

The Cost of Free:

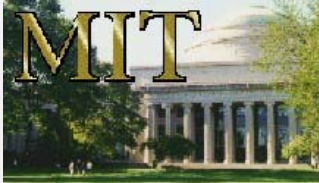
Understanding the new equation relating *technology*, *market economy*, *regulation*, *privacy* and *power*.

Pedro Ferraz de Abreu

pfa@mit.edu

MIT - DUSP • October 16 , 2023

Urban Science & Digital Transition: e-Planning XX years later



e-Planning XX years ago...

Pedro Ferraz de Abreu

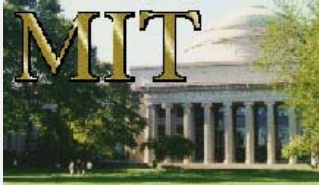
MIT - DUSP, e-Planning Seminar Chair

**"e-Planning in a world embattled by war
and poverty:
Why should planners study and influence
the information technology revolution?"**

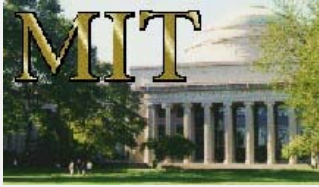
Friday, December 5, 2003

MIT Rm. 3-401, 12:05PM - 2:00PM

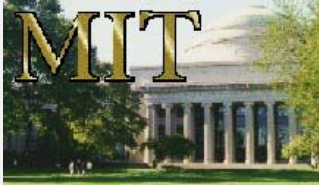
Discussants: Bish Sanyal, David Laws



- **What is at stake**
- **The Cost of Free**
- **Free market**
- **Technology**
- **Privacy**
- **Regulation**
- **Power**
- **e-Planning theory**
- **Transdisciplinary blues...**



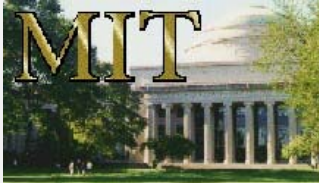
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What is at stake

Cost of Unsustainability?

Cost of Inequality?



What is at stake

QVO VADIS, World?

Dominant Policies and Social Actors claim...
& Main stream Academia goes on teaching:

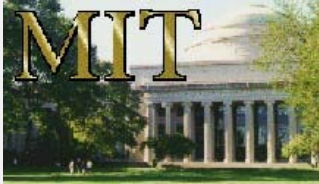
Market Economy => Free Competition + Entrepreneurship ...

Values Proclaimed: *Democracy, Freedom, Social Justice, Property*

Promises: *Social Equality Convergence, Armed Peace*

**Portuguese Joke
on current Values**

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



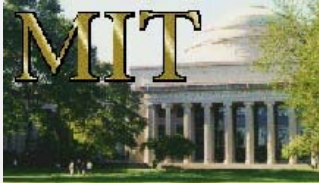
What is at stake

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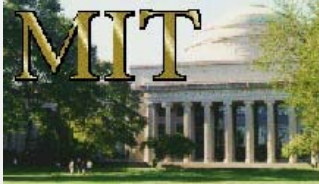
***"Today, humanity is just one misunderstanding,
one miscalculation away from nuclear annihilation"***

UN General Secretary, A. Guterres, Aug 1, 2022

(10th review conference of the NPT, the international treaty that came into force in 1970 to prevent the spread of nuclear weapons).



- What is at stake
- **The Cost of Free**
- Free market
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The Cost of Free

Cost of Freedom?

Cost of Free?

The Cost of Free



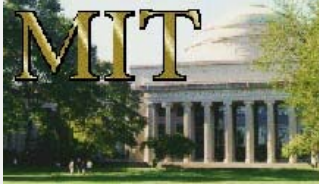
Aleks Krotoski

"The Virtual Revolution"
The Cost of Free
(TV Episode 2010)



Luis Reis Mata

PhD e-Planning
Research Proposal 2010



The Cost of Free

"The Price of Free"

Documentary about Nobel Prize winner

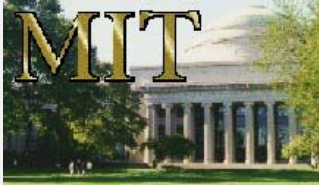
Kailash Satyarthi.

The film, formerly known as *Kailash*, premiered at the 2018 Sundance Film

The Cost of Free

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

- Market Free Competition & Independent Entrepreneurship is in Question
- New ICT-based Business Models violate privacy and monetize profiling
- New ICT is captured to shift property rights away from consumer
- New ICT changes Political **Power** dynamics (Economic, Political, Military)
- ICTechnology Development is biased and distorted to favor current elite



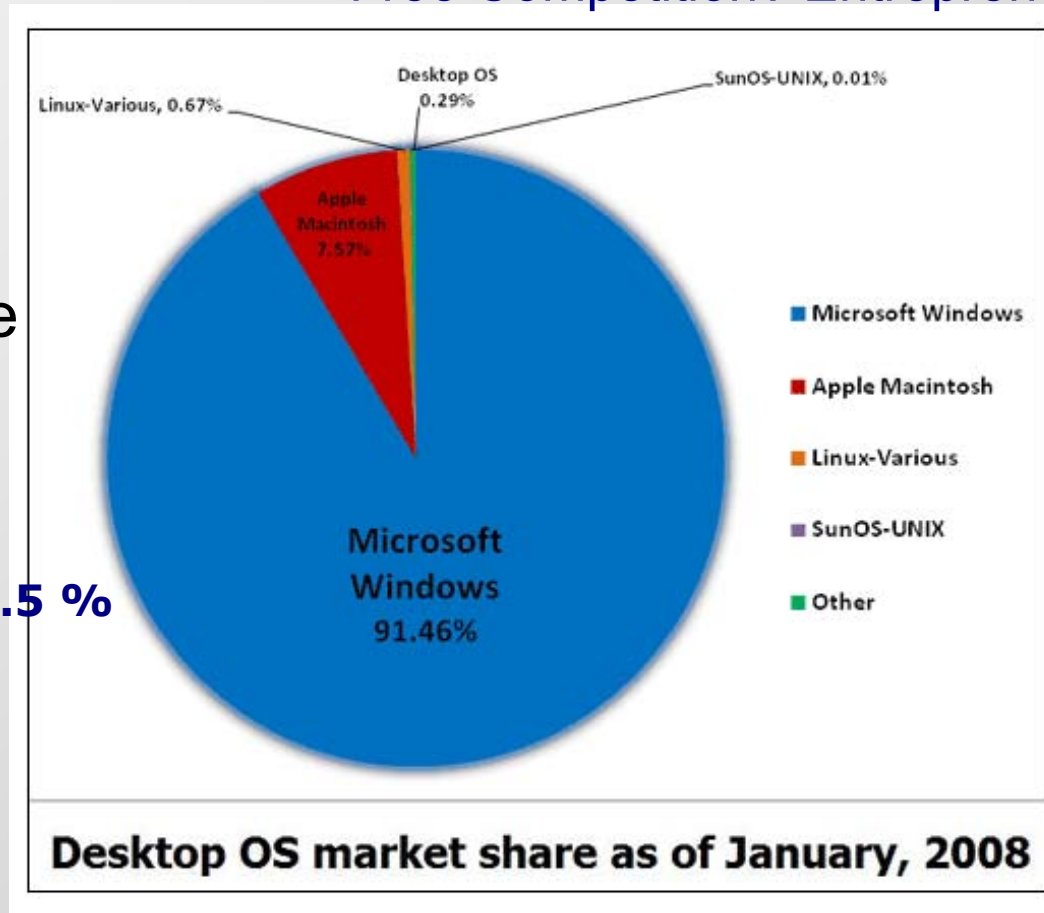
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• Market Economy: Reality Check

Free Competition? Entrepreneurship?

