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"AI Will Be the Beating Heart of the City": Connectivity and/as Care in The Line

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Abstract

Artificial intelligence will be "the beating heart" (Bell, 2022, para. 1) of the linear smart city The Line in Saudi Arabia, one of the most expensive and expansive urban living projects of our times—and crucial in the larger vision of a post-oil future for Saudi Arabia. Exemplary of the complex relationship between past and future in constructing alternative urban imaginaries, the promotional material of The Line highlights technology as the best—and apparently only—solution to "maintain, continue, and repair our 'world' so that we can live in it as well as possible" (Tronto & Fisher, 1990, p. 40), while at the same time imagining artificial intelligence itself as a living and "organic" presence in the urban. Following David Pinder's understanding of cities as always both imagined and real, immaterial and material, this article draws on care as a critical lens to explore the construction of The Line in answer to Nick Dunn's provoking question: "So can imagining the future change it?" (Dunn, 2018, p. 376). Tracing "care in a manufactured landscape" (Mattern, 2021, p. 144) here highlights the entanglement between technology and sustainability, between organic metaphors and artificial environments, between virtual connection and material exhaustion. Critically examining the promise embedded in contemporary architectural projects to deliver "new and imaginative solutions" (NEOM, 2022e) for the physical, psychological, and environmental exhaustion of urban life, this article proposes an understanding of connectivity and care as increasingly entangled—and argues that the urban vision put forward in The Line, ultimately, hinges on care as connectivity rather than caring interconnections, networked logics rather than networks of belonging.

Keywords

artificial intelligence; care; disconnection; NEOM; sustainability; The Line; urban planning; utopianism

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1. Introduction

Artificial intelligence will be "the beating heart" (Bell, 2022, para. 1) of the linear smart city The Line in Saudi Arabia—one of the most expensive and expansive urban living projects of our time. The idea to employ "smart" solutions for urban spaces is not necessarily new: Cities that are more connected, and in turn supposedly more adaptable, more liveable, more sustainable, are a staple of urban imaginaries from the mechanical city of the 1910s to more recent examples like The Line. Two hundred meters wide, 170 kilometers long, and 500 meters above sea level, The Line is built to accommodate nine million residents, while at the same time functioning as one of 10 satellite developments that—taken together—form the proposed special economic zone NEOM at "the crossroads of the world" (NEOM, 2022b). As part of what Steffen Wippel calls the "expansive branding policies" (Wippel, 2023, p. 3) adopted by Middle Eastern cities, regions, and nations, highlighting the sustainability of the design and exclusive use of renewable energy in the publicly available material on NEOM can be understood as part of a larger vision of a post-oil future for Saudi Arabia. This, in turn, is exemplary of the complex relationship between past and future (cf. Godhe & Goode, 2018) as well as the entanglement between design, technology, and sustainability in constructing alternative urban imaginaries. Tracing the promise embedded in contemporary architectural projects to deliver "new and imaginative solutions" (NEOM, 2022e) for the physical, psychological, and environmental exhaustion of urban life via artificial intelligence, this article proposes an understanding of connectivity and care as increasingly entangled. Both connectivity and care could easily be understood as part of the "trendy urban concepts and seductive narratives, as well as elaborate city branding strategies and forms of place promotion" (Moser & Côté-Roy, 2021, p. 4) that are part of the global circulation of urban developments. More than representing an almost inevitable convergence of discourses of the "sustainable" city and the "smart" city, however, I propose that the concept of care is strategically operationalized in the discursive framing of large-scale urban developments. Following Liesbeth Schoonheim's call to recast "practices of providing and withholding care as material, economic, and political" (Schoonheim, 2022, p. 1), shifting our attention to care functions as an entry point into both the mediation and realization of urban visions. Expanding on an understanding that care "can also be strategically deployed to frame urban interventions independent of their actual care for the human and more-than-human inhabitants of the city" (Kopitz & Chow, 2023, para. 2), the negotiation of care—what is being cared for, by whom, and how—forms part of the discursive branding of urban images and imaginaries, particularly ones aimed at attracting international investments.

