

MIT-DUSP e-Planning Seminar, Fall 2023

(11 September – 4 December 2023)

Course Descriptor

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A – Course Designation & Structure

1) "Urban Science and Digital Transition: e-Planning, twenty years later" (Speaker Series)

MIT-DUSP open "guest speaker series" with MIT faculty discussants, weekly lunch, Monday 12h-14h

Together with

2) "e-Planning for Digital Transition"

MIT-DUSP for-credit Course, joint graduate. undergraduate, weekly schedule, 2h – Thursday 14h-16h

and

3) "International Conference on Public Participation and Information Technologies (ICPPIT23), with a core theme on "e-Planning for Digital Transition" (co-organized by MIT-DUSP and CITIDEP/e-Planning Consortium*), on November 9-10, 2023.

B – Instructors

Joseph Ferreira Jr. MIT-DUSP faculty, Head of UIS (jf@mit.edu)

Pedro Ferraz de Abreu, MIT-DUSP Research Associate & Visiting Scholar, University of Lisbon faculty (ret), Coordinator of e-Planning Consortium (pfa@mit.edu)

C – Goal & Rationale

The main goal of the course is to provide a world-wide view and understanding of the current major issues and corresponding leading research on e-Planning / Urban information systems (UIS) / Urban Science, using as a common structuring thread, the use of information & communication technologies (ICT) in planning and their impacts in society.

The e-Planning Seminar, Fall 2023, with its course on "e-Planning for Digital Transition" and linked speaker series on "Urban Science and Digital Transition: e-Planning, twenty years later," will (re)examine the impact of information technologies on community life and governance, anticipate the implications for urban futures, and contribute to DUSP debate on a strategy for the next twenty years.

Fall 2023 will be the 20th anniversary of our first 'e-Planning Seminar,' offered as a Speaker Series with guest talks and MIT faculty as discussants, an accompanying weekly for-credit seminar, plus an International Conference on "Information Technologies and Public Participation." That conference plus the weekly for-credit seminar, was organized by Pedro Ferraz de Abreu shortly after he finished his DUSP PhD. Many DUSP faculty, together with current course proponents (Joseph Ferreira, Bish Sanyal, and Larry Vale) worked with Pedro Ferraz de Abreu and participated in the 2003 events.

Fall 2023 e-Planning Seminar will be a good opportunity to reflect on our framing of 'urban science' issues two decades ago in order to stimulate deeper discussion of what we mean by the term today, how its pursuit furthers DUSP strategic objectives, and the ways in which we think urban science-related education and research should progress.

By looking carefully at past and current thoughts about information technology's influence on community life, urban redevelopment, and governance, we hope to foster a deeper look into the impacts and implications of the ongoing 'digital transition' on social inequality and participatory planning without becoming overly focused on the latest concerns about generative AI and ubiquitous sensing.

DUSP has a long tradition of focus on problem-driven research and bottom-up approaches to urban planning. We do more than choose between prototyping ICT-enabled possibilities and enumerating downside risks. We have explored bottom-up possibilities for ICT-enabled planning and societal change in a number of areas using approaches that eschew top-down 'smart city' 'solutions' and are more inclusive and attentive to the social disruption and distributional consequences of technology-driven change.

The main collective product of the e-Planning Seminar, from all 3 components, will be a Book, "e-Planning for Digital Transition – With no one left behind"

D – Course Guidelines

Monday lunch Presentations are expected to be generally structured along the following lines:

- Ground each presentation with one or more societal objectives of particular concern to DUSP that might be furthered through the use of digital technology – e.g., improvements in sustainability, social equity, consensus building, or multi-racial democratic governance,
- Explain the rationale for improving urban planning and local government practices through the use of information and communication technologies (ICT) - e.g., administrative efficiency, transparency, or clarity of spatial implications,

- Present examples of case studies and empirical research examining particular ‘best practice’ efforts to improve urban planning practices through innovative use of ICT,
- Identify unanticipated difficulties or unintended consequences that limited the effectiveness of ICT-lead interventions – e.g., data availability/biases, control of data access and analytic capacity, erosion of trust through disinformation, imbalances in cross- and debate relevant DUSP strategies for the next twenty years; anticipate the implications for urban futures, sectional and temporal tradeoffs, absence of business models and organizational support to build consensus for changed behavior,
- Discuss multi-disciplinary contributions to understanding interventions and ICT impacts through, for example, problem restructuring, programmatic design, behavioral modeling, social policy analysis, and organizational theory,
- Draw conclusions and suggest paths forward for advancing urban science education and research and improving our capacity to understand, design and plan equitable and sustainable urban futures.

