

Urban Speculations: Cities, Technologies, Futures

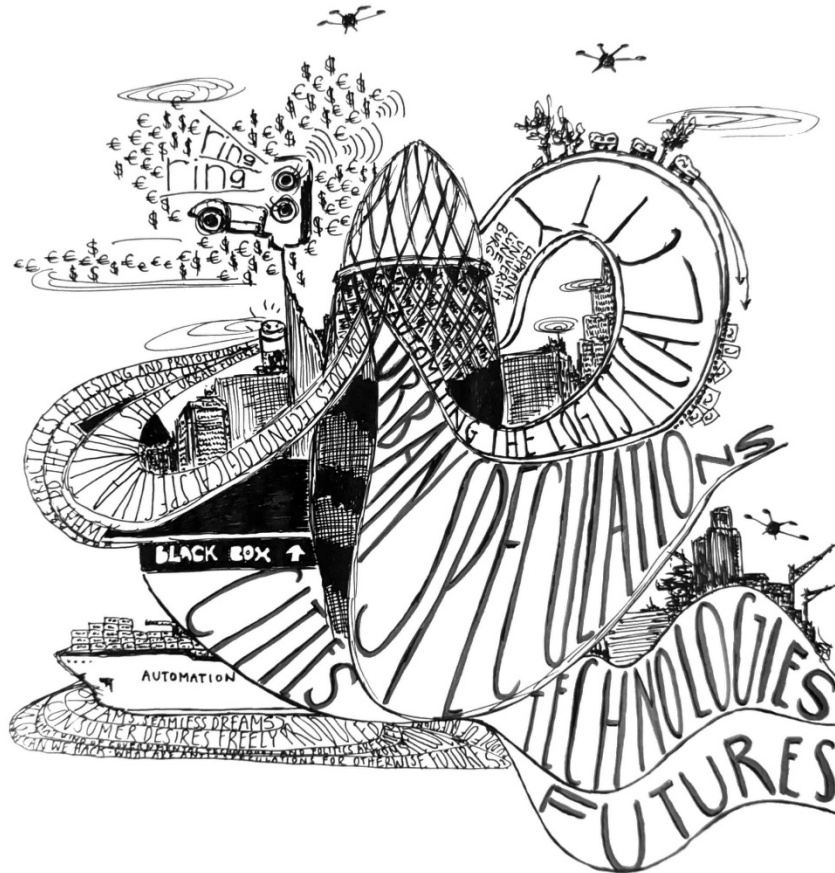
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Host: Centre for Digital Cultures, Leuphana University of Lüneburg

Organizers:

Ilia Antenucci, Armin Beverungen, Maja-Lee Voigt, Randi Heinrichs, Ranjodh Singh Dhaliwal



Book of Abstracts

Tuesday 4th February 2025

**18:15-19:15 Opening Panel: “Speculative Methods with and Against Amazon”,
with Max Haiven (Lakehead University), Daniel Wetzel (Chair: Randi Heinrichs)
*Forum, Central Building***

Amazon as a global big tech company in the business of convenience fascinates scholars and artists alike. Yet Amazon is somewhat resistant to scholarly research, which calls for more imaginative and inventive research methods. Amazon also strongly influences how logistical labour is organized today, or what counts as convenience, which in turn calls for alternative speculations about how things could be otherwise.

The two elements of this performance panel demonstrate how artistic and creative methods allow us to speculate with and against Amazon. Max Haven will offer readings from the book *The World After Amazon*, a collection of speculative writings by Amazon workers emerging from the Worker as Futurist project. Daniel Wetzel (of Rimini Protokoll) will perform his artistic research for *La Danse D'Amazon* and in doing so offers insights into Amazon and its operations.

Wednesday 5th February 2025

9:30-11:00 Keynote: Liza Rose Cirolia (African Center for Cities): “Techno-Worlding: Material Modes of Urban Speculation” (Chair: Ranjodh Singh Dhaliwal)

C40.606 & Zoom

Over the past decade, urban studies scholarship has taken a keen interest in peripheral geographies. Alongside with calls for a “southern perspective” and decolonial methods, African cities have emerged as frontiers of knowledge and action - empirically under-researched, conceptually misunderstood, and morally urgent. In this short and intentionally curated contribution, I will engage with two sites where speculative frontiers are materializing in the context of urban Africa. The first is the rise of “new cities”, which are analyzed as frontiers of global real estate speculation and hybridized world-class aesthetics. The second is the “smart city”, critiqued as a frontier of data and digital colonialism, as well as new modes of financialized extraction. These are useful and necessary critiques in the context the disaster of the global Development project, however, I call for a differentiated and ambivalent orientation towards these material modes of urban speculation, considering how they might also form part of African technological world-making. To do this, I draw on a specific case of Daarul Salaam City, in Mogadishu, developed by Somali telecommunications company Hormuud and its affiliates. I unpack the case, uncovering multiple layers of speculation and the possibilities for techno-worlding that these present.

11:30-13:00 Parallel Sessions I

Session Ia: Panel: “Re-Politicizing Urban Futures: Speculations, Struggles, Scales”, with Katja Schwaller, Fabian Namberger, Valentin Niebler, Barbara Orth (Chair: Fabian Namberger)

C40.601

Amid the multiple planetary crises of the present, the active shaping of urban futures has become a central terrain of political conflict and social struggle. More than anything else, however, it is ‘urban speculations from above’ that dominate today’s making of tomorrow’s urban futures. Hence, the city has not only been turned into a real-life testbed for high-end technologies, AI applications, and platform-based business models (Cugurullo et al., 2024), but also a virtually inexhaustible resource for the large-scale extraction of big data via ever more fine-grained apparatuses, architectures, and infrastructures of sensing, recording, and analysis (Shapiro, 2021). While there is then no shortage of speculative applications, prototypes, and operations woven into the urban fabric at an almost daily basis, what often unites these interventions is the one-dimensional logic of superficial technological ‘solutions’ for deep-seated social problems: an endless concatenation of short-term ‘fixes’ seems to seamlessly occupy the horizon of urban futures to come.

Against the dominance of tech-driven urban speculations from above and in variant recourse to what Shannon Mattern (2021) has called ‘other urban intelligences’, in our panel we want to re-politicise the making of urban futures. We pursue this task with an eye to different futuremaking

practices and activities situated across a variety of geographic scales and along shifting timescapes and temporalities. Contributions in our panel link the emergence and active shaping of speculative urban futures to arenas, both real and imaginary, such as the gradual adaptation and radical reinvention of urban and regional economies in light of the new imperatives of worldwide tech-city competition, the parallel creation and circulation of imaginaries, operative images, and entire visual regimes in the context of tech and AI urbanism, the differential inclusion and exclusion of variously regulated, dissected, and policed human bodies into platformized urban infrastructures of data extraction and labour exploitation, and – ultimately – the various resistances, struggles, and coalitions forming from below that might channel the everyday frustrations and alienations of the big-tech city into collective springboards for radically different urban and non-urban futures.

References

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Katja Schwaller (Stanford University): “City of Illusion, City of Exclusion: Contested Urban Futures in Meta’s Willow Village”

Utopian tech cities envisioned to emerge from a clean slate generate attention. However, this focus on the spectacular dimensions of Big Tech’s urban imaginaries tends to obfuscate how Google, Meta & Co have become increasingly skilled in leveraging participatory urban processes and local placemaking to activate public spaces around their workplaces and extend their brand image into physical space. Turning my critical inquiry to tech actors who mobilize an aesthetic of openness and inclusion, this paper illuminates how the spatialization of digital capitalism is negotiated on the ground, through messy urban processes that simultaneously draw on situated knowledge, speculative narratives, community branding, counter-imaginaries, and repressive strategies.

Based on ethnographic fieldwork in the San Francisco Bay Area, I present the case of Meta’s planned Willow Village, a campus expansion project that features public parks, housing, retail, community spaces, festivals, and bike lanes. Situated between two low-income communities of color that have historically been excluded from the fairy tale versions of Silicon Valley, Willow Village promises to provide vital public infrastructure for its resource-starved neighbors. Through multi-year community input processes and extensive tech philanthropy, Meta has mobilized local churches, community groups, and politicians to support its contested masterplan projects. This turn to tech capital for remediating the woes of segregated suburban planning and urban disinvestment, however, is not without its pitfalls, and remains contested on the ground.

Drawing on extensive site visits, document analysis, and interviews with planners, tech workers, and community activists, I interrogate the imaginaries at work in architectural renderings, tech office design, and community branding campaigns, while wandering around a built environment characterized by socio-economic polarization, infrastructural failure, and local histories of community self-organization and resistance. In the midst of supposedly frictionless worlds of innovation and cloud-based computation, congested multi-lane freeways, toxic pollution, and clunky buildings from a bygone era structure the everyday lives of local residents. Corporate imaginaries of harmonious urban worlds of pedestrian bliss, where all struggle and strife is outsourced or offshored, contrast sharply with the suburban sprawl, housing affordability crisis,

and racialized social stratification that have historically accompanied the rise of Silicon Valley technology companies.