At the intersection between media studies and urban studies, I am approaching The Line—and the further developments part of NEOM—as both a place and a medium, connected through material and immaterial concerns, in the tension between the spatialization of media and the mediatization of place (Jansson & Falkheimer, 2006). The materials discussed here—visual, audiovisual, and written—are all publicly available via the developments' website, and partially also further extended onto other (social) media platforms. As Vanolo (2017) suggests in his extensive overview of the politics of representation in urban branding, it is precisely the production of images that is increasingly operationalized to produce an imaginary of the urban. *Visualizing*, it seems, becomes crucial in *realizing*. Existing research (cf. Boisen, 2015; Vanolo, 2017) draws on the term branding—rather than advertising or marketing—to emphasize that the practices employed in producing urban images and imaginaries are centered around "creating, sustaining and shaping a relevant presence in the mind" (Vanolo, 2017, p. 29). Following David Pinder's suggestion that "cities are imaginary as well as real spaces; they are constituted by dreams and desires, conscious and unconscious longings and fears, along with material developments and practices" (Pinder, 2002, p. 233), the (re)presentation of

The Line functions as an exemplary case study to trace the material and immaterial dimensions of care for human and more-than-human bodies within the city, for communities, and for the environment at large. At the same time, as maybe the most visible and most debated development within the special economic zone NEOM in Saudi Arabia, The Line could be understood as the epitome of a manufactured landscape—which in turn raises questions about urban care as something to be designed, to be manufactured, and to be commercialized as well. Throughout this article, I will attempt to tease out the tensions between care and connectivity in somewhat of a two-step logic. First, reading care as connectivity by highlighting how encountering care in The Line is represented as a virtual and disembodied experience—mediated and made possible only through technology. In the second part, I will reverse the directionality to suggest reading connectivity as care and discuss how technology in turn grounds care by weaving artificial intelligence into the more-than-human fabric of the city. If "urban imaginaries are always becoming, in transition, aiming towards an ideal perfection that is actually impossible" (Vanolo, 2017, p. 5), the emphasis on the operationalization of care opens up to larger questions of virtuality and reality—particularly in relation to producing more sustainable and more caring ways of living.

2. Reading Care as Connectivity: Virtual Urban Encounters

The tagline "virtualizing the real and realizing the virtual" (NEOM, 2022b) of the larger vision of NEOM is my starting point to highlight the urban imaginary as shaped by virtual encounters—with and between urban inhabitants as well as with the urban itself. Strikingly, the video teaser for The Line (NEOM, 2022h), translated into multiple languages and viewed more than 50 million times in the English version alone on YouTube, centers connection—in the multiple meanings of the word. The video teaser begins with a medium close-up of a young woman sitting on concrete steps in the public space of a non-descript city, surrounded but distanced from other urban inhabitants. In the background, sounds of sirens blaring and cars driving past can be heard. The young woman's static posture, bent over and visibly defeated, is disrupted by reflections of light touching her face and catching her attention. As she begins to move toward the (seeming) source of the light, a cover of the song "What a Wonderful World" begins to slowly take over the urban sounds, beginning with the whispered first two lines ("I see trees of green, red roses too") sung in a slightly distorted female voice. The promise of a greener future contrasts with the present of the city, which is marked by high-rise buildings, parked cars, and crowded streets. Shifting from walking to running, the young woman discovers the source of the diffuse light: a metallic installation, abstractly resembling the shape of a rose, standing in the middle of another public square. While other passers-by do not seem to pay notice to the installation—or the light it exudes—the young woman dives into the installation as it becomes a "magical" portal transporting her into a different dimension (see Figure 1). At this precise moment, the lyrics of the cover song pick up again, proclaiming "what a wonderful world" as the gray of the city is replaced with a fantastical landscape of lush greenery. Contrasting the isolated individual in a city full of people but absent of connections, the immersion into the urban vision of The Line functions as an entry point into a more connected way of living and, at the same time, centered on transparency and permeability in the fine balance between private and public life. Yet, the seamless convenience of the smart city (cf. Mattern, 2021, p. 144) in the case of The Line also becomes measured through connections to each other in an interconnected neighborhood, scaled with and through technology:

