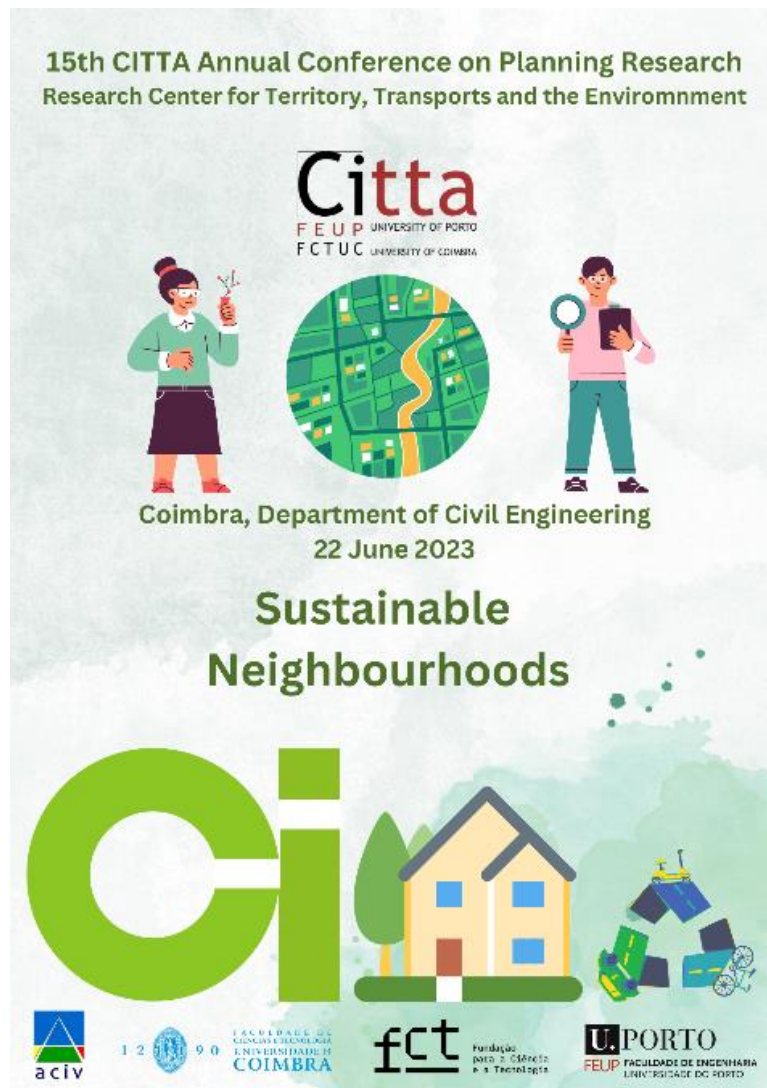




CITTA 15th Annual Conference on Planning Research
22 June 2023

Sustainable Neighbourhoods

PROGRAMME & BOOK OF ABSTRACTS



VENUE:

**Department of Civil Engineering, Faculty of Sciences and Technology, University of Coimbra,
 Rua Luís Reis Santos, Pólo II, 3030-788
 COIMBRA, PORTUGAL**

GLOBAL PROGRAMME

	<i>Session</i>	<i>Content</i>	<i>Room</i>	<i>Content</i>	<i>Room</i>	<i>Content</i>	<i>Room</i>
Morning	Welcome 8:30 - 9:00		DEC main entrance				
	Opening Session 9:00 - 9:30	Professors Paulo Eduardo Oliveira, Rui Simões, Paulo Pinho, Antonio Pais Antunes and Anabela Ribeiro (Chair)	Auditorio Laginha Serafim				
	Key Notes 9:30 - 11:00	Karst Geurs and Steve Farber	Auditorio Laginha Serafim				
	Coffee Break 11:00 - 11:30						
	Parallel Sessions 11:30 - 13:00	1.1 (4)	4.4.	2.1 (4)	4.6.	3.1. (4)	4.7
	Lunch 13:00 - 14:00						
Afternoon	Parallel Sessions 14:00 - 16:00	1.2 (5)	4.4.	2.2 (5)	4.6.	3.2. (4)	4.7
	Coffee Break 16:00 - 16:30						
	Parallel Sessions 16:30 - 18:30	1.3 (5)	4.4	2.3 (5)	4.6.		
	Key Note 18:30 - 19:00	Agnès Patuano	Auditorio Laginha Serafim				
	Closing Session 19:00	Professors António Couto and Adelino Ferreira	Auditorio Laginha Serafim				
	19:30 Cocktail in the 'Basófiás' Boat						

DETAILED PROGRAMME**8:30 - 9:00 - Welcome and registration****9:00 - 9:30 - Opening Session – *Auditório Laginha Serafim***

Professor Paulo Eduardo Oliveira – Director of FCTUC; Rui Simões - Director of the Civil Engineering Department DEC-UC; Professor Paulo Pinho - Former CITTA Director; Professor Pais Antunes - Member of the CITTA Steering Board; Professor Anabela Ribeiro – Conference Chair.

9:30 - 11:00 - Plenary Session – *Auditório Laginha Serafim*

9:30 - 10:15 - CITTA/NECTAR Key Note 1 – Karst Geurs - The role of smart mobility hubs in creating sustainable neighbourhoods

10:15 - 11:00 - CITTA/NECTAR Key Note 2 - Steven Farber - Justice and Neighbourhood Completeness in the North American Suburb

11:00 - 11:30 - Coffee and Talking Break

11:30 - 13:00 - Morning Parallel Sessions**Session 1.1. Chairperson: João Bigotte***Room: 4.4*

Title	Speaker
Exploring new ways of visualizing social innovation in future urban-mobility scenarios: the implementation of Low Emission Zones in Spain <i>Miguel L. Navarro-Ligero, Julio A. Soria-Lara</i>	Navarro-Ligero, M.L
The Impact of an Urban Form Shaped by Topography on Mobility Patterns: measuring the competitiveness between car and pedestrian <i>Nuno Sousa Gomes</i>	Nuno Sousa Gomes
Multi-level Perspective as a framework for analyzing windows of opportunity in the established regime: the mobility case of the metropolitan region of Porto <i>Cauê Martins Rios</i>	Cauê Martins Rios
Diffusion of mobility platforms: Towards multimodality and sustainability? <i>Joao F. Bigotte, Marc Hasselwander, Miguel Fonseca</i>	Joao F. Bigotte

Session 2.1. Chairperson: Sara Cruz*Room: 4.6*

Title	Speaker
Beyond Aesthetics: exploring the role of the landscape for sustainable coastal neighbourhoods <i>Carla Gonçalves, Paulo Pinho</i>	Carla Gonçalves
Enhancing the Transformative Capacity of Climate Adaptation Strategies through Urban Policy Articulation <i>Ana R. Sousa, Sara Cruz, Isabel Breda-Vázquez</i>	Ana R. Sousa
Monitoring and evaluation of nature-based solutions effectiveness in addressing climate change adaptation <i>João Corgo, Sara Cruz, Paulo Conceição</i>	João Corgo
Towards an Adaptive Planning and Management of the Portuguese Coastal Zone <i>Sofia Valente, Paulo Pinho, Fernando Veloso Gomes</i>	Sofia Valente