All DUSP faculty will be invited to participate in one or more seminar or symposium sessions either as a presenter or as a discussant. SPURS fellows will also be encouraged to participate.

The "e-Planning for Digital Transition" course will follow closely the guest sessions of the e-Planning Speaker Fall Series, and use them as a framework to compile key issues and research questions, together with a summary table of "who is who" and "who is doing what, where", concerning the identified major issues.

Students are required to attend the weekly open sessions, as they are considered part of the class schedule.

Each student will focus on summarizing items related to DUSP in one single area of their interest, and thus contribute to identify relevant links between DUSP research clusters agenda and a future DUSP/e-Planning/UIS/USc research agenda. As a final product, students following the course for credit are expected to produce a paper, ready to submit for publication, following the guidelines of targeted scientific journals.

The course will require readings and Internet / library search. Each student is required to update weekly a brief personal log towards the summary table, and the class will generate a collective table with these logs, on the last two class meetings.

The course will be complemented by an "International Conference on Public Participation and Information Technologies (ICPPIT23), with a core theme on "e-Planning for Digital Transition" (co-organized by MIT-DUSP and CITIDEP/e-Planning Consortium*) . Students are encouraged to play a key role, both as organizers and participants.

Selected content produced both by the e-Planning Seminar and International Conference, will be published in a Book, "e-Planning for Digital Transition – With no one left behind"

E – Substantive issues

During the past two decades, Information & Communication Technologies (ICT) have accelerated changes in urban planning, service delivery, governance, and daily life by facilitating communication and transparency, providing logistic efficiencies, and enabling more detailed analyses. Nevertheless, during the same period, we have also witnessed increasing problems with social inequality and racial justice, persistent resistance to multi-racial democratic governance, and many behavioral and ‘demand-side’ obstacles to sustainable patterns of urban growth and mobility.

The post-covid world has highlighted the centrality of a Digital Transition Agenda. The covid-19 pandemic proved how critical were not only our Information and communication (ICT) infrastructures, but equally how important it was to have them well adjusted to the real conditions and requirements of all sectors of society it affected. Together with the global challenge of an Energy Transition for sustainable development within climate change, world wide public policies now recognize it must be joined by a "Digital Transition". This implies we understand not only the "Digital" facet, but also the "Transition" itself. In other words, besides the engineering and "hard" science of technology, we need also social sciences and humanities; since a Transition requires understanding both where we stand, and where the transition will lead us. Digital Transition is in effect, the core of what e-Planning is about.

Technology ubiquitous presence, favors dissemination, accessibility, participation, and empowerment. And yet, instead of decreasing, social inequalities increase and imbalances in society's relationship with nature are accentuated, even putting the sustainability of human life at risk. Today, we have evidence of more and more serious abuses of this ubiquity, side by side with its benefits (and the covid-19 crisis is no exception).

Is Technology to blame, in some way? The 2018 UN Strategic Report on Technology, states: "New and rapidly developing technologies... hold incredible promise for advancement of human welfare. They also hold the potential to generate more inequality and more violence." (UN General Secretary Guterres, 2018). ICT has surely facilitated some of the downside as well as enabled some of the benefits. So what makes the difference?

In order to identify and characterize this potential, as well to understand and judge the new challenges and corresponding risks, is essential the emergence of transdisciplinary areas like e-Planning, articulating the in-depth study of the technological leap, especially in ICT, with the study of its transversal impact on the whole of Society.

F – Course Syllabus summary

(Bibliography is in a separated document).

(ICT – Information & Communication Technologies)

1. e-Planning Research Agenda: Roots and Concepts
2. The Qualitative Leap of the new ICT and its Impacts
3. XXIc Communication: Internet, World Wide Web and the new Social Media
4. Geopolitics of Development in the Information Society
5. Digital Sovereignty, Technology Innovation, and Property Rights
6. Public Policy and Regulation, Theory of Transients: Regulated Systems vs Disruption
7. The Cost of Free: new models of Politics and Business
8. The Challenge of Privacy & Liberties vs. Efficiency & Security
9. Spatial Analysis and Geo-referencing in Planning
10. ICT as a new dimension of Land-use Planning and Sustainability
11. Redefining "Smart": Digital Inclusion, Local Government and Citizen Empowerment
12. Public Participation and Decision in Planning in the context of new ICT
13. Netiquette , Ethics in e-Planning
14. Case-Studies. Project Examples
 - IMS - Intelligent Multimedia System in support of Public Consultation and Decision-making
 - EuroLifeNet – Participatory Science in Environment – Health – Education
 - Natural Resource Management Intelligent Systems

