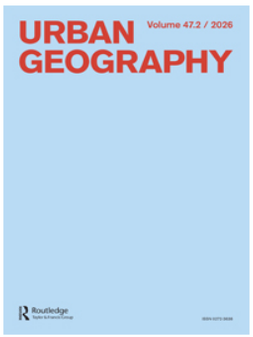

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New AI cities: power, new cities and urban artificial intelligence in Neom and The Line

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ABSTRACT

Nowadays, the development of artificial intelligence (AI) and the development of new cities are intersecting. This article explores this intersection focusing on a megaproject called Neom in Saudi Arabia. The article's empirical contribution is threefold. First, it sheds light on how and why the urban is becoming a site of AI experimentation through the genesis of new cities. Second, it examines the dynamics of AI experiments taking place in new cities. Third, it exposes the extent to which sustainability is actually pursued by the developers of both new cities and new AIs. Drawing on data collected in Saudi Arabia, the article reveals how behind Neom's AI experiments is a politico-economic agenda whereby new technologies and new cities, such as The Line, become a medium to consolidate the power of the Saudi Crown Prince. From a theoretical perspective, the article advances the concept of *new AI cities*. It explains how fantasies about AI land in ex novo urban projects, and evolve generating new fantasies that picture sustainable cities operated by fully autonomous AIs and populated by sentient robots possessing citizenship. These are dangerous fantasies that risk realizing the dreams of power-hungry individuals, to the detriment of social and environmental sustainability.

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Introduction

The development of artificial intelligence (AI) and the development of cities are increasingly intersecting. On the one hand, many AI technologies are being built to operate specifically in urban spaces and augment urban systems and services (Cugurullo, 2021; Macrorie et al., 2021; While et al., 2021). In urban studies literature, this strand of AI development is called *urban artificial intelligence* and refers to artificial intelligences that acquire form in the urban and mediate processes of urban governance, planning and management (Caprotti et al., 2024; Cugurullo, 2020; Luusua et al., 2023; Yigitcanlar et al., 2024). On the other hand, new cities and districts are being built from scratch to facilitate the deployment of AI technologies, such as self-driving cars, for example, and

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the implementation of urban infrastructures supposed to operate autonomously via AI (Chen, 2023; Dowling & McGuirk, 2022; Marvin et al., 2022).

This article explores the intersection between the development of new AIs and the development of new cities. This intersection represents a relatively recent phenomenon which has hitherto received limited empirical and theoretical attention in urban geographical research, and there is thus a gap in knowledge that obscures its understanding. While the core components of this phenomenon, namely new cities and new AIs, might appear thematically disconnected from each other, there are three common denominators that it is important to pay attention to. The first one is the urban, most prominently in the shape of new urban areas including *ex novo* cities and districts where and whereby new AIs are being developed (Cugurullo et al., 2023). The second one is the ethos of experimentation, as new urban areas are being built through urban experiments that are supposed to trial novel AI technologies (Chen, 2023; Dowling & McGuirk, 2022; While et al., 2021). Last but not least are the lofty sustainability ambitions underpinning the urban experiments in question, with urban AI promoted as a medium to achieve urban sustainability (Palmini & Cugurullo, 2024).

The aim of this article is to flesh out the intersection between the development of new cities and that of new AIs, with a focus on the three common denominators described above. The article thus seeks to shed light on (a) how and why the urban is becoming a site of experimentation in the field of AI through the genesis of new cities; (b) the dynamics whereby urban AI experiments are taking place in new cities; and (c) the extent to which sustainability is actually pursued by the developers of both new cities and new AIs. Conceptually, the article is framed by critical research in urban studies on new experimental cities. This literature shows that, over the past decade, several new cities have been built from scratch, in different parts of the world, allegedly to establish alternative models of urban development supposed to achieve sustainability, while in reality there was no real ecological ambition, and the actual aims were about economic profit and political power (Caprotti et al., 2015; Cugurullo, 2016; Moser & Côté-Roy, 2021; Su, 2023). From a conceptual perspective, the article combines this strand of urban geographical literature with critical AI studies (Cugurullo, 2025; Parviainen & Coeckelbergh, 2021; Pasquinelli, 2023), so to examine the role that AI, intended not simply as a technology but also as an intricate set of discourses, fantasies and political economies, plays in recent projects for new cities and their sustainability agenda. In so doing, it attempts to bridge urban and AI studies, and bring their different and complementary epistemologies together in the study of new cities experimenting with new AI technologies.

Empirically, the article focuses on *Neom*: an urban and regional development megaproject which is being implemented in a region of Saudi Arabia called Tabuk. The development of Neom is deeply connected with the development of AI. It features, for instance, the construction of a linear city called *The Line* where robots are expected to have citizenship and coexist with humans, and the development of an industrial city run by autonomous machines, called *Oxagon* (Neom, 2025). Overall, this is a $500 billion investment on the part of the Saudi state, which makes Neom the largest single investment in the history of the country and the most expensive project of its kind (Moser et al., 2015). Neom has been hailed by the Saudi government as a model for present and, above all, future cities, through a rhetoric that is dense with discourses

about urban sustainability. Neom has been officially promoted as a "new wonder for the world" which will "tackle some of the biggest challenges facing humanity", such as climate change, "thereby shining a light on alternative ways to live" (Neom, 2025: no page). Neom's discourses evoke ideals of sustainability, picturing a humanitarian rationale, as if this megaproject was being developed to teach the world a lesson in sustainable urbanism and contribute to global socio-environmental problems. "Our city model is exhausted, our mobility system is broken" and "the world needs fresh thinking and new solutions" proclaim Neom's developers. These were the discourses with which Neom's masterplan was announced and revealed in detail at an exhibition in Riyadh, the Saudi capital, in November 2022 (Figure 1).