> Everything will be accessible within a five-minute walk and an efficient public transport network will offer an end-to-end journey in just 20 minutes. Automated services will be powered by artificial

intelligence. Amenities in close proximity will mean residents see family and friends often through spontaneous encounters. (NEOM, 2022e)

The similarity to visions of caring neighborhoods—scaled to the dimensions of a metropolis without its personal anonymity and spatial distance—should be highlighted here. Notably, the following lines of the original lyrics of the video teaser's song ("I see them bloom, for me and you") are skipped in the cover version, as are all other lyrics—and with them the connotations of a more caring, open, and solidary society often associated with the song. The emphasis, rather, appears to be on the *potential* for connections by choice and on demand—and for the selected few.

Importantly, the city itself is also part of connections—to the outer world. The publicity materials for The Line, as well as those for NEOM's other recent development projects Sindalah, a luxury island (NEOM, 2022d), and Trojena, Saudi Arabia's first outdoor ski resort (NEOM, 2022f), feature visualizations of traffic routes leading to and from the imagined places. At the same time, The Line appears to emphasize the unidirectionality of these connections: While Sindalah and Trojena are predominantly vacation places, and Oxagon an infrastructural hub (NEOM, 2022c), The Line is imagined as a more permanent urban sphere—a place that, once entered, becomes almost impossible to leave. At the 2023 Venice Architecture Biennale, The Line—and NEOM as a whole—were presented as part of a larger conceptual approach named "Zero Gravity Urbanism—Principles for a New Liveability." The emphasis on zero gravity, and the associations this conjures with extraterrestrial settlements, cannot be considered accidental. Even further, the utopian undercurrent of the discursive positioning of The Line as an "unprecedented urban living experience" intersects with the literal meaning of utopia as "no place" here. In the absence of a spatial grounding, the vision of a more connected and more sustainable urban environment thereby turns into a virtual one. Throughout the video teaser, the references to virtual game worlds are noticeable—from access through a "magical" portal via the modular, almost pixelated, design of the built environment, to the specific color palette highlighting shades of purple, green, and blue. Rather than presenting The Line as an alternative city, the video constructs the idea of an alternate reality, accessible through virtual technology. This connects to Sarah Moser and Laurence Côté-Roy's expansive overview of "new cities"—master-planned urban developments across the globe—that highlight customers and consumers rather than citizens, and the city as a space to invest rather than live in for wealthy elites (Moser & Côté-Roy, 2021, p. 7).

The emphasis on playing more than living—in "a multicultural community surrounded by the spectacular nature that makes it such a rare playground" (NEOM, 2022e)—adds to the aesthetic rather than political, virtual rather than spatial dimension of this urban vision. A similar logic applies, somewhat surprisingly, in later videos outlining the development as something *in progress* and *under construction:* In January and October 2023 respectively, NEOM published short films outlining the "rapid development" of the construction sites (NEOM, 2023a, 2023c), with the first one notably opening with the voice-over of a woman affirming that "NEOM is real" (NEOM, 2023a). Still, both films continue to blend aerial photography of the physical reality of the site with virtual renderings of its imagined future, interspersed with what could be termed "stock videography," emphasizing the more abstract promises of the development project (like "business opportunities"), as well as digital maps positioning The Line in the—again very real—global context. In this constant shift between mediations, the emphasis on being *real* becomes suspended between the past and the present, the physical and the virtual.

Figure 1. Contrasting the experience of being in the "urban" with being in the "virtual," the video teaser for The Line proposes the project as an alternative dimension accessible only with and through technology. Source: NEOM (2022h).