World
Computer
OS desktop
market share
2008

Microsoft = 91.5 %



• Market Economy: Reality Check

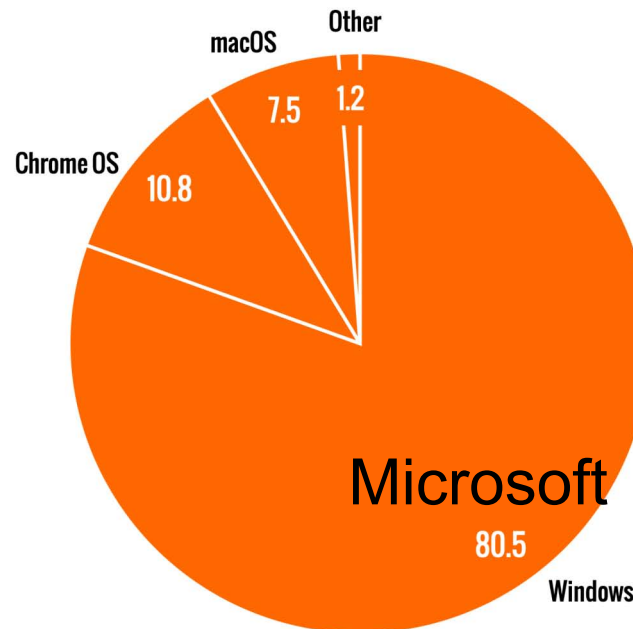
Free Competition? Entrepreneurship?

World Platform market share 2021

Microsoft = 80.5 %

OPERATING SYSTEM MARKET SHARE BY PLATFORM

Percent



Data source: IDC

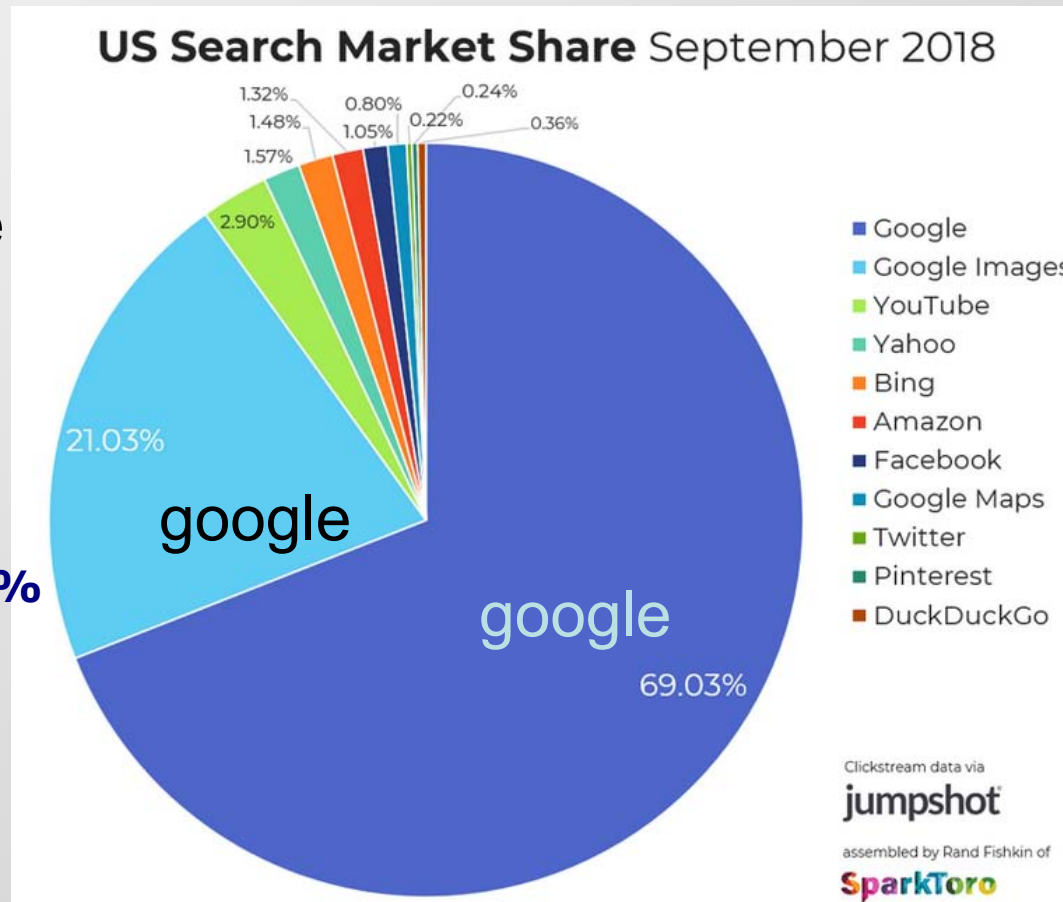


• Market Economy: Reality Check

Free Competition? Entrepreneurship?