As a case study, Neom represents an experimental urban project in which the development of new urban spaces is intersecting with the development of new AIs, as part of an ambitious sustainability agenda. This study focuses on Neom to shed light on how and why this *ex novo* large-scale Saudi project is becoming a site of experimentation in urban AI, in an attempt to also critically explain what is happening in Tabuk under the banner of urban sustainability. It is based on field research conducted in Saudi Arabia in 2022, 2023 and 2024, which consisted of 54 semi-structured interviews with representatives from Neom and related stakeholders, including international business partners, investors, Saudi policymakers, as well as urban planners and designers directly involved in the urbanization of Tabuk. Owning to the authoritarian and repressive regime of Saudi Arabia, all interviewees have been anonymized.

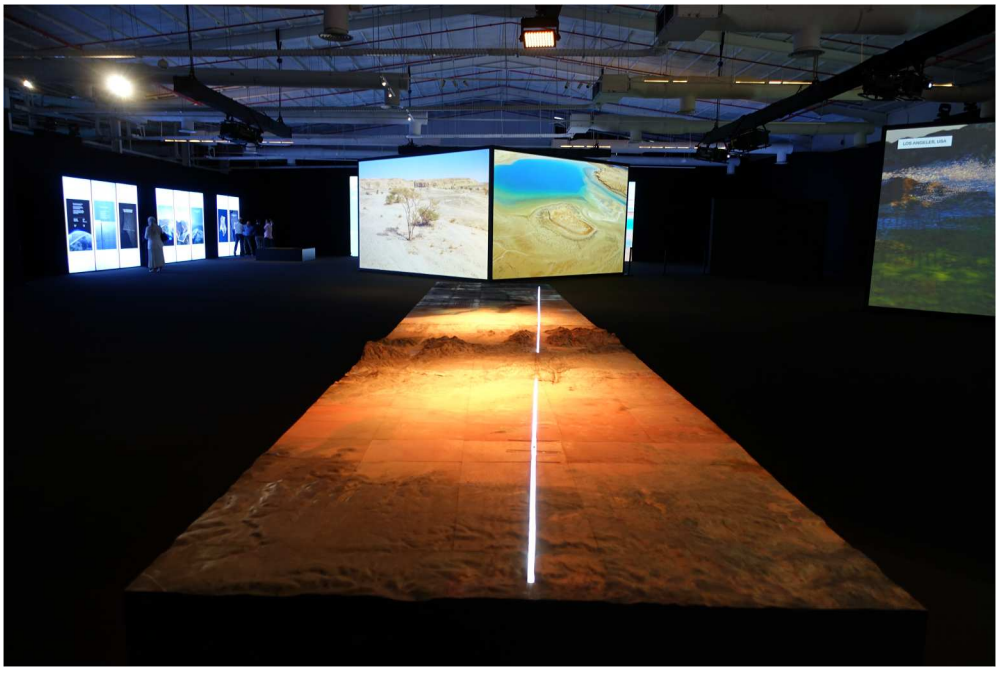

Figure 1. A model of The Line in its geographical context, as part of Neom's inaugural exhibition in Riyadh. Source: Author's original.

The remainder of the article is divided into six parts. The first one consists of an interdisciplinary review of the literature in urban and AI studies, which is employed to frame the interpretation and discussion of the empirical data collected in the field. Second, the article adopts a geographical perspective under the premise that Neom, despite its futuristic outlook, is grounded in the present and, to understand its development, it is important to examine the geographical context where this megaproject is taking place. This means understanding Saudi Arabia and, in particular, its changing political economy. Third, upon examining the Saudi political economy, the article unpacks the core mechanics and multiple components of Neom, explaining how its development is targeting specific economic and political objectives. Subsequently, the analysis shifts to a single component of the Neom megaproject, The Line, to show how experimental urbanism becomes a medium to boost the Saudi economy and preserve the power of the political elite. The Line exemplifies Neom's ambitions and the benefits that the Saudi megaproject is expected to bring economically and politically. However, this is an initiative that is problematically filled with a plethora of sustainability and AI fantasies. The article critically discusses them, in the penultimate section, through a comparison with the harsh social and environmental reality of Saudi Arabia. The comparison between fantasy and reality in Neom's experimental urbanism is further fleshed out in the concluding section where the case study is used as a steppingstone for theorizing the emergence of *new AI cities* and the risks that their fantasies pose.

New cities and new AIs: an interdisciplinary review of the literature

There is an extensive literature on the development of new cities, as an urban phenomenon conceptually connected with the diffusion of ideals of modernity particularly in the early modern period (Fishman, 1982; Kruft, 1989). More recently, urban scholarship in the field of new cities has focused on experimental urban projects that, over the past decade, have led to the creation of many urban environments built *ex novo* to facilitate the integration of new technologies (Cugurullo, 2021; Moser, 2015; Van Noorloos & Kloosterboer, 2018). These new urban spaces have emerged as sites of technological experimentation, with new master-planned districts as well as entire cities acting as living labs to trial new technologies directly in the built environment, thereby bypassing traditional indoor laboratories (Evans et al., 2016; Mann et al., 2020). At the same time, this wave of technological and urban experimentation has been often connected with the ideology of sustainable development, through a plethora of discourses whereby ex novo urban experiments and their technological portfolios have been presented as a universal medium to discover and implement new sustainability solutions (Avery & Moser, 2023; Caprotti et al., 2015; Cugurullo, 2021). It is not a coincidence that the diffusion and promotion of these urban experiments has gone hand in hand with the international circulation of labels such as *eco*, *smart*, *resilient* and *sustainable* which, across different spaces and scales, have tried to cement the idea that a sustainable urbanism equally sensitive to environmental, social and economic problems is what is at the core of this type of urbanization (De Jong et al., 2015).