The larger framing of the development as a "chance to live in the 'new future' that we are now building" further amplifies connectivity as a utopian impulse. Alberto Vanolo highlights that city branding as a "highly political practice, based on the production and manipulation of representations" (Vanolo, 2017, p. 92) modifies the (in)visibility of spaces and subjects as much as the discourses surrounding them. Reading care as connectivity within this practice plays with the dual meaning of virtual as (a) "almost or nearly as described but not completely" and (b) "not physically existing as such but made by software to appear to do so" (Virtual, n.d.)—a virtual and virtually caring city. If building a caring world, however, means "acting upon the understanding that as living creatures we exist alongside and in connection with all other human and non-human beings, and also remain dependent upon the systems and networks, animate and inanimate, that sustain life across the planet" (Care Collective, 2020, p. 94), the urban vision constructed by NEOM across the prospective developments is notably insular in its emphasis on specific, desirable connections. At the same time, it is precisely through the emphasis on connectivity that The Line somewhat paradoxically becomes disconnected: The geographical, political, and cultural context of the urban development disappears in favor of the virtual vision—resembling what Shannon Mattern refers to as "tabula rasa developments" (Mattern, 2021, p. 142). Drawing on the same metaphor, Sarah Moser and Laurence Côté-Roy frame similar projects of "new cities" as:

> Ideological and discursive constructions…based on the aspirations of their builders: urban mega-developments built from scratch on a tabula rasa that are designed to be both geographically and administratively separate from established cities, while projecting a distinct brand, architectural identity, and vision of the future. (Moser & Côté-Roy, 2021, p. 2)

In this regard, The Line could be understood as both performing digital disconnection and being a prime example of "hyper-connected landscapes" (Fast & Abend, 2022, p. 2391). Pushing this even further, the architectural design itself is turned into a variety of clean slates, layered on top of each other. Rather than

interrogating the "realism" of the proposed construction of the linear city (as, for instance, Batty, 2022, has done from a spatial analysis perspective), I am interested in the discursive positioning of The Line—and similar large-scale development projects—as alternative visions of urban futures. If "contemporary geomedia technologies represent the world in particular ways and thus foster particular world views" (Fast et al., 2019, p. 94), the fractured representation of The Line suspends critique: At the same time real and virtual, the urban vision (re)presented in these different media forms and formats becomes merely *one* possibility. The large-scale models of The Line displayed as part of a larger exhibition at the Venice Biennale simultaneously construct and abstract the vision of alternative urbanity proposed in the video teaser. As reviews of the exhibition highlight, "it was unclear whether the different models represent designs for alternative sections of the proposed 170-kilometer-long building or alternative proposals for the structure" (Ravenscroft, 2023, para. 8)—turning the architectural vision into a variety of theoretical thought experiments rather than a practical blueprint. The meaning of space is never fixed, as Massey (2005) famously insisted—but here, it seems that neither is "space" itself. Following Karin Fast, Emilia Ljungberg, and Lotta Braunerhielm's call to explore the role of geomedia in "wider processes of social and spatial (re)production" (Fast et al., 2019, p. 90) here points to a suspension of material practices and experiences of care in and through space. In the original presentation of NEOM as an emerging project, as Hend Aly points out, "imagination and reality remain starkly divided" (Aly, 2019, p. 104). Through the lens of care as connectivity, this division—it seems—becomes complicated. The imagination is the reality, and the reality the imagination, in an urban vision that is not only framed by but experienced through technological mediation.

Rachel Bergmann and Sonja Solomun urge to discuss artificial intelligence—especially "sustainable AI" and "green AI"—"within their deep relationality and attachment to place" (Bergmann & Solomun, 2021, para. 3). Encountering the city—and each other—virtually, in this regard, becomes paramount to upholding the imaginary of The Line as a radical alternative to existing—but unsustainable—urban ways of living. Following Alberto Vanolo's emphasis on the political dimension of city branding, of the strategic (re)production of "social, cultural and thematic formations" (Vanolo, 2017, p. 98), my analysis understands care as a crucial vehicle in constructing this more connected and more connective imaginary of The Line. In a similar vein, in Hend Aly's discussion of the launch of NEOM, the promotional material not only functions as a representation of the project but also as a reaffirmation of political power at a moment of social, economic, and political instability (Aly, 2019). Turning to care, then, further frames these questions of power as technological and environmental as well. Writing on software as a medical device, Xiaowei Wang proposes "rethinking care and shifting broader, situated circuits of power across different scales and geographies" (Wang, 2021, para. 1). While focusing on a different form of application—and in a different field—a similar critique about the entanglement of artificial intelligence with larger structures of socio-technological power also applies to the urban. In the larger imagination of The Line as a more caring and more sustainable urban future, the emphasis on care as and through virtual connectivity—rather than an affective attunement to the physical space and its human and more-than-human inhabitants—can be understood as a spatial disconnection. Especially considering that the construction has officially already begun, both the abstraction of the linear city through multiple designs and the larger visual discourse of virtual experience function as a counter to public criticism raised against the development itself. As a virtual space rather than an actual place, the less "caring" practices reported as part of the development—ranging from forceful displacement of local residents to the environmental exhaustion of the construction site—shift to the background. The urban vision put forward in The Line, ultimately, hinges on care as connectivity rather than caring interconnections, networked logics rather than networks of belonging.