(ordering and dimension of chapters may change)

G – Syllabus details

==== some details in some chapter/topics:

G-A. New ICT Qualitative Leap and Decision Models

- Plato's Rule re-visited
- Shannon's IT Equations and Schrodinger, Negentropy
- The Intrinsic Nature of ICT and the Neutrality Issue
- Matrix of ICT attributes (Symmetry, Access, Deployment, Costs, Geography of Resources)
- The ICT Cost structure and nature (*Production, Transaction, Deployment, Control, Scale*)
- The ICT 'enabling' factor
- Can ICT influence a decision?
- ICT impact in participation & decision theories

G-B. Theory of Human Nature (elements)

- The Individual-Social Organic Duality
- Critical Analysis of Maslow's Pyramid
- Cosmological Argument of Intrinsic Inequality
- Equality as a Singularity and the Asymptotic Approach
- Historical Argument of Intrinsic Cooperation

G-C. Theory of State (elements)

- Nature and Role of State
- Historic and Class Models
- The role of Institutions and Regulatory Framework
- Decision and Power
- Use of Force as the ultimate & decisive base of power?
- ICT and Violence vs. Acquiescence Transaction Costs
- ICT and Transient Theory in Public Policy
- ICT factor on Institutional & Regulatory Stress

G-D. Theory of Political Economy (elements)

- The nature of the Information & Knowledge Economy
- ICT and the concept of added-value / production factors in the new economy
- Property models and corresponding Decision models
- New ICT and balance of power \rightarrow †between producer and consumer

G-E. Theory of Knowledge (elements)

- Gnoseology vs. Epistemology
- Dialectics of Nature
- The Politzer Apple Paradigm
- Knowledge Memory and Capacity Building
- The role of Knowledge in Decision
- The Institutions of Knowledge

G-F. Knowledge Representation Models

- Case-based frames
- Elements of Graph Theory
- Models as Trees and Graphs
- Introduction to Artificial Intelligence
- Production Rules and Expert Systems
- Inference Engines, forward and backward chaining
- Decision Trees (DT). Practicum: building a DT
- Practicum: building an Expert System

G-G. Theories of Decision

- Decision, Choice and Degrees of Freedom
- The Space of Solutions, and Transaction Costs
- The Prisoner's Dilemma and Nash Equilibrium
- Decision and Constraint Propagation
- The Structure of Decision and Process phasing
- Analytical Components of Decision-making
- ICT as a Multiplier of the Space of Solutions
- ICT as a denser Analytical Filter
- Decision models and the new ICT Matrix
- The Institutions of Decision

G-H. Theory & Praxis of Public Participation

- Administrative vs. Substantive Theory
- Value Systems and Expertise
- Hirshman-Ferraz de Abreu Incremental Theory
- Techniques of Participation and the Attribute Map of new ICT
- Models of Participation (blackboard, star, interventive)
- ICT and the new Participatory Science Paradigm
- The Institutions of Participation

H - Seminar & Conference Topics

Moderators: Joseph Ferreira Jr. (jf@mit.edu) & Pedro Ferraz de Abreu (pfa@mit.edu)

(dates for session topics to be confirmed)

ICT - Information and Communication Technologies

e-Planning Research Agenda, Roots and Boundaries

Urban Science & Computing in Planning

The Qualitative Leap of modern ICT and its Impacts

Geopolitics of Development in the Information Society

Geography of Inequality and Spatial Analysis in Planning

Digital Sovereignty, Technology Innovation, and Property Rights

The Cost of Free: new models of Politics and Business

ICT Ubiquity and the Challenges of new Digital Social Media

The Challenge of Privacy & Liberties vs. Efficiency & Security

Digital Charter for Human Rights & Social Justice

Digital Inclusion, Local Government and Citizen Empowerment

Public Participation and Decision in Planning in the context of new ICT

Public Policy, Institutions and Regulation in the context of new ICT

Urban Mobility and Smart Cities

Climate Change and Energy & Digital Transitions

The Challenges of Transdisciplinarity in Academia

Teaching and Research Agenda for the Future

Relevant links:

<http://www.e-planning.org/> * <http://www.citidep.net/>

Past (still active):

<http://web.mit.edu/uis/icppit03/> * <http://www.e-planning.org/mit2003/>

I - e-Planning Seminar 2023 - Research Questions Revisited

DUSP Seminars on Technology and the City have contributed to understanding the urban planning implications of modern information and communication technologies (ICT).