Weaving together an ethnography of space at the interface of public and corporate realms, I explore how liminal urban spaces and local infrastructure serve as “mediatic vehicles” (Scott 2016) for (re)organizing the relationship between Meta and its suburban host, arguing that these in-between spaces of everyday life have become strategic and contested sites for both capital expansion and social struggles in a digital age. Meta’s City of Illusion, I conclude, draws its seductive appeal and political gains from processes of inclusion, while feeding on new exclusions in an age of supposedly fluid boundaries.

Fabian Namberger (HafenCity University): “Autonomous Vehicles, Operational Images: (In)visual regimes of automation between infrastructural banality and speculative urban future-making”

This paper explores the role of operational images vis-à-vis today’s rising presence of autonomous vehicles (AVs) in urban contexts. First introduced as an idea and concept by filmmaker and theorist Harun Farocki (1944-2014), operational images can be defined by their inherently non-representational nature: Operational images, that is, do not represent any pre-given reality; rather, as explored by Farocki and others after him (Parikka, 2023), operational images generate realities of their own: they do things in the world. In the context of AV testing and implementation, typical operational images show street scenes recorded by the multi-sensory apparatuses of AV prototypes; what we see are streetscapes filled with cars, pedestrians, bikers, dogs, street signs, traffic lights, house facades, bridges, and so on. All of these forms and shapes, subjects and objects, need to be rightly identified and tracked by machine vision algorithms. In order to visualise this process, operational images in the context of AV testing usually overlay these street scenes with simple geometric forms: yellow cuboids may mark the outer contours of human bodies walking through the scene, red cuboids frame other cars driving by, while red and green lines show street limits to the left and right of the AV itself. What is crucial about these images, widely circulating nowadays in the context of autonomous driving, machine vision, and robotics, is the fact that all of these visual aids – cuboids, circles, lines – are not there for the machine itself, which could do perfectly without them, but solely for the human eye. These visual aids and the operational images they belong to exist to make understandable to human observers how the machine ‘sees’ the world. As such, the AV operational image serves as a central interface – necessarily distorting – between human perception on the one hand and machinic vision on the other. It is in this translational function that operational images in the context of automated driving are of utmost political interest.

Operational images such as the ones described above fulfil two main functions in the context of autonomous driving: First, they are used by researchers for the visual evaluation of otherwise largely opaque machine-learning processes. Second, and this will be my main focus, the AV operational image has long found its way out of computer science labs and robotics institutes and made its way into much broader public media and fora such as websites, PR publications, planning documents, newspaper articles, and more. It is here that the AV operational image has not only started to reconfigure earlier techno-scientific urban imaginaries such as that of the ‘smart city’, but also wields increasing influence on space-making professionals such as urban planners, political decision makers, regulators, ‘experts’, and more. It is vis-à-vis these personae, as I argue, that the AV operational image takes its full political effect: it suggests extensive computational

control and predictability where the inherent uncertainty, risk, and changeability of the urban streetscape still prevail.

References

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Valentin Niebler (Humboldt University Berlin): “Contested development: a history of tech urbanism in Berlin”

In recent decades, cities and metropolitan regions have been called upon to present themselves as fertile grounds for tech capital and companies. An illustrative example for this is Berlin, which entered the race to become a “tech city” (Rossi/Di Bella 2017) in the late 2000s, following a municipal debt crisis and a banking scandal. Through a historical lens, the talk characterizes the rise and limits of Berlin as a tech city through a combination of three dynamics: (1) new avenues of enclosure and crisis after the end of the Cold War, (2) high degrees of investment, growth and labor mobility, and (3) a continuous level of conflict between various actors (capital, labor, state, civil society) across the city. The analysis puts the specific role of Berlin and possible future trajectories in the context of other tech cities across the globe.

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Session Ib: Speculating on Sustainability (Chair: Ulf Treger)

C 40.606 & Zoom

Rumen Rachev, Chris Berthelsen, Tsuyoshi Hatori, Christoph Rupprecht, Takuya Iwahori (The University of Auckland, Utrecht University, Ehime University): “Speculative Futures in Urban Weather, Mobility, and Ecology: Reimagining Cityscapes Through Weather Commons and Technological Innovations”

In an era dominated by corporate titans and technocratic elites, the concept of a 'weather commons' emerges as a radical shift in urban management. It goes beyond patenting and prototyping weather control technologies to reorganize urban environments, economies, and governance (Mattern, 2021; Amin, 2013). Weather control isn't just about urban refinement but also about power dynamics determining who controls these mechanisms and why. This often marginalizes 'other urban intelligences'—indigenous, local, and community-based knowledge vital for sustainable urban ecosystems (Mattern, 2021).

We're in a period of computational urbanism, with Big Tech turning cities into data matrices, prioritizing efficiency over human diversity (Sadowski, 2021; Hlongwa, 2020). Cloud seeding and storm diversion aren't just interventions but acts of control risking sterile, data-driven cities (Stewart, 2018; Halpern et al., 2013). Weather control technologies by Golden (2017) and Ma et al. (2018) highlight the need for equitable distribution, serving all urban residents, not just the privileged few.

Emerging 'urban statecraft' involves surveillance, predictive analytics, and automated responses (Cirolia and Harber, 2022). Promising efficiency, it risks deepening inequalities, with affluent

areas enjoying climate control while poorer neighbourhoods face weather risks (Leszczynski, 2016). This risks environmental injustice resembling meteorological feudalism, requiring ethical scrutiny to serve public good over corporate interests (Marres, 2020).

What if we repurpose weather control for communal benefit? Open-source platforms and grassroots innovations could empower communities to manage weather systems and promote equitable urban weather management (Maalsen, 2022; Watson, 2015).

Speculative practices envision urban futures enriched by technology, not dominated by it (Leitner and Sheppard, 2023; Komprouzos-Athanasidou, 2022). They advocate for collectively managed weather commons, integrating diverse knowledge systems for equitable weather management (Rossiter, 2016; Vadiati, 2022). Community-driven weather forecasting and urban climate resilience are vital (Grimmond, 2010; Schmale et al., 2021).

This inquiry into urban weather management and weather commons balances technological innovation with social justice and ecological sustainability, envisioning advanced, equitable, and resilient urban futures (Townsend, 2015; Graham et al., 2019). Integration of these technologies must promote inclusivity and sustainability (Betts et al., 2021; Hallegatte et al., 2012).

Ola Michalec (University of Bristol): “Future Grid: Understanding the Politics of Energy Grid Decentralization as Regional Speculations”

This paper traces the development of grid digitalisation initiatives in the context of the UK energy sector. Critical infrastructure industries are widely regarded as ‘lagging behind’ in terms of the adoption of digital innovations, with the prevalence of legacy operational systems, databases lacking internet connectivity or files stored in incompatible formats. This is exemplified with the case of the National Grid, arguably not built for the purpose of balancing numerous small-scale renewable energy sources scattered across the country. The agenda of grid decentralisation, therefore, seeks to reconfigure the grid from its original national remit to several regional entities. This reconfiguration has significant material, political and economic implications which merit a further academic inquiry.

This presentation will trace the efforts of the UK energy practitioners who are involved in grid digitalisation initiatives, including transmission, distribution and supply systems. The data collection involved expert interviews (25 participants), document review, and observation of 13 open and closed events. A rise of new regulatory functions (Future Systems Operator), licenses (Presumed Open Data) and potential tariffs (locational pricing), implies a set of new distinct visions for regions and cities subjected to decentralisation. What kinds of data or insights are privileged in the creation of those visions? What are the emerging spatial considerations or inequalities?

As new forms of governance are established, it is now more important than ever to keep watch on the questions of power. This requires further regulatory as well as scholarly attention on energy business models, competition, and the risk of regulatory capture.

Session 1c: Panel: Techno-Politics of Urban Investability, with Alberto Valz Gris, Andrea Pollio, Emanuele Sciuva, Mara Ferreri, Desirée Fields, Jillian (Lee) Crandall,

Dimitris Pettas, Giulia Dal Maso (Chair: Andrea Pollio)

C40.704

In her now seminal paper “What is land”, Tania Li argues that the value of land is not a natural affair, or simply the function of market mechanisms, but the outcome of technological configurations that produce “investability” (2014). To render land a resource available for global investment, she writes, “an assemblage of materialities, relations, technologies and discourses [...] have to be pulled together and made to align”. Like land in general, the city too is the object of these speculative alignments, usually analysed under the rubric of “financialisation”. The notion of investability, in this sense, speaks to the mutually technical and political character of financialization (Fields, 2018), which is too often imagined as a mobile frontier that expands by simple virtue of its capitalist nature (Ballestero et al, 2023). Yet, the making of investability in cities requires the calibration of diverse “technologies of imagination” (Bear, 2020) that mobilize different futures and translate them for the urban present. Inspired by these insights, this session focuses on the techno-politics of investability: on the alignments between discourses and technologies of finance that transform cities into a frontier of investment, whichever the kind. The panel welcomes contributions dealing with some of the following questions:

- What strategies are adopted to make the urban “investable” as a frontier for financial speculation?
- How are these strategies legitimized and implemented, technically, discursively, or otherwise?
- Which actors are involved in the process of making the urban investable, and through which techno-political configurations?
- If current categories of understanding financialization tend to treat different actors, strategies and agendas as analytically distinct, can the notion of “investability” help us shift our focus to the speculative alignments that allow financialisation to emerge?
- Can “investability” be used as a lens to understand the intersection between city financialisation, technology and speculation?
- What are the alternative speculations that run parallel or go hand in hand with those that centre on financial value?

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Session Id: Panel: Digital Speculations on Simplification, with Andreas Bischof, Zita Seichter, Sebastian Wucherer, Johanna Fischer (Chair: Johanna Fischer)

C40.256 & Zoom (not public)

We understand speculations in the sense of Object-Oriented Ontology (OOO) as fictional entities related to the expected development of objects, which in turn affect the conception and type of measures directed at this object. As such future-oriented tools, speculations are not homogeneous views that are the same in all areas of urban life. Instead, speculations about objects are highly context-dependent and often even contradictory.

In this panel, we will address the question of how urban speculations in the field of digitality - i.e. ideas about digitalisation processes directed towards the urban - extend through various levels to technology development and implementation. We want to relate three fixed points to each other: 1) political imaginations about the digital, 2) concrete urban digitalisation projects such as digital urban twins and the 3) deployment and use of digital applications in the smart home context.

In our panel, we want to critically discuss how the (in principle speculative) imaginations of digital technologies in cities flow into smart homes and, conversely, raise the hypothesis that the smart home as a privately conceived "capsule" with individual purchasing decisions and modes of use below the urban space informs public speculation about the digital.

14:00-14:30 Demonstration of art installation: Thinking in bits (and with boxes)

C40.530

A speculative audio-installation to be (inter-)activated on location on the (philosophical and artistic) entanglement between packaging labour and collaborative thinking. Conceived, produced and performed by Anke Haarmann & Alice Lagaay with Stephan Kraus & Henrik Nieratschker aka Anlica Kranier

14:30-16:00 Parallel Sessions II

Session IIa: Silicon Cities (Chair: Maja-Lee Voigt)

C40.601

Claudia Seldin (Center for Metropolitan Studies – Technische Universität Berlin):
“Berlin vs. Tech: Hacking the (Dis)Connected City”

The narratives guiding city marketing in Western Europe have shifted dramatically in the 2010-2020s. After decades of insisting on culture and creativity as strong selling points, recent city marketing campaigns have focused more intensively on buzzwords, such as ‘start-ups’, ‘connectivity,’ and ‘digitalization.’ These buzzwords point to the rise of a new competitive urban brand, which reflects efficiency in high technology and knowledge – new motors of the global economy.

The 2020 campaign “wir sind ein Berlin” is an example of the attempt to position the German capital as a competitive tech-city. The campaign is accompanied by public policies that facilitate the construction of tech hubs (e.g., TXL Urban Tech Republic) and the attraction of big tech (e.g., Google, Amazon). Moreover, this image of the tech-Berlin is also encouraged by the real estate sector, which increasingly advertises projects for hybrid spaces, targeting start-up/mobile/IT workers.

Given that Berlin has been dealing with a high influx of international workers and a housing property bubble for over a decade, some groups have begun to protest this new type of

speculative tech-oriented city marketing/real estate development (e.g., No-Google-Campus-Bündnis, Berlin vs. Amazon). Interestingly, some of these groups include tech workers themselves. Their actions often involve the spread of counter-narrative images and visual interventions onsite (e.g., poster hacking), instituting a battle for Berlin's (real/virtual) landscape and illustrating the concepts of tactics and anarchic hacking suggested by the likes of Michel de Certeau and Hakim Bey.

This project seeks to investigate this visual battle for/against the tech-Berlin while positioning the 'connected city' as a new and controversial stage of international urban branding. Here, I will focus on the visual/discourse analysis of marketing and protest material found on the streets and online – from both the municipality, the real estate sector and protest groups. My goal is to show how images/language represent important tools in the fight for the right to the (dis)connected tech city. Understanding this battle can contribute to the ongoing debates about how an urban brand centered on tech can lead to further exploitation of labor, land speculation, and gentrification in cities that are becoming increasingly unequal.

Laura Hille (Leuphana University Lüneburg): “California Forever”

Since 2017, 50.000 acres of land were purchased quietly by undisclosed entities 60 miles northeast of San Francisco in East Solano County. This secretive initiative revealed itself as “California Forever,” led by Jan Sramek, aiming to establish a walkable city for 40.000 residents, generate 15.000 local jobs, and supply clean energy.

Despite Silicon Valley's endorsement, “California Forever” encountered significant local opposition. Concerns over environmental impact, strain on infrastructure, and socio-economic implications of a tech-driven enclave prompted grassroots resistance. Citizen groups like “Solano Together” advocate for transparency, community involvement, and sustainable urban planning, cautioning against exacerbating inequalities and disrupting Solano County's social fabric.

This paper explores California Forever's dynamics, linking to YIMBY movements and comparing with special economic zones and innovative city models. It examines cultural phenomena like Burning Man and futuristic visions such as Prospera, contextualizing within neoreactionary and secessionist ideals of exclusive communities in distant locales.

Analyzing implications for urban planning and social cohesion, this study delves into the broader implications of contemporary techno-utopian ambitions. It scrutinizes the motives of Silicon Valley-backed ventures, posing critical questions about governance and societal impact in urban development projects. Furthermore, it brings into focus the actual plans of a group of investors, who are ideal proponents of the Silicon Valley Ideology, which casts an even darker shadow into today's politics and building projects.

Session IIb: Mobilities/Ecologies (Chair: Valentin Niebler)

C40.606 & Zoom

Karol Kurnicki (Leibniz-Institut für Länderkunde): “Platformisation of Mobility and Making of Urban Futures”

Urban mobility is an area that brings together a broad range of questions and concepts oriented towards the future. How will we travel after oil? Will transportation become adequate and adaptable enough for the changing cities? What is the role of logistics, broadly understood, in the implementation of new technologies?

In the presentation I draw on my research on Mobility as a Service (MaaS) platforms to show how the combination of digital technology, innovation strategies and regulatory adjustments serve to produce mobility futures in cities. The starting point is an argument that platformisation of mobility in the form of MaaS is a model of the development, which cannot fully realise its own promises, for instance in the area of sustainability or social inclusion. At the current stage, it also cannot be implemented fully in existing transportation systems. However, development of MaaS is a strong trend that has to be taken seriously as a proposition of a new, reinvented, networked mobility.

In this context of unfulfilled promises and strong tendency to carry on with the platformisation of mobility, the interaction of MaaS with existing transportation infrastructures is a particularly interesting area. The platformisation of mobility requires a reconfiguration of already existing means of transportation, routes, regulatory systems (e.g. with regard to payment and market relations), energy and accessibility. MaaS systems bring with them a means of testing old transport infrastructures, this time by standards supported by big datasets and computational capacities. At the same time, platforms recreate and reshuffle the old problems of mobility – reliability, social exclusion, uneven coverage, disruptions and breakdowns, energy consumption and more.

With this contexts and examples in mind, I would like to ask what are the specific ways in which digital technologies destabilise and restabilise existing urban systems, in this case transportation? What is the nature of tests that algorithms bring to the city and are they qualitatively different that other kinds of innovation (e.g. by redistributing responsibility across non-human actants and processes)? Lastly, how can we resist, co-create and direct the urban futures that platforms make and what governing processes would have to be developed for that purpose?

Avishek Ray & Atriya Dey (National Institute of Technology Silchar, Indian Institute of Technology Bombay): “Infrastructures of Speculative Mobility Toto and Vano in Rajarhat”

Contemporary urban speculations are not just limited to financialization processes, but also involve socio-spatial (re)ordering in the context of everyday citymaking. This paper examines how the drive toward “smart” technologies vis-à-vis urban mobility and public transport in Rajarhat New Town, in the eastern fringes of Kolkata, seeks to achieve socio-spatial (re)ordering. Here, we use the “toto” – an e-rickshaw, a type of electric three-wheeled vehicle widely used in urban peripheries in India for short-distance/last-mile connectivity – as a case study to illustrate how speculative smart infrastructures interfere with certain local forms of city-making including vehicular arrangements, provisioning logistics and territoriality. How does the local logistical infrastructure around toto impact and is impacted by speculative smart urbanism? How do those who commute by, drive, make, assemble, endorse, contest the particular vehicular format interact with the smart discourse? What does this say about shifting or persistent power relations and sociocultural (trans)formations in peripheral urban spaces and as importantly, the prevailing speculative principles of city-making? The shift towards introducing/using the toto is principally guided by ecological concerns, although their battery production and disposal are not ecologically sustainable. Our concerns, however, within the remit of this paper, are not limited to ecology per se. Instead, we work on the interface between discourses of smartness and that of

ecological consciousness, how they co-constitute each other, and interfere with the politics of the prevailing mobility paradigm. Recent scholarship on energy history points that any energy transition is more “a layering” of a diverse range of energy provisioning and social contingencies, than “a discrete, punctuated shift” from one stage or system or to another (Gross and Needham, 2023: 13; Barak, 2020). By the same token, based on our ethnographic study in Rajarhat, we contend that toto is not a discrete shift to sustainable engineering solution, but punctuated by layers of economic provisioning and social contingencies amid a diverse range of urban speculations that we examine in this paper.

