13 JUNE 2025 09.00 - 11.00

Panel 19. Technosciences in City-Making: How to tackle urban emergenc(i)es

Convenors:

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Keywords: city-making, design-driven processes, human and non-human, non-institutional practices, participation, stabilization, urban emergences, urban knowledge, urban labs

Viewing the city as an emerging process rather than a static entity, this panel aims to trigger a discussion around different 'emergences' of processes usually taken outside urban planning tools and yet crucial for city-making. STS studies have dealt with that in-depth under different perspectives and topics (Latour, B. 2006; Yaneva, A., Zaera-Polo, A. 2015; Blok, A., Farías, I. 2016; Tironi, M. et al. 2021, 2022; Florentin, D., Coutard, O. 2024).

This panel focuses on how a certain knowledge becomes relevant in city-making and, in particular, how it becomes operational through structuring interconnected techno-scientific practices. Indeed, the practices of urban actors involved in city administration and transformation, be they those of city departments, maintenance companies, research institutions or private citizens, base their know-what and know-how on assemblages of procedures, expertise, technosciences' sources and tools that, stabilised over time, have earned the trustworthiness of their respective users. Stabilisations, however, are always coextensive with more or less long periods because new (human and non-human) actors always burst onto the city scene, bringing controversies over trustworthiness that were taken for granted. These moments provide an opportunity for scholars to empirically assess the stabilisation of these emergences and the destabilisations and disappearances of forms of technoscience that influence urban development. Moreover, to reflect on how the construction of new assemblies redraws the boundaries between expertise and lay knowledge and to what extent these changes can be considered participatory and democratic.

We would like the panel to address how some variables gain importance at the expense of others in formulating the epistemic and operational tools involved in city-making. To be able to capture and frame these moving processes, we encourage contributions based on case studies and empirical research. Yet, the panel aims at opening up the discourse to a design- driven attitude. Thus, the underlying question would be: how to strive for a more grounded city-making? Therefore, the panel also welcomes methodological reflections that may suggest embeddedtools to look at those processes. Potential topics include, but are not limited to:

- Crises in urban systems: analysing the challenges which demand new forms of regulation and response (i.e. housing emergencies, etc.).
- Oppositional and alternative urban practices: highlighting practices that operate outside institutional frameworks yet exercise their action in a structured way in daily activities and mundane events.
- Attempts to bridge the gap between technical and lay knowledge.
- How the work done in research institutions can move beyond theory to influence the
- city's form, governance, and everyday life.
- Empirical research on the construction of data practices and AI applications towards citymaking and city administration.
- Attempts to address new emergencies related to socio-ecological changes (i.e. urban heat islands, extreme weather events, multi-species interrelations).

After short presentations, a roundtable discussion will be supported by the contribution asdiscussant of Albena Yaneva (Politecnico di Torino).

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ID 326 - Measuring Noise, Defining Moral Order in the City: A netnographic analysis of the effects of digital associationism on social conflict and urban relations

Anna Capretta, Università degli Studi di Padova

Keywords: Digital associationism, urban order, urban decay, noise

Touristification, studentification, and diffusion of night-time economy: these are some of the processes that have been producing significant transformations in contemporary cities. These changes have a direct impact on the socio-demographic composition of the urban population and thus on urban relations: particularly at the neighbourhood level, conflicts for the use of urban space and time by different social groups arise and are often framed as issues regarding urban (in)security, both by local institutions and citizens.

The present research focuses on an anti-decay committee created by long-time residents living in the centre of Padua, Italy. This committee, called STOP Degrado Padova, carries out its activity of reporting cases of urban decay and the negative effects of (mala)movida through the use of digital tools; a Facebook group chat and SmarterNoise, an application for measuring noise levels. By studying the effects of material and discursive online practices enacted by the committee on the definition of urban relations, the aim is to investigate whether this form of digital associationism acts as a "school of democracy", fostering urban bonds and cooperative practices for the use of the urban space, or reinforces the status quo, in terms of discrimination and exclusion of marginalized groups.