3. Reading Connectivity as Care: Organic Artificial Intelligence

The publicly available material on the development projects emphasizes that "people's health and wellbeing will be prioritized over transportation and infrastructure" (NEOM, 2022e)—which overlooks the necessity of infrastructures *for* care in turn. Under the headline "more time to spend with loved ones," The Line nonetheless draws a recursive loop to infrastructure: It is precisely because of the technologized design that the vision of a more connected, more social, and—implicitly—more caring community is enabled. The examples drawn on in this article highlight technology as the best—and apparently only—solution "to maintain, continue, and repair our 'world' so that we can live in it as well as possible" (Tronto & Fisher, 1990, p. 40), while at the same time framing artificial intelligence itself as a living and "organic" presence in the urban. Drawing on what Yuk Hui refers to as the "becoming organic of machines" (Hui, 2020, p. 222), here I propose to shift the directionality between care and connectivity: How connectivity becomes the ground for care—and in turn grounds care by weaving artificial intelligence into the more-than-human fabric of the urban. Again, this is not necessarily new: Jennifer Gabrys has discussed a similar logic in her writing on the Smart Forest City in Cancun—another manufactured urban vision of an "urban ecosystem in which nature and the city intertwine and act as a single organism" (Urban Design Lab, 2021, para. 4). While each of the developments part of NEOM articulates connectivity, the infrastructures of technology remain under the surface—and are yet organic and crucial to the functioning of the individual satellite cities, as well as the development as a whole. Writing about the Hudson Yards development in New York City, Shannon Mattern argues that the trees and birds were "placed there to cloak the sterility and artificiality of a landscape whose very topography seems inimical to their ability to plant roots and thrive" (Mattern, 2021, p. 146). While certainly similar logics can be traced in The Line, nature takes on an additional function of not just covering technology, but grounding care in a connected place. Through the lens of care, the idea of *geomediatization*—"the reciprocal shaping of technology, the social, and space/place" (Fast et al., 2019, p. 90)—intersects with that of *infrastructural imaginaries*—"ways of thinking about what infrastructures are, where they are located, who controls them, and what they do" (Parks, 2015, p. 355).

Care and connection are frequently brought into a dialogue—for instance, the manifesto by the Care Collective sketches "caring imaginaries which draw on past examples, present manifestations and future possibilities for forms of interconnected care" (Care Collective, 2020, p. 7). Throughout this article, I am consciously using the term "connectivity" rather than "relationality" to highlight the technological mediation of the literal and figurative connections central in urban visions like The Line. In an automated slide show on The Line's website, virtual renderings highlighting the project as "a model for nature preservation" with a "reduced infrastructure footprint" and exemplary of "alternative ways for humanity to live" flow into the promise of "unmatched business opportunities" (NEOM, 2022e), directly tying sustainability to commercialization—and to the financial potential of urban intelligence run with and through expansive data collection. Beyond the shift in narrative focus, the visuals accompanying these taglines also fundamentally change: Whereas the former depict different views of the proposed design, centered on semi-open architecture and shared green spaces, the latter highlights the technologization of The Line through vertical blue lines, resembling lines of code, running above and through the virtual renderings of the city—adding a further dimension to the simultaneously "multifaceted extensions and superimpositions of geographical space through media and the place-bound nature of media technologies and practices" (Fast & Abend, 2022, p. 2386). Writing on sustainable and green artificial intelligence, Rachel Bergmann and Sonja Solomun highlight the "environmental initiative" (Bergmann & Solomun, 2021, para. 5) central in research and practice