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Stefan Janković & David Adam (University of Belgrade): “Inhaling Data, Exhaling Politics: Speculative Ordinaries and the Infra-Commoning of Belgrade’s Atmotechanical Sensecape”

Somewhat escalating, the matter of atmospheric pollution in Belgrade in recent years has catalyzed a massive public controversy, followed by alarming health reports, speculations on major pollution sources and, inevitably, an unsettling inability to navigate political responsibility. What predominantly pushed this public controversy forward is a proliferation of digital atmotechanical infrastructures that render air quality visible and calculable. Relying heavily on DIY strategies, such a machinic collection of instruments, digital devices, citizen-deployed pollution gauges and techniques that translate the complex, more-than-human phenomenon of atmospheric toxicity, have ultimately led to the assembling of a distinct urban sensecape. Yet, such a form of toxic urbanism has largely remained contested. Becoming what we term as “speculative ordinaries”, these atmotechanical infrastructures propelled competing practical registries about prolonged, human-induced changes to the urban atmosphere. Drawing on urban assemblage theory and growing literature on “making and doing” in Science and Technology Studies, we discern how infra-making of atmotechanical infrastructures engenders speculative ordinaries and unfolds as affective acts of infra-commoning. By deploying digital ethnography and cartographic analysis, we first explore in detail how the infra-making of atmotechanical infrastructures and such digital inscriptions enable the territorializing of air quality as sensecapes. Specifically, we underscore the computational capacities of air monitoring applications, their geographies, along with DIY knowledge. Secondly, we trace how emerging urban intelligence becomes highly speculative in evolving trajectories of infra-commoning. Our analysis maps and describes three major strategies of commoning air pollution, with distinct registries. Addressing toxic urbanism by activists, who predominantly stand behind the proliferation of digital atmotechanical infrastructures, thus involves attributing pollution to a lack of political control and justifying the matter of toxicity in terms of general well-being. Officials, however, espouse a counter-narrative, downplaying and portraying air pollution as a manageable byproduct of urban-economic growth. Concurrently, alt-right narratives propagate a narrative of orchestration, suggesting deliberate pollution by foreign actors. Ultimately, we argue that despite ambivalent outcomes in the infra-commoning of air pollution, the spontaneous infra-making of sensecapes as speculative ordinaries represents a peculiar otherness of urban intelligence, and as such, offers a vital avenue for reimagining urban futures.

Session IIc: Real Estate (Chair: Mathias Denecke)

C40.704

Lena Greinke, Linda Lange, & Johanna Richter (Leibniz University Hannover, Institute of Environmental Planning, Working group Spatial Planning and Regional Development):
“From Consumption to Co-Design and What’s Next? A Closer Look at the Interim Use ‘Aufhof’ of the Former Shopping Centre ‘Kaufhof’ in Hannover’s City Centre”

Places of consumption and consumer behaviour are constantly changing. The increase in online retail, exacerbated by the Covid pandemic, the closure of bricks-and-mortar retail shops due to reluctance to buy and rising rents (e.g. Bundesstiftung Baukultur et al. 2020; BMI 2021; Deutscher Städtetag 2021; Klemme 2022: 6) make it clear that the question of how the “centres of the future” can be designed and what planning strategies are needed for a lively, sustainable and resilient (re)revitalisation of city centres remains central. The closure and the pressing question of how department stores and shopping centers can be repurposed arise.

Temporary uses and conversion concepts for department stores are already being discussed, trialled and applied (Klemme 2022: 8; Renner 2022: 25; Willinger 2022: 45). Civil society approaches such as the example from “Shoppingmall to Carecentre” in Berlin shows an innovative and socially oriented approach how to transform existing buildings. Other concepts pursue the approach of developing former consumer centres into cultural venues and places of encounter. For example, the Berlin Central and Regional Library is to move into the Galeria Lafayette (<https://galerielafayette.de/>). The Karstadt Sport building in Hamburg's Mönckebergstraße is being temporarily used as the “Jupiter” creative centre (<https://www.jupiter.hamburg/>) and the former Kaufhof department stores' in Hanover has also been in interim use since summer 2023. The “aufhof” has developed into a place for people to meet, learn, discuss and experiment in the city centre (<https://www.aufhof-hannover.de/>). The interim use is currently due to be extended until July 2024. The proposed paper aims to address the pressing question of how the status of interim use can be transformed into a long-term and sustainable conversion. As a result, the actors' strategies for preventing demolition and achieving long-term repurposing are to be summarised. Using literature review, network analyses and participant observations, the actor constellation and the current process with its uncertainties builds the focus of the paper.

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Emanuele Sciuva (DIST – Interuniversity Department of Regional and Urban Studies and Planning Politecnico di Torino): “Nomadlands: Digital Nomadism, Geoarbitrage, and Infrastructural Speculations”

The rise of remote work, accelerated by the COVID-19 pandemic, has significantly altered work culture, especially among knowledge and creative workers. This shift has facilitated the growth of digital nomadism, where individuals work remotely while traveling, often seeking lower living costs—a practice known as “Geoarbitrage” (Ferriss, 2011). Against this backdrop, Lisbon has become a prime destination for digital nomads due to its scenic appeal, affordable living expenses, and a growing innovation ecosystem, transforming the city into an attractive hub for this mobile workforce (Rosenberg and Brent, 2020).

This research uses descriptive data, digital ethnography, and interviews to investigate how the infrastructuring (Wiig et. al, 2023) of digital nomadism takes shape in Lisbon through various actors and forms of speculation. The first layer of speculation comes from the digital nomads themselves, engaging in Geoarbitrage practices to maximize their quality of life or cope with increasing precariousness. The state further speculates by crafting ad-hoc policies and taxation programs to attract and accommodate these nomads, providing a tailored migratory infrastructure (Mancinelli and Molz, 2023). Additionally, new platform-mediated medium-term rental markets (Cocola-Gant and Malet Calvo, 2023) have emerged on Airbnb, Uniplaces, Spotahome, Idealista, and Flatio, becoming crucial in offering diverse rental options for varying lengths of stay, catering to the needs of digital nomads and temporary residents (Brollo and Celata, 2023). This, in turn, is reshaping the urban rental landscape and having detrimental effects on the long-term housing stock (Colomb and Gallent, 2022).

By exploring the speculative nature of the infrastructuring of digital nomadism, this study aligns with the conference's focus on the technological, financial, legal, and social dimensions of urban speculation. It provides insights into how this emerging “Digital Nomad Infrastructure” (Toivanen, 2023) shapes and is reshaped by a complex interplay of factors, actors and agendas that collide and merge with existing trajectories while reshaping urban futures.

Kostas Gourzis & Georgia Alexandri (University of the Aegean, Karlsruhe Institute of Technology): “Real-Estate Speculation in Athens: Housing Financialization and Different Waves of Gentrification in a Tertiary Growth Model”

The last years housing in Athens has become unaffordable. After a decade of onerous austerity, income and wealth loss accompanied by negative evaluations from credit institutions, international investments in local residential real-estate come with high capital turnover. Drawing on critical geography and urban political economy, this presentation follows real-estate speculation in the economic development of the country by placing the spotlight on Greece’s recent shift from a construction-driven to a tourism-dependent model and the role of housing financialization. We suggest that real-estate speculation is connected to gentrification and the later has organically adapted to the changing urban growth model. In detail, with Greece’s growth models diachronically relying on extracting value from the built environment, gentrification has continuously served as a prime mechanism to exploit rent gaps. Lately, as the economy is positively rated and investment risk is waived, international and institutional investors acquire assets and properties, place them in short term rental (STR) platforms like Airbnb, provoking rent increases, displacement pressures and a relevant shortage in housing. In other words, while the financialization of housing is producing housing supply, as local households sell properties and land to serve debt obligations, platform urbanism allows the production of novel exchange values from the city. We rely on mixed-method approach consisting of a quantitative analysis that develops a construction index utilising real estate and STR platform data to decipher Greece’s shifting sectoral priorities and a qualitative analysis on the different waves of gentrification. We

explore the role of the state in enabling real-estate speculation to delineate speculation as key component of gentrification and housing financialization that reconfigures urban futures of displacement and housing dispossession. We finally juxtapose the concepts of -tourist-gentrification and housing financialization to foster a more coherent comprehension of these processes of violent urban transformation.

Session IId: Spatial Governance and Techno-Scientific Development: Emerging Modes and Concrete Implications, with Ruggero Signoroni, Devika Prakash, Deepa Joshi, Adriana de la Pena Espinosa and Michelangelo Fusi (Chair: Ruggero Signoroni)

C40.256 & Zoom (not public)

Nowadays the keys of urban futures are entrusted to a new form of evidence-based governance underpinned by the rationale of techno-scientific development, and steered by a constellation of urban stakeholders (from academia to private companies and public bodies) which revolves around the quest for 'scientifically informed' decision-making. Hence, urban governance is faced with a radical process of reconfiguration within which the interplay of different phenomena is paramount. Amongst them could be mentioned the interweaving of cyber and human realms propitiated by the 'cybernetic urbanism' (Krivy, 2018); the increasing 'automatized' management of urban services (Cugurullo, 2020); the establishment of new epistemic communities and powerful advocacy coalitions (Kitchin et al., 2019).