USA
search
market share
2018

Google = 89.1 %

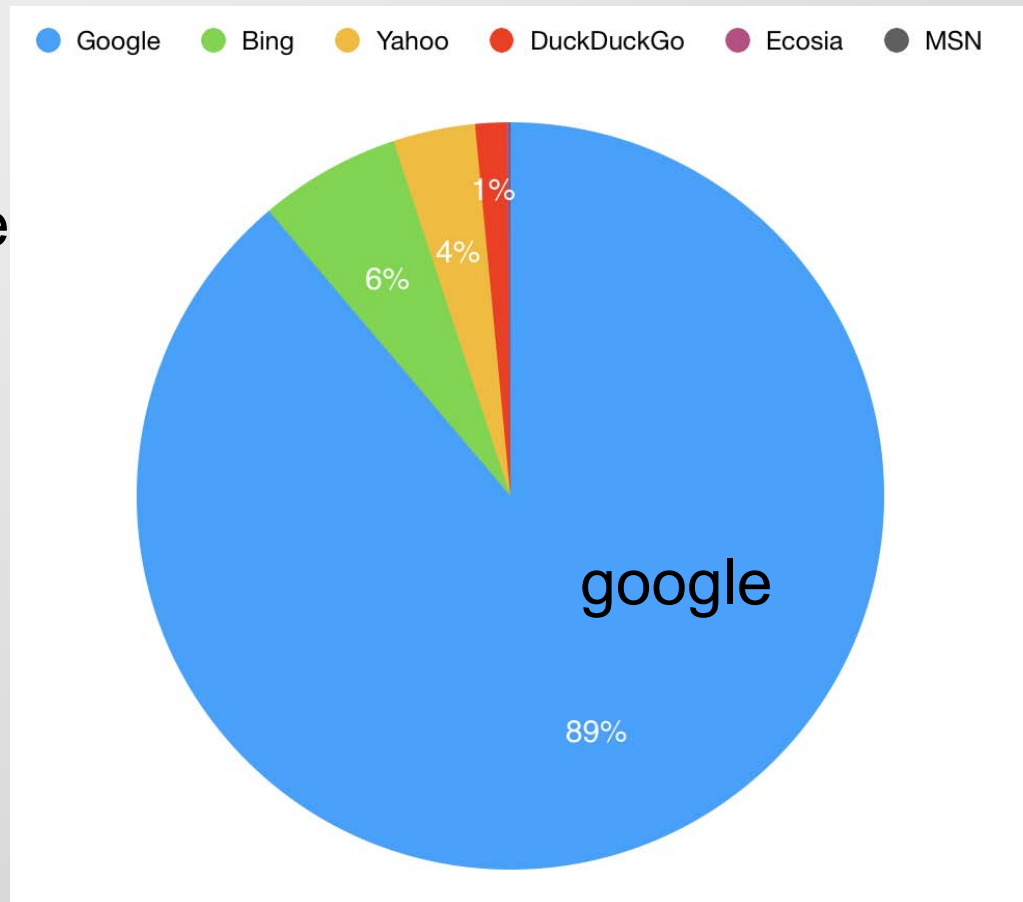


• Market Economy: Reality Check

Free Competition? Entrepreneurship?

USA
search
market share
2020

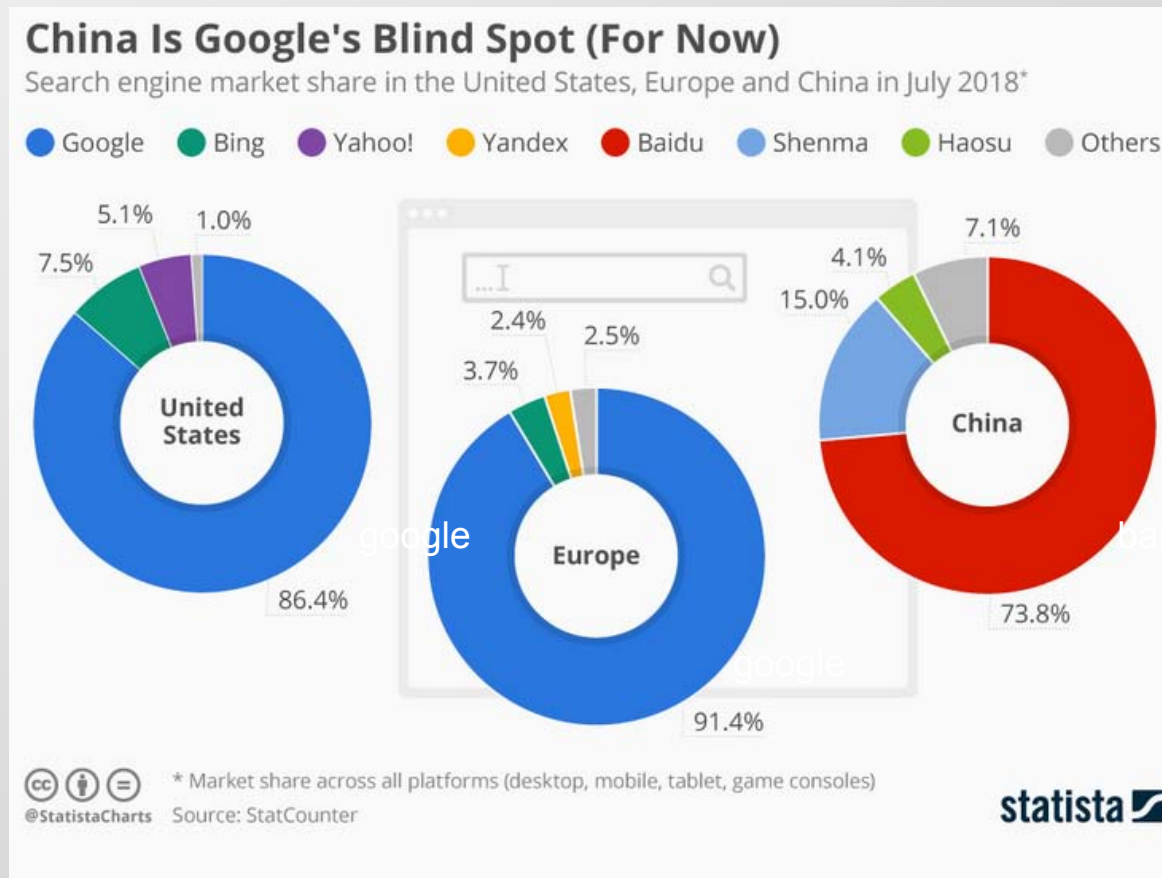
Google = 89 %



• Market Economy: Reality Check

Free Competition? Entrepreneurship?

USA
EU
China
search
market share
2018



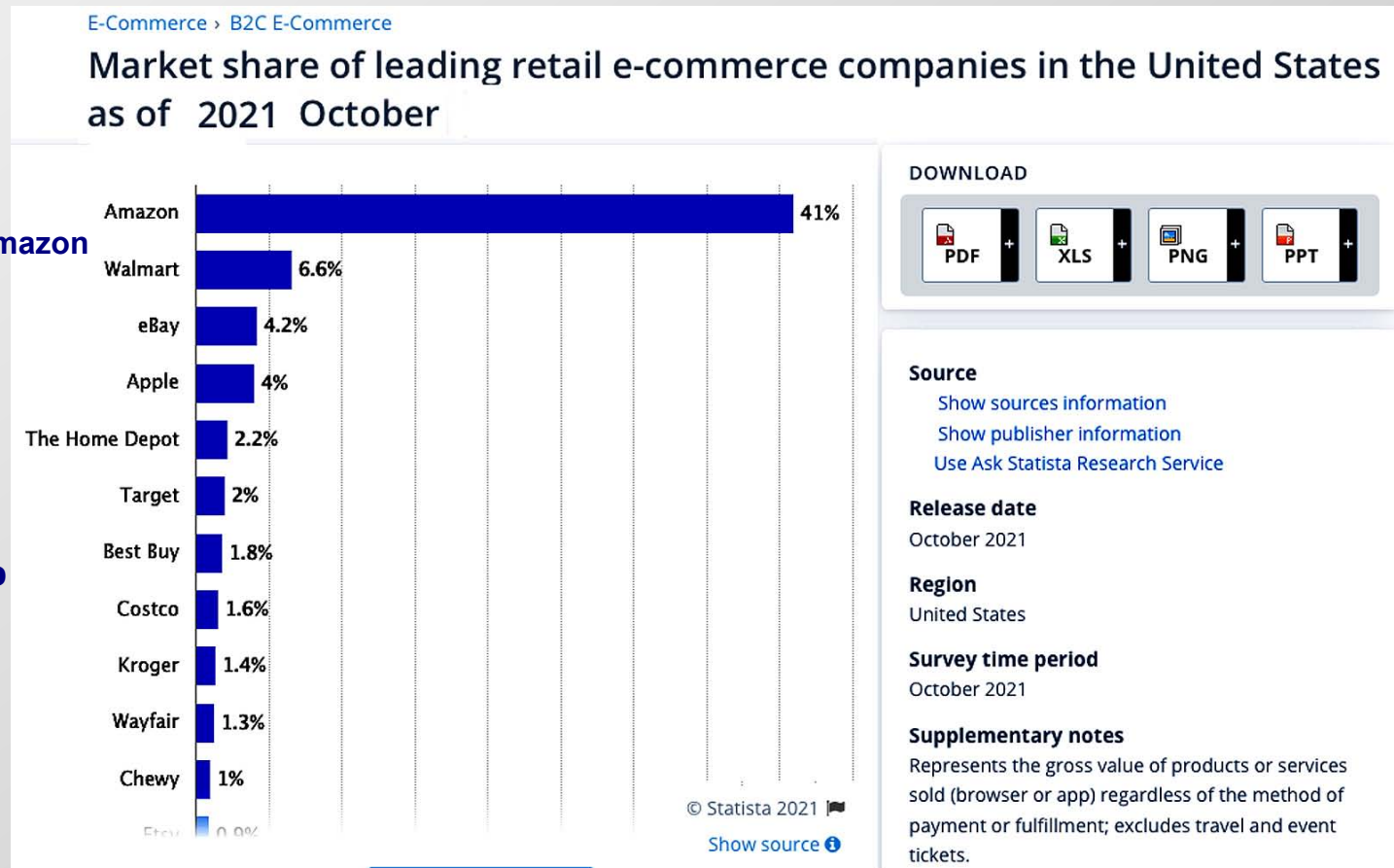
Market Economy: Reality Check

Free Competition? Entrepreneurship?

USA
on-line
shopping
market
share
2018

Amazon = 41%

Amazon



• Market Economy: Reality Check

Free Competition? Entrepreneurship?

World
Top-10
Companies
2021

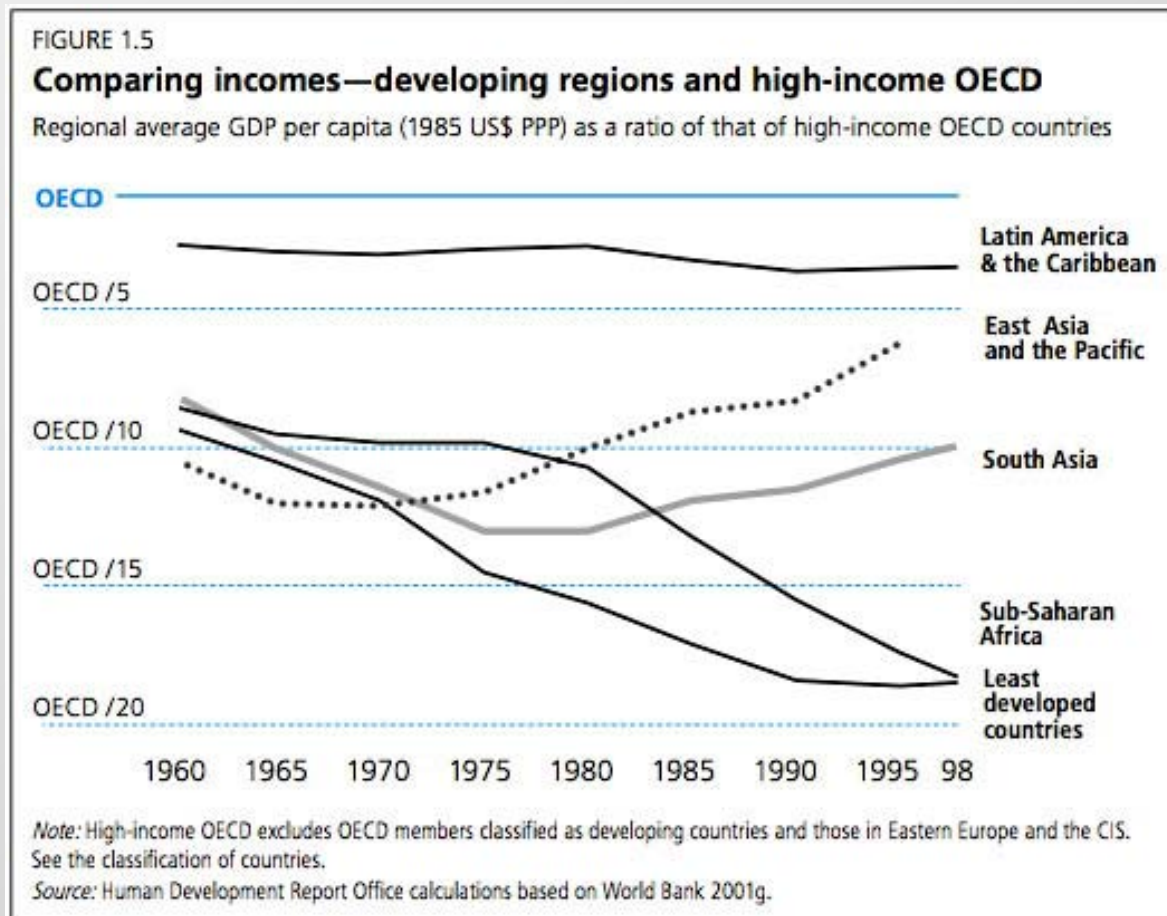
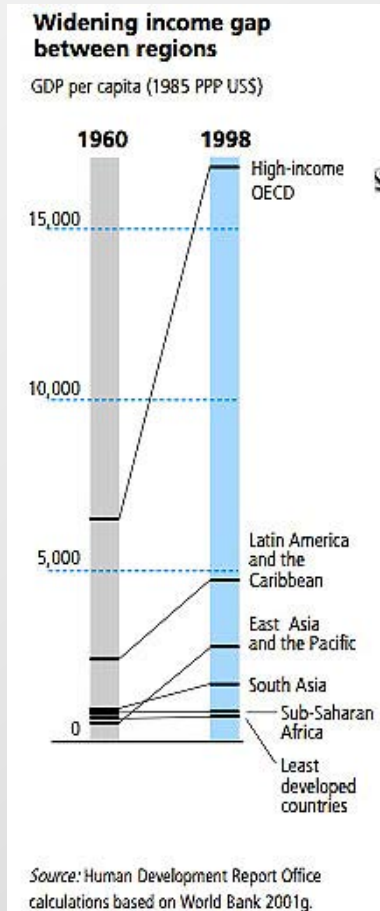
Rank	Company name	Location	Sector
1	APPLE INC	United States	Technology
2	SAUDI ARAMCO	Saudi Arabia	Energy
3	MICROSOFT CORP	United States	Technology
4	AMAZON.COM INC	United States	Consumer Discretionary
5	ALPHABET INC <small>google</small>	United States	Technology
6	FACEBOOK INC	United States	Technology
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.

• Inequality evolution: Reality Check

Progress? World-wide convergence?



- Inequality evolution: 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 Gurrá warned of the dangers posed by inequality

• Inequality evolution: 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

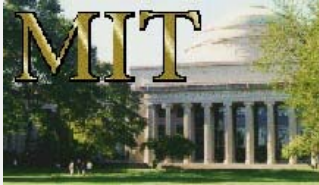


"Income inequality has been rising in many parts of the world in recent decades."

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

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





- What is at stake
- The Cost of Free
- Free market
- **Technology**
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- Transdisciplinary blues...

- 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?

inequalities and violence...

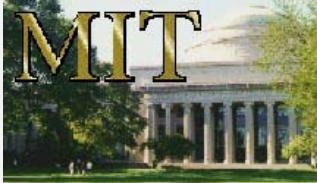
Then, is **Technology** *per se* to **Blame**?

We closed that argument in 1993

The answer is **No**.

With solid evidence.

Our model was validated through all these years and still is.



Information Technology	Features / Attributes	Decision Models
<p>Voice</p> <p>Manuscript</p>	<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 	<p><u>Direct Democracy</u></p> <p>Heterogeneous Empires</p>
<p>Press</p> <p>Radio</p> <p>TV</p>	<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 	<p><u>Representative Democracy</u></p> <p>Homogeneous Dictatorships</p>
<p>Satellite network</p> <p>Fiber optics net</p> <p>μcomputer</p> <p>Internet</p>	<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 	<p><u>Participatory Democracy</u></p> <p>Technocrat Dictatorships</p>

inequalities and violence...

Then, is **Technology *per se* to Blame?**

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- Digital Transition: Reality Check

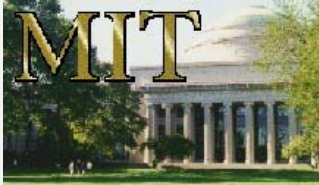


Technology is created in response to market pressures—not the needs of poor people, who have little purchasing power

HDR 2001, UNDP, ONU

HDR - Human Development Report - 2001

United Nations Development Programme

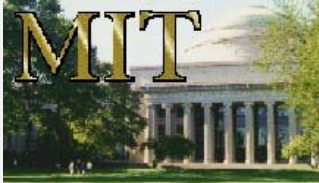


- Digital Transition: Reality Check

Is it only “market pressure”?

Or market policies...

... unable to prevent (or actually supporting) big business predator models?



- Digital Transition: Reality Check

*Policy, not charity, will
determine whether new
technologies become a
tool for human
development everywhere*

HDR 2001

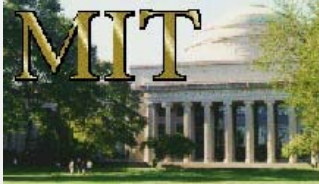
**But What
(and Who)
Determines
Policy?**

• Digital Transition & Market Economy

What is a free market economy?
(self-regulated)

- - the law of supply and demand
- - the law of free competition
- - the role of innovation
- - the role of patents in innovation

... and the 'market failures'

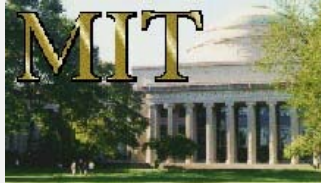


- Digital Transition & Market Economy

*So you want "free market"?
New ICT calls your bluff...*

*The assumptions of self-regulation
(liberalism):*

- Information is free, complete
& instantaneous
- Zero transaction costs
- Zero externalities
- Zero social costs
- Zero market failures

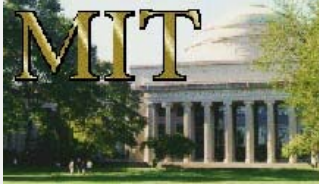


• Digital Transition & Market Economy

*So you want "free market"?
New ICT calls your bluff...*

The assumptions of self-regulation (liberalism): **NEW ICT Potential:**

- Information is free, complete & instantaneous *Closer*
- Zero transaction costs *Closer*
- Zero externalities *Closer*
- Zero social costs *Better*
- Zero market failures *Better*



- Digital Transition & Market Economy

So you want "free market"?
New ICT calls your bluff...

Who gets added-value

pre-manufacture Artisan

Owns tools, so Artisan gets it

pos-manufacture Worker

Capital owns, so Capital gets it

New ICT Artisan

Owns tools, so Artisan gets it

But Big Techs swallow

• Digital Transition & Market Economy

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 & Market Economy

Some
recent
examples

- Facebook, Whatsapp, 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 & Market Economy

Some
recent
examples

Assymmetric Bandwidth & No Net-Neutrality

Citizen vs. Consumer standing in the Digital Era:

- "upload" speed / bandwidth is critical to send, sell, produce for others;
- "download" speed / bandwidth is critical to receive, to buy, from others;
- inter-communication (like video-conference **teaching** or **democratic debate**) require **symmetric** bandwidth: 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 & Market Economy

Some
recent
examples

Open Networks vs. "Walled Gardens"

Citizen vs. Consumer standing in the Digital Era:

Pro-citizen empowerment, open standards:

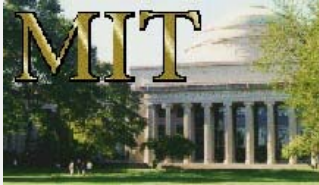
- Internet - developed & funded by public moneys; internet protocol open
- world wide web - developed by CERN Researcher (Tim Lee), open, public domain

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)



- What is at stake
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- Transdisciplinary blues...

• Digital Transition & Privacy: Reality Check

Some
recent
examples

- Facebook, Whatsapp, 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 & Privacy: Reality Check

Some recent examples

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

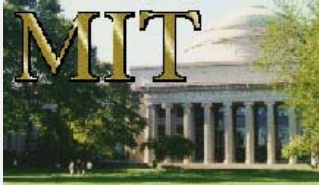
Erosion of Privacy and Appropriation of Personal Data

- **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)



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- Digital Transition & Regulation: Reality Check

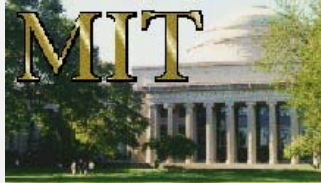
A couple of examples:

- The Microsoft vs. US Federal Government & 17 States
- The Microsoft vs. EU Commission (media Player)

• Digital Transition & Regulation: Reality Check

The subtle shift of property rights:

- Property as a bundle of rights
(steve jobs with music, DRM)
- Property as the ability to exclude others
from benefiting, unless in owner's terms
(ads, profiling, software "calls home", etc)



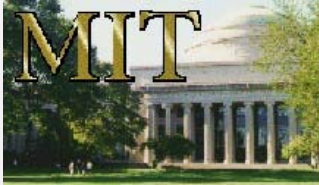
• Digital Transition & Regulation: Reality Check

Regulation challenges with the new ICT:

- Dematerialization of Property Objects
- Who has true control over the technology development
- Who has control over the technology even after "sold" (software "calls home")
- Who controls update cycle, with software "rental" model

Washington Consensus

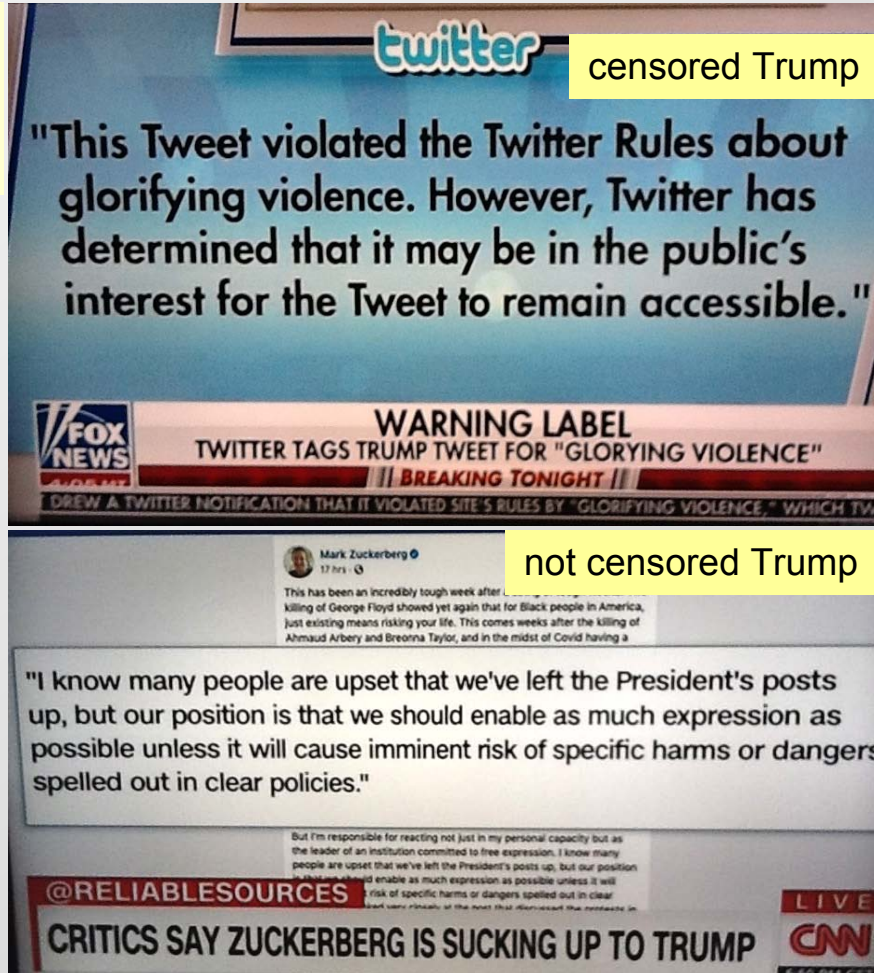
"Government as enabler, not as provider" FAILS



- What is at stake
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• Digital Transition & Power: 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 & Power: 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**

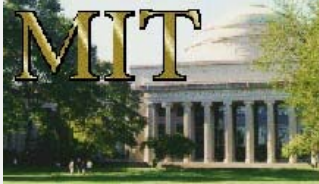
- **Einstein warning on oversimplification, stands**

- **"Social Justice" in #140 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 & Power: 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)

Sources of Power	How Information and Communication Technologies can impact
Information Knowledge Intelligence	<ul style="list-style-type: none"> • Speed (Real-time) • Quantity / Quality • Range / Breadth / Reach • Access – tendencially open& wider - restriction implies added costs.
Force / Violence vectors Cinetic weapons	<ul style="list-style-type: none"> • Weapon contro • Mass production - Quantity / Quality- dicotom very cheap vs very expensive • Weapons of Mass Destruction - Amplified gravity of impact (immediate and long-term) • Precision – decreased cost / benefit • Weapon Power and Potency (Power projection reach) • Virtual weapons - Cyber weaponry • Intelligent weapons, Guided vs fire & Forget • Programability, Adptability, Portability • Distributed Architecture , Variable Geometry parametrizatio
Financial / Capital + Economy Property Ownership	<ul style="list-style-type: none"> • Lower Production & Transaction Costs, increased Transaction Speed, • More Competing Advantage of scale .- push towards Oligopoly / Monopoly • Open Aceso top new markets, Erosion of Sovereignty and Border control • Emission of virtual coin and virtual territory coin, so far a reserve of Sovereign land-based • Increase in Programability Advantage in industrial machinery and Production
People Choices Behaviour Free-will ("Hearts & Minds")	<ul style="list-style-type: none"> • Impact Decision – and Decision-making Process • Participatory Pressure due to ease of participation • Subliminar manipulation sophistication increase • People inter-connection and networking amplified and changes in nature • Allows appropriation of inovation by wider range of audiences • Challenges to traditional identity and Cultural References - Virtual Bridges over Walls • Literacy levels, new artisan empowerment

- Digital Transition & Power: Reality Check

Technology Developments, can be the great
Empowerment...

Equalizer

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

• O Conhecimento

A equipa e-Planning tem experiência no uso da tecnologia com crianças e escolas

www.citidep.net/people/



Estudantes em Lisboa acenam a estudantes em Viana do Castelo

P.E.O.P.L.E. Emissão por videoconferência e internet com chat para estudantes da 2^a e 3^a classe.



Actividade: “ O ar existe, embora não se possa ver”.

- **O Conhecimento**

A equipa e-Planning tem experiência em ciência participativa com sensores móveis

www.eurolifenet.org



• O Conhecimento

A equipa e-Planning tem experiência no uso de satélite p/ inclusão digital em zonas rurais

Investigação "Fatores de sustentabilidade de Territórios Digitais" (Brasil)



Dado o tremendo impacto do projecto Territórios Digitais, impõe-se investigar os factores de sustentabilidade, identificando determinantes de sucessos e dificuldades nas experiências das comunidades rurais, com o apoio das instituições locais e estaduais, numa metodologia investigação-acção.



- **O Conhecimento**

e-Planning Lab promove uso de satélite para inclusão digital em zonas rurais



• O Conhecimento

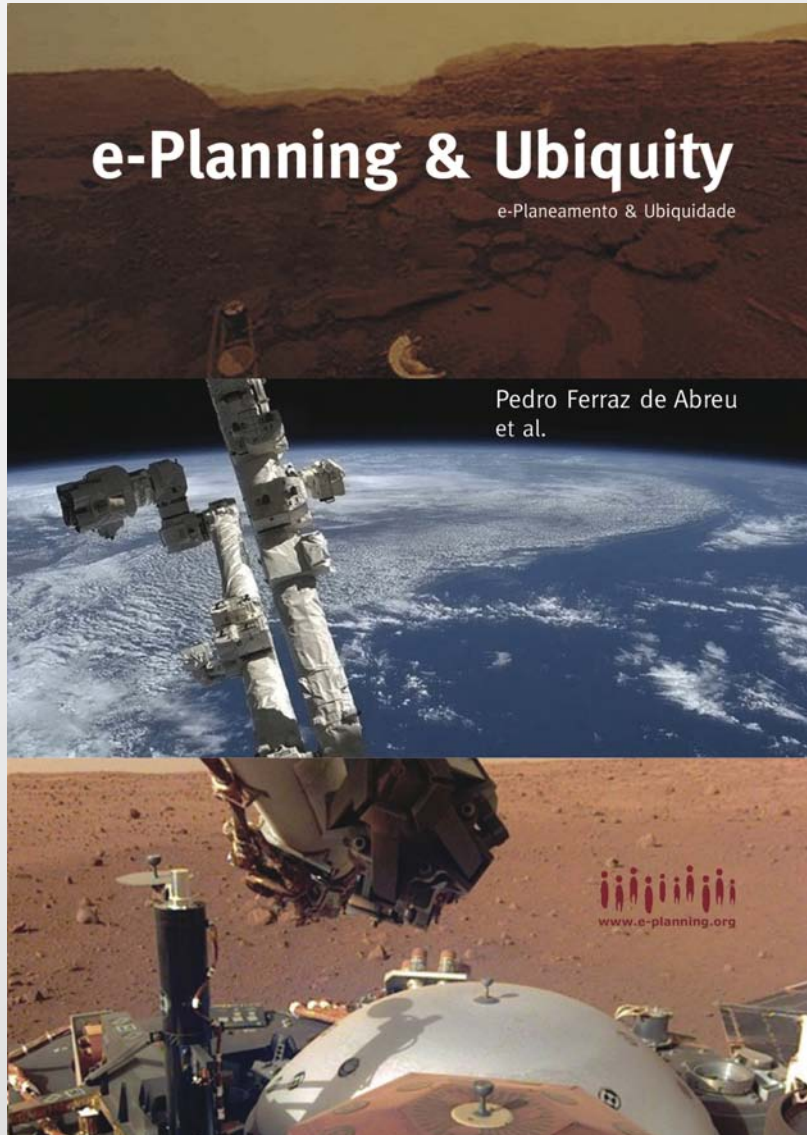
A equipa e-Planning tem experiência em projectos de Cooperação em África



Projecto em Gabu, Guine

Centro de Recursos “Educação Sem Fronteiras”

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

- Digital Transition & Power: Reality Check

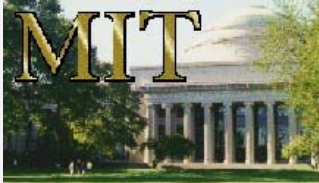


*There is a glaring contrast
between the world's
research agenda and the
world's research needs*

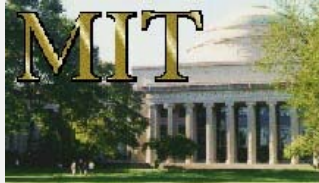
HDR - Human
Development
Report - 2001

United Nations
Development
Programme

HDR 2001, UNDP, ONU



- What is at stake
- The Cost of Free
- Free market
- Technology
- Privacy
- Regulation
- Power
- **e-Planning theory**
- Transdisciplinary blues...



• The Foundations

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



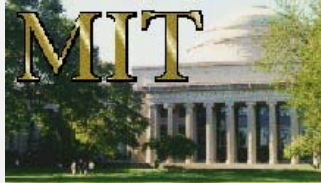
ASSESSMENT OF AN MIT-PORTUGAL COLLABORATION MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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.



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

e-Planning Theory - why and how

1. Understanding ICT Qualitative Leaps
2. Understanding the structural role of *Information* itself
3. Understanding detailed ICT role & transversal societal impact

* **ICT-Information & Communication Technologies**

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

Information Technology	Features / Attributes	Decision Models
Voice	<ul style="list-style-type: none"> • from "few" to "few" • limited reach 	<u>Direct Democracy</u>
Manuscript	<ul style="list-style-type: none"> • without auxiliary processing • cheap, potentially universal access (low cost to enter the market) • low control / regulatory costs 	Heterogeneous Empires
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
μ computer	<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 	

1. The ICT Qualitative Leaps

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)

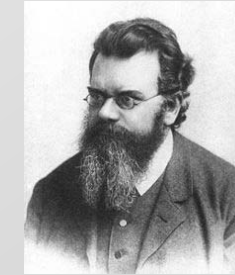
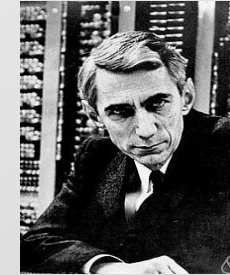
Who will serve (the state) as its herald unless he has the lungs of a Stentor?

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

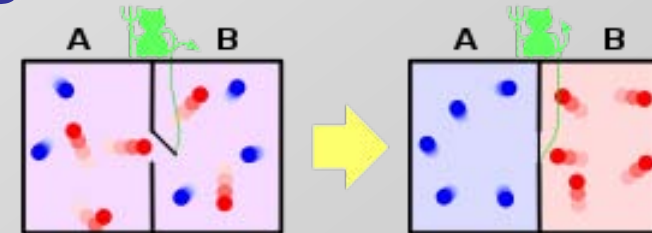
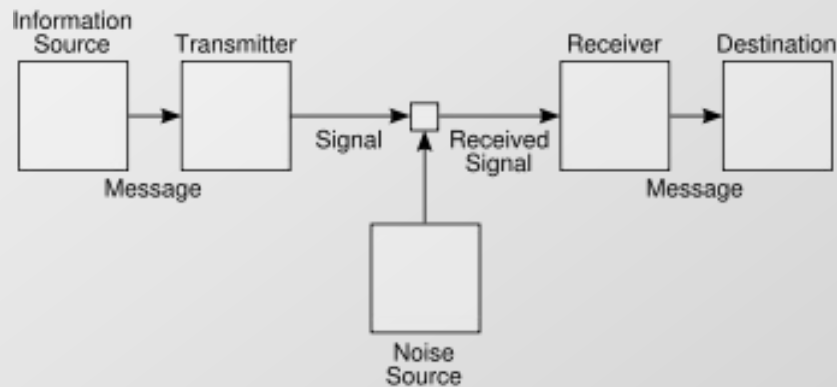
an emerging transdisciplinary field

2. The Nature of Information itself

e-Planning Theory - why and how



- Thermodynamics and information theory (negative entropy)
 Shannon 1948 Boltzman 1906
 (**$I = \log_2 1/P$** ; **$S = K \log_e P$** *K -> 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)

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).

•Why e-Planning (Designation)

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

ICT - Information and Communication Technologies

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**

• Why e-Planning (Designation)

From "Hard" Sciences & Engineering:

Planning's goal is to decrease a degree of chaos (entropy) in society, bringing more predictability in the desired direction (a more "organized system");

e- prefix depicts information entropic nature and key role.

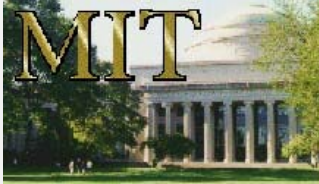
Planning => Decision => from n solution space to 1 => introduce Human & Nature Constraints =>

=> guiding the future => restrict alternative future paths => + organized environment =>

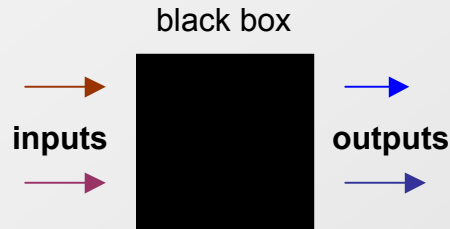
=> more information on predicting future system behaviour => reduce uncertainty

<=> Decrease entropy

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

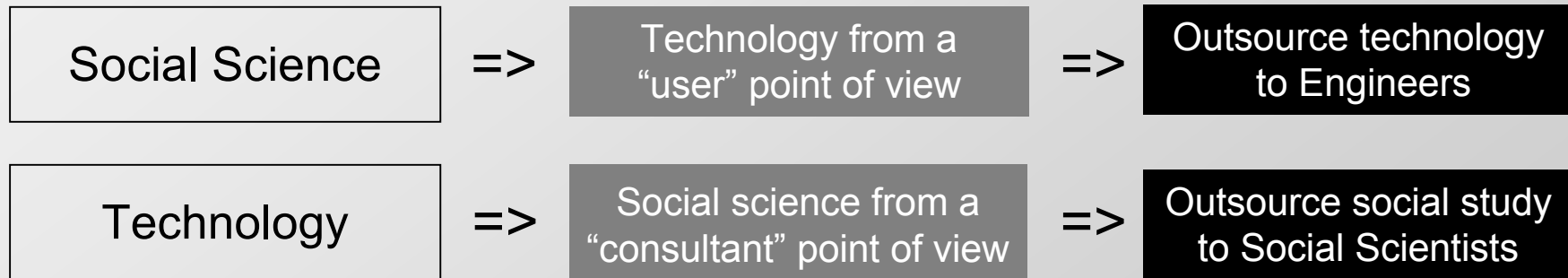


- What is at stake
- The Cost of Free
- Free market
- Technology
- Privacy
- Regulation
- Power
- e-Planning theory
- **Transdisciplinary blues...**

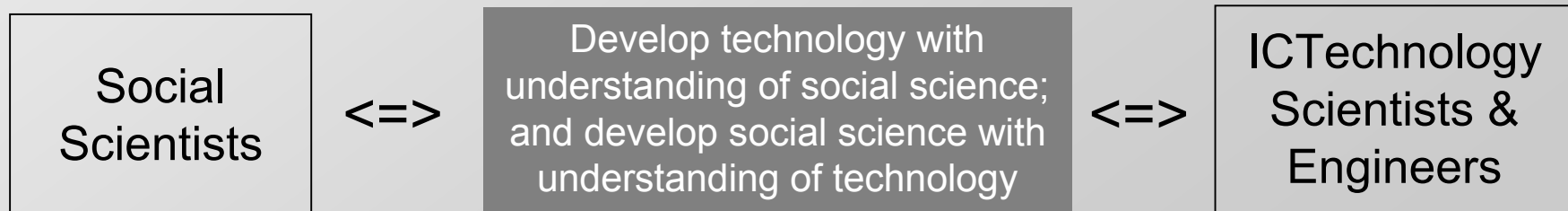


e-Planning embodies a new paradigm of Technology with Social Sciences

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



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



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

Social Sciences vs. Engineering & '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

Social Sciences vs. Engineering & 'Hard' Sciences

e-Planning Theory - why and how



Value Systems - Cultural Choc

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

Social Sciences vs. Engineering & '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

Social Sciences vs. Engineering & '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

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

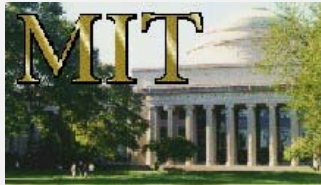
Italy

Cabo Verde

Portugal

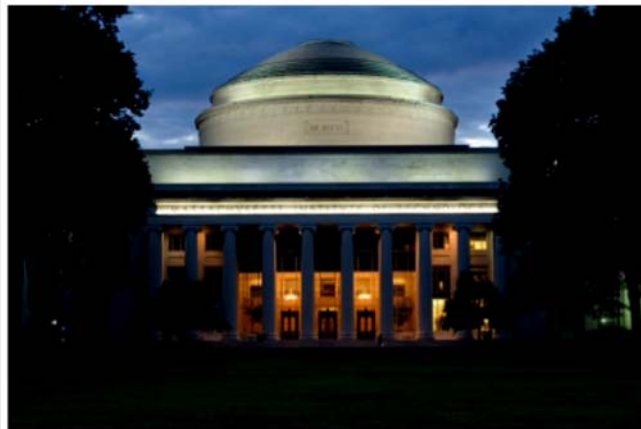


www.citidep.pt • www.citidep.net



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

MIT News



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

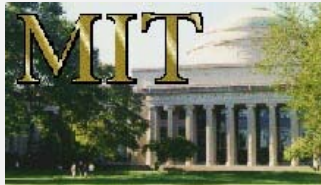
President Reif speaks with Gerry Baker of *WSJ at Large* about the impact of AI on the future of education and work. "Part of the goal of the [MIT Schwarzman] college is, as we educate people to use these [AI] tools, to educate them in a way that empowers human beings, not replaces human beings," says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

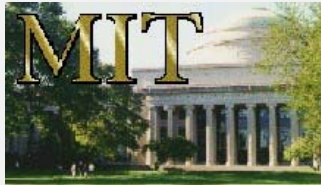


2019

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





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 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

www.e-planning.org/news_e_bookeplanubiq20210219.html

"e-Planning & Ubiquity" Book

30 Authors
5 Commentators
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

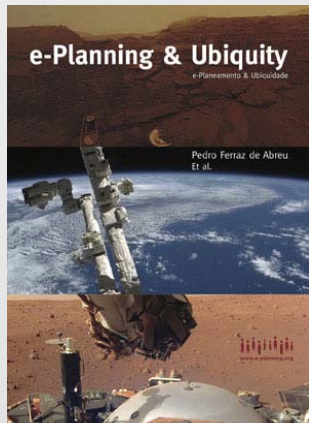
www.citidep.net

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

The Cost of Free:

Understanding the new equation relating *technology*, *market economy*, *regulation*, *privacy* and *power*.

THANK YOU !

THE END

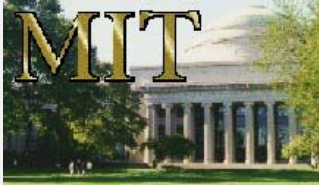
<http://web.mit.edu/uis/e-planning2023/>

Joseph Ferreira Jr. ; Pedro Ferraz de Abreu

jf@mit.edu

pfa@mit.edu

Urban Science & Digital Transition: e-Planning XX years later



Links:

<http://web.mit.edu/uis/e-planning2023/>

<http://www.e-planning.org/mit2023/>

ferrazdeabreu.link

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

- 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 2019-23

UA 2015-19

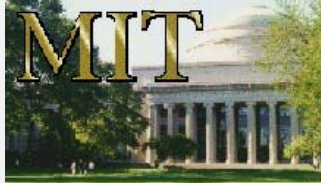
FC-UL 2013-14

ISCSP-UTL 2008-12

Coordination:



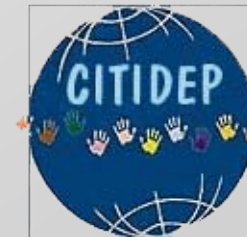
Pedro Ferraz de Abreu
Prof. Catedrático Conv.
ULisboa / CITIDEP



Pedro Ferraz de Abreu, PhD
pfa@mit.edu

CITIDEP - Research Center on Information Technologies & Participatory Democracy
 President

www.citidep.net



MIT - Massachusetts Institute of Technology
 DUSP - Dept. of Urban Studies & Planning
 Research Affiliate , Visiting Scholar



Universidade de Lisboa e Universidade de Aveiro
 ISCSP-UTL (2007-12); FC-UL (2013-14); UA (2015-19); FA-UL (2019-21)
 Prof. Catedrático Convidado (Full Professor), Researcher at CIAUD-UL (2022-curr)



universidade de aveiro