Session 3.1. Chairperson: Sílvia Sousa*Room: 4.7*

Title	Speaker
The changes in travel habits, is public transportation the future of urban mobility? <i>Rosário Teixeira, Manuel Filgueiras, S. F. A. Batista, & Sara Ferreira</i>	Rosário Teixeira
On the application of aggregated traffic models as a tool for mimicking network-wide congestion patterns <i>S. F. A. Batista & Mónica Menéndez</i>	Sérgio Batista
Urban air mobility applications: an exploratory study <i>André Teixeira Silva, Sérgio Pedro Duarte, Sandra Melo and António Lobo</i>	André Teixeira Silva
Location-based crash classification to support municipal road safety plans <i>João Pedro Maia, António Lobo, Miguel Lopes, Sérgio Pedro Duarte</i>	João Pedro Cardoso Maia

13:00 - 14:00 - Lunch

14:00 - 16:00 - Afternoon Parallel Sessions**Session 1.2. Chairperson:** Sergio Duarte*Room: 4.4*

Title	Speaker
Myths, commonplaces, and artificial intelligence in neighbourhood planning <i>Paulo Silvestre, Paulo Pinho, Vítor Oliveira</i>	Paulo Silvestre
The housing question at the crossroads: the case of Porto, Portugal <i>Emília Malcata Rebelo</i>	Emília Malcata Rebelo
Shrinking for growth? Transdisciplinary insights from the housing sector in Coimbra, Portugal <i>António Ferreira, Kim von Schönfeld, Paulo Conceição, Fanny Augis</i>	António Ferreira
Housing planning strategies for informality: between eviction and upgrading <i>Catarina Madeira</i>	Catarina Madeira
Tactical urbanism as a driver of urban regeneration. The case of Bairro da Gandra, Valongo. <i>Emilly Carvalho, Miguel Lopes, Fernando Brandão Alves</i>	Emilly Gonçalves de Sá Carvalho

Session 2.2. Chairperson: Cecília Silva*Room: 4.6*

Title	Speaker
Reclaiming the Outdoors — Effects of the COVID-19 Pandemic on the Access to Public Spaces in Porto <i>Daniel Maia</i>	Daniel Maia
A collaborative serious game to plan the school urban surroundings and transports with children: the case of the Yellow School in Leiria (Portugal) <i>Micael Sousa</i>	Micael Sousa
Built environment characteristics making the central area an attractive place to live <i>Oddrun Helen Hagen</i>	Oddrun Helen Hagen
Equitable accessibility to healthcare facilities considering population settings <i>José Balsa-Barreiro, Gaby Joe Hannoun, S. F. A. Batista & Mónica Menéndez</i>	José Balsa-Barreiro
What's good in the neighbourhood? Defining Proximity-centred Accessibility. <i>Cecília Silva, Benjamin Büttner, Sebastian Seisenberger, Anna Rauli</i>	Cecilia Silva

Session 3.2. Chairperson: Fernando Brandão Alves*Room: Auditório Laginha Serafim*

Title	Speaker
Fringe belts and green areas: reflections about environmental planning in the Global North and South <i>Silvia Spolaor</i>	Silvia Spolaor
Car-less cities, then what? A case study for the City of Porto <i>Manuel Filgueiras, S. F. A. Batista, José Balsa-Barreiro, Mónica Menéndez, Sara Ferreira & José Pedro Tavares</i>	Manuel Filgueiras
THE "HEALTHY NEIGHBORHOODS" PROGRAM: Contributions of a community-based local intervention model for the Sustainable Development Goals <i>Miguel Silva Graça, Helena Roseta</i>	Miguel Silva Graça
Resilient practices of spatial self-production in informal settlements: the case of Maputo <i>Hazrat Bilale Salamagy, Fernando Brandão Alves and Clara Pimenta do Vale</i>	Fernando Brandão Alves

16:00 - 16:30 - Coffee and Talking Break

16:30 - 18:30 - Afternoon Parallel Sessions**Session 1.3. Chairperson:** Paulo Conceição*Room: 4.4*

Title	Speaker
Socio-spatial segregation: conceptual elasticity and the Urban Morphology role on the interdisciplinary approach <i>Amaro Mendonça</i>	Amaro Francisco Corrêa de Araújo Mendonça
The 'impertinence of impermanence' and other critiques: potentials and limitations of experimentation for urban planning <i>Kim Carlotta von Schönfeld, António Ferreira</i>	Kim Carlotta von Schönfeld
Toward a right-sizing approach for planning shrinking cities? Analysis and deconstruction of the concept of right-sizing <i>Fanny Augis, António Ferreira, Paulo Conceição</i>	Fanny Augis
Towards a quantitative approach to Morphological Regions: identifying urban typomorphologies <i>Mariana Diniz, Miguel Serra</i>	Mariana Pizzo Diniz
Optimizing sustainable policies by contextualizing city indicators: The potential role of urban morphology <i>Ana Mélice-Dias</i>	Ana Mélice-Dias

Session 2.3. Chairperson: Oxana Tchepel*Room: 4.6*

Title	Speaker
The social representations of intelligent driver assistance systems in road safety <i>Bruno Cardoso, Luciano Moreira, Ana Mora, and Sara Ferreira</i>	Bruno Cardoso
Examining the Equity Impacts of European Bicycle Master Plan: A Mixed-method Approach <i>Isabel Cunha, Cecília Silva</i>	Isabel Bezerra da Cunha
Evaluation of landing and take-off emissions from aircraft using open-air traffic data <i>Kiana Sanajou, Oxana Tchepel</i>	Kiana Sanajou
Wheelchair sharing system – a place for people with difficulties walking in Portugal's mobility policies <i>Paulo Silva</i>	Paulo Silva
Barriers to Bike and E-Scooter Sharing Usage: An Analysis of Non-Users from Five European Capital Cities <i>João Filipe Teixeira, Vera Diogo, Anikó Bernát, Agnieszka Lukasiewicz, Egle Vaiciukynaite, Venere Stefania Sanna</i>	João Teixeira

18:30 - 19:00 - Plenary Session – Auditório Laginha Serafim**CITTA Key Note – Agnés Patuano - *Designing neighbourhoods for active ageing*****19:00 - Closing Session – Auditório Laginha Serafim**

António Couto, Director of CITTA / Research Group 4 - Transport Engineering and Management (TEM)

Adelino Ferreira, Coordinator of the Research Group in Coimbra

19:30 – Cocktail at the Basófias boat

Exploring new ways of visualizing social innovation in future urban-mobility scenarios: the implementation of Low Emission Zones in Spain

Miguel L. Navarro-Ligero¹, Julio A. Soria-Lara^{1,2}

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²Instituto de Economía, Geografía y Demografía – Consejo Superior de Investigaciones Científicas

Abstract

The implementation of Low Emission Zones (LEZ) in Spain poses new challenging scenarios for the socio-technical innovation of urban accessibility policies. National Energy Plans and normative frameworks have overtaken previous local access regulations to address more complex air pollution and climate-change mitigation issues. This has resulted in the entanglement of social, political, and technical actors in new associations, where their roles and natures are redefined.

The present paper aims to trace back the socio-technical innovation paths followed by different actors along key issues and controversies regarding the implementation of LEZ in Spanish cities. Inspired by the Actor-Network Theory (ANT) approach, the current research collects information from diverse sources – i.e., planning documents, regulations, social media, technical seminars, and interviews with persons close to the process – in order to deploy and follow actors participating in previous controversies as potential *mediators*; then, it examines the roles of previous actors in key *translation* events – i.e., moments where focal actors define goals, enrol, and mobilize other actors to enact their own visions. As a result, a narrative account was composed, organized in seven episodes that evidence how actors traditionally related to local mobility and environmental policies have been displaced into new collaborative actor-networks. This narrative serves as a reference for discussing the visualization of previous actor-networks in key social innovation scenarios, adopting post-ANT's socio-material perspective on mobility and mutability of issues along alternative trajectories.

Keywords: Low-Emission Zones; socio-technical innovations; Actor-Network Theory

The Impact of an Urban Form Shaped by Topography on Mobility Patterns: measuring the competitiveness between car and pedestrian

Nuno Sousa Gomes

Abstract

In research on the relationships between urban form and energy demand by transports, topography (generally confused with slope) is presented as an obstacle to active modes. On the contrary, in this research it is argued that topography may favor these transport options, considering other morphological characteristics, in addition to slope, resulting from an urban form well adapted to topography, which can limit speed and even access of cars. On the one hand, this reduces the competitive advantage of cars when compared to other transport modes, also considering the difference in costs. On the other hand, it acts as a structural traffic calming measure, contributing to the safety of pedestrians and cyclists, in contrast to a more 'artificial' street layout demanding for mechanical speeds. To test this hypothesis, two complementary methods are proposed. The first is a new tool that considers a set of structural variables of urban form (based on literature), to calculate speed and access penalties for car and pedestrian that can be applied to any route of any city. The second is a GIS-based simulation addressing large urban areas, applied in two case studies morphologically opposite with respect to topography: Salvador da Bahia, Brazil and San Francisco, USA. The first results confirm the research hypothesis and show that topography may not be an obstacle, but rather a valuable natural resource in an energy transition paradigm.

Multi-level Perspective as a framework for analysing windows of opportunity in the established regime: the mobility case of the metropolitan region of Porto.

Cauê Martins Rios¹

¹University of Porto

Abstract

Energy efficiency in transport has improved in the past years, even though the number of trips has increased. There is consensus on decarbonising the transport sector and reorienting public policy towards a sustainable transition. Over the past decade, transition perspectives have been a useful way to frame the changes needed to shift social systems toward more sustainable configurations. A range of socio-technical perspectives is useful for framing the transport and urban mobility scenario. One prominent approach in transition studies is the Multi-Level Perspective (MLP). MLP argues that transitions happen through dynamic processes within and across three analytical levels: 1) niches, which are protected spaces and locus of radical innovations; 2) socio-technical regimes, which represent the institutional structuring of existing systems leading to path dependency and incremental change; and 3) exogenous socio-technical landscape developments. In this context, the main objective is to analyse the metropolitan region of Porto, Portugal, based on the MLP, to understand which are the windows of opportunity in the socio-technical regime of transport in which niche innovations can establish themselves.

Diffusion of mobility platforms: Towards multimodality and sustainability?

Joao F. Bigotte¹, Marc Hasselwander^{1,2}, Miguel Fonseca³

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Abstract

New mobility services (NMS) based on digital platforms have been diffusing rapidly throughout the world. There is already a vast bulk of literature studying the end-users and their reasons for adopting such NMS. This research work takes a complementary perspective by focusing on the firm level. First, it analyzes the worldwide diffusion of ride-hailing, carpooling, and Mobility-as-a-Service (MaaS) by investigating the internationalization of mobility startups. Following such examination, it highlights two types of diffusion patterns (rapid VS gradual). Then, it analyses the two patterns with base on explanatory factors related to business model, network effects, competition, and expansion strategy. Finally, it discusses what the findings may represent for the future of transportation, focusing on multimodality and sustainability.

Keywords: Diffusion of innovations; new mobility services; shared mobility; digital platform; business model.

Beyond Aesthetics: exploring the role of the landscape for sustainable coastal neighbourhoods

Carla Gonçalves¹, Paulo Pinho¹

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Abstract

There has been a growing recognition of neighbourhoods' pivotal role in achieving sustainability goals in recent years (Choguill, 2008). Although sustainable neighbourhoods are a recent concept, their origins can be traced to the utopian thinking of Ebenezer Howard (Fishman, 1982) or the neighbourhood unit of Perry (1929), among others (Sharifi, 2016). This renewed focus on neighbourhood planning reflects a shift towards more locally driven and holistic approaches to urban planning. Additionally, to cope with contemporary challenges, there is a demand for the planning processes to change the material and social distribution of planning outcomes substantively (Albrechts et al., 2020; Healey, 2006), which is even more relevant in the coastal metropolis, as the most world population lives in a coastal urban area (Ogie et al., 2019). Recently, Albrechts et al. (2020) recognised that today's challenges could not be tackled on the mindset of traditional planning, demanding a transformative planning practice exploring the role of the "territory-landscape plan as a catalyst for change". Albrechts et al. (2020) claim have been discussed by several authors (Gonçalves & Pinho, 2022), although there is still a need to increase empirical evidence. Our research explores how the concept of "landscape" has been integrated into the main legislative pieces produced in Portugal since the 1950s through content analysis. Results will demonstrate that the landscape is mainly addressed from an aesthetic or visual perspective, not following the international debate and demands to tackle the climate and the landscape crisis. Conclusions will point to research directions on its relevance to addressing the coastal landscape infrastructure, exploring their interconnections with the neighbourhood scale.

Keywords: Landscape sustainability science; European Landscape Convention; Green infrastructure; Socio-ecological systems.

Enhancing the Transformative Capacity of Climate Adaptation Strategies through Urban Policy Articulation

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Faculty of Engineering, University of Porto

Abstract

Urban areas have a unique combination of high population density and infrastructural complexity, which can both aid and hinder efforts to address climate change. While urban areas can be hubs for innovative technological solutions in tackling climate change, they are also vulnerable to negative climate-related impacts due to their high reliance on ecological and environmental services. In this context, climate adaptation strategies (CAS) emerge as a possible response to climate-related impacts and bring along the need for urban areas to foster adaptive capacity. However, CAS entail two main challenges. Firstly, there is a recognition that sometimes the degree of adaptation needed in certain systems might not be compatible with the limits of such systems, implying the need for a systemic change. To accomplish that, systems should build transformative capacity, which can create novel and path-deviant solutions towards sustainability. Secondly, CAS not only have been piled up throughout time (instead of being dismantled or re-designed) but also have not been articulated with other urban policies. Such feature can hinder their expected outcomes and functions, as well as the transformative capacity of CAS. Thus, this paper aims to explore the role of urban policy articulation in addressing these challenges and contributing to the transformative capacity of CAS for an effective adaptation to climate-related impacts. A literature review uncovered that urban policies should be articulated both vertically and horizontally, alongside multisystem approaches and concerted planning actions. By promoting self-articulation and alignment with other policies, urban policy articulation can benefit CAS, enhancing their effectiveness.

Keywords: climate adaptation strategies; adaptive capacity; transformative capacity; urban policy articulation; climate change

Monitoring and evaluation of nature-based solutions effectiveness in addressing climate change adaptation

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Abstract

The concept of “Nature-based solutions” (NbS) was first used to find solutions to mitigate and adapt to climate change. As the world is now living in a new era of climate crises, the current study developed a literature review regarding NbS knowledge, its implementation and operationalisation in planning practice and policy, its relationship with climate change adaptation, and existing knowledge gaps and research trends regarding these different subjects. The obtained results aimed to identify a lack of monitoring and evaluation of NbS effectiveness in addressing different societal challenges and to understand if they are better than conventional grey or hybrid solutions. To fill this gap, the research community has been developing various NbS assessment frameworks (AF) to improve those NbS assessment processes. Hence, this research study analysed thirteen AF and assembled information regarding their scope, the societal challenge addressed, their correspondent policy area and the specific evaluation moment used. Despite their broader view with a set of methods and indicators to support the assessment of NbS effectiveness, all the analysed frameworks presented some gaps. Namely, not all AF considered climate change and its impacts on the performance and maintenance of NbS. While others did not support the decision-making regarding the best solution to be used (NbS, grey solutions and/or hybrid solutions) to address societal challenges. Regarding all the identified gaps related to using those AF, this study aimed to identify others regarding the monitoring and evaluating NbS effectiveness in addressing societal challenges, especially climate change adaptation.

Keywords: nature-based solutions; monitoring process; evaluating process; assessment frameworks; climate change adaptation

Towards an Adaptive Planning and Management of the Portuguese Coastal Zone

Sofia Valente¹, Paulo Pinho¹, Fernando Veloso Gomes¹

¹CITTA - FEUP

Abstract

Adaptive Planning and Management approaches are being increasingly advocated in international literature as being potentially useful for guiding coastal climate adaptation planning. Meanwhile, the Portuguese coastline presents several examples of increasing coastal risks, namely of erosion, flooding and / or submersion, which pose 'wicked problems' – more complex challenges – to coastal spatial planning and management, which have been characterized by a certain "rigidity" or "stability". In the last two decades, several authors have called for a more adaptive coastal planning and management. Several recent Portuguese Coastal Zone Programmes (Programas da Orla Costeira) claim to have adopted and launched a new model of "Adaptive Coastal Planning" or "Adaptive Coastal Management", substantiated on Portuguese Environment Agency who recommended such type of approach. Nevertheless, an in-depth analysis of two POCs – POC Caminha-Espinho and POC Alcobaça-Cabo Espichel – conducted during a 4-year PhD research (2017-2021) – showed that, although both cases had the intention to pursue a novel approach of adaptive planning and management of the coastal zone, actually, they have not introduced or applied a real Adaptive Planning approach – they did not follow a typical process of Adaptive Planning, nor fully met any of the key-elements essential in an Adaptive Planning approach to develop and operationalize an adaptive plan / policy-programme. There are still issues that must be addressed, and aspects that must be changed and improved, to fulfill such approach. In this article, we explore these issues and summarize key recommendations for allowing the accomplishment of an Adaptive Coastal Planning and Management in future POCs.

Keywords: Adaptive Planning approaches, coastal climate adaptation, coastal risks, Portuguese coastal management programmes

The changes in travel habits, is public transportation the future of urban mobility?

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²Division of Engineering, New York University Abu Dhabi, Saadiyat Island, PO Box 129188, Abu Dhabi, United Arab Emirates

Abstract

The United Nations, UN-Habitat, reveals that in 2020, 56.2% of the world's population lived in urban areas. Thus, urban mobility becomes a point of attention for governments, transport operators, policymakers, and researchers as questions on travel demand and its environmental impacts arise. In this scenario, public transportation assumes a critical role as a viable alternative to private cars. However, are people willing to shift to public transport, and which factors contribute to it?

This study focuses on a temporal analysis to understand which factors contributed to transport mode choice and how it changed over time. The data was collected by *Instituto Nacional de Estatística (INE)* from mobility surveys from 2000 and 2017 in the metropolitan area of Porto, Portugal. The study applies discrete choice modeling techniques to achieve the objectives in line with the traditional methods under this topic. Estimation results of the mode choice models are successfully incorporated to compare travel behavior trends during the studied period.

The study is ongoing under the Master thesis development and is expected to contribute to the knowledge of the factors (sociodemographic and trip description) that may influence the mode choice, particularly regarding the public transport choice, and discuss the evolution of time taking into account the investments made on public transport in the Porto metropolitan area (e.g. metro network expansion).

Keywords: Travel behaviour; Discrete choice model; Intertemporal analysis; Mobility survey; Mode choice.

Acknowledgements

This work is a result of project DynamiCITY: Fostering Dynamic Adaptation of Smart Cities to Cope with Crises and Disruptions, with reference NORTE-01-0145-FEDER-000073, supported by Norte Portugal Regional Operational Programme (NORTE 2020), under the POR-TUGAL 2020 Partnership Agreement, through the European Regional Development Fund (ERDF).

On the application of aggregated traffic models as a tool for mimicking networkwide congestion patterns

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Abstract

Urban congestion is an issue that most large metropolitan areas worldwide try to mitigate. One way to design solutions for reducing congestion, in the short term, is to utilize traffic simulation tools. The aggregated traffic models based on the Macroscopic Fundamental Diagram (MFD) present a promising tool for investigating solutions to alleviate the pressure of congestion. The idea behind these models is to divide the city into regions with similar traffic conditions, meaning where all vehicles travel at the same average speed. However, this partition leads to a new definition of an aggregated network where one needs to utilize new concepts for the definition of paths. This brings new challenges, notably in the identification and characterization of such paths, but also in the calculation of the network equilibrium. In this presentation, we will discuss these challenges and the application of MFD-based traffic models to mimic network-wide congestion in large metropolitan areas.

Urban air mobility applications: an exploratory study

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Abstract

This study aims to explore attitudes towards the use of urban air mobility (UAM) for various logistical applications and examine the potential for proposing new services and concepts, employing multilevel service design (MSD). UAM has the potential to revolutionize air transportation services and logistics, providing economic advantages and addressing issues such as traffic congestion, environmental pollution, and inequality in access to essential services from rural and suburban communities. The study includes a survey conducted in three European regions to investigate citizens' attitudes on the use of drones for deliveries. With the support of cluster analysis, distinct user groups and profiles were identified. The results suggest that there are three types of users, in what concerns the acceptance of UAM, including high acceptance segments with positive attitudes and willingness to pay for UAM. Most respondents in the studied regions view drone delivery favorably and support public investment in UAM infrastructure. Anticipated benefits from UAM include reduced congestion and pollution in city centers. The study also revealed lower acceptance segments with distrust towards the technology and opposed to public investment in UAM infrastructure, which could pose an obstacle to adoption. In a second phase, the study will use focus groups and interviews to explore specific applications of UAM for various purposes, such as medical deliveries to suburban and rural areas or emergency uses.

Keywords: urban air mobility; urban logistics; citizens' attitudes; sustainable deliveries.

Acknowledgements

ASSURED-UAM is a project under the CIVITAS Initiative, one of the flagship programmes helping the European Commission achieve its ambitious mobility and transport goals. This project has received funding from the European Union's Horizon 2020 programme under Grant Agreement 101006696. The work of A.L. is a result of project DynamiCITY: Fostering Dynamic Adaptation of Smart Cities to Cope with Crises and Disruptions, with reference NORTE-01-0145-FEDER-000073, supported by Norte Portugal Regional Operational Programme (NORTE 2020), under the POR-TUGAL 2020 Partnership Agreement, through the European Regional Development Fund (ERDF).

Location-based crash classification to support municipal road safety plans

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³OPT – Optimização e Planeamento de Transportes, S.A., Porto, Portugal

Abstract

Portugal is committed to decreasing the number of road crashes and fatalities, by implementing EU's Vision Zero. For many municipalities, selecting the most effective interventions, at reduced costs, does not come easily. To support municipalities in the design of their Road Safety Plans, we establish the relationship between the type and location of crashes and propose potential countermeasures. That was accomplished by connecting an injury crash dataset with relevant and effective interventions that can mitigate their occurrence. The data were obtained from the National Road Safety Authority and three Portuguese municipalities. After cleaning and treating the data, we performed a cluster analysis to identify what type of crashes occur in what type of locations. Variables selected referred to the characteristics of the crash (type of vehicle, number of vehicles, etc.), and the characteristics of the crash's location (cross section, road alignment, type of intersection, visibility, etc.). In parallel, we performed a literature review on road safety countermeasures to map their impacts and adequacy for each type of crash and location. Finally, based on the clustering results and the countermeasures review, we create a tailored decision matrix to assist municipalities in selecting the most suitable measures for their crash types/location pairs. The decision matrix provides a decision support tool to help municipalities decide the best course of action, create, and manage their road safety programs. In the end, we discuss possible improvements to the crash data collection process to promote data standardization and facilitate the implementation of Vision Zero.

Keywords: road safety; cluster analysis; decision support; municipal road plan

Acknowledgements

This work is a result of project DynamiCITY: Fostering Dynamic Adaptation of Smart Cities to Cope with Crises and Disruptions, with reference NORTE-01-0145-FEDER-000073, supported by Norte Portugal Regional Operational Programme (NORTE 2020), under the POR-TUGAL 2020 Partnership Agreement, through the European Regional Development Fund (ERDF). In addition, a special acknowledgment to OPT for hosting the internship and providing access to the necessary databases for the development of this work.

Myths, commonplaces, and artificial intelligence in neighbourhood planning

Paulo Silvestre¹, Paulo Pinho¹, Vítor Oliveira¹

¹Centro de Investigação do Território, Transportes e Ambiente (CITTA), FEUP

Abstract

The present disciplinary debate about local planning is hampered by a certain conceptual monolithism. A set of guidelines is frequently repeated, in the literature and public arena, as a recipe for building more sustainable neighbourhoods. The myth of urban villages and neighbourliness remains very present, despite the shattering of urban and social fabric of cities. Based on the analysis of six european city plans, our research identifies strategies and policies that go beyond the current discourse - marked by commonplaces -, opening up the reflection on planning at the local scale. The recognition of unique or innovative guidelines should help to devise a more robust and consistent disciplinary response. Despite the specificity of those guidelines, they prove to be important for a more in-depth and comprehensive debate about the project of local spaces. A critical analysis of the dominant discourse - tending to be generalizing -, is fundamental for the assertiveness and fairness of spatial policies, especially with the emergence of artificial intelligence that reinforces a cartesian and standardized perspective.

Keywords: critical thinking; public policy; local planning; spatial guidelines

The housing question at the crossroads: the case of Porto, Portugal

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Abstract

In the current context of discussion on the importance of housing as a central focus of planning concerns, this paper presents some of the aspects that currently characterise the residential real estate market in the city of Porto and tries to identify the factors underlying the rapid growth of prices in this market.

This article begins by presenting the theoretical background, followed by the comparative identification of the characteristics of the housing markets and financial markets. Then, the increasing liquidity of housing markets – enabled through several financial instruments -, is related to their high price levels.

As a case study, the housing market in the city of Porto is analysed, and an econometric model is developed to explain respective prices. Following on, the discussion and conclusions on the various factors that explain housing prices are pursued, as well as the analysis of how housing policies, planning and financial instruments over the last few years have led to the current situation.

This reflection framework is particularly important in the context of the themes of the CITTA 2023 conference. It reflects on the importance of economic and political aspects in the operation of the housing market, as the basis for a strategic and integrated reflection on the foundations on which housing policies should be based, considering the inter-relations between its social and market dimensions.

Keywords: real estate, housing markets, financial instruments, liquidity, public policies

Shrinking for growth? Transdisciplinary insights from the housing sector in Coimbra, Portugal

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Abstract

Common definitions of urban shrinkage present it as a phenomenon that entails both population loss and economic decline, which are conceptualized as intertwined and mutually-reinforcing processes. However, we hypothesize that cities such as Coimbra, Portugal, are losing population in good measure due to urban policies aimed at fostering economic growth that consistently increase housing costs for buyers and renters. This flourishing of the real estate market contributes to induce population loss, particularly among the youngest generations who cannot afford suitable homes. However, it is beneficial not only for the established economic forces that increasingly invest in real estate products for capital accumulation; but also for the older generations who tend to control such economic forces in a cultural-political environment where soaring social and intergenerational inequality became the norm. Furthermore, this flourishing of real estate markets has benefits for local authorities, which manage to realize urban regeneration dynamics despite austere national policies while disciplining their populations into neoliberal urbanism. Through interviews with local stakeholders in Coimbra and key out-migration areas, this research aims at achieving three goals. First, to test the validity of the hypothesis above presented empirically and from a transdisciplinary perspective, involving Planning, Geography, Cultural Studies and History. Second, to explore policy pathways towards more socially just and inclusive policy-making inspired by degrowth. Third, to connect degrowth scholarship with that focused on urban shrinkage so that more sophisticated understandings of the economic and demographic urban nexus can be established.

Housing planning strategies for informality: between eviction and upgrading

Catarina Madeira

Abstract

Between 2014 and 2018, the proportion of the urban population living in slums worldwide increased from 23% to 24%, translating to over 1 billion slum dwellers. Informality is not seen any more as a problem in Portugal, due to the many legal and technical tools that have been developed, in order to give informal settlements a legal status. An exception to the rule: informal settlements located in natural risk areas are not allowed to be legalized. This fact poses a question regarding its future.

The last few years have witnessed a growing debate around the effects of climate change, especially when meaning to extreme events such as floods and landslides, for example. The role of territorial planning has also been highlighted as an instrument with the potential to prevent the seriousness of those effects on people and goods.

The approach path of research focused on the comparison of legal frameworks in Portugal in the context of the Global North with other contexts in the Global South, regarding the approach to informal settlements in risk areas. The results will be discussed under the traditional dichotomy approach to informal settlements, either through upgrading or eviction; there is a third way in which the planning administration does not act taking any decision and therefore informal settlements remain in limbo. The presentation will conclude with possible ways out of this situation underlining the Portuguese case.

Tactical urbanism as a driver of urban regeneration. The case of Bairro da Gandra, Valongo.

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Abstract

Nowadays, municipalities face the need to respond more quickly to contemporary challenges. The possibility of linking Urban Regeneration strategies and Tactical Urbanism emerged as an inspiration for the development of the Nova Gandra project, promoted by the Municipality of Valongo.

This study aimed to carry out a critical study to evaluate the pertinence of combining these two concepts, developing a reflection on the effectiveness of their processes applied to this project, at the level of physical and functional quality of the urban design and the immaterial actions to be developed, as well propositional ideas of Tactical Urbanism that could boost the process of Urban Regeneration in Valongo.

Starting from an exhaustive literature review, the key moments of their implementation sequences and the main points of connection between them were identified. Subsequently, a methodological design for the analysis matrix was developed for the case study, defining 10 indicators for Tactical Urbanism and 14 for Urban Regeneration, according to a qualitative scale. As a final step, a script with guidelines for Tactical Urbanism interventions was developed, responding to the last objective of this research.

Keywords: tactical urbanism, urban regeneration strategies, urban design, Municipality of Valongo.

Acknowledgements

The authors would like to thank to OPT - Optimização e Planeamento de Transportes, S.A., who hosted the internship that made the development of this work possible

Reclaiming the Outdoors — Outcomes of the COVID-19 Pandemic on the Access to Public Spaces in Porto

Daniel Maia

Abstract

The COVID-19 pandemic imposed an unprecedented scenario where access to public spaces was momentarily denied as an urgent measure to slow down the number of infections worldwide. Even after the outdoor restrictions were loosening, people would still need extra precautions whenever attending any social gathering. Nevertheless, collective activities such as social gatherings, commuting through public transport, and leisure practices, are essential for community building. Multiple knowledge fields have been documenting the effect of the sudden, prolonged conditioning, or complete interruption, of access to public spaces on human health (Kasinitz, 2020; Narea et al., 2021) and social behaviours (James, 2020). This research aims to present and analyse the different manners in which communities were reclaiming the public environment during the post-confinement scenario. In Porto, after the peaks of COVID-19 cases, local authorities openly supported those initiatives, for instance, enclosing streets for pedestrian use only, repurposing parking slots, and creating new cycling paths on roads. Simultaneously, other alternative sociocultural activities appeared spontaneously without assistance, or even permission, from official representatives. Two distinct sustainable community-building initiatives taking place in the parish of Bonfim are briefly presented and discussed in this work. Lessons are going to highlight the benefits and the shortcomings in both cases and debate how local governments could improve their role in fomenting inclusive policies and initiatives for the public space.

Keywords: Health; Public space; COVID-19; Adaptive planning

A collaborative serious game to plan the school urban surroundings and transports with children: the case of the Yellow School in Leiria (Portugal)

Micael Sousa

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Abstract

Children are citizens with rights and needs. Schools are part of the urban system, facilities that affect the transport system and the urban life of neighbourhoods. Planning practices have shown few concerns about the children's visions, desires, and ways they understand the role of their schools in the urban system. How can we combine learning activities and inputs from children for collaborative planning and citizen engagement? How can children participate in their school neighbourhood and address sustainable development?

The communication presents a case study of a serious game where elementary school children have modelled their school, dealt with excessive automobile use around their schools and proposed new urban and architectural solutions for the school and the urban surroundings. More than 80 children played our game together with their teachers. Children (8 to 10 years old) played the game in groups of 4 to 5 members. The game was divided into three steps: Step 1 – modelling the school with wood blocks over a template of the road system; Step 2 – fitting the polyominoes tiles that represent automobiles and replacing them with more sustainable transport modes (e.g., public transport, bicycles, walking); step 3 – proposing new ideas for the free space resulted from the transport modal shift.

Children wrote essays with the support of the teachers about the experiment, revealing enjoyment, learning about sustainability and the desire to participate in the urban planning decision-making public processes.

Keywords: Collaborative Planning; Participatory Planning; Public Space; Serious Games; Transport Modal Shift.

Built environment characteristics making the central area an attractive place to live

Oddrun Helen Hagen

Abstract

Central densification is a strategy to bring residents and visitors back to the city centre and reduce the negative impacts of transport. To make people want to live in the central area, it should have characteristics that people appreciate. This paper examines attitudes and perceptions towards living in central apartments and the built-environment characteristics contributing to people wanting to live there. Surveys were conducted among inhabitants within the urban area of four Norwegian cities. The general population varied from 22,000 to 56,000 in 2022. Despite the strategy of central densification, only 7-14% of the cities' inhabitants live in the central area of each city. Among the survey respondents, those living in the central area are less satisfied with their neighbourhood than those living in non-central areas. These findings differ from studies from larger cities. While 15-23% of the respondents answer that they live in a central apartment, additional 22-25% want to move to a central apartment in the future. The mix of amenities and the possibility for easy accessibility without a car are the two most important neighbourhood characteristics making central areas appealing as a place of residence. No noise is also crucial, both from traffic and restaurants, bars and cafes. The respondents want access to a balcony or a private outdoor space. Despite the importance of easy accessibility without a car, the possibility of parking is essential. The study sheds light on characteristics that should be ensured through central densification to make central areas where people want to live.

Equitable accessibility to healthcare facilities considering population settings

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Abstract

Spatial patterns of population distribution and age composition explain the emergence of large spatial inequalities in the accessibility to the health system across regions in the short- and medium-term. Most Western countries are characterized by an asymmetric distribution of population from the spatial perspective, which is associated with their high levels of urbanization. Cities concentrate most of the population and economic power, which explains their natural growth. On the other hand, rural areas trace the opposite trend, being increasingly depopulated, aged, and dependent.

The Galician region, NW Spain, results in a significant case study due to its conditions. This region counts with around 2.7 million people, which were traditionally widespread across 30 thousand square kilometers. Our aim is to analyze and assess the travel-time accessibility to healthcare facilities across this region, as a function of age. This is crucial for a better distribution of healthcare resources.

What's good in the neighbourhood? Defining Proximity-centred Accessibility.

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Abstract

Recognised as an important dimension of quality of life, accessibility has gained increasing attention from research and planning practice in the last decades. Rising concern with global warming and the dehumanization of cities has spotlighted the proximity-centred dimension of accessibility, which for decades has been mostly undervalued. Particularly concerning is a recent hypothesis that proximity-centred accessibility might be decreasing as a direct consequence of decades of mobility-centric accessibility policies, particularly for the implications on car dependency, sustainable development, and quality of life (to mention just a few). In research, proximity-centred accessibility concepts are still in flux, inhibiting the establishment of a comprehensive understanding for the development of a cohesive research field and of effective public policies.

This research provides a first contribution to the development of a conceptual framework for proximity-centred accessibility through a co-development process, involving both research and practice. For this we used a mixed methods approach involving bibliographic research, surveys, and a focus group, involving both experts in the research field and a sample of planning practitioners from Portugal and Germany.

Our research revealed over a dozen different proximity-centred accessibility terms currently in use in the scientific research field. While proximity thresholds have been defined using a variety of physical distances or travel times, our survey revealed a nearly unanimous consensus around a threshold of 1600 m (roughly 20 min walking). Mixed evidence was found with regard to opportunities relevant at proximity.

Keywords: Proximity-centred Accessibility, Expert Survey, Practitioners Survey

Fringe belts and green areas: reflections about environmental planning in the Global North and South

Silvia Spolaor

Abstract

The fringe belt is a key concept developed in the historico-geographical approach to urban morphology. This morphological element holds relevant aspects of the development of a city and conserves crucial ecological functions. Recently, several fringe-belt analyses were published from different geographical contexts, outside Europe, where the concept was conceived. In the Global South, particular socioeconomic conditions, accelerated growth, the rise of informality and dynamic transformations of urban form elements, especially plots, resulted in profound spatial inequality. Yet, in literature, only a few studies have compared the differences between fringe-belt features in the Global North and South. Addressing this gap, a comparative analysis between dynamic Southern cities and long-standing urban areas of Northern cities is provided. Three applications into Birmingham, Mersin, and Salvador are presented. Similarities and differences in the contexts and their reflection on the formative and transformative fringe-belt processes are discussed, emphasizing the transformation of green areas. The different timings, scales, and the permanence of elements of urban form are outlined. This exploratory study reveals that in the global North, cities of spontaneous development and established urban forms might keep their fringe-belt features longer. In the Southern context, dynamic growth and transformation of urban forms challenges the maintenance of plots, especially open/green spaces that lose their character to informal residential use, compromising their environmental conditions and accessibility to green areas. These findings are important to foster discussion about further developments of the fringe-belt concept, such as their utility for environmental planning in different contexts.

Keywords: urban morphology; fringe belts; environmental planning; Global North; Global South

Car-less cities, then what? A case study for the City of Porto

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Abstract

We aim to demystify the simplicity of the 15-minute city concept, as, in essence, cities are dynamic organisms in which every actor has different access times depending on the network flow at a given period, mode type, and trip origin and destination. To that end, we map all neighborhoods in Porto, Portugal, from high to low-density areas. This mapping results in many points that yield a rich network coverage. We derive travel times and distance matrixes between these points via a Google Maps API. We query for different modes: walking, public transport, and car; and two periods: typical rush hour and a free flow scenario. The proposed approach can support decision-making in transport planning and policymaking by providing a realistic and quantitative evaluation of network accessibility scenarios to relevant POIs.

THE “HEALTHY NEIGHBORHOODS” PROGRAM: Contributions of a community-based local intervention model for the Sustainable Development Goals

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²“Healthy Neighborhoods” Program

Abstract

The “Healthy Neighborhoods” Program is a public initiative, of a participatory nature, designed to improve health conditions, well-being and quality of life in vulnerable territories (<https://www.bairrossaudaveis.gov.pt>).

It is a small intervention program that funds — with a maximum amount of 50,000 euros — projects presented by local partnerships (associations, collectivities, non-governmental organizations, civic movements and residents' organizations, in partnership with municipalities, health authorities or other public entities) in order to improve these territories through community-based local development initiatives (<https://jornal.bairrossaudaveis.gov.pt>).

The “Healthy Neighborhoods” Program was created by Council of Ministers Resolution 52-A/2020, of July 1st, with an allocation of 10 million euros. The presentation of projects took place at the end of that year, with 774 applications. In May 2021, 246 projects were approved for funding and in October of that year, 244 protocols were signed. One year later, 241 of these projects were already concluded and ended their activities.

The aim of this communication will be not only to analyze the results and impacts of this participative program, which ends in June 2023, namely as a strategy and integrated intervention model in the area of housing, health and local development, but also to look at the contribution of the “Healthy Neighborhoods” Program for the Sustainable Development Goals (SDGs), as a social, environmental and urban intervention tool that at the same time improves the quality of life of residents and promotes their social integration (<https://odslocal.pt/projetos?rede=programa-healthy-neighborhoods>).

Keywords: Healthy Neighborhoods; public participation; community-based local development; Sustainable Development Goals; Portugal.

Resilient practices of spatial self-production in informal settlements: the case of Maputo

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Abstract

The impossibility and infeasibility of eradicating informal settlements results from the growing scientific and political recognition of these areas as a fundamental city-making logic to respond to the housing needs of the poorest in the global south. In this sense, it is crucial to understand the socio-spatial, environmentally resilient practices of self-production. These practices occur in the informal settlements, particularly in the face of the current context of global climate change and environmental impacts that increase the vulnerability of the poorest in cities. To this end, we undertake a fieldwork analysis-participatory process, in the city of Maputo, in order to understand the processes and actors that have been contributing to spatial adaptation to climate change. It is hoped that by focusing on social and spatial qualities, we can identify the empirical evidence sustained by local practices, that can contribute to the learning of responsive strategies, informed by incremental processes of self-improvement.

Keywords: Informal settlements, environmental resilience, socio-spatial practices, self-production, Maputo.

Socio-spatial segregation: conceptual elasticity and the Urban Morphology role on the interdisciplinary approach

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Abstract

Segregation is a powerful term that encompasses distinct urban phenomena driven by similar forces and processes. This paper presents a literature review aiming at the Urban Morphology role in the interdisciplinarity approach (Oliveira, 2021; 2022) on recent *segregation* research. A brief contextualization of its origins and concept unfoldment through different realities on the Global North (Bailey, et al., 2017; Marcuse, 2004; Musterd, 2020) and South (Garcia-López e Moreno-Monroy, 2018; Vasconcelos, et al., 2013) are presented, and illustrated by representative cases. The intention is to emphasize how analytic processes have developed differently within their geographic contexts, varying accordingly with their historic processes of formation. Although its complex adherence capacity with distinct phenomena, the basic process characteristics are present in all cases: it happens to a specific group of people in a determined urban space through time (Sposito, 2013). Furthermore, as the recognition of segregation's multidimensional nature is placed and the interdisciplinary approach stressed (Vaughan and Arbaci, 2011), this paper focus on how the interpretation of two theories on space is key to understanding segregation in recent research. The concept of *social space* developed by Lefebvre ([1974] 1991) and Santos ([1977] 2017) structuring the Urban Geography approach to urban phenomena; and the morphologic approach of Space Syntax (Hillier and Hanson, 1984), analyzing how the physic aspect of space is configurated within its own order and hierarchical relations are presented. Then, the importance of Urban Morphology which can not only interpret these two socio-space theories but work with both at the same time.

Keywords: Segregation, Urban Morphology, Urban Geography, Space Syntax.

The 'impertinence of impermanence' and other critiques: potentials and limitations of experimentation for urban planning

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Abstract

Graeber and Wengrow (2021, p.8) ask, "Is not the capacity to experiment with different forms of social organization itself a quintessential part of what makes us human?" They demonstrate that experimentation, in the sense of learning by trial-and-error, has always been an important part of humanity, including in societies that are most frequently called "primitive". But there is something substantially different about the kind of experimentation these authors refer to, and the kind of policy experimentation that is suffering a "hype" in at least European Policy landscapes, exemplified for instance by great enthusiasms around "street experiments" and "urban labs". This contribution asks what the difference is between the kind of experimentation that seems historically to have always been part of being human, and the institutionalised experimentation that is emerging as a policy hype. It creates links between experimentation and other societal trends, such as "scientism", commercialisation, and others. It uses empirically informed examples mainly from the field of street experiments to illustrate its arguments. It thereby critically but also constructively analyses the role of experimentation in urban planning and in the imaginaries this potentializes for both the history and future of planning.

Toward a right-sizing approach for planning shrinking cities? Analysis and deconstruction of the concept of right sizing

Fanny Augis¹, António Ferreira¹, Paulo Conceição¹

CITTA - FEUP

Abstract

Recently, right-sizing has gained prominence in the literature on shrinking cities as a way to help cities to cope with population decline. By demolishing, consolidating, and resizing infrastructure, it is hoped to reduce financial concerns and increase quality of life. Although this approach has been defined as relevant to shrinking cities, several studies have pointed out the limitations of its application, as it is tied to the principles of austerity. Considering the different positions on this approach, this paper proposes to deconstruct the right-sizing approach by analysing social housing strategies in two shrinking cities in France: Le Creusot and Montluçon. By analysing documents, interviews and statistical data on social housing in the two case studies, this paper argues that the right-sizing approach is mainly based on a quantitative adjustment of supply and demand, but cannot by itself solve all the problems of shrinking cities.

To this end, this presentation will introduce the following: First, an overview of the right-sizing debate and its main tensions in the literature will be given. Second, the two case studies of Le Creusot and Montluçon will be presented and the social housing strategies implemented in these two cities will be explained. A third section discusses the lessons learned in the two cities and why the concept of right-sizing may not be the best approach to address urban shrinkage.

Towards a quantitative approach to Morphological Regions: identifying urban typomorphologies

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The urban landscape is the result of a cumulative, historical stratification process, in which urban entities acquire formal and physical aspects that reflect the cultural and social functioning codes of the precedent periods in the city's formative process. Classic urban morphology, namely the historic-geographical approach, laid the foundation for the concept of Morphological Regions, which is based on the typomorphological classification of these unitary areas, delimited by their degree of internal morphological similarity. However, from a methodological point of view, the delimitation of these regions remains labour-intensive, grounded on qualitative visual analysis and on the personal expertise of the analyst. The subjectivity of this approach hinders the application of the method of morphological regionalization in a scalable, reproducible, and systematic way. The aim of this paper is to present the delimitation of typomorphological regions based on fundamental quantitative variables of urban form within objective parameters. This is fundamentally a descriptive exercise aiming at producing a rich characterisation of urban space from minimal data input of four elements of urban form, namely the street network, street-blocks, plot system and buildings. We propose to move from the identification and classification of types of individual elements, to their combination into homogeneous areas within the city, that is, of typomorphological regions. This combination of patterns within the four morphological elements was structured as a graph system in order to represent the spatial relations among all four elements. We empirically test the algorithm in Birmingham-UK to derive homogeneous regions of urban tissue types.

Keywords: typomorphologies, morphological regions, classification.

Optimizing sustainable policies by contextualizing city indicators

The potential role of urban morphology

Ana Mélice-Dias

Abstract

To demonstrate their performance on sustainability, cities have increasingly relied on indicators to assess their achievement of sustainable goals, and eventually support policies changes. Their capacity to simplify complex environments and create quantifiable data provides undeniable easiness to the monitoring process and comparative analyses. This results in valuable examples for best practices and consequently, to the replication of policies.

However, this simplification must be analysed critically, as it can decontextualize the city from its socio-political background, reduce the varying phenomenon of its different neighbourhoods to one single set of indicators, and eventually compromise comparative analysis between cities by hindering the identification of similar contexts.

To address this issue, as well as its impact on the development of sustainable policies and planning practices, this research seeks to integrate in these indicators more territorial contextualization and a greater awareness of contextual variations between both neighbourhoods and cities. To do so it relies on Urban Morphology, namely its capacity to identify different urban forms, analyse them at different scales, and associate them to different needs in terms of sustainability policies and goals.

This research delves into three existing sets of indicators currently in use in the Portuguese territory, the NP ISO 37120:2017, the Territorial Indicator System, and the Municipal Platform for the Sustainable Development Goals. The analysis will identify gaps and opportunities for territorial characterization, suggest the potential of integrating specific indicators, and explore the capacity of graphical representation to understand the performance of each neighbourhood individually, counterposing the application of general indicators.

Keywords: Sustainability policies; Indicators; Contextualization; Comparative analysis; Urban Morphology.

The social representations of intelligent driver assistance systems in road safety

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Abstract

Human error is a leading cause of road accidents, which result in approximately 1.3 million deaths annually and cost countries up to 3% of their GDP. In an effort to improve road safety, intelligent driver assistance systems that can identify hazardous behaviours and alert drivers in real time are being developed. However, to aid the development and implementation of these systems it is essential to understand the drivers' common-sense knowledge. The social representations theory states that common sense knowledge results from social groups' efforts to make sense of everyday life events, including scientific and technological novelties, and guide social behavior, and can be utilized to explore the relationship between social groups and drivers' social representations and to examine the semantic field of these representations. To achieve this objective, a questionnaire comprising seven sections was developed and distributed via direct contact to natural groups and snowball sampling to statistical groups. The questionnaire included sections on sociodemographic information, ranked association questions, the driver behavior questionnaire, a distraction engagement scale, the driver stress inventory, a driver profile scale, and the technology acceptance model. We will present and discuss preliminary results in light of the social representations theory. Results suggest that utilizing the social representations theory can provide insights into the social construction of drivers' knowledge of new safety technology, which can be useful for improving the targeting of research, marketing, training efforts, and the development of driver assistance systems. Also, these results highlight the relevance of psychosocial factors in understanding driving behavior.

Examining the Equity Impacts of European Bicycle Master Plan: A Mixed-method Approach

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Abstract

Scholars suggest that equity is hardly prioritised in cycling planning due to insufficient equity-oriented metrics to support decision-making. In response, this research employs a mixed-method approach to assess to what extent three distinct European Bicycle Master Plans are equitable and if the involved planning practitioners address or prioritise equity in planning practice. First, this research applies the planning support tool for assessing the relative equity impact of bicycle planning (TIRE) to the selected case studies. Subsequently, through focus groups and interviews, the related planning practitioners evaluated the results generated by the tool and leveraged debate on crucial issues encompassing equity in European cycling plans. As a result, this research disclosed that equity is not directly addressed or prioritised in cycling planning practice, with a tendency towards an egalitarian approach. Furthermore, the participants claimed that the dominant car-oriented mindset jeopardises the development of an equity-oriented agenda in cycling planning.

Keywords: Bicycle Master Plan, Equity, PSS tool, Accessibility, GIS, Mixed method

Evaluation of landing and take-off emissions from aircraft using open-air traffic data

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Abstract

The aviation sector is encountering rising pressure to prioritize sustainability and environmentally friendly practices, particularly regarding local air quality and climate change. To address these concerns, it is crucial to evaluate the impact of aviation emissions on both air quality and public health. However, developing of up-to-date emissions inventory for accurate modelling of local air quality near airports is challenging due to the need for detailed aircraft activity data that are not always available. This research aims to contribute to the development of a flexible modelling approach to quantify aircraft emissions during landing and take-off (LTO) phases of flight. The methodology is designed taking into account the requirement for local scale air pollution studies and provides valuable inputs on time-varying emissions for the dispersion modelling. The emission model is compatible with publicly available flight tracking data (www.flightradar24.com) used to collect information on the number of flights and type of aircrafts for each hour at a selected airport. An average emission factor for a specific type of aircraft is considered based on detailed information provided by EEA/EMEP Engine Emission Databank. The algorithm is implemented in Microsoft Excel and tested for Lisbon Portela International airport using data from July 2022. The results show that different stages of LTO produce varying proportions of pollutants, with HC and CO emissions being significant during idle, NO_x primarily produced during climb-out and take-off, and PM produced during idle phase. The total amount of emissions in July 2022 for CO, HC, NO_x, and PM was estimated to be 185 t, 15 t, 228 t, and 2 t, respectively. The next step of this research will involve Monte Carlo simulation to quantify uncertainties in the emission estimates. The developed model may contribute to the assessment of airport-induced local air pollution and encourage aviation sustainability.

Keywords: Aviation, Local air quality, Emission model, LTO, Open-air traffic data.

Wheelchair sharing system – a place for people with difficulties walking in Portugal's mobility policies

Paulo Silva

Abstract

According to last census, almost 20% of Portuguese population has difficulties in walking. This problem affects people of different genders and ages, but mainly elderly ones. Ageing population increases probabilities of dealing with this problem for longer periods, reducing quality of life, if proper individual and collective strategies are not found. Although mobility public policies in Portugal seem to address basic population needs, those with difficulties walking are still experiencing some lack of answers. For this group, it can be painful or tiresome walking distances considered short in general terms. Current research analyses mobility public policies in Portugal, exploring the possibility of integrating a wheelchair sharing system, in different urban areas, in different territories. The goal will be to achieve through mobility public policies, a strategy to allow citizens' better urban space use. This is a follow-up of a previous research work, developed for the city of Aveiro, called Reinventar a Roda (Reinventing the Wheel), a system of reuse and share of wheelchairs and intends to expand its scope.

Barriers to Bike and E-Scooter Sharing Usage: An Analysis of Non-Users from Five European Capital Cities

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Abstract

In recent years, shared micro-mobility, particularly bike sharing systems (BSS) and e-scooter sharing systems (ESS), have been promoted in many countries to foster a more sustainable and healthier urban living. However, available research predominantly focuses on the users of these systems, while non-users and their opinions are often neglected although they may be also perceived as potential users.

This study focuses on a less researched aspect of bike and e-scooter sharing systems: what are the reasons of non-users even though they potentially have access to these sharing systems. Using a comparative and survey-based research carried out in 2021 in five European capital cities (Budapest, Lisbon, Rome, Vilnius, and Warsaw), this research discloses the main drivers and behavioral attitudes towards the non-use of BSS and ESS during the coronavirus pandemic, when these means were highly used for health and safety reasons.

The analysis revealed that the main barriers to non-users are mainly external and infrastructural, such as other modes of transport being more convenient; safety concerns about riding in traffic; poor road conditions; lack of dedicated cycle networks, and destinations being too distant to be reachable by bike or e-scooter. These are generally barriers that individual users are unlikely to be able to significantly influence or overcome, with only minor adjustments offering some leeway. These findings indicate that the further development and deployment of BSS and ESS in European cities primarily depends on local administrations, and urban transportation policies, and not so much on the users' attitudes and adaptability.

Keywords: Bike sharing; E-scooter sharing; Barriers; Non-users; COVID-19