By hosting contributions from different disciplinary fields - planning theory, science & technology studies, spatial planning, urban studies, transportation planning - we seek to unpack the emerging modes of 'scientification' and 'technologization' of governance practices in an age of urban datafication and quantification (Mattern, 2013). In detail, we argue that the quest for science-driven solutions in urban planning and spatial governance is underpinned by a much broader, structural phenomenon. It consists in a mindset shift whereby technology, far from being conceptualized as a mere tool at disposal of expert knowledge, has become an overwhelming force. Hence, by resorting to a strand of Italian Philosophy of Technology (Severino, 2021), we posit that the current trends of 'scientification' and 'technologization' of spatial governance are consistent with the rise of technology to domination over socio-cultural and political processes. This interpretation draws on Severino's ontological stance whereby technology, understood in terms of scientific specialization, constitutes mankind's interpretation of reality (Pitari, 2020). Conceived as such, technology's domination is (also, but not only) reflected in the reorientation of human initiatives towards rationales of specialization, rationalization, efficiency and productivity (Gehlen, 1980). Within the sphere of urban affairs, this has to do with the disintegration of the traditional expertise, superseded by the 'new urban technocrats' (Raco & Savini, 2019). In the age of technology, experts from the hard sciences like physicists, computer scientists, data scientists, and engineers (to mention but a few) are called to supplement urban planning practice with data-led solutions to diagnose and address urban problems (Karvonen et al., 2021).

Concrete implications of such breakthroughs are explored in the following contributions, each bringing a unique case study spanning from northern (Sweden) to eastern (Latvia) Europe, through a mediterranean country (Italy) to the global south (Latin America and India). Signoroni and Prakash will provide a theoretical framework, deepening processes underlying the phenomena of scientification through empirical evidence of respective case studies, then gradually moving to the

concrete functioning of technological solutionism (Joshi, de la Peña Espinosa), concluding by dwelling on how such approach can be exploited to address socio-political issues (Fusi). Aim of our contributions is to assess to what extent science driven approaches work, either at the epistemological and operational levels.

16:30-18:00 Keynote Plenary: Speculating the City, with Niloufar Vadiati, Andrea Pollio and Aris Komporozos-Athanasiou (Chair: Ilia Antenucci)
C40.606 & Zoom

How do urban speculations hit the ground, seeking to extract calculable futures from collective intelligence, facing tactics of subtraction and subversion? Closing the first day of the conference *Urban Speculations: Cities, Technologies, Future*, this panel picks an eccentric angle on the manifold ways cities are shaped by and through speculative practices. Beyond the 'usual suspects' of urban speculations - Big Tech monopolists, autonomous vehicles, predictive policing, and the like - this panel will look closely at the ways in which speculations by means of AI, and AI by means of speculations, are folded into the fabric of urban life and problems. At the same time, while predatory attempts to forecast, prototype and monetise urban futures proliferate, urbanites don't stop resisting and fighting back. The panel narrates grassroots projects and experiments that counter-speculate on the city: disconnecting, hacking, re-programming.

Andrea Pollio (Polytechnic of Turin / African Center for Cities): Speculation by approximation: fragmented urban systems and digital platforms in urban Africa

Several urban scholars argue that we have entered the era of urban AI implementation and that we need to look at and question all those autonomous technological forms that are being embedded in urban fabrics. These AI applications are speculative in a number of ways: they entail preemptive logics, they try to monetize things that are by their nature illiquid and therefore hard to commodify financially, and they are dicey because the risk of failure is high. But another speculative dimension concerns the kind of "AI" that is being experimented. The history of AI is marked by a debate between symbolic and connectionist approaches: the former seeks an elegant hand-coded solution to the problem of replicating human discernment, the latter tries to mirror human intelligence using approximation by way of neural networks that are optimized through gradient-descent algorithms. Today, so-called AI systems are dominated by the second approach. This being the case, my provocation is that a "speculation by approximation" ethos is evident in the platforms experiments that seek to find digital solutions to problems of urban life in African cities - whether it's access to energy and water or more sophisticated services of financial inclusion. Drawing on my research in Nairobi, I trace some of the ways in which convoluted, socialized forms of intelligence are replicated and mirrored (yet another meaning of speculation) through run-of-the-mill approximation algorithms that seek optimized but imperfect solutions to urban fragmentation. These cases push us to rethink the boundaries of urban AI speculation beyond autonomous vehicles and machine learning algorithms.

Niloufar Vadiati: Grassroots Speculation of Digitalised Future of Berlin. From Refusal to Alternative

For those who see urban as a set of relations and practices that are inherent to contemporary global capitalism (Alvarado and Vegliò, 2023; Brenner, 1998), the question of speculation brings their attention often to how finance is mobilised to realize opportunities for accumulation, particularly within the real estate sector (Fields, 2023; Goldman, 2023). However, reducing speculative urbanism solely to the nexus of finance and real estate seems to be limiting, since urban living is and has been always involved a conjuncture in which everyone is speculating, from local land aggregators to kampung residents to state-owned enterprises to ride-hail drivers (Leitner/Sheppard, 2023); while everything is being also speculated from capital to culture.

Particularly amid living under market instrumentalisation of futurity, grassroots speculation serves as a survival strategy, encompassing a wide range of imagines of alternative social and spatial futures that envision the multiple possibilities that exist beyond capital's reach (Aimee Bahng, 2018).

With 'Digital Turn' (Amin et al., 2015; Datta, 2018) though, the speculative urbanism has become datafied, algorithmic, platformised, and more than ever mundane and open to bottom-up urban mobilisation. In other words, just as much as speculation for profit is inherent to urbanism, so does refusing and prefigurative re-imagination toward a future that could be 'otherwise'.

From refusing the looming tech-solutionist, 'black-boxed' algorithmic governance, commodified and exclusionary urban space, to reclaiming the right to the unfixed and playful urban space along with sovereignty over digital tools and technological infrastructure, alternative digital urbanism (Vadiati, 2022) can be considered another register of urban speculation being experimented by urban denizens.

Telling the tales of how grassroots practices around Berlin' digitalisation process are unfolding and inter-played in the city, in this panel, I offer detailed accounts of initiatives and collectives that are building activist architectures; constructing alternative knowledge infrastructures; and counter-programming software.

Aris Komporozos-Athnasiou (University College London): Counter-Speculating the city

Thursday 6th February 2025

**9:30-11:00 Keynote: Lauren Bridges (University of Virginia):
Toxic Bets: How Amazon's Speculation Shapes Cities and Communities
(Chair: Armin Beverungen)**

C40.606 & Zoom

11:30-13:00 Parallel Sessions III

Session IIIa: (Un)Desirable Futures (Chair: Niloufar Vadiati)

C40.601

Abigail Kemper, Yuming Pan, Carine Ingabire, Dora Hegyi (UNITAC/HafenCity Universität): “Meeting them where they are at – Resilience-building by co-developing digital and data capacities with five Namibian towns”

The idea of the Smart City – with the goal of building resilience and enabling better service delivery in urban areas through the application of digital technologies – has become a global urban agenda since the early 2000s (Kitchin et al., 2019). There is a plethora of use cases and best practices illustrating how cities over the world adopt technologies ranging from real-time mobility management to the analytics of temporal dynamic data (Engin et al., 2020). However, digital transformation in local governments does not take place uniformly: there is a digital divide between the adoption of technology and digital solutions between cities and towns. Furthermore, as Offenhuber (2019) highlights, the objectives of smart city projects are often framed for cities in developed countries, far from the realities of towns in the developing world. These local governments often lack capacities and resources to digitalize urban management and development processes and advance in data-driven decision making.

This presentation discusses the experiences from a research project focusing on collaborating with various urban stakeholders to build digital and data capacities within five Namibian town councils. Situated within the field of sociotechnical transition theories and system innovation, the sustainable

Smart city transition theory developed by Mora et al. (2021) is adopted as a framework to reflect on the urban development pathways of the five Namibian towns and untangle the complex stakeholder landscape around them. The relevant urban stakeholders’ (town and city councils, NGOs, international development agency, ministry) data and digital maturity levels, needs, agendas and potential transition pathways were conceptualized based on information collected through interviews, ideation workshops and surveys.

One of the key findings of this research process is recognizing and acknowledging the necessity to (re)configure and (re)conceptualize the discussed smart city project to fit local conditions. By examining the similarities and differences among the four towns and one city involved in this project, this work explores how urban professionals and researchers can effectively ‘meet cities and towns where they are at’ in their smart city transition journeys and what this means in practice?

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Pamela Carralero (Kettering University): “Afrofuturist Ecofiction Rethinks the Relation Between Data and Urban Space”

Metaphors of data as a natural force or resource to be controlled and consumed (e.g., oil, floods, clouds, food, fuel) permeate digital urbanist rhetoric. So far, scholars have contextualized the use of these metaphors as unconsciously working to forestall or veil ethical or regulatory interventions into data use and mining (Gitleman and Jackson 2013; Stark and Hoffman 2019; Crawford 2020). At a more fundamental level, however, data metaphors mark an implicit, culturally generated relation between data and space that has implications for how urban futures are envisioned and designed. Characterizations of data-as-object proceed from (and are impossible without) imagining space through a Western-dominated Euclidean geometric framework, wherein space is an area or surface “on” which objects are placed, plotted, moved “across,” or extracted “from.” Such connotations inform capitalist and colonial registers that see space, bodies within space, and data obtained from or applied to these bodies as mere assets defined and controlled by traditional ownership and governance paradigms (Couldry and Mejias 2019; Hlongwa 2020).

This presentation counters hegemonic spatial imaginations in digital urbanism, exploring how Afrofuturist urban ecofiction decolonizes the space-data relation. I focus on American-Nigerian author Deji Bryce Olukotun’s short story, “The Scent of Freetails” (2021) and American-Nigerian architect-artist Olalekan Jeyifous’s digital media exhibition *Frozen Neighborhoods* (2020, MoMA). In these works, near-future black and brown neighborhoods in San Antonio, TX and Brooklyn, NY co-opt digital infrastructures to build sustainable, advanced ecological technologies attuned to circadian rhythms. In the process, data is transfigured from an object to a form of self-sovereignty that democratizes civic technology, rendering it fugitive from market and state. Space is similarly recast, transformed from a policed surface mappable along racial and ethnic lines into a condition of communal interconnectedness. Olukotun and Jeyifous’s techno-urban-nature imaginaries offer emancipatory conditions of urban possibility that hold applicable lessons and goals to city-making practices. This presentation is an interdisciplinary thought-partner to digital urban scholarship dedicated to drawing conceptual frameworks for anti-racist and care-filled digital urbanisms (Russell 2020; Kite 2020; Vadiati 2022; Chang and Johar 2022; Voigt 2023).

Session IIIb: Digital Twins (Chair: Michaela Büsse)
C40.606 & Zoom

Yanai Toister (Tampere University, Finland): “Driving and Drivering”

This paper interrogates the epistemological ramifications of Waymo’s self-driving technology on perception and urban space, proposing that Waymo’s “Driver” signals a fundamental shift in the phenomenology of human interaction with quotidian environments. Importantly, Waymo’s Driver is systematically trained via detailed cartographic mapping and predictive modeling of road conditions, cultivating a form of computational urbanism where a digital twin functions as an ontological model for the real city. During operationalization, pre-acquired cartographic and other data are synchronized with real-time sensor inputs and processed through artificial intelligence and machine learning algorithms, to determine precise kinematic trajectories and future maneuverabilities. This technological mediation subverts traditional notions of agency and

subjectivity by supplanting the seeing subject with a distributed network of human and non-human actants, expanding the concept of "seeing" from conspecific to cross-species paradigms.

Operative imaging systems, indispensable for autonomous transportation, rely on extensive data-basing and various modalities of vehicular communication. Of those, Vehicle to Vehicle communication (V2V) is crucial for collective operativity, enabling vehicles to disseminate information beyond the line-of-sight, thereby forming a decentralized mesh network that enhances vehicular situational awareness and decision-making processes. By synthesizing sensor data with V2V communication, autonomous vehicles thus achieve a form of augmented and collective perception, an emergent propensity observable in species such as bats and dolphins, which precedes human technological innovation. This necessitates a reexamination of ethical and epistemological perspectives on non-human sensing and the future trajectory of human-machine interfacing, which arguably effaces the dichotomy between physical and digital realms.

Daniela van Geenen, Carolin Gerlitz & Max Kanderske (University of Siegen):
"Dutch Cycling Intelligence: Challenging Digital Twins as Urban Platforms for Managing Micro-Mobility"

Understood as governing platforms (Richardson 2020), digital twins are praised in smart city discourses as tools for testing diverse infrastructure scenarios, rendering municipal planning processes transparent, participatory, and efficient. This article focuses on the case study of Argaleo, whose digital twin platform fuels the "Dutch cycling intelligence" program, figuring as a technical interface and web-based dashboard to connect, standardize, and make accessible diverse kinds of micro-mobility data. Here, cycling is framed as an alternative, sustainable form of micromobility promoted by data analytics. We conduct a discursive-material analysis to follow the epistemic object of the digital twin through its creation and use in the context of public management. Understanding Digital Twins as "steering technique that relies on a non-neutral and incomplete representation" (Korenhof et al. 2021), our analysis surfaces the "socio-technical imaginaries" (Jasanoff/Kim 2015), in particular the "big data imaginaries" (Rieder 2018) that various stakeholders connect to the technology. By highlighting frictions and alternative ways in which the digital twinning of a city (cf. Mattern 2021) could play out, the article provides a critique of the dominant technocapitalist view on municipal policy-making, questioning digital twins' utopian promise of democratic decision-making.

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Harrison Smith (University of Toronto): "What If' States: Digital Twins as Speculative Urbanism"

Urban planning, applied sciences, and advanced fabrication, and other areas dealing with complex systems have become invested in 'digital twins' (DTs) to assist in many aspects of systems integration and optimization. Briefly, DTs can be defined as a real-time two-way coupling between physical systems and a digital/virtual representation of that system (Wagg et al., 2024). DTs represent a "reengineering of structural life prediction and management" (Tuegel et

al., 2011) by intensifying processes of datafication, prediction, and optimization. Proponents of DTs claim that, eventually, everything—and everyone—will have a digital twin.

DTs are often framed by ontological assumptions that DTs represent a realistic and neutral understanding of a particular system, thereby helping to gain deeper insights into the nature of reality (Batty, 2018; Korenhof et al., 2021). Such views have recently been contested. Emerging research investigating the social and urban aspects of DTs has highlighted its multiple meanings and epistemological challenges of how uncertainty is managed in DT models, in turn posing broader questions of values, ethics, policy and governance (Goodchild et al., 2024). In this respect, DTs form a crucial extension to ongoing discussions of ‘smart city’ datafication and urban governance, and the possibilities of enacting ‘cybernetic’ systems of urban control (Gabrys, 2014; Krivý, 2018). DTs, in short, gesture to changing organizational logics that perform specific kinds of social, economic, and political relations that, in turn, gesture to the need to combine philosophical and empirical research to critically understand the politics of urban simulations.

A critical, but unanswered question therefore emerges concerning the distribution and delegation of agency and power in DTs. This paper seeks to engage with this question by critically situating DTs within postphenomenological theories of human-technology relationships (Ihde, 2009; Rosenberger and Verbeek, 2015), and their impacts on space, form, and power (Ash, 2018, 2020). I argue that Postphenomenology is particularly well suited for understanding DTs due to its emphasis on multistable relational ontologies between people, technologies, and environments that help understand the ‘geographies of delegation’ that distribute agency between humans and objects (Akrich, 1992).

I illustrate this by specifically examining the Digitale Schiene Deutschland DT as part of a €12.7 billion effort to ‘modernize’ and automate the Deutsche Bahn rail network by building an AI-driven country-wide DT of the rail network. I unpack the industrial partnerships and processes of path dependency that occur between an assemblage of actors and objects, such as between platforms, sensors, and data processing infrastructures. From here, the paper reflects on how DTs are valued as an object for automating systems (not simply extending human perception) because they extend epistemic relations between objects and environments that could not otherwise be fully recorded in practice (“what if” scenarios that can anticipate countless possibilities). In this respect DTs represent a reorganization of agency within a complex sociotechnical system (rail infrastructure) by delegating operational practices to a complex of non-human objects.

Session IIIc: Infrastructures of Speculation (Chair: Sophia Leipert)

C40.255

Prem Sylvester & Anthony Burton (Digital Democracies Institute, Simon Fraser University):
“Modular Logistics: The Physical Internet in the City”

The “physical internet” (Montreuil 2011) is a speculative project that applies internet notions of packet-switching and network interconnectivity to logistics. Central to the project is the pi-container, analogous to TCP/IP packets: a modular, standardized container embedded with

digital technologies. Each container is the “private space” of a shipper, enabling multi-dimensional forms of goods encapsulation and stacking (Montreuil, Meller, and Ballot 2012). Pi containers are constantly communicating with other containers and the distributional nodes of the logistical network. Container modularity changes not just the relationships between logistical actors but the material forms of what Ned Rossiter terms ‘soft’ (digital) and ‘hard’ (container handling, storage, and truck yardage) infrastructures (2016). The PI moves urban logistics away from “non-standardized proprietary transit centers” towards a multiplicity of nodes distributed at short hops throughout the city. Aiming for more efficient optimization, rationalization, and coordination (Shapiro 2021), the PI attempts to translate the internet’s distributed structure into a mode of logistical governance.

Our paper examines how the physical internet proposes to reimagine logistical infrastructures that depend on certain images of the city and the internet. Through an abstraction of materiality, the pi-container’s modularity and standardization commandeer logistical activity and exert a self-agency composed of logistical imperatives. It takes inefficiencies as a problem amenable to computation instead of one grounded in material considerations of life, labour, and urbanity. PI-containers mobilize pre-existing infrastructures to get them to where they need to go, with a decree to govern the city in the logistical image.

Noel Chung (University of Cambridge): “Friction-Free Cities: Emerging Infrastructures and Spaces of Contactless Delivery”

On-demand delivery platforms, hailed for providing essential services during the COVID-19 pandemic by facilitating the delivery of goods and food for immobilised populations, continue to proliferate in many cities. Building on infrastructure studies and mobilities research, I approach platform-mediated delivery as urban logistics infrastructure, an assemblage of heterogeneous entities, which privileges certain modes of circulation and movement. Delivery platforms have become important mobility regimes by generating and regulating flows of food, things, people, and information. Operating on the technological and urban ideal of frictionlessness, they particularly strive for frictionless mobility.

Using the case of Baemin, the most used South Korean food delivery platform, I explore how this pursuit of frictionless movement reimagines and restructures urban space. The platform enables a particular kind of circulation and connections while generating disconnections that advance sanitised space and fragmented living, amplified by the deployment of emerging smart technologies such as delivery robots. Drawing on a mobile ethnography in the Seoul Metropolitan Area, I present my on-the-move encounters with urban actors, including food couriers, dark kitchens, apps, doorsteps, and delivery robots. I firstly illustrate how a frictionless city requires a contactless mode of delivery, entailing infrastructural and spatial transformations characterised by wordless communication, automated operation, and robotised interactions. I then turn to the current urban experiments of delivery robots aimed at further elimination of human-to-human contact, or friction, through automation of contact points. I investigate the ongoing and anticipated urban spatial restructuring brought about by robotics and automation, which emerges as a spatially and socially uneven process. Finally, I speculate on what becomes of a city when it seeks to become frictionless. I also explore how smart mobility technologies can help create spaces that encourage encounters and intersections, instead of avoidance and distance. Baemin’s vision of frictionless mobility is premised on the understanding of friction as a source of a slowdown or blockage to efficient circulation. Following Tsing (2005), I ask: what is friction and to whom? I

consider what enables friction and circulation, and how practices of reframing friction can offer ways to think about and make more inhabitable cities.

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Fabian Halfar & Niklas Steinke (Center for Metropolitan Studies, TU Berlin): “From Cloud to Ground: Negotiating Space and Resources for Hyper-Scale Data Centers in Berlin”

In numerous urban centers and their peripheries, we observe a proliferation of extensive digital infrastructure projects, particularly in the form of hyper-scale data centers (HSDC). These large-scale facilities house thousands of high-performance servers that provide critical computing capacities for cloud computing, big data analytics, and machine learning applications. What drives this expansion of HSDCs is the advanced use of cloud technology, the unleashed competition around generative AI and increased datafication through smart technologies in energy and industry sectors. Additionally, data centers are already a profitable asset class for investors.

In the region of Berlin-Brandenburg multiple HSDCs are currently planned and constructed. A closer look at the expansion of data centers, its drivers and modes of operation reveals a political economy that intertwines digital capitalism, urban development and energy infrastructures.

The immense power and water consumption of HSDCs puts significant pressure on urban infrastructure networks and resources. As a result, some cities are experiencing ‘energy gentrification’ or have stopped building HSDCs altogether. Data center operators, in turn, are promoting their infrastructures as green technologies, powered by renewable energy and transforming the city's heating networks by harnessing the excess heat generated by servers. As a consequence, operators are transforming their ‘platform power’ into material ‘infrastructure power’, speculating on becoming an integral part of future urban infrastructure systems.

While HSDCs are the refineries for what scholars describe as ‘data extractivism’, an examination of the energy input required by data centers uncovers their reliance on and exploitation of urban infrastructures. This is what we call ‘infrastructural urban extractivism’. Yet HSDCs proliferation remains ambivalent, as many everyday activities and public services are processed through data centers. However, the expansion of HSDCs as a profit-oriented and proprietary infrastructure inscribes digital capitalism into the material fabric and supply infrastructures of the metropolitan region. These emerging networks of private-public infrastructures further cement monopolizing tendencies in the field of digital technology and produce unequal geographies across rural and urban landscapes. Therefore, the logic of HSDCs expansion preclude alternative future scenarios of more democratic and equitable urban development and urban life.

14:00-14:15 Book Launch of *In/Convenience: Inhabiting the Logistical Surround* (eds. Joshua Neves & Marc Steinberg, INC, 2024), with Marc Steinberg (Concordia University) and authors
C40.530

14:30-16:00 Keynote Plenary: Amazon & Co., Resistance is Not Futile – Mapping Big Tech’s Impact on Places, Politics, and Futures, with Katja Schwaller (Stanford University), Yonatan Miller (Berlin vs. Amazon), Constance Carr (University of Luxembourg), and Maja-Lee Voigt (Moderation)

C40.606 & Zoom

At the very latest, the last months have made the political influence of Big Tech on governments, public infrastructures, and negotiations about (democratic) futures blatantly clear. While X-owner Elon Musk has been nominated to co-chair one of the new US-administration’s departments, Amazon (Web Services), among others, is not only a crucial infrastructure provider of the Pentagon, but has also just halted its diversity and inclusion programs – probably as indirect endorsement of Donald Trump’s (future) political agenda. As one of the biggest tech companies of the world, Amazon is an especially important player to watch here: being embedded in manifold industries (from its most famous – retail – to security, healthcare, and cloud computing services) it has established an ecosystem of dependency and convenience like no other.

Together with experts Katja Schwaller (Stanford University), Yonatan Miller (Berlin vs. Amazon), and Constance Carr (University of Luxembourg) we want to critically analyze Amazon & Co.’s still growing impact on everyday urban life. Be it corporate city designs, interest in public infrastructures, future ecological footprint via its cloud computing services, and most urgently, its political influence, Amazon and Big Tech in general have significantly shaped urban environments after their own technocapitalist image. Now more than ever, it is time to question how they expand their reach through invisibly taking place and to mobilize against their extraction of data, spaces, and public goods. How can we join forces across activism and academia to break with their speculations on privatized, anti-democratic, and homogeneous visions of ‘Technopolises’ that city administrations from Berlin to the Bay Area seem to court? What are strategies and counter-speculations against Amazon’s efforts to be the ‘infrastructure for everything’ to power the future?

16:30-18:00 Parallel Sessions IV

Session IVa: Counter-Speculation (Chair: Klara Friese)

C40.601 & Zoom (not public)

Sam Hopkins (Academy of Media Arts, Cologne): “Digital Baze: Offline Media Exchange in Nairobi’s Eastlands”

The practice of offline media exchange in Nairobi’s Eastlands offers a compelling counter-speculation to the dominant narratives of “Silicon Savannah”, Nairobi’s moniker as a techno utopia. This informal, people-driven infrastructure for sharing digital content challenges the

consumerist and extractive logic of platform capitalism that increasingly defines our online and offline existences.

My research employs ethnographic and artistic research methods in Nairobi's ""bazes"" (informal spaces of congregation for publics of shared interests) to try and understand the scope and significance of offline media exchange located in ""Eastlands"" (the eastern part of the city characterised by low income housing and a lack of public infrastructure). In this presentation I will explore the ways in which how some Nairobians, or Eastlandas (residents of Eastlands) have developed their own social practices and infrastructures for accessing and circulating media outside of online platforms and commercial services. The sharing of films, music, and other digital content via peer-to-peer smartphone connections (Bluetooth, Xender, Shareit) represents a form of ""counter-speculation"" - an improvised, bottom-up response to exclusion from mainstream digital services and the surveillance capitalism that underpins them. Rather than the top-down, data-driven visions of urban planning and ""smart city"" development, this offline media exchange points to alternative modes of city-making emerging from the everyday tactics and social networks of marginalized urban residents.

This presentation will draw on qualitative and quantitative research conducted from March-September 2024 in collaboration with Nairobi-based co-researchers, Sam Gathanga and Francis Nyasili. Our approach, which includes Focus Group Discussions, participant observation, in-depth interviews, and a survey of offline data sharing practices, centres the perspectives and experiences of Eastlands residents. This research hopes to contribute to a decolonial approach of understanding the speculative dimensions of urban informality and the radical potential of ""anti-predictions"" in shaping more equitable and emancipatory futures.

Torben Körschkes (Leiden University / Royal Academy of Art The Hague): "The Erratic as a Reconfiguration of the Unity of the Spatial"

Starting from its geological origin, I attempt to formulate the erratic as a figure of anti-predictions. Erratics are boulders that over millennia have been brought by glacial melt to places where one would not expect them to be. They consequently break with a static conception of landscape, cityscape, and space in which these are constructed as a monolithic image and as such demand to be defended against all kinds of unpredictability. The authentic, which is preceded by such a fixation of meaning and which is often inscribed above all in the local, turns out to be a ""matter always of power and contestation rather than of actually existing authenticity,""1 as geographer and social scientist Doreen Massey writes. Using the concrete example of an erratic boulder called Alter Schwede, which lies on Hamburg's Elbe beach, Massey shows how a static and fixed concept and idea of the city can be broken up by reflecting on the erratic and unpredictable. In this manner, the erratic reveals space as a production site of the possible and provokes the speculative negotiation of that which is possible. For Jacques Derrida this negotiation with an uncertain outcome is the moment of the political, because we are confronted with everything that is possible and need to (re)negotiate our living together. What does that mean in the context of co-producing the city?

In my lecture, I will confront the idea of the erratic with an algorithmic-colonial notion of space that dates back to the 18th century, when it became possible to determine longitude at sea. I will also show examples from art that deal with this tension between algorithmic and erratic notions of space.

Session IVb: Testing Futures (Chair: Max Kanderske)

C40.606 & Zoom

Sandeep Mertia (Stevens Institute of Technology): “Tier-2 Futures: Relocating the Horizons of Urbanism in Startup India”

In the global South, the rapidly expanding cultural economy of computing is generating new narratives and experiences of digital futures. Drawing on over two years of in-person and virtual ethnographic fieldwork and archival research, my work explores the rise of techno-entrepreneurship and the governance of aspiration in India. The federal government’s flagship ‘Startup India’ program, launched in 2016, now has 1,75,000+ registered start-ups, many also supported by allied initiatives of state governments across small cities. Focusing on the intertwining of digital infrastructure, state policies for start-up incubation, and the aspirational self-making practices of entrepreneurs in different urban contexts, my project shifts attention away from global technology hubs such as Bangalore to smaller cities such as Jodhpur and Jaipur. In doing so, I examine how ‘cultural capacities to aspire’ (Appadurai 2013) and the processes of digital mediation, scale, mobility, and connectivity take on qualitatively different forms in small cities as compared to idealized metropolitan imaginaries of the future.

In this presentation, I map the narrativization of “post-COVID” futures to examine how entrepreneurs pivoted the crisis into a mega-opportunity. Indian start-ups raised more capital in 2020 and 2021 than ever before, ranking second in the world after the USA. My interlocutors, in the government and start-ups, claim they are “building a startup ecosystem from scratch” in small cities by leveraging the very digital technologies that have supposedly made location “irrelevant in post-covid times”. Yet, many of them move to big cities as soon as they raise enough capital to scale-up their start-ups. I describe how my interlocutors, who claim that “covid has been a big boom,” spatialize global digital acceleration and future-making in context. Exploring the shifting logics of presence, remote work, scale, and venture capital, I offer an ethnographic analysis of anticipatory practices of digital future-making and their many failures in / from small cities in India. Mapping the diverging temporal and spatial imaginaries of a tier-2 / small city, I present some traces of an emergent horizon of alterity and ‘technodiversity’ (Hui 2020) from a context where most of the current and future users and subjects of digital media live.

Burcu Baykurt (University of Massachusetts Amherst): “Avoiding the F-word: The Politics of Scaling and Failing in Test-Bed Urbanism”

Every so-called “smart” test-bed fails to deliver on its initial promises. These failures are sometimes spectacular and receive public attention. More often, however, they are slow, quiet, and barely noticeable to residents. This paper examines the strategies that public and private actors, such as municipal governments, tech companies, and civic groups, pursue to carve out a murky space between triumph and defeat to stubbornly avoid the F-word (failure). What needs to be present – or absent – for a smart test-bed to avoid failure? To answer this question, the paper comparatively examines three cases from the United States: 1) a public-private partnership of a smart city pilot in Kansas City, Missouri between 2015 and 2020 2) a federally sponsored smart city pilot in Columbus, Ohio between 2016 and 2022, and 3) the proliferation of ShotSpotter sensors in U.S. cities since 2010. Through these cases, I investigate the normative infrastructure that decouples the everyday failures of smart technologies from the failure of the concept (smartness). Drawing on science and technology studies, political economy, and media

studies, the paper argues that the avoidance of the F-word is not some PR wizardry orchestrated by city officials or tech companies. On the contrary, it is baked into the politics of test-bed urbanism, in which pilots are designed to remain nestled in a so-called “non-failure” zone: neither a spectacular disaster nor a smashing success. In smart test-beds, I suggest, the scale – and its constant manipulation by city officials as well as tech companies – aims to keep public experiments with technology, which is almost always a work-in-progress, on a level that prevents public failures.

Fiona McDermott (Trinity College Dublin): “Building Next Generation Networks: Towards the True or False Public Utility of the Future City”

The manifold and extravagant claims purported by imminent advanced telecoms networks are well documented. With ever-increasing capacities in terms of speed, bandwidth, and reduced latency, advanced networks promise to provide the infrastructural backbone for automated services that will transform our cities, and bridge the notorious digital divide, all in a more cost-effective and efficient manner. But beyond the technical advancements, the speculative applications of the technology are usually baseless. The technical papers that drive advanced network research often cite far-fetched applications such as autonomous vehicles, drone proliferation, holograms and souped-up entertainment event experiences as the motivating reasons for developing advanced internet networks. Despite the speculative claims, there is immense pressure on city governments to support the development of advanced internet networks. Those cities who do not plan to fully invest in the rollout of advanced 6G networks are warned they do so at their peril. They risk falling behind in terms of future economic growth, technological innovation and capitalising on the bountiful opportunities that the advanced networks will offer. Such pressure has led city governments to form alliances with industry-led consortia in order to deploy advanced networks throughout urban areas. But what will these partnerships mean in terms of the delivery of new public utilities? Will they result in the formation of true public utilities that are easily accessible to the many and exist in service of the public good? Or will they result in the formation of false public utilities that exist primarily to serve the interests of private industry?

Based on Illich’s notion of “true or false public utilities” (1971), this paper parses the public value of next generation internet networks as planned throughout urban areas. Through the examination of several burgeoning public-private partnerships extolling advanced networks, it questions if the next generation wireless infrastructure will really be a democratising force for public good or a centralising of power and profits for private interests.

References

Illich I (1971) Deschooling Society. New York: Harper and Row.

Session IVc: Smart Homes and Subjects (Chair: Laura Hille)

C40.255

Mathias Denecke (Institute of Media Studies, Ruhr-University Bochum): “Speculating on Aging in Place: Demographic Change and the Logistics of Urban Care”

The talk focuses on the welfare state’s speculations to cope with an ageing society. These speculations, I argue, are propelled by a logistic rational. The stage is a model home for ageing

persons exhibited in Berlin. Equipped with sensors and assistive technologies, the urban smart home promises to age autonomously, safely, and comfortably in one's own home (Hester/Srnicek 2023). In this vision, promoted as being a »future just around the corner« (Bell/Dourish 2011, 134), the care crisis is supposed to be resolved by several fixes which I regard through the analytical lens of logistics (cf. Bojadžijev 2021, 166). Firstly, assistive technologies are depicted as taking over daily care tasks and relieving relatives and qualified care workers of the burden of care work (Schwennesen 2019; cf. Schabacher 2021). Following the fantasy to automatize care work, the urban home resembles a »test-bed« (Halpern/Günel 2017, 52) which makes ageing in place »an experiment for technological futures.« (Halpern/Mitchell/Geoghegan 2017, 124) Secondly, sensor technologies which monitor inhabitant's well-being shall alarm care workers only when needed, »just-in-time« (Dowling 2022, 120), freeing up labour resources. And thirdly, particularly in urban areas care work is already increasingly reorganised as gig-work, filling in the shortcomings of infrastructural care (Glaser 2021; Ti-cona/Mateescu 2018; cf. Baum/Kufner 2021). Here, »global care chains« provide a continuous movement of care workers from the so-called Global South to keep the welfare states in the Global North operational (Dowling 2022, 14). These logistical fixes are supposed to mitigate the care crisis under the condition of austerity policies. At the same time, they fuel the national economy by outsourcing reproductive labour to underpaid workers as well as through the development and production of assistive technologies (Endter 2015; Hergesell et al. 2021; cf. Fraser 2016; Huws 2019).

Sukanya Maity (Central European University): "The Linguistic Reproduction of the Working-Class Female Subject: Techno-masculinist Takeover of the Smart Homes"

"Smart homes solutions will soon be offering you recipes based on the ingredients in your fridge, perhaps with particular emphasis on foods that are close to their eat-by date," is what appears in an article published by the Irish Times, hailing the boons bestowed by the Internet of Things (IoT) that has swept the world of digital smartness. The article is titled "Home Maid: How Smart Technology is Making Life Easier", linguistically reproducing the control over working-class female subjects through the domination of technology. The connotation of a homemade maid saves one from the anxiety-inducing presence of a brutish outsider in the absence of the owners and safeguards the sanitised image of the home. I argue that both the smart city and the smart homes complement each other in producing a homogenised space cleansed of entities, living and dead, who do not fit the rungs of "superior" class, race, caste and other possible denominators. The smart-home model rightly fits into the digitised and divisive urban regeneration projects that are masked as solutions but instead bypass the issues plaguing contemporary cities. Smart homes, as is evident in their promotional advertorials, engage in the production of space that is no longer embodied, incorporating a revanchist masculinist takeover. Built-up spaces have been historically designed from a male point of view, and gender minorities claimed their rights to these spaces by embodying/ appropriating them, the scope of which has been entirely curtailed through such full-fledged surveillance and control. This paper explores the media framing of smart homes to examine the bourgeois techno-masculinist reproduction of language and asserts that the restrictions posed by the IoT on embodying spaces aid exclusion instead of mitigating them.

Federico Giordano Perla (Cornell University): "From City-Building to Space-Producing Games"

Since the release of SimCity in 1989 the genre of city-building videogames has enjoyed widespread popularity and acceptance among players. These games not only offer the opportunity of designing and building a bustling city with thousands of inhabitants. They also

provide the challenge to make this city function within a rule-based digital model informed by its creators understanding of what a game, a city, and a simulation are, as Chaim Gingold thoroughly historicizes and analyzes in *Building SimCity: How to Put the World in a Machine* (2024).

In order to take Gingold's examination of "software's sociocultural dimensions" a step further, I understand cities built in these games not as mere derivative forms or representations of real spaces (i.e., the real city), but as spaces in their own right, and as such subject to the same triadic process of production of space proposed by Henri Lefebvre (2013 [1974]; see also Fraser 2015, esp. Ch. 7). Using *SimCity 4* (2003) as a case study, I show how this approach acknowledges the lived experiences and perceived contradictions of players. I argue that engaging the produced nature of the digital space within city-building games exposes the challenges and claims over these spaces by players as a means to reimagine their own cities, real and digital.