However, critical urban geographical literature has put emphasis on three interconnected issues. First, these are urban projects that despite being presented as ex novo developments do not take place in a vacuum. Several studies show that new cities are

built within old contexts characterized by established political institutions, long-standing economies and geographical areas that are not as empty as the term "new city" might suggest (Ali & Moser, 2024; Cugurullo, 2016; Karvonen et al., 2019; Su, 2023). Relatedly, these are projects that, although hailed as universal models of urban development, are very much grounded in specific locations, in their geography and in their history and, as such, can be best understood as regional and national initiatives which change their surrounding context and are simultaneously changed by it through subtle processes of co-determination (Côté-Roy & Moser, 2019).

Second, behind the lofty environmental and social ambitions that tend to surround this type of experimental urban projects often lie concrete economic goals latched on to the political status quo (Caprotti et al., 2015; Cugurullo, 2021; Moser & Côté-Roy, 2021; Van Noorloos & Kloosterboer, 2018). This is particularly evident in Middle Eastern projects for new cities, including King Abdullah Economic City, another Saudi urban project which predates Neom by over a decade (Molotch & Ponzini, 2019; Moser et al., 2015); and Masdar City, a widely criticized new city in Abu Dhabi sharing with Neom a strong emphasis on high-tech urban experimentation (Cugurullo, 2013). Similar dynamics have also emerged in China where new cities and districts are nowadays being built to facilitate the implementation of new AI technologies, in line with the politico-economic directives set by the Communist Party (Caprotti & Liu, 2022; Chen, 2023; Marvin et al., 2022; Xu et al., 2025). Third and finally, it is precisely because of the dominant economic imperatives and questions of political power underpinning ex novo urban development projects that the spaces that are eventually built frequently suffer from severe issues of social injustice and environmental degradation (Cugurullo, 2016; Moser & Avni, 2024; Xie et al., 2022). There is thus a stark discrepancy between the fantasies about sustainability that these urban projects cultivate, and what is actually built and achieved on the ground (Avery & Moser, 2023; Cugurullo, 2013).

These three issues have become more complex in recent years as the development of new cities has started to intersect with the development of new AI technologies. Initial studies suggest that the ethos of urban experimentation explained above is now leading to the genesis of new urban areas designed to become testbeds for innovation in AI (Chen, 2023; Cugurullo et al., 2023; Marvin et al., 2022). These emerging spatial formations are defined in this article as *new AI cities*. This is because they present many connections with the formation of new cities, while also showing distinct AI-related attributes that resonate with academic literature partly beyond the field of urban studies. Points of connection include a strong emphasis on discourses about sustainability, with ex novo urban AI experiments promoting the idea of "*AI* as the new *sustainable*" through a narrative that presents AI technologies as fully autonomous machines capable of maximizing cities' efficiency and minimizing their environmental impact (Chen, 2023; Cugurullo et al., 2023, p. 372). Furthermore, AI itself has been shown to be a geographical phenomenon strongly influenced by the context where it is developed and deployed (Dowling & McGuirk, 2022; Sumartojo, 2023). As in the case of projects for new cities, projects for new AIs, due to their context-dependent nature, are driven by a combination of local, regional and national politico-economic goals which often cast a shadow over issues of social and environmental sustainability (Bareis & Katzenbach, 2022; Cugurullo, 2025; Dauvergne, 2020). In this regard, it is

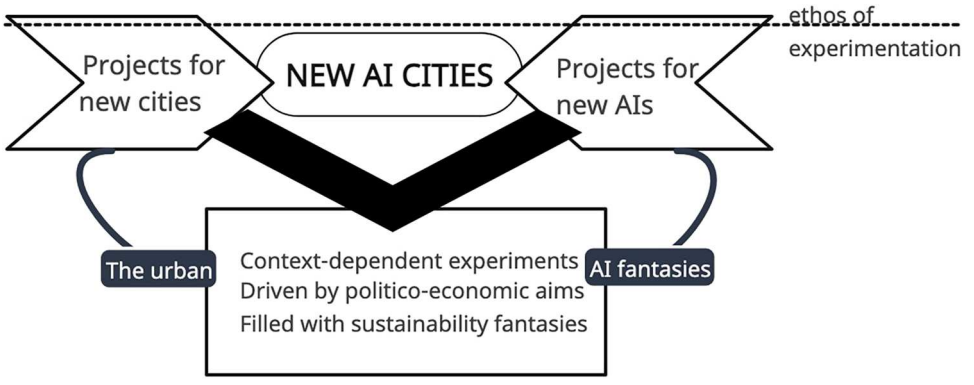

Figure 2. Conceptualization of new AI cities and their key traits. Source: Author's original.

also important to note that the presumed sustainability of urban AI has been recently questioned by geographers, upon empirically observing the significant ecological costs of its implementation and maintenance, and the often biased and racist nature of its logic tending to penalize urban minorities (Chen, 2023; Cugurullo et al., 2025; Fields, 2022; Mahmoudi et al., 2025). Not to mention the privacy concerns, associated with the use of urban AI, that have been reported in the field of critical data studies (Iliadis & Russo, 2016).

As shown in Figure 2, when a project for a new city intersects with a project for new AIs, in a *new AI city*, a common denominator is represented by the sustainability fantasies that geographers have long critiqued in their analysis of ex novo urban projects as context-dependent experiments driven by politico-economic aims often at odds with socio-environmental concerns (Avery & Moser, 2023; Cugurullo, 2013). In addition, AI technology carries its own fantasies, such as the myth of sentient machines possessing intentions of their own, which are now landing in the urban setting of projects for new cities (Cugurullo, 2021). In these terms, the urban becomes a major determinant of how fantasies about AI are cultivated.

On the one hand, understanding these AIs fantasies requires a theoretical engagement with critical AI studies, many of which share a common Marxian approach. Marx (2004) had highlighted in the first volume of *Capital* how the invention of a new technology is usually instrumentalized by a powerful economic elite to further accrue economic benefits, as part of deeply uneven dynamics of capital accumulation. The same line of thought was later reprised by Winner (1978) to stress the non-neutral attributes of technological innovation as a process that is inherently connected to political interests and economic agendas. These are precisely the same interests and agendas that critical AI scholars now see behind the operation of AI technology, in their attempt to demystify AI fantasies and expose the will to (political and economic) power underpinning their diffusion (Bolte & Van Wynsberghe, 2024; Parviainen & Coeckelbergh, 2021; Zuboff, 2019). Natale (2021), for instance, demonstrates that AI is not sentient: it is built to create the illusion of being conscious, by tech companies whose main goal is to accumulate economic power, by exploiting the fact that many people tend to project personality onto AIs, and to establish social bonds with them (Turkle, 2020). Similarly, the work of Pasquinelli (2023) and Lynch (2024) debunks the fantasy of fully autonomous machines

driven by AI, by shedding light on the pivotal role of human intelligence and labor in the functioning of AI systems.

On the other hand, developing an understanding of how AI fantasies land and evolve in the urban settings provided by projects for new cities, of the way they are shaped by the geographical context where these projects operate, and of their fusion with the rhetoric of sustainability that animates ex novo urban developments, requires in-depth empirical research on actual manifestations of the phenomenon in question. It is towards this direction that the discussion now turns to the case of Neom and its geographical context.

The context of Neom: development challenges and thirst for power

The Kingdom of Saudi Arabia is a country in transition, experiencing major development challenges, substantial policy reforms and delicate power shifts. There are three challenges in particular that are shaping the present and future of Saudi Arabia. The first one is economic in nature and relates to the fact that the Kingdom has a homogenous economy largely based and dependent on oil. The country has vast oil reserves, but they have been substantially exploited for almost a century and will come to an end in approximately 60 years (Agboola et al., 2021). This means that in the space of a couple of generations, what is currently the pillar of the Saudi economy will collapse. In addition, it is important to note that an oil-based economy is ultimately an unstable economy. The price of oil can be extremely volatile and, since 2014, Saudi Arabia has repeatedly risked going bankrupt due to a prolonged drop in oil prices, "juxtaposed with fast-increasing energy demands" (Davidson, 2022, p. 322; Moshashai et al., 2020). In response, the Saudi government has imposed unprecedented austerity measures, including the introduction of taxes and the cancelation of allowances (Friedman, 2023; Kinninmont, 2017; Moshashai et al., 2020). Moreover, it is worth remembering that while oil can generate a lot of revenues, it does not necessarily create many jobs. In fact, in Saudi Arabia, the oil industry employs only less than 5% of the population, which is a figure connected to the second main challenge experienced by the country: unemployment (Albassam, 2015).

According to the Saudi General Authority for Statistics (2025), in the first quarter of 2022 the rate of jobless citizens was 10.1%. This is particularly problematic because Saudi Arabia has a growing young population. Over 4.5 million young Saudis are expected to enter the job market by 2030, and it is clear that the oil industry will be capable of employing only a fraction of them (Kinninmont, 2017). The third challenge, instead, is of a different nature, and it is rooted in the Kingdom's negative international reputation both geopolitically and culturally. This is partly a matter of foreign policy, since the Saudi government has been involved in conflicts that have been widely criticized, such as Yemen's civil war and the proxy war against Iran in Syria, and in controversial military actions that have been condemned by international organizations; most prominently the mass killing of Ethiopian migrants along the Yemeni border (Berti & Guzansky, 2014; Hokayem & Roberts, 2016; Human Rights Watch, 2023). This is also a matter of domestic policy since the Saudi regime has a draconian attitude toward local dissenters, which became particularly evident to the international community in 2018 when journalist Jamal Khashoggi was brutally killed shortly after having publicly criticized the Neom project (Hope & Scheck, 2020). Furthermore, it is important to

remember that Saudi Arabia is a Muslim country that adheres to an ultra-conservative strand of Islam called Wahhabism (Nevo, 1998). It is because of Wahhabism that until 2017, cinemas and concerts were banned in the Kingdom as forms of entertainment considered to be impure and sinful: a ban that over the years contributed to the international perception of Saudi Arabia as a culturally backward country opposing modernization (Lacroix, 2019).