on artificial intelligence, which—in their critique—misses the opportunity to engage with technology across social, political, and environmental dimensions. Following Fast and Abend's call to pay attention to "media's ongoing place-making powers" (2022, p. 2387) in the context of The Line—and the related developments of NEOM—becomes a literal concern as well, as place-making takes on both discursive and physical dimensions. Recently, NEOM expanded the development portfolio to a fifth "region"—the Gulf of Aqaba coast, which in turn consists of seven individual projects that are positioned as "escape," "sanctuary," "destination," or "haven" for (international) visitors rather than urban spaces for both life and work. For instance, the ecotourism destination Zardun is framed as a "carefully restored haven" that is meant to "seamlessly blend contemporary luxury with nature" (NEOM, 2024)—which in turn raises questions about whether luxury, and particularly luxury tourism, are not fundamentally contradictory to visions of sustainable living. In addition, the framing of these more recent developments stands in stark contrast to the proposed permanency of The Line as a sustainable city (rather than a site for tourism or commerce). This emphasis on permanency connects back to questions of infrastructure of and for care.

As a point of comparison: The environmental footprint of the linear design is calculated to be 46 times smaller than that of the city of London, which has a similar population size of just below nine million residents. Key for the framing of The Line's urban planning approach is an animation depicting an "average" city visualized through abstract blocks of high-rises, interspersed with a geometric pattern of roads and small green spaces—which are then stacked into a line to "create out of the desert a city that would be more sustainable, liveable—a city of the future" (NEOM, 2022g, 2023b). This undermines any suggestions to think about alternative ways to live in and with existing both urban and natural environments, the city and the desert respectively, in favor of new developments centered around technology. In doing so, The Line follows the discursive logic of ascribing artificial intelligence in the urban with "significant potential to scale up sustainability" (Dauvergne, 2020, p. 101)—most notably by "enhancing" nature, without being specific about what that entails. Considering the specificities of the proposed locations of the confirmed developments of NEOM, the re-shaping of the existing environments fundamentally changes, constructs, produces "nature." The construction site for The Line roughly stretches from the Red Sea to the city of Tabuk, a region dominated by sand and sandstone formations with interspersed natural springs and date palm trees—a natural environment fundamentally different from the one envisioned within the constructed city (see Figure 2). At the same time, the emphasis on the footprint of the constructed city overlooks the material cost of its construction—and the environmental cost of the immense amounts of glass, steel, and concrete implied in the designs. Caring for the environment, here, becomes synonymous with technologizing the environment in an urban vision that "aims to enable people to live their best possible life, in harmony with nature, technology and each other" (NEOM, 2022e). This logic extends beyond The Line into the other developmental satellites of NEOM as well. For instance, the luxury resort island Sindalah is imagined as "a place where enhanced nature meets responsible design, advanced technology and inspirational architecture" (NEOM, 2022d), centering technology as the connective element between nature–urban–care.

Notably, "legacy infrastructures" are framed as one of the obstacles to "new and imaginative solutions" (NEOM, 2022e) to the environmental crises in other places—positioning the tabula rasa approach of NEOM as the only possible way to construct a more sustainable urban "designed to protect *and enhance* nature" (NEOM, 2022e, my emphasis). Again, the material and immaterial cost of construction on undeveloped (though, importantly, not uninhabited) land and the maintenance of manufactured landscapes are not factored into this logic. Highlighting care as maintenance, here, follows the suggestion by Anna Pendergrast

Figure 2. Contrasting The Line as a virtual experience and a physical construction. Both images are part of the promotional material publicly available on the development project and featured in the "progress" videos. Source: NEOM (2023a).

and Kelly Pendergrast that "to think about AI through the lens of maintenance practices is one way to acknowledge the long life of technological systems and their impacts on people and the environment" (Pendergrast & Pendergrast, 2021, para. 3). At the same time, it should be emphasized that throughout all publicity material available by and on NEOM, the specifics of the artificial intelligence—and the technological urban in general—remain distinctly vague and highly ambiguous. Asked about the project's vision for a "seamless society," Head of Technology and Digital Joseph Bradley describes an "interconnected, intelligent and resilient environment; where everything works together holistically to provide a predictive, personalized and immersive experience—enabled by autonomous, self-healing services that enhance daily life" (NEOM, 2022a). Through specific images like seamless and self-healing, such statements contribute to a reading of technology as living, growing, connecting—caring. At the same time, considering the material costs of not just the construction site but artificial intelligence more broadly, the "organic metaphors" almost become satirical. The "place-bound nature of media technologies and practices" (Fast & Abend, 2022, p. 2386) becomes an environmental concern as well in the context of urban intelligence. As Shannon Mattern argues, "seemingly immaterial digital media are resolutely material…their virtuality and seeming artificiality are dependent upon natural geologic components—copper, coltan, tungsten, silicon" (Mattern, 2019, p. 129)—which is further exacerbated by the environmental exhaustion of building and maintaining artificial intelligence infrastructures, particularly at the scale suggested by the ever-expanding portfolio of NEOM. More critically, the interweaving of artificial intelligence into urban environments could be understood as a strategy to undermine concerns about the careful maintenance of the artificially created—"enhanced"—nature envisioned in The Line.

4. Conclusion

David Pinder asserts that urban imaginaries are "significant politically, being intertwined in how cities may be thought about, conceived and lived" (Pinder, 2002, p. 233). In the context of this article, this becomes

particularly interesting through the further intertwining of the urban vision with technological solutionism. The headline of this article—"AI will be the beating heart of the city"—functions as a critical entry point to tease out the tension between materiality and immateriality, physicality and virtuality, in urban imaginaries highlighting technology as not just an element but rather the starting point of alternative urban futures. Rachel Bergmann and Sonja Solomun criticize that discourses on artificial intelligence are frequently disconnected from their "particular geographic, cultural, and material contexts" (Bergmann & Solomun, 2021, para. 6). In other words, the political dimension of utopian urbanism becomes de-politicized through the apolitical framing of "sustainable" artificial intelligence in development projects like The Line. Tracing the entanglement between care and connectivity in the promotional materials—importantly the only publicly available materials on the urban development—corresponds to an understanding of representations as "both real phenomena and phenomena producing realities and consequences" (Vanolo, 2017, p. 108). What Rajesh Bhattacharya and Kalyan Sanyal refer to as "bypass urbanism" (Bhattacharya & Sanyal, 2011) takes on additional relevance here: Rather than just drawing attention from the crises of existing cities to the promises of new ones, there is an undercurrent in NEOM that appears to move away from thinking about "physical" space altogether. Expanding on Hend Aly's assertion that "in the case of NEOM, as with many other new cities, branding and constructing an image precedes any other construction processes" (Aly, 2019, p. 103), tracing the entanglement between care and connectivity in the (re)presentation of the urban development questions the definition of "construction" as physical altogether.

Already in 2021, the Saudi Arabian state-owned news channel *Al Arabiya* reported on the idea of a "digital twin" for NEOM, introduced by (then) Executive Director of Emerging Technology Mansoor Hanif as allowing future residents "to transport themselves into the NEOM metaverse and experience daily life as they would in the soon-to-be physical city" (Bell, 2021, para. 5). In the following material made available on the different developments within NEOM, as discussed in this article, this temporality becomes further extended: "Soon-to-be-physical" now also contains the option to remain "always-virtual." Building on Hend Aly's emphasis on both the complexity and the vagueness of NEOM "between being a city, a start-up, a country, and the Crown Prince's legacy" (Aly, 2019, p. 99), my discussion adds another dimension: Through a geomedia lens, the question is not only what but rather *where* this vision of an alternative is supposed to be. For instance, as Head of Technology and Digital Joseph Bradley promises: "The metaverse will be a game changer as it will create a new environment for us to experience—whether by creating an immersive experience without friction or streamlining day-to-day activities, it will shape our collective future" (NEOM, 2022a). As in other quotes discussed in this article, the ambiguity between the physical and the virtual space shines through—traversing an increