivity of natural conditions Pollution Environmental protection Sustainable resource management 	SMART LIVING (Quality of life) <ul style="list-style-type: none"> Cultural facilities Health conditions Individual safety Housing quality Education facilities Touristic attractiveness Social cohesion

... Framework for smart city indicators
Ranking European Smart Cities, Centre of Regional Science, Vienna

... R1. Preserve citizens' security, identity and privacy

This is one of the great challenges of modern, ubiquitous ICT, and a serious requirement for any sustainable process.

... R2. Reduce inequality by universal access to technologies

Universal access implies adequate choice of technology and its deployment, comprehensive user-needs assessment, with a clear effort to consider special needs, such as low-income citizens and other situations.

... R3. Use ICT for accountability and transparency

Balanced agendas imply good governance control and auditing tools, but also tools to promote and secure a participatory process, open to all citizens/stakeholders.

... R4. Develop international cooperation for improving the regulatory framework

e-Planning Team has experience leading use of ICT for large surveys & public debate

europasustentavel.fc.ul.pt

Survey, Debate and Dissemination

Project-UE

Opinion study: Sustainability and Efficient use of Resources

INITIATIVE:



O CIEJD enquanto Organismo Intermediário no quadro da Parceria de Gestão estabelecida entre o Governo Português e a Comissão Europeia, através da sua Representação em Portugal.

DESIGN AND DEVELOPMENT:



The "EU Project - Sustainability & Efficient Use of Resources: Survey, Debate and Dissemination", is a project designed and developed by the Faculty of Sciences, University of Lisbon (FCUL), with CITIDEP and ICS-UL.

It is a European Commission initiative, promoted by the European Information Centre Jacques Delors (CIEJD), General Directory for European Affairs - Ministry of Foreign Affairs, responsible for the Information and Communication about the European Union in Portugal.



The opinion study is based on an anonymous and confidential survey by on-line questionnaire.

- (Re)industrialization, Sustainable Development, and the Green Economy;
- Europe 2020 and sustainable growth for efficient economic use of resources and energy sustainability;
- The importance of education for the ocean.

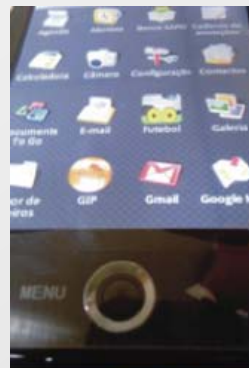
The e-Planning Lab is at the core of the FC-UL and CITIDEP Project Team

The project includes 6 national debates in several cities in Portugal, with webcast and other forms of citizen participation.

e-Planning Team has experience with
mobile participatory city management

GIP - “Gestão Inclusiva Participada”

Participatory municipal management



Junta de
freguesia
Vila Franca
de Xira



Android - smart-phone
software for citizen
participation, integrated
with municipal
management tools and
procedures



e-Planning Team has experience with
analysis of energy public policies

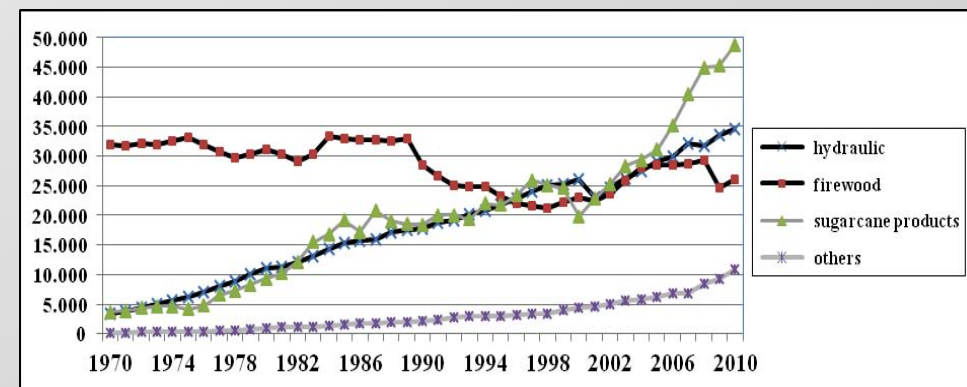
Research “Supporting clean energy entrepreneurs” (Brasil)

policies and incentives

Research to analyze Brazilian energy institutional context in order to understand the public support to clean energy entrepreneurs in the Brazilian State of São Paulo. Especially Federal level incentives to venture creation and competitiveness in the energy sector in the last 10 years.

Region/ Sources	HYDRO			THERMAL			WIND		
	SP	APE	Total	SP	APE	Total	SP	APE	Total
Brazil	77.318	3.385	80.703	17.548	12.141	29.689	926	2	928
North	10.866	29	10.895	3.029	365	3.394			
Northeast	10.776	167	10.943	3.967	1.953	5.920	722	2	724
Southeast	22.661	1.892	24.553	6.034	7.662	13.695	29		29
São Paulo	10.442	542	10.984	1.145	4.714	5.859			
South	22.042	1.143	23.186	3.178	1.006	4.185	175		175
Center-West	10.972	154	11.126	1.340	1.156	2.496			

Installed Capacity of Electric Generation (MW) - Renewables (2011)



Installed Capacity of Electric Generation (Mw) - new renewable sources in Brazil

Few R&D resources used to the clean energy projects, especially considering the potential of Brazil. The amount has increased in the last years.

Focus: in energy efficiency and hybrid vehicles.

Improve: Concept of Sustainable Development; Integration with other policies such as climate; Supply Chain issues; Behavior change.

e-Planning Team has experience using satellites for digital inclusion in rural areas

Project “GESAC –Digital Inclusion” (Brasil)



Coordinated by e-Planning team members, this project originated:

- 13.000 acesses in broad band (12.000 via satellite) for Digital Inclusion in "Telecentros" and rural schools.
- Data Center with applications and services.
- Services for training and "capacity building" for the development of digital skills competences in the target communities, to optimize use and benefit of the new ICT.

e-Planning Team has experience researching satellite program impacts in rural areas

Research "Factors of sustainability of Digital Territories" (Brasil)



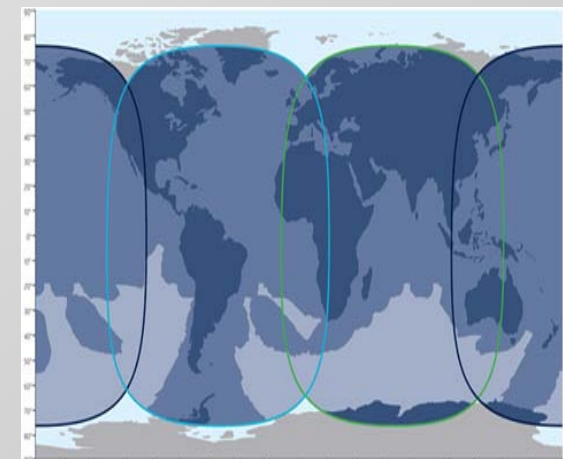
**TERRITÓRIOS
DIGITAIS**

Given the huge impact of the Ceará (Brasil) project "Territórios Digitais", it is important to study which are the factors of sustainability, identifying determinants of successes and failures in the experience of rural communities, with the support of local and state institutions, using a research-and-action methodology.



e-Planning Team has experience with new satellite generation and potential impacts

Project “Use of new Ka band satellites for Digital Inclusion within CPLP space”



The new generation of Ka-band satellites (*High Throughput Satellite*), present a capacity many times superior to the one available in traditional satellites (C and Ku band). With the new technology, data links will have much greater capacity at a lower price compared to current available satellite data services. The reach of the new band can be amplified combining with wireless connections (Wi-Fi) as well with smaller cells from mobile telephones, bringing internet access and mobile applications to the most remote communities withing the CPLP (portuguese speaking countries) community, and enabling new economic and civic activities and initiatives.

e-Planning Team has experience
with cooperation projects in Africa



Project at
Gabu, Guinea

Resource
Center
“Education
Without
Frontiers”

e-Planning Team has experience with
ICT to mediate cultural inclusion

Project “Culturless”

Online Platform :

- Feedback forum for the beneficiary
- Best practice sharing forum
- Advertisement tickets for shows, exhibitions, etc;
- Dissemination of theater, dance, music and fine arts workshops;
- Messaging service available for booking activities;
- Mediation services for transportation, meals and lodging for conducting available activities;
- Chat room with video calling for communication and collaboration between different actors.

ICT to mitigate the Cultural Divide



The screenshot shows the 'Cultureless' website interface. At the top, there's a header with the project logo 'Logótipo do projecto' and navigation tabs: 'Missão', 'Serviço', 'Registo', 'Contactos'. A 'Mapa do site' link is also present. Below the header, there's a 'Login' section with user icons. The main content area features a vertical menu on the left with icons and labels for 'Dança', 'Teatro', 'Música', 'Cinema', and 'Outros'. The central part displays a list of activities: '•A Bela Adormecida' and '•O lago dos cisnes'. To the right, there's a section for 'Ficha do espectáculo: - sinopse' with sub-points for '- datas', '- horários', and '-Local (Aqui deve ser embebido o google maps com o ponto de referência da instituição de oferta)'. Below this is a map and a 'Reservar' button. At the bottom, there's a footer with various logos (CAIS, CCB, etc.), a visitor count 'Número de visitantes 045741', and three buttons labeled 'Empresa A', 'Empresa B', and 'Empresa C'.

e-Planning Team has experience studying social capital related to internet

Project “Social Capital and Internet”

- Social capital (i.e. resources available in social links) as the central analytical construct

Research question: Is there a relationship between social capital and the use of Internet?

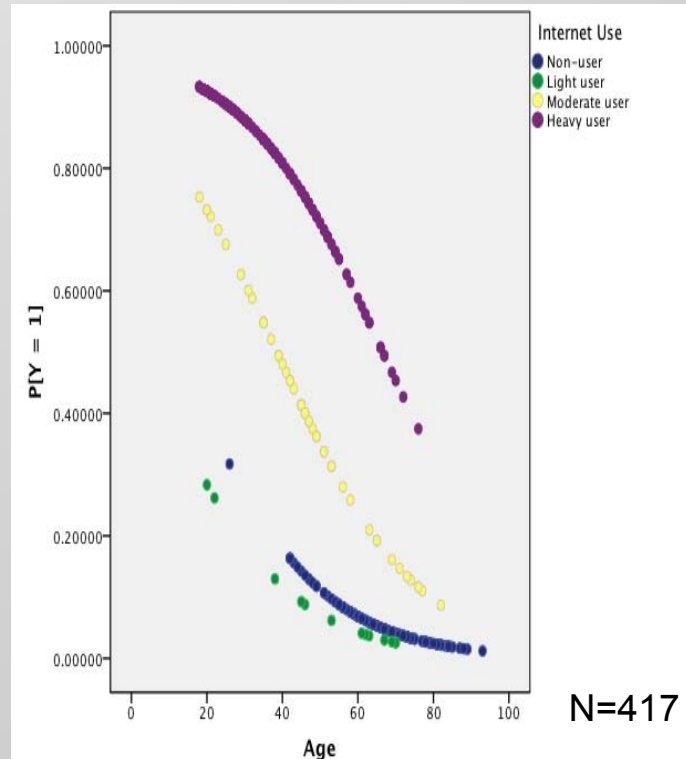
Methods:

- Survey to a representative sample of inhabitants of Lisboa (N=417)
- 14 interviews semi-structured

Results:

- Social capital and the use of Internet have a positive association
- Age and social capital have a negative association

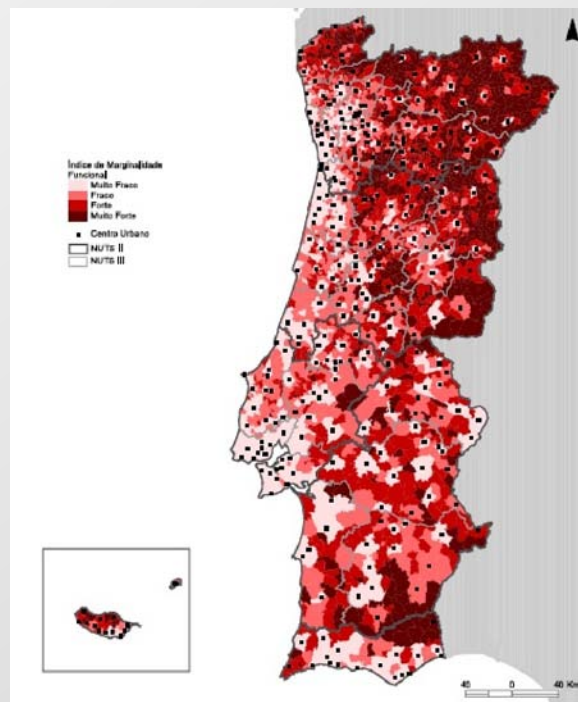
Model of logistic regression: social capital, Internet, and age



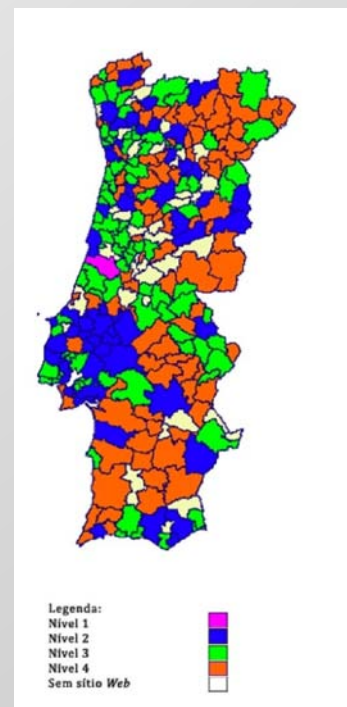
e-Planning Team has experience with
analysis of ICT impact in territorial cohesion

Research on “Impact of digital asymmetries in territorial cohesion”

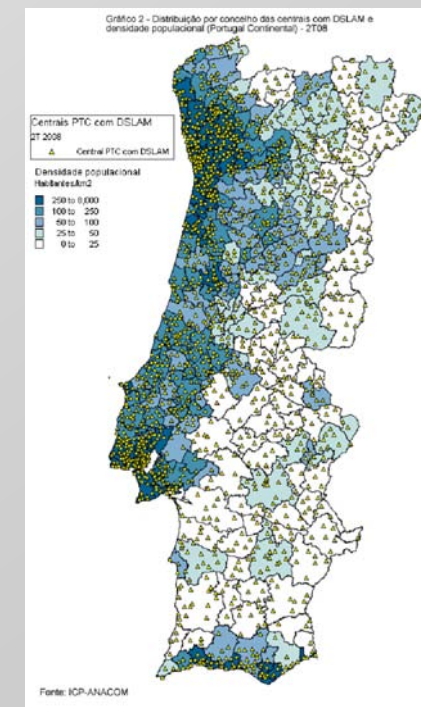
“Marginalidade Funcional” in Portugal



Digital ranking of Municipalities



Broadband in Portugal



e-Planning Team has experience with
ICT, urban space & inclusion research

Project “Urban Walls and Virtual Bridges” - Divided cities and ICT social networks

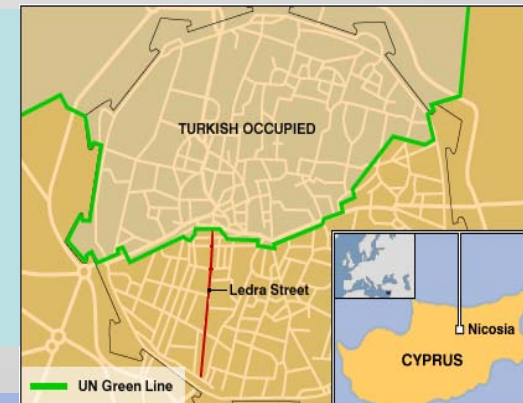


In Derry/Londonderry the process for removing interface barriers is already started and with that a discussions about how to create the conditions to make it safe enough for the walls to come down.

How does the use of internet impact the perception of urban border?

Can ICT be a tool towards inclusion and tolerance in cities with walled borders from deep rooted conflicts?

In Nicosia new doors are opening along the green line, the last one in 2008. The debate is on.



Springsfiels road of Belfast ----- ‘Green line’ in Nicosia



e-Planning Team has experience producing
a "Green Book" on ICT and Digital Inclusion

Green Book for Digital Inclusion and Cohesion in CPLP
e-Planning Consortium

Information & Communication Technologies at
the Service of Sustainable Development &
Social Inclusion within CPLP (Countries with
Official Portuguese Language)



1) - Map the Installed ICT capacity

*(ICT Infraestructure, Institutional & Regulatory Frameworks,
Qualification, etc.)*

2) - Identify good practices and lessons learned

**3) - Identify special opportunities for better investment returns
on inclusion, Cohesion and Sustainable Development**

for Public Policies and Measures
With institucional CPLP support



www.e-planning.org/news_e_bookeplanubiq20210219.html

"e-Planning & Ubiquity" Book

30 Authors
5 Commentators
Portugal, UK,
Belgium, USA,
Brazil

Launched
2021/02/19
Senate Room
U. de Lisboa

C-Press
Edition

magalhaes.ramalho@gmail.com

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A leitura deste livro transmite aos seus leitores o entusiasmo de quem se aventurou na criação de algo novo ... um livro para todos aqueles que procuram colocar os extraordinários avanços observados no domínio das tecnologias da informação e comunicação ao serviço da cidadania e do desenvolvimento sustentável. - João Ferrão, ICS-UL

O conceito de e-Planning é crítico para a garantia da qualidade da produção das políticas públicas assim como do ambiente social e construído. - João Cabral, FA-UL

O e-Planeamento emergiu desta experiência pioneira do Massachusetts Institute of Technology (MIT), em boa parte, vivida pelo autor ... A agenda científica do e-Planeamento é determinada pela necessidade de conjugar os (imparáveis) avanços tecnológicos com os (crescentes) desafios sociais, inequivocamente multidisciplinares ... combatendo "guetos" científicos. - José M. Pinto Paixão, FC-UL

Na colectânea que compõe a obra, se incluem oportunidades no espaço da língua portuguesa ... bem como desenvolvimentos com referência à literacia digital e à aprendizagem ao longo da vida... O livro e-Planning e Ubiquidade não deixa também de questionar riscos, perigos e abusos, como sejam o acentuar de desigualdades. - Manuel Assunção, UA

Foi com particular empenho que a Faculdade de Arquitetura integrou o consórcio e-Planning. Se na segunda metade do séc. XX se consolidou na nossa Instituição o campo disciplinar do Urbanismo e posteriormente o de Design, o séc. XXI fica desde já marcado pelo interesse neste novo conhecimento, afinal transversal às suas três áreas de base. - Carlos Dias Coelho, FA-UL



Associação Nacional
Assembleias Municipais



FCT
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para a Ciência
e a Tecnologia



FACULDADE DE ARQUITETURA
UNIVERSIDADE DE LISBOA



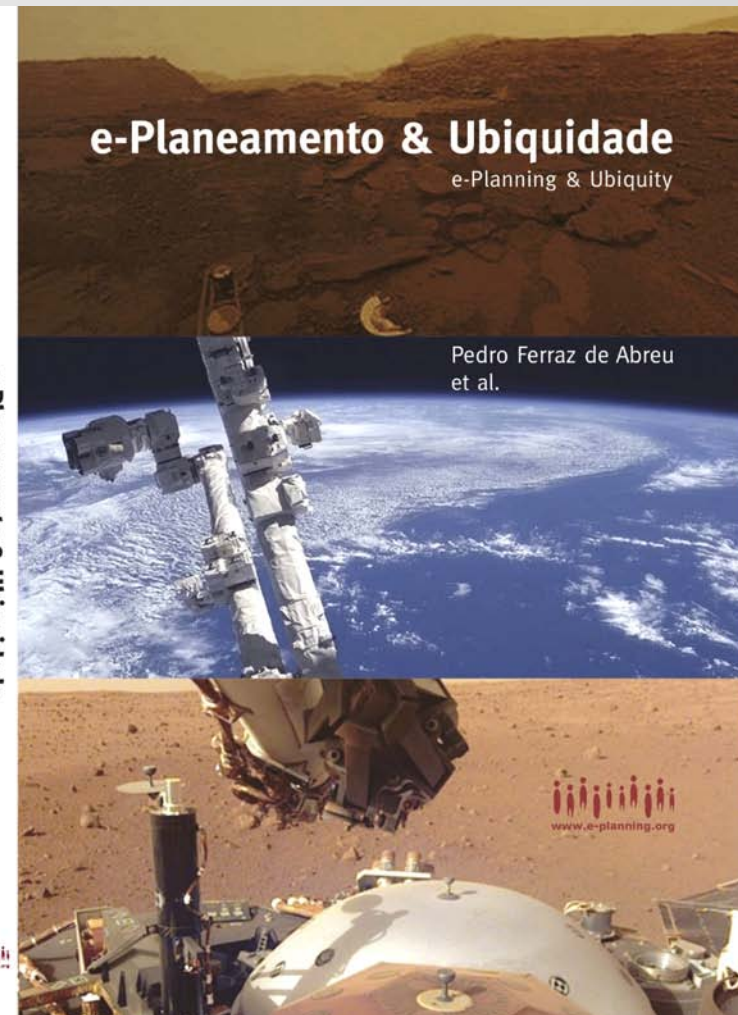
UNIVERSIDADE
DE LISBOA



communicando scientia emollit nobis

Pedro Ferraz de Abreu - et al.

e-Planeamento & Ubiquidade
e-Planning & Ubiquity

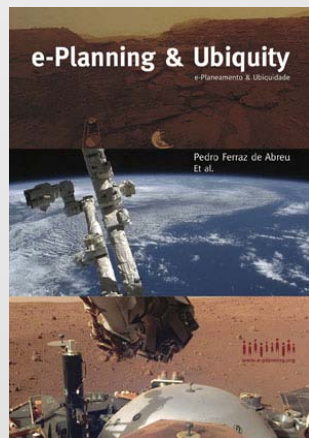


www.e-planning.org/news_e_bookeplanubiq20210219.html

"e-Planning & Ubiquity" Book

30 Authors
5 Comentators
Portugal, UK,
Belgium, USA,
Brazil

C-Press Edition



Aline Almeida Maia, Anabela Costa Neves, António Pires Fernandes, Bárbara Barbosa Neves, Carlos Eduardo Rabachini Araújo, Claudia Pato Carvalho, Emile de Saeger, Fernando Miguel Seabra, Gary T. Marx, Glória Magalhães Ramalho, Heliomar Medeiros de Lima, Jorge Martins Rodrigues, José Fidalgo Gonçalves, José Manuel dos Santos Moreira, José Magalhães, José Rocha Andrade da Silva, Joseph Ferreira Jr., Luís António Reis Mata, Luisa Schmidt, Mariana Lupi Costa, Mario Augusto Carneiro, Melissa Jeanne Shinn, Michael Batty, Muriel de Oliveira Gavira, Pedro Ferraz de Abreu, Silvio Spinella, Tania Dias Fonseca, Tatiane Borges De Vietro, Vasco Lupi Costa, Zuleide Oliveira Feitosa, Carlos Francisco Lucas Dias Coelho, João Carlos Vassalo Santos Cabral, João Manuel Machado Ferrão, José Manuel Pinto Paixão, Manuel António Cotão de Assunção

magalhaes.ramalho@gmail.com

www.e-planning.org

www.citidep.net

www.labtec-cs.net

e-Planning Team - some faces

30 Authors
5 Comentators
Portugal, UK,
Belgium, USA,
Brazil (book)
... Italy, France,
Angola, Serbia,
Cabo Verde,
Poland, Spain...



www.e-planning.org

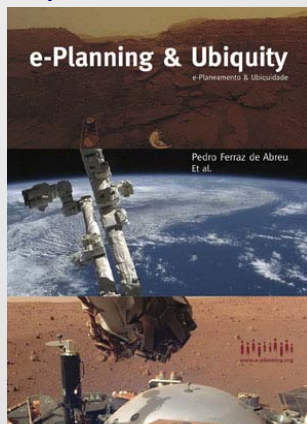
www.citidep.net

www.labtec-cs.net

CITIDEP Team - some faces

Portugal, UK,
Belgium, USA,
Brazil...

Argentina,
Canada, Holland,
... Italy, France,
Mexico, Slovenia,
Cabo Verde,
Japan, Australia



CITIDEP Team



e-Planning agenda

Joint PhD Program UA+UNL+[UL+UTL] (since 2008)

e-Planning scientific domains	Summary of key objectives
e-Planning knowledge infrastructure (e- infrastructure)	<i>Mapping of the knowledge society. Mapping of the planning knowledge. Develop the new ICT infrastructures and strategic frameworks</i>
e-Planning for the government of the future (e-government)	<i>More efficient and responsive government, closer to citizens; better enabling role; better services; better adjustment to the challenge and new potential of digital implementation of administrative procedures, beyond raw automation; two-way G2G, G2C, G2B.</i>
e-Planning for a new governance (e-governance)	<i>Foster institutional culture towards the common good, more equity and less exclusion; build strategic institutional capacity within globalized world; better institutions; better regulation framework and handling of market failures, aware of the new ICT context; better balance of security & efficiency vs. freedoms, liberty and accountability.</i>
e-Planning for the city of the future (e-city) and territory	<i>Build the cities of the future, as sustainable environments with new functionality that breed innovation; foster cities with better quality of life, more attractive and competitive; better spatial planning, promoting social and territorial cohesion, incorporating new structural impacts of ICTs.</i>
e-Planning for a new citizenship (e-citizenship)	<i>Enable a better informed and educated citizen, more participative, more critical, more responsible; better balance of technology challenges with ethics & individual freedoms & privacy.</i>

e-Planning Consortium (informal – since 2006)



e-Planning Lab is open to faculty teaching
doctoral and master e-Planning courses

PhD Program (FC-UL / FA-UL / FCT-UNL / UA) Pos-Graduation (UL - F. Architecture)

ULisboa / CITIDEP

Courses at the
joint PhD
& Pos-grad
Program on
e-Planning

Coordination:



Pedro Ferraz de Abreu
Prof. Catedrático Conv.

ULisboa / CITIDEP

Foundations of e-Planning

e-Planning Live Laboratory

Research Methodologies on e-Planning

e-Government

e-Health

Public Participation & Decision Support Systems

ICT Challenges to the Institutional & Regulatory Framework

Artificial Intelligence in Planning

Smart Cities & Digital Citizenship

FA-UL 2019-22

UA 2015-19

FC-UL 2013-14

ISCSP-UTL 2008-12



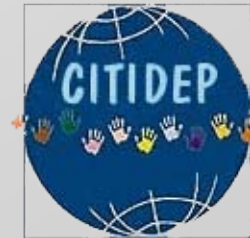
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