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Artificial intelligence and the planning task

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The editors of this special issue invited me to reflect on the planning task and, given the 10th anniversary of *plaNext*, to provide an outlook for the next ten years or more regarding urban futures, all in connection with artificial intelligence (henceforth, AI). A fine call to develop a piece of speculative future, seasoned with armchair evidence from actual debates about cities, futures, and artificial intelligence. I will do so in nine movements, starting by briefly addressing what the urban is made of, a clarification which is essential for our view on the makings of AI. Then I will look at AI proper, well not as an expert, which I am certainly not, but rather like what I find interesting about AI and what is supposedly confronting us in the planning context. Finally, a short outlook will be done inviting the renowned science fiction author Phil K. Dick for a comment on the future and the urban.

(1) Most readers of this journal will be familiar with the debate that resulted from Brenner and Schmid's (2015) hypotheses of planetary urbanisation, which I would like to use as a starting point for the first movement. In a positive way, I share their view on the urban and urbanisation especially as: a process, not a universal form; with the three mutually constitutive moments of concentrated, extended, and differential urbanisation—and I like to add, with metropolitan regions becoming more and more important; of a planetary scale; unfolding through variegated patterns of uneven spatial development; and in particular, as a collective project in which the potentials generated through urbanisation are appropriated but also contested. More recently, Schmid et al. (2018) developed the analytical approach further by focusing on the question, whether a new vocabulary of urbanisation is needed, suggesting a productive dynamic perspective on urbanisation: to analyse an urban territory as an overlapping and intermingling of various urbanisation processes. Or, in other words, to deconstruct an urban territory into several urban configurations and to reconstruct the urbanisation processes that produced them (Schmid, et al. 2018). Both arguments, the first a critique of the oversimplification or standardisation of the urban, the second suggesting a tool for the analysis of, per definition, always specific settings, emphasise that the challenges have to be identified and the solutions have to be found in each individual case by or in individual actor constellations. At the moment, we find AI mostly on the other side of such specific configurations, instead driven by large numbers revealing patterns and looking for applicable standards and universal, that is replicable solutions.

(2) One process forming urbanisation, at least increasingly so and closely connected to the topic of AI, has been criticised by Brenner and Schmid (2015, p. 157) in their original work as a totalising hypothesis speaking of a techno-scientific urbanism:

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> Contemporary discussions of ‘smart cities' represent an important parallel strand of techno-scientific urbanism, in which information technology corporations are aggressively marketing new modes of spatial monitoring, information processing and data visualization to embattled municipal and metropolitan governments around the world as a technical ‘fix' for intractable governance problems (Greenfield 2013; Townsend 2013). The law-bound understanding of urbanization it embraces is used not only for epistemological purposes, to justify a universalizing, naturalistic research agenda, but as part of a broader technoscientific ideology that aims to depoliticize urban life and thus ‘to assist the cause of sound management' (Gleeson 2014, 348).

Despite the failing of projects like Google's Sidewalk smart city in Toronto, the intention to make the urban ‘smart’ has not evaporated, given its potential trillion-dollar market in advanced information, sensor and control technologies; with the city twin as its epitome. But also, the planning profession (now addressing the service provider) uses it widely and diversely—as we can read from an advert:

> Generative Artificial Intelligence is transforming smart cities by offering innovative solutions across multiple sectors. Linker Vision, through its GenAI Observ platform, uses Vision Language Models (VLMs) and Large-Scale Vision Models (LVMs) to create advanced AI-driven video analysis tools. These technologies enable smart city applications like real-time video search, summarization, and customized analysis for sectors such as smart transportation, industrial monitoring, and incident prediction” (Tomorrow.city, February 2025)

The training sets for AI systems claim to be reaching into the fine-grained nature of everyday life, but—given the always reductionist character of a ‘model’—they often repeat the most stereotypical or accepted social patterns, re-inscribing a normative vision found in the human past and projecting it into a human future.

(3) It all comes fine and handy, if we exclusively understand the urban as a material-mechanistic extension of ourselves; if the urban is seen as a machine, brought to you by corporations (see, for example, Toyota’s Woven city) and turning each citizen into a customer and consumer. AI will relentlessly monitor the data generated in this laboratory and—based on the more or less stereotypical concepts provided for analysis—plan and provide solutions. The more often you ask the smart home app to turn on the light and the stereo the moment you enter your home, the more it is being served to you, until you forget there is a physical switch which you could actually use. This can go wrong, obviously, as we have seen in series like *Mr. Robot* where hackers use home appliances to terrorise the owner, or can read in an older text by Phil K. Dick (1969) where Joe Chip, the customer of a convenience apartment (conapt), is trapped by his door:

> Back in the kitchen he fished in his various pockets for a dime, and, with it, started up the coffee pot. Sniffing the—to him—very unusual smell, he again consulted his watch, saw that fifteen minutes had passed; he therefore vigorously strode to the apt door, turned the knob and pulled on the release bolt. The door refused to open. It said, ‘Five cents, please.’ He searched his pockets. No more coins; nothing. ‘I’ll pay you tomorrow,’ he told the door. Again he tried the knob. Again it remained locked tight. ‘What I pay you,’ he informed it, ‘is in the nature of a gratuity; I don’t have to pay you.’ ‘I think otherwise,’ the door said. ‘Look in the purchase contract you signed when you bought this conapt.’

The conflict escalates and, suffice to say, ultimately Joe Chip has to break out but will be sued by the door for this violation. The city as a smart machine will not stop at your front door but will crawl inside your premises and harvest any of your life’s utterances for commercial purposes—pay as you go (and make sure to have cash on you)! A planner might find her/himself/themselves in a digital machine room setting the dials (as is already the practice in some digital-city-twin applications).

(4) The latter section confronts all of us with some essential questions: streaming music or TV-series, using smart home appliances, driving a smart car, using a mobile phone, typing

short text messages, searching the web, modifying photographs, checking the best restaurant nearby, asking where can I meet my friends now, translating text—all of this already today involves various forms of AI or predecessors of it and, more importantly but often unaccounted for, requires massive infrastructures, materials, and socio-economic relations at a global scale. In their highly recommendable article, Kate Crawford and Vladan Joler (2018) provide a deep exploration of this system using "(T)he Amazon Echo as an anatomical map of human labor, data and planetary resources". This account is very rich and informative regarding all the operations that are necessary to run a rather small object in itself and addresses questions like: labor exploitation and inhumane working conditions; extraction of rare elements that required billions of years to be produced (as Crawford & Joler, 2018 (vii–viii), quote Parikka (2015) by saying "we are extracting Earth's history to serve a split second of technological time, in order to build devices that are often designed to be used for no more than a few years"); user control while the real power and complexity of a smart appliance lies somewhere else, far out of sight. From a planning point of view, all these activities are so complex and distributed at a global scale, that we cannot control the footprint created by it, while our ambition usually would be doing so. In such a setting, how can planners effectively act as keepers of a global justice idea and post-growth or de-growth?

(5) And there is a more concrete planning challenge. An article in a recent issue of *The New Yorker* gives some further insights into the operations behind AI. Bill McKibben (2025) writes in "How is Elon Musk Powering his Supercomputer?" about a case in Memphis. On the premises of an abandoned factory that used to belong to Electrolux (OK, structural change in an old industrial region), the Colossus factory was erected, providing a home to allegedly the largest supercomputer currently under construction and stuffed with graphics-processing units, the basic building blocks of AI systems; two hundred thousand at the moment, heading for a million. The crucial point is the electric power to operate the supercomputer—which comes from thirty-five mobile methane-gas-powered generators parked on site. These truck-mounted units give off some considerable pollutants, including nitrogen oxides and formaldehyde. However, and most importantly, they are operating without a permit, at least at the time of publishing the article:

> "xAI has essentially built a power plant in South Memphis with no oversight, no permitting, and no regard for families living in nearby communities, the Southern Environmental Law Center said, in a report released in April. <…> It will surprise no one to learn that the neighborhoods in South Memphis surrounding (the) … facility—including Boxtown and Westwood—are predominantly Black and also home to a number of industrial facilities, including chemical plants and an oil refinery. The area already has elevated levels of pollution compared with leafier precincts, and, according to Politico's E&E News, 'already leads the state in emergency department visits for asthma'." McKibben (2025)

Included in the case is, of course one might think, a political tug of war between different stakeholders. What the example reveals is that planners will face more of these challenging constellations with a further extending AI driven economy. The mobility sector especially needs our attention in that respect. A report[1] by the National Science Foundation on MIT research points out, based on a statistical model to investigate the problem, that one billion autonomous vehicles, each driving for one hour per day with a computer consuming 840 watts, would consume enough energy to generate about the same level of emissions as all global data centers in 2023 did. Harvesting energy, energy production and distribution, infrastructure networks, the localisation and routing of these infrastructures will continue to be a problem if not excessively demanding our attention.

[1] https://www.nsf.gov/news/computers-power-self-driving-cars-could-become

(6) I do not intend to develop a 'doomer' perspective on AI, exclusively. However, the 'boomer' side will certainly rest on defining clear rules of engagement to avoid the classic trap, that a piece of technology as such is neutral, but the outcomes of it depend exclusively on the strategies of those who own or respectively apply it. And that is definitely necessary in view of the Broligarchy that stands behind AI. The question is what 'intelligence' lies in AI and how we use this intelligence. Cassidy (2025) refers to Daron Acemoglu, an MIT economist and a Nobel laureate, who told MIT News that AI was being used "too much for automation and not enough for providing expertise and information to workers." Acemoglu acknowledges AI's potential to improve decision-making and productivity but warns that it would be detrimental if it "ceaselessly eliminates tasks and jobs; overcentralizes information and discourages human inquiry and experiential learning; empowers a few companies to rule over our lives; and creates a two-tier society with vast inequalities and status differences." In such a scenario, AI "may even destroy democracy and human civilization as we know it," Acemoglu cautioned. "I fear this is the direction we are heading in" (Cassidy, 2025). Summarising Acemoglu's writings and thoughts, John Naughton (2023) from the British *Guardian* concludes:

> There are three things that need to be done by a modern progressive movement. First, the technology-equals-progress narrative has to be challenged and exposed for what it is: a convenient myth propagated by a huge industry and its acolytes in government, the media and (occasionally) academia. The second is the need to cultivate and foster countervailing powers—which critically should include civil society organisations, activists and contemporary versions of trade unions. And finally, there is a need for progressive, technically informed policy proposals, and the fostering of thinktanks and other institutions that can supply a steady flow of ideas about how digital technology can be repurposed for human flourishing rather than exclusively for private profit.

(7) For the last two points in the conclusion above, the critical countervailing powers and thinktanks generating new ideas, it is important to think about the intelligence we search or need. My reference here comes from the work of James Bridle (2023, p. 56). In his view, intelligence "is not a collection of abstract modes: a concatenation of self-awareness, theory of mind, emotional understanding, creativity, reasoning, problem-solving and planning that we can separate and test for under laboratory conditions." Rather, by expanding our definition of intelligence, and the chorus of minds which manifest it, we might allow our own intelligence to flower into new forms and new emergent ways of being and relating. The admittance of a general, universal, active intelligence is a necessary part of our vital re-entanglement with the more-than-human world. Bridle (2023, p. 9) ultimately calls for a commonwealth and ecology of human, machine, and more-than-human intelligences—instead of one, that is "framed, endorsed and ultimately constructed in machines (as) a profit-seeking, extractive one."