It is in this turbulent context that, in April 2016, the Saudi government announced *Vision 2030*: a new development agenda meant to diversify the national economy, reduce unemployment rates and revamp the international reputation of the Kingdom (Council of Economic and Development Affairs, 2016; Moshashai et al., 2020). From a discursive perspective, the notion of sustainability is a core component of Vision 2030 which officially promotes a synergy among economic diversification, the protection of the natural environment and the preservation of local culture and traditions (Koch, 2024). However, as scholars like Whitehead (2007), Turner and Kaplan (2019) remind us, the practice of sustainability is geographically diverse, as it is often intrinsically connected to the specific politics of the place where sustainability initiatives occur. Across different geographical spaces one common denominator tends to be power and the will to mobilize ideals of sustainability for the purpose of sustaining neither the environment nor culture, but rather somebody's political authority and economic benefits (Krueger & Gibbs, 2007; Wachsmuth & Angelo, 2018). In this case, the development of Vision 2030 and its alleged aspirations in terms of sustainability are connected to the interests of one person in particular: Mohammed bin Salman.

"Widely portrayed as Saudi Arabia's omnipotent strongman", Mohammed bin Salman, colloquially known as MBS, is the Crown Prince and Prime Minister of the Kingdom (Davidson, 2022, p. 319). Born in 1985, he is unusually young for a Saudi leader and also unusually powerful. Prior to his rise to power in 2017, the right and capacity to rule used to be spread among different members of the royal family and religious scholars (the *ulama*), while now the Kingdom of Saudi Arabia can be best categorized as an *autocracy*: a country governed by a single person, namely MBS, with unlimited power (Davidson, 2022; Nevo, 1998). However, while MBS' power is substantial, it is not stable. Several members of the royal family resent MBS' rapid rise and his individualistic leadership (Kinninmont, 2017). Vision 2030 is a personal initiative of MBS and represents his main high-risk/high-gain policy. Should the ambitious Crown Prince succeed in regenerating the national economy and rehabilitating the Kingdom's international reputation, his power would crystallize into an unbreakable autocracy. Should he fail, his authority would be considerably damaged. It is here that Neom comes into play, as a medium to realize Vision 2030, which MBS is personally leading as the Chairman of the Neom Board of Directors.

The purpose of Neom: a new economy for a new authority

The development of Neom was announced in October 2017, a few months after MBS' promotion to Crown Prince, and it is a core component of Vision 2030 (Alsayel et al., 2023). Neom is a regional development megaproject composed of several projects, such as *The Line*, a new linear city alleged to host a new community of humans and robots; *Trojena*, a ski resort blending augmented and virtual reality; *Oxagon*, a robotic

industrial city supposed to be operated by autonomous machines; and *Sindalah*, a high-tech artificial island. The construction of Neom started in November 2022 in Tabuk, a region facing the Red Sea, located in the North-West part of the Arabian Peninsula, and the first residents are expected to move in by 2030. It is a rapidly occurring urbanism that echoes the dynamics of fast urban development recently observed in urban studies literature on new cities (Côté-Roy & Moser, 2022; Datta, 2016). In this context, speed is not simply about the pace of the project's implementation, as experimental urban mega-projects like Neom tend to grow in a fragmented manner prone to delays and changes that policymakers and planners make on the fly (Cugurullo, 2021; Evans et al., 2016; Fredericks et al., 2019). Speed is also about the velocity with which, particularly in the Gulf, such projects are approved and the resources for building them are found (Molotch & Ponzini, 2019). In these terms, Neom is proceeding at a relatively fast pace, due to the personal involvement of the Crown Prince who has made this megaproject a national policy priority, and managed to give the go-ahead for its implementation in a matter of months. "Prince Mohammed bin Salman is personally following the development of Neom" confirmed a high-profile Saudi policymaker in an interview, stressing that in addition to driving the policy process, MBS is "leading the planners who are tasked to build his vision for Tabuk and hurrying them up."

MBS is keen to implement Neom as soon as possible as a way to realize Vision 2030 and, in so doing, consolidate his power. As noted by Davidson (2022), MBS has presented himself as the savior of Saudi Arabia, promising to reform the national economy, create new jobs for young people and redeem the Kingdom's reputation internationally. This is his strategy to prove to both his allies and opponents that he is the rightful leader of Saudi Arabia, and Neom serves this agenda in a threefold manner.

First, the Neom project is an attempt to develop new non-oil sectors of the Saudi economy, including tourism, education, sports and high technology. In the field of technological development, Vision 2030 singles out *artificial intelligence* as a sector on its own, consisting in commercializing AI technologies and services enabled by AI. Second, Neom seeks to attract international AI companies to Saudi Arabia and to promote the formation of new Saudi companies working in the field of AI. "Anyone can live and work in Neom" commented one Saudi policymaker in an interview, specifying that "the goal is to create business partnerships with the AI industry internationally and locally." Here the expectation is that the AI companies that are in partnership with Neom will hire Saudi people, targeting the young segments of the population in particular. This expectation is linked to the high unemployment rate mentioned in the previous section, and to the fact that the Kingdom is suffering from a severe housing deficit (Almulhim & Cobbinah, 2024). "Neom will provide jobs and homes for young Saudi people" promised one Neom spokesman during an interview, upon being asked to summarize the developers' ambitions. Third, Neom aspires to develop and host a new progressive and high-tech society, thereby mitigating the negative international reputation of Saudi Arabia as a country controlled by an ultra-conservative Wahhabi regime, where dissent is a crime and "women and members of religious minority groups face extensive discrimination in law and in practice" (Freedom House, 2024: no page). This aspect of the project is interlinked with Neom's first goal, as Saudi Arabia cannot develop a strong tourism industry while the Kingdom is largely perceived globally as a backward and dangerous place (Al Naimi, 2022).

Neom's three targets are directly connected to the three development challenges illustrated in the previous section. Overarching these targets is the will to realize Vision 2030 which, in turn, is linked to a broader political agenda: MBS' resolution to solidify his autocracy. Underpinning these targets is the development of AI and, more specifically, that of AI technologies integrated into urban spaces, urban infrastructures and urban services or, in other words, *urban artificial intelligence*. This means that the implementation of Neom, by serving the double purpose of establishing a new post-oil economy and the authority of MBS, is triggering a process of experimental urbanism whereby the development of new urban areas intersects with the development of new AIs. To unpack this intersection in more detail and explain how the Neom project is rolled out on the ground, the article now zooms in on one of its core components: The Line.

The Line: a new city for a new society

The Line is the flagship of Neom. Originally presented by MBS himself as a 170 km long, 500 m tall and 200 m wide linear urban settlement expected to accommodate 9 million residents, The Line is a project currently being implemented across the Tabuk region by an international team of contractors including AtkinsRéalis (Canada), Bauer (Germany), Keller (UK), PowerChina (China) and Trevi (Italy). This is an extremely labor-intensive undertaking which has mobilized a workforce of over 100,000 people, comprising construction workers from Bangladesh, India and Nepal, many of whom, it is important to remember, have been suffering from inadequate worker protection, harsh working conditions in the desert and ultimately accidents that are usually neither compensated nor investigated by Saudi authorities (Human Right Watch, 2024).

The making of The Line is an experimental endeavor in terms of design, planning and execution. Seemingly homogenous in design, The Line is actually a very fragmented project that has already undergone major changes in just a few years. Interviews with several local urban planners working for the Saudi government reveal that, before Vision 2030 was announced to the rest of the world, The Line had a different and more modest design. "The Line was supposed to be much shorter and smaller", explained one of them. The design was later revised by Morphosis, an architectural firm based in California which was hired by MBS to prepare the masterplan. One of Morphosis' architects explained in an interview their morphological vision, saying that they wanted to compress "the sprawling surface of Los Angeles into a huge line" and, in so doing, build the ultimate compact city.

However, being The Line part of an experimental and thus risky and unstable process of urban development, the vision of its creators as well as the figures that the developers are publicly releasing, should not be taken at face value. In fact, a 2023 interview with one Neom planner indicates that the developers have long expected "the design of The Line to relax", and are constantly modifying its masterplan by, for example, scaling down the size of the new city, and planning for small satellite urban settlements near The Line as part of what they imagine will eventually become a large conurbation in Tabuk. This is a planning strategy that reflects the often tentative character of urban experimentation (Cugurullo, 2021; Evans et al., 2016; Fredericks et al., 2019). From the very beginning, The Line was not planned as a homogeneous project meant to be implemented in one go, but rather as a modular development composed of 12 segments, each one characterized by

a different esthetic, its own architecture, and by a distinct planning process, with only one segment being built at a time, and the remaining parts remaining frozen until an indefinite date. Ultimately, "every part of The Line will be diverse and unique" stated one representative from Neom during an interview, pointing out that "the one thing that every inch of The Line will have in common is artificial intelligence. AI will be everywhere in The Line." The omnipresence of AI and its prominent role in The Line is of course not a coincidence and derives from the three targets that MBS has set for Neom in sync with his ambition to realize Vision 2030 and thus consolidate his power, as explained in the previous section.

The development of the Line is an attempt to diversify the Saudi economy and create new jobs partly by means of urban AI experiments. More specifically, this new city is being built to host several AI companies that will develop new AI technologies, test them in the built environment provided by The Line and eventually commercialize them worldwide. In these terms, the process of techno-urban development underpinning The Line is an example of how AI experiments (Dowling & McGuirk, 2022; While et al., 2021) and projects for new cities (Chen, 2023; Cugurullo, 2021) are nowadays intersecting in the urban as a site of experimentation where novel AIs are tested "in the wild" outside indoor laboratories and controlled environments. The examples of Volocopter and Tonomus are emblematic. Volocopter is an international company based in Germany and specialized in autonomous flying vehicles, while Tonomus is a new Saudi company working in the field of predictive algorithms applied to urban living. These two companies have forged a partnership with Neom, in order to use The Line as a testbed for their new technologies. According to this partnership, Volocopter will test the feasibility of its experimental flying vehicles driven by AI in the Line where ad hoc infrastructure is being provided by Neom. In practice, what the German company is currently testing in the Saudi desert is a model called *VoloCity,* which consists of an electrically powered aircraft equipped with 18 rotors. Resembling a large-scale drone, this experimental vehicle is supposed to operate fully autonomously and transport up to two passengers, eventually landing on small pads that are expected to be built all over The Line. In the mind of the developers, this will be one of the main means of transport that, one day, The Line's citizens and visitors will use to move from one segment to another. This is only the beginning of their vision. "In the future, many other cities will use the same autonomous means of transport that we are testing today in the Line" envisioned a spokesman for Neom during an interview.

Tonomus' urban AI experiments are of a different nature: less immediately visible but more pervasive. Tonomus is eager to access the personal data of the new city's upcoming residents so to train its predictive algorithms and refine their predictions. "Privacy as we know it won't exist in Neom" claimed one of their representatives, upon being asked to comment on Neom's data policies. In essence, the goal of Neom is to use information on people's past and present behavior, so to anticipate their future needs and moves in the city. First, within domestic spaces via domotics, with "robots anticipating what you might want for dinner and cooking your favorite meal before you go back home" explained one Neom spokesman in an interview. Second, in public spaces, with The Line's autonomous vehicles supposed to anticipate where and when citizens will need them. Overall, for AI companies like Volocopter and Tonomus, the main advantage is that Neom offers them "a playground to test new ideas and build new technologies

with complete freedom, in a way that would be unimaginable elsewhere" stated a manager from Tonomus. For Neom, and thus for the Saudi government, the gains are expected to come from the taxes that these companies will pay, the jobs that they will create in Saudi Arabia, and the profit that their new AI technologies, once commercialized, will generate.

In addition, the Line serves the purpose of revamping the international reputation of the Kingdom of Saudi Arabia, by cultivating a futuristic society. As explained in the third section, Saudi Arabia is generally perceived as a backward society anchored to ultra-conservative Wahhabi practices and rules. The Line seeks to change this image by playing with a recurring trope in urban history: that of a new city for a new society. It has often been the case that new cities have been built as a medium to develop idealized societies supposed to establish new cultures and social behaviors by inhabiting new spaces (Kruft, 1989). The Line is envisioned to host a progressive society composed of human and robot citizens sharing the same urban spaces. The image that The Line is trying to project is that of a future-oriented society or, as a representative from Neom put it in an interview, "the first place in the world where robots will have citizenship." From a legal point of view, the first step to realize this vision has already been taken. In October 2017, as part of the launch of Neom, a humanoid robot named Sophia created by Hanson Robotics, was granted Saudi Arabian citizenship, thereby becoming the first AI in history to be officially recognized as a member of society (Parviainen & Coeckelbergh, 2021).

Discussion: fantasies VS realities in Neom

Sophia's citizenship provides an entry point to critically discuss the main fantasies that Neom is seeking to cultivate. As critical AI studies remind us (Cugurullo, 2025; Natale, 2021), AI technologies are often built to create the illusion of being conscious, as part of broader politico-economic strategies whereby, as already noted by Marx (2004), machines are instrumentalized by a powerful economic elite. In these terms, to paraphrase Parviainen and Coeckelbergh (2021, p. 715), making Sophia a Saudi citizen can be understood as a "performance." A performance in that sense that the AI in question is projecting the fantasy of sentient machines resembling the behavior and personality of human intelligences, as well as a performance on the part of the Saudi government which uses the urban (in this case a project for a new city) as the stage where the myth of futuristic societies populated by both humans and AIs is represented and shown internationally.

In Neom, AI fantasies, such as that of Sophia the robot citizen, are intersecting with sustainability fantasies in the new urban spaces envisioned by the Saudi government. These include The Line which has been officially presented as an international paradigm of sustainable urbanism. However, by drawing upon the critical literature on new experimental cities discussed in the second section, it is possible to disentangle Neom's sustainability fantasies from the reality of its context, namely the Kingdom of Saudi Arabia. This is because Neom, like many of its predecessors (Ali & Moser, 2024; Cugurullo, 2016; Karvonen et al., 2019; Su, 2023) is not built in a vacuum. Its implementation is part of Vision 2030's economic strategy, which in turn is part of MBS' broader political agenda to consolidate his power.

Neom's wave of experimental urbanism is thus driven by strong politico-economic imperatives, in a way that resonates with the contemporary history of new experimental cities (Caprotti et al., 2015; Cugurullo, 2021; Moser & Côté-Roy, 2021; Van Noorloos & Kloosterboer, 2018). Neom's dynamics of urban experimentation are also akin to how tech companies tend to operate in ex novo urban projects, upon receiving *carte blanche* to utilize new urban spaces to trial their new technologies (Cugurullo, 2021; Moser, 2015; Van Noorloos & Kloosterboer, 2018). Volocopter, for example, can test in Neom experimental flying vehicles that would not comply with standard health and safety regulations in ordinary cities and, similarly, Tonomus has been authorized to develop and test extractive AI technologies whose deployment would breach the regulations that govern the collection and use of personal information in most countries.

As Neom's politico-economic objectives start to take form in new urban spaces and in new AI technologies, it is possible to see how such trajectory of experimental techno-urban development is detrimental from a sustainability perspective. When it comes to issues of social justice, Bsheer (2020) stresses that, while robots are being granted citizenship in Neom, repression continues in Saudi Arabia. Saudi dissidents are regularly imprisoned, tortured and executed, and those who escape with their life are terrorized into silence (Bsheer, 2020; Freedom House, 2024). This is a harsh social reality that also clashes against Neom's fantasy of building a new place where "anyone can live", as pointed out in section four. In reality, the Tabuk region was never an empty space without a population, and its original inhabitants, the Huwaitat tribe, are being killed or displaced by MBS' soldiers to make room for Neom (United Nations, 2023). This goes to show how misleading terms like "new cities" and "ex novo developments" can be, by giving the impression of a blank canvas bereft of human life. Thousands of Huwaitat people used to live where urban areas including The Line are being built, and the future of Neom is erasing their past.

In addition, from an environmental perspective, Neom is disregarding local ecosystems. The development of a linear city in an arid environment, for instance, goes against the principles of ecological urbanism according to which cities should be built in harmony with bioregions by adjusting the design and size of the built environment to the physical geography of the territory and the natural resources that the area can provide (Cugurullo, 2021; Mostafavi & Doherty, 2016). Instead, The Line cuts across the territory, like an incision, severing its geographical features, blocking wildlife corridors and ignoring the simple but crucial fact that the Tabuk region cannot provide much freshwater to its inhabitants. Furthermore, the Neom megaproject includes the construction of an island built from scratch and a ski resort in the desert, supposed to be perpetually covered with snow artificially produced by burning oil and gas. This is a trajectory of urban development that imposes new urban spaces onto the natural environment without considering its geography and ecology.

There are thus already significant discrepancies that are beginning to emerge between Neom's sustainability fantasies and the realities underpinning and surrounding its development. The fantasy of building an exemplar model of sustainable urbanism does not match Saudi Arabia's ruthless politico-economic reality where the expansion of MBS' power is trampling anyone or anything standing in his way. In these terms, there are strong similarities between the case of Neom and the case studies examined in the critical literature on new experimental cities where the banner of sustainability tends to hide

social injustice and environmental degradation (Avery & Moser, 2023; Cugurullo, 2013; Xie et al., 2022). One difference is represented by AI which is adding a novel layer of fantasies, such as the vision of fully autonomous urban systems operated by AI and populated by robotic societies, to the myths that have been characterizing ex novo urban projects for decades (Cugurullo, 2021; Parviainen & Coeckelbergh, 2021). This is happening at the intersection between the development of new cities and that of new AIs, which is the topic that opened this article in section one. It is with the aim of using the empirics discussed so far to theorize this emerging intersection, that the article moves to its conclusion.

Conclusions

This article has examined Neom to shed light on the intersection between the development of new cities and the development of new AIs, in an attempt to explain the emerging phenomenon of what were termed, in section two, *new AI cities* (see Figure 2). These are ex novo urban development projects in which the urban becomes a site of experimentation in AI. These dynamics of urban experimentation are triggered by contextual factors. As it is often the case in projects for new experimental cities, their genesis is linked to national politico-economic imperatives whereby the interests of a minority of powerful stakeholders come to the fore (Ali & Moser, 2024; Cugurullo, 2016; Su, 2023). The article has shown that Neom, while projected into the future, is deeply grounded in the contemporary political economy of the Kingdom of Saudi Arabia and in the ambitions of its Crown Prince, Mohammed bin Salman. Furthermore, the interests of local and international AI companies come into play too, as they see in the urban both an ideal opportunity and an ideal place to test their experimental AI technologies, in a way that would not be possible in ordinary cities due to health and safety and privacy regulations. This aspect is evident in Neom where AI companies are being authorized to test flying autonomous vehicles and predictive algorithms relying on personal data.

New AI cities also cultivate numerous fantasies about sustainable urban development and share with their predecessors the ambition of establishing international paradigms of urban sustainability (Avery & Moser, 2023; Caprotti et al., 2015; Cugurullo, 2021). However, just like with their predecessors, politico-economic imperatives have priority over questions of social justice and environmental preservation (Avery & Moser, 2023; Cugurullo, 2013; Xie et al., 2022). In this regard, as the article has shown, the initial phase of Neom indicates little to no sensibility towards the bioregion of Tabuk and its autochthonous population. The Neom project, as an ex novo urban initiative, is premised upon the illusion of Tabuk as an empty space, but this is not the case as evidenced in particular by the killing and displacement of its original inhabitants, the Huwaitat tribe: actions which have been systematically carried out by MBS' soldiers.

Moreover, in new AI cities, sustainability fantasies are merging with AI fantasies in a novel manner and, out of this syncretism, AI is emerging as the "new sustainable" (Cugurullo et al., 2023, p. 372). This is problematic because preliminary studies on urban AI experiments suggest that the integration of AI technology into urban systems and services is rarely being conducive to urban sustainability, and it is instead contributing to greater degrees of energy consumption, environmental exploitation and social injustice (Chen, 2023; Cugurullo et al., 2025; Fields, 2022; Mahmoudi et al.,

2025). It is also important to note that while the fantasy about the urban sustainability of AI is indeed a fantasy, its cost is very much real, and it is driving enormous investments. In this regard, one can think about the $500 billion invested by the Saudi government in Neom, which is just one of the many AI strategies that are currently being implemented in the world to build AI infrastructure across urban spaces and scales (Bareis & Katzenbach, 2022).

That of *sustainable urban AI* is not the only AI-related fantasy that is evolving under the influence of the urban. Another AI fantasy that has landed in the urban context of Neom is that of sentient and conscious machines, which has led to the formation of the fantasy of *robotic cities*, with The Line promoted as the first place in the world to be populated by both humans and robots. The reality, instead, is that of Sophia: a robot built to create the illusion of consciousness as part of a broader performance whereby the Saudi government has granted it citizenship to revamp the international reputation of the Kingdom as a progressive country. In addition, there is also the fantasy of *fully autonomous urban systems* which is growing out of the illusion of AI as a technology detached from human influences. In terms of autonomy, while many of Neom's technologies, services and infrastructures, such as autonomous vehicles, predictive systems and industrial machines, are meant to perform on their own without human supervision or assistance, their very existence and functioning depend on politico-economic decisions made by individuals like MBS, behavioral data extracted from people, and a 100,000-strong workforce toiling to materialize the whole project.

Finally, it is crucial to understand that the AI fantasies animating projects for new AI cities are not only driving material changes. As the case of Neom begins to show, such fantasies can also have an intangible impact in relation to the cultures and norms that underpin the life of cities. While it is a matter of fact that Neom's AIs are neither sentient nor conscious, this is a project that is nonetheless advancing ideas of robotic citizenship, in a way that is unprecedented and thus risky. Similarly, it is experimenting with radical data cultures in an attempt to eradicate privacy. These fantasies are dangerous because they are grounded in the dreams of a minority of individuals thirsty for power. Their dreams will be everybody else's nightmares should, one day, such fantasies get closer to reality.

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Research ethics and consent

Informed consent was provided by all participants whose responses have been anonymized to ensure their privacy.

Data availability statement

The data that support the findings of this study are not publicly available as they contain information that could compromise the privacy and safety of research participants.

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