20 years after the first edition of this Seminar, The new Seminar / Speaker Series 2023 on “e-Planning” builds on this experience and focuses on the new challenges and opportunities for ‘e-planning’ as the reach of ICT extends far beyond the automation of traditional tasks.

Towards a research agenda on e-Planning

1. In the last 20 years, e-government became a normal standard, both in the US and abroad.

Initially, we saw a multitude of independent initiatives towards improving the use of ICT in public services and public administration, mostly focused on using the Internet to facilitate information access and automation of services. Then, the trend has been toward centralization and consolidation of e-government efforts and, in some cases, a restructuring of the agencies involved.

We are now observing the consolidation of central plans and central authorities, or even multi-national regional plans and agencies, which reach far beyond the traditional government IT branches, and are developing e-government strategies and policies touching all sectors in society and all branches of government.

2. As expected, these “e-Government” efforts are impacting planning and setting the agenda for what might be called ‘e-Planning’. Such a trend is forcing planners to look beyond the (relatively) simple and obvious examples of service automation or public access to government information.

In effect, will the centralized services move beyond efficient publishing and broadcasting in ways that promote meaningful dialogue among citizens and public/private interests? Shouldn’t e-planning differ from e-government in that improved planning processes might involve many partners and less government?

3. This evolution raises many new questions that go beyond re-shaping services.

The trend towards a more central role of technology in Government and in Planning has come, somewhat paradoxically, as the technologies have greatly enhanced the prospects for disaggregated, spatial analyses and decentralized, community level planning.

Reduced cost and improved technology has stimulated the rapid expansion of detailed, disaggregated data about land use and ownership, geography, infrastructure, environmental conditions, etc. along with new, sophisticated analytical tools and visualization techniques to make the best use of them.

4. This dual trend poses new intellectual challenges at community/neighborhood as well as city/global levels, and it raises research questions on a breadth of issues, with emphasis on Public Participation, Privacy, Security and Freedoms, Institutional reform, and Environmental Planning. Furthermore, its study requires considerable knowledge and understanding of ICT's potential, not only of hardware and software, but also of powerful analytical tools, data mining, and communication strategies. "Big Data" is here to stay.

5. Technology is bringing to the table a new wealth of data and parameters, at multiple levels, that were not available to planners before. Besides the well known issues of data filtering and evaluation, how does this data availability impact planning processes, levels and scope? How does it relate to the emergence of "neighborhood planning"? Can ICT facilitate de-centralization of urban revitalization and development efforts? Will it enable new forms of measuring the "performance" of a City, and of City Plans? Will these measures benefit 'outside' regulators and lobbies or 'inside' residents and community organizations? What kind of "Smart" do we want in our "smart cities", and how citizen agenda may differ with the "smart industry" business that grew to trillions of dollars?

6. Technology is also the focus of attention in a world troubled with increased levels of insecurity and conflict / competition. How can Planning and IT contribute to a better grasp of the trade-offs among issues of security, human rights and freedoms? What are the new threats to privacy posed by the level of detail and accuracy of data collected in planning procedures and policy implementation? Do we accept the emerging "Curator" model, giving private giant technology companies, like Facebook, Twitter, Google, the power to regulate speech?

7. Technology is facilitating citizen access to information at levels never experimented before. But this new trend towards government centrality, and IT business consolidation, may inform citizens without empowering them.

What forms of public participation in decision-making are sought, enabled or deterred by the new policies? Are current technology development policies favoring citizen participatory models, or pushing back citizens to a consumer role?

8. Technology is rapidly changing the public administration landscape. How is it impacting institutions and regulations? Is the new technology challenging the current institutional and regulatory framework for plan-making and urban development? What are adequate paths towards institutional and regulatory reform?

9. New challenges in Planning, with or without an "e", cannot be understood separated from the challenges faced by the people that embody it. What is the role of a planner in this new scheme, between e-Government oriented policies and increased citizen pressure towards interactive planning? What new technology and analytical skills and competencies are required for the new generation of planners? How can we improve our current school curricula to correspond to these new requirements?

10. 20 years ago, we raised many similar questions. What lessons did we learn from our experience? What new questions arise, that must be addressed? Where should we focus our future Research Agenda?