(8) Concluding, we indeed need to expand our intelligence and vocabulary of the urban, but AI should not be the exclusive pursuit of this. Instead, we should embrace also other forms and bearers of intelligence (Bridle (2023) explores for instance wood wide webs). And with a view to the future, bound to the intricate edifice of various realities and intelligences, such a new vocabulary can be extended by the utopian perspective giving a name to what is not, or rather, what has not been named yet and making a future present, which helps us build the 'house that needs to be built' (Levitas, 2013; Mumford, 1922). Join Thomas Machiels and me in the AESOP Thematic Group on Urban Futures[2] to discuss these and other aspects, where we at the start of 2025 organised a set of online workshops on "Who says future? Acting subjects and the construction of futures".

(9) And finally here is an excerpt of the interview with Phil K. Dick—which resulted from the following prompt which I formulated in a test of ChatGPT in 2023: Write an interview of about

[2] You can find us on LinkedIn https://www.linkedin.com/groups/13049050/

800 words with the science fiction author Phil K. Dick on the future of the city in the year 2100, using his novel *Ubik* as reference point and focusing on environmental challenges, social divides, technological innovation and the role of citizens versus global mobile capital in the shaping of the future city.

> *Interviewer*: Finally, what advice would you give to young writers and artists who are interested in exploring the future of the city in their work?
>
> *Phil K. Dick*: My advice would be to approach the future of the city with a sense of curiosity and openness. Don't be afraid to challenge assumptions and push boundaries. The future is full of possibilities, both good and bad, and it's up to us as writers and artists to explore those possibilities and imagine what the world could be like. Also, don't forget the human element—technology is important, but it's ultimately the people who live in the city who will shape its future. So make sure to pay attention to the social, cultural, and political factors that will influence the city's development. And most importantly, have fun with it—the future is a wild and unpredictable place, and there's no limit to the kinds of stories and ideas you can come up with.

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References

Brenner, N., & Schmid, C. (2015). Towards a new epistemology of the urban? *City*, 19(2–3), 151–182. https://doi.org/10.1080/13604813.2015.1014712

Bridle, J. (2022). *Ways of being: Animals, plants, machines: The search for a planetary intelligence*. Penguin UK.

Cassidy, J. (2025, April 14). How to survive the A.I. revolution. The Luddites lost the fight to save their livelihoods. As the threat of artificial intelligence looms, can we do any better? *The New Yorker*. https://www.newyorker.com/magazine/2025/04/21/how-to-survive-the-ai-revolution

Crawford, K., & Joler, V. (2018). *Anatomy of an AI system: The Amazon Echo as an anatomical map of human labor, data and planetary resources*. https://anatomyof.ai

Dick, P. K. (1969/2010). *Ubik* (Original work published 1969). Gollancz.

Gleeson, B. (2014). *The urban condition*. Abingdon, Oxon: Routledge

Greenfield, A. (2013). *Against the smart city: A pamphlet*. New York: Do Projects.

Levitas, R. (2013). *Utopia as method: The imaginary reconstitution of society*. Basingstoke: Palgrave Macmillan.

Mumford, L. (1922). *The story of utopias*. London: Boni and Liveright.

Naughton, J. (2023, May 7). Power and Progress review – why the tech-equals-progress narrative must be challenged. *The Guardian*. https://www.theguardian.com/books/2023/may/07/power-and-progress-daron-acemoglu-simon-johnson-review-formidable-demolition-of-the-technology-equals-progress-myth

Parikka, J. (2015). *A geology of media*. Minneapolis: University of Minnesota Press.

Schmid, C., Karaman, O., Hanakata, N. C., Kallenberger, P., Kockelkorn, A., Sawyer, L., Streule, M., & Wong, K. P. (2018). Towards a new vocabulary of urbanisation processes: a comparative view. *Urban Studies*, 55(1), 19–52. https://doi.org/10.1177/0042098017739750

Tomorrow.city. (2025, February). The heart of urban innovation. https://www.tomorrow.city/welcome/

Townsend, A. M. (2013). *Smart cities: Big data, civic hackers, and the quest for a new utopia*. New York: W. W. Norton & Company.