To answer this research question, a qualitative and diffractive methodology is adopted. Urban sociology, neo-materialist feminism and an STS approach inform the present empirical work: through netnography, it investigates the situated, everyday practices of the residents' committee being analyzed. In particular, the discursive construction of urban decay is examined, showing that it is referred to acts of vandalism (mainly littering and graffiti), the presence of unwanted objects or (marginalized) people in the urban space, and behaviors related to (mala)movida such as heavy drinking, noise pollution, and petty crimes. The use of a Facebook group, where members can share personal thoughts, photos and videos, contributes to address the material dimension of urban life, focusing on the negative effects of decay and (mala)movida on the physical and mental health of long-time residents, who often express anger and exasperation around the issue of noise. Even if their perception is highly subjective, the use of the SmarterNoise app allows residents to measure and record noise in video format. By sharing in the group chat these videos where measurement of noise levels in dB(A) is visible, a personal sensory experience is made public: through the reference to technological and scientific knowledge offered by the app, this experience is presented as objective and irrefutable, allowing residents to impose their moral order to the rest of the urban population. For this reason, this research concludes that this specific form of associationism, which develops around the issue of urban decay through the use of digital platforms, does not work as a "school of democracy" but reinforces a securitarian and conflicting status quo.

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ID 439 - Microclimatic regimes formation: the emergence of cool spaces against extreme urban heat

Margherita Tess, Humboldt-Universität zu Berlin

Keywords: urban heat, adaptation, climate change, climatology

As urban heat island phenomenon combined with global warming's effects are increasingly impactful, paying attention to how urban microclimates are known, stabilised, and infrastructured becomes pivotal.

This study focuses empirically on adaptation efforts to urban increased summer heat: my ongoing ethnography in southern Japan follows controversies surrounding greening cities for climatic purposes, architecture's thermal insulation and adaptive functions of clothing (e.g. Cool Biz initiative).

Microclimatic regime formation is observed in the following two moments: I trace how understanding urban heat has been problematised and stabilised in disciplines such as urban climatology and indoor climatology. I look at how "cool" spaces are planned and designed.

Focusing on the materiality of heat, I explore how it is constituted as an object of knowledge and intervention in urban spaces. First, I trace how specific stabilisations of interactions between matter, bodies, and energy in the city emerged in the late 20th century across the intertwined domains of urban planning, architecture, and clothing. Second, considering the recent need to reconfigure urban spaces in response to rising temperatures, I examine how these stabilisations are beginning to fracture and how cooling infrastructures are being planned and designed as a result. This paper provides an overview of my PhD research.

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ID 543 - Negotiations of accountability: contesting urban futures through desired, promised, deferred, refused, imposed and feared infrastructural development in Cagliari, Italy

Carola Ludovica Giannotti Mura, Università degli Studi di Milano - Bicocca

Keywords: infrastructure, waterfront regeneration, planning, future, science and technology studies (STS)

A key intuition of ethnographic perspectives on infrastructures is that, while they often instantiate sites of reinforcement of neoliberal urban agendas, unequal claims to expertise and technocratic determinism, infrastructures also constitute complex socio-technical assemblages where normative configurations tied to urban planning can become most unstable. Drawing on the field of STS, this paper provides an ethnographic account of recent waterfront regeneration in the city of Cagliari, focusing on the redevelopment of the portion of the waterfront surrounding the neighbourhood of Sant'Elia. Contextualising my object of research within fragmented place-making and place-branding strategies of the local administration, I attempt to reconstruct the socio-technical trajectories of two specific moments of redevelopment: the construction of a pedestrian bridge connecting the neighbourhood to the city centre and the still ongoing redevelopment of a harbour for small-scale fishing.

I first draw on strategic planning documents and local newspapers to show how aesthetic-moral values associated with the construction of urban attractiveness for the city of Cagliari intersect with deep-rooted histories of territorial stigmatisation of the neighbourhood, setting worthy subjects against unworthy ones from whom value is extracted but who remain excluded from the promises of purported aesthetic sanitation, cultural rebranding and entrepreneurial rejuvenation thanks to tourism. I then test these narratives against different expectations of redevelopment held by inhabitants of the neighbourhood and fishers working at the harbour, showing how the fragmentation of accountability that has historically characterised local state action in Sant'Elia makes institutional planning expertise open to contestation. I thus propose the concept of "negotiations of accountability" to show how different urban futures are performed

by the works of desired, promised, deferred, refused, imposed and feared infrastructural development at the neighbourhood level. Eschewing the rationality of planning claims to the territory through the materialisation of sub-certainties that embrace human, housing and water ecologies, the bridge and the harbour finally emerge as both attempted power-knowledge readings on urban space and sites of agentive connections susceptible to resignification, thus embodying complex socio-technical trajectories freighted with alternative urban futures.

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ID 558 - InformAria: a urban pathway of co-creation and socio-technical innovation

Federica Manzoli, Fondazione Giannino Bassetti; Università di Modena e Reggio Emilia
Angela Simone, Fondazione Giannino Bassetti
Anna Pellizzone, Fondazione Giannino Bassetti
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Keywords: co-creation, air quality, open innovation, smart cities

In this abstract, we analyse the factors that characterised the co-creation steps in a recent pilot activity called ""InformAria"", aimed at developing technological tools to inform citizens about the air quality and possible measures to protect their health in Milan, Italy, one of the most industrialised areas of Europe.

This was a case of co-creation as a practical experiment of transition from the "public understanding of science" to an active "engagement" in socio-technical innovation, typical of the current participative and deliberative trend (Pellizzoni, 2017, 2014; Stilgoe, 2013; Dryzek et al., 2019; Wynne, 2007). Meant as an alternative to the technocratic solutions derived from the linear model (Arnaldi et al., 2023), co-creation is here shown as an engagement strategy able to regulate the relationship between innovation and society in an urban setting.

In light of the debate on the role of actors and methods of civic engagement in techno-scientific challenges (Braun and Könninger, 2018), we analyse the factors that enabled the production of two prototypes, created under the common name "InformAria", by two groups of volunteers representing the so-called "quadruple helix" (QH), namely research, policy, industry and citizens (Schütz et al., 2022).

The opportunity to implement this experience was the European H2020 project MOSAIC, concluded in December 2023 and which operated in the context of the "100 Climate-neutral and smart cities" mission to support QH interested/affected actors in finding fair, inclusive, sustainable and workable solutions to achieve climate neutrality by 2030. The main assumption of the project was that, by adopting QH approaches in innovation processes and products, cities can value and respond to the social dimension of the green transition.

We reflect on the MOSAIC/InformAria co-creation experience with particular attention to its enabling factors, concluding that co-creation proves capable of putting the environment and health values and the social and technological expectations shared in local contexts at the centre of innovation. This can happen only if: - local policies and networks are identified and clarified at the very beginning of the process; - the collective challenge triggering the process is clear; - all the QH actors actively participate and are fairly rewarded.

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ID 781 - Continuous Co-Creation: Integrating Community Wisdom with AI in City-Making

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Andrea Cattabriga, Università di Bologna

Keywords: community intelligence, hybrid intelligence, participation, urban, relationality

Urban governance remains fractured between top-down technocratic models, which often alienate communities through opaque data practices, and bottom-up participatory efforts, which struggle to scale or sustain impact. This tension is compounded by the episodic nature of traditional participation—public hearings, workshops—that treat communities as static stakeholders rather than dynamic co-producers of urban knowledge.

At the heart of this challenge lies a fundamental disconnect: technical expertise and lay knowledge are seldom integrated as continuous contributors to citymaking.

The presentation proposes the Systemic Relational Insights (SRI), a framework and a digital ""scientific device"" resulted from a PhD research experimentation and now incorporated into a spin-off company, which reimagines urban governance as an ongoing negotiation between human intuition, machine intelligence, and situated community perception.

SRI are assembled with a cyclical process where algorithms synthesize quantitative data streams (IoT sensors, municipal databases), with lived experiences –gathered via digital platforms and participatory workshops– and scientific knowledge. Unlike episodic models, SRI embeds communities in a continuous feedback loop: residents annotate algorithmic outputs with hyperlocal narratives, while AI identifies latent patterns in these hybrid datasets, generating actionable hypotheses for collective refinement. This convergence of knowing—statistical, qualitative, tacit—transforms instability, such as climate disruptions or housing inequities, into sites of relational innovation.

Central to SRI is its rejection of AI as a solutionist tool positioning algorithms as connectors that surface contradictions between institutional metrics and grassroots realities, highlighting blind-spots in collective knowledge and generating relational patterns to stimulate community sensemaking. By treating data not as neutral inputs but as co-constructed artifacts, SRI challenges the stabilized approach to knowledge management dominating urban planning, where dashboards mapping fluxes and quantities fail to represent contextualised complexity.

The framework confronts critical questions: how can technoscientific assemblages remain open to destabilization by alternative to mainstream epistemologies? Can participatory design transcend tokenism to sustain equitable knowledge co-production? SRI responds by institutionalizing friction—ethical, epistemic, operational—as a generative force. Its hybrid intelligence protocol prioritizes open-source tools and EU AI-Act compliance to ensure scalability without sacrificing contextual integrity. Challenges persist, particularly in balancing algorithmic efficiency with the slowness of democratic deliberation, yet SRI's iterative ethos reframes this tension as necessary for resilient urban futures.

This proposal advances a vision where cities evolve not through episodic interventions but as living laboratories of continuous co-learning, bridging data-driven governance and community sensemaking.

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ID 887 - Negotiating Architectural Knowledge: Design Education in Brazil (1994–2024)

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Alvise Mattozzi, Politecnico di Torino

Keywords: architectural design education, sociotechnical networks, brazil

Design education operates as a dynamic and interconnected network, where institutions, actors, and discourses interact to construct, define, and organize architectural knowledge. It is a space of negotiation, where knowledge is continuously shaped through interactions between curricular frameworks, educators, and professional practices. Drawing on empirical research, this study investigates the debate surrounding architectural design education in Brazil as a sociotechnical network, analyzing works presented at the National Meetings on Teaching Architecture and Urbanism (ENSEA), the PROJETAR Seminars, and the Meetings of the National Association for Research and Postgraduate Studies in Architecture and Urbanism (ENANPARQ). By mapping this network, the research identifies key ideas and controversies that have shaped curricular policies from 1994 to 2024, reflecting broader technological, societal, and pedagogical transformations. The study reveals how the debate underlying these curricular changes has significantly impacted accessibility, diversity, and equity in design education. The shift from a rigid, standardized approach in 1994 to a more flexible and integrated orientation by 2024 reflects ongoing negotiations over what expertise is required and who gets to define it. These changes not only reconfigure professional training but also influences how architectural knowledge interacts with evolving socio-environmental and urban concerns. By tracing these interactions within the sociotechnical network, the research highlights how design education functions as a site where ideas on ethics, materiality, and spatial production are continuously redefined, shaping the role of future architects in city-making processes. Central to this investigation is the role of technoscience as an ongoing process of assembling and contesting knowledge, practices, and institutional structures. Building on Latour's challenge to the division between technical and social domains, the research emphasizes that technoscience is embedded in broader networks of human and non-human actors, regulations, and material infrastructures. This perspective underscores how urban knowledge is constructed and operationalized through interconnected technoscientific practices, influencing governance, spatial practices, and socio-technical imaginaries. The research also captures the complexity of the debate by reflecting on the contributions of various authors and institutions. It reveals tensions within institutionalized forms of knowledge and discussions on pedagogy seek to address different perspectives on knowledge production while responding to contemporary urban and environmental crises. By examining these curricular transformations, the study contributes to rethinking how knowledge is constructed and stabilized within design education. It underscores how education itself acts as an evolving infrastructure, continually shaped by and shaping broader sociotechnical networks, institutional negotiations, and city-making processes. Ultimately, this work encourages collaborative exploration of the topics under discussion and the construction of new possibilities for teaching architectural design, offering insights into how design education can better address social and environmental challenges in an increasingly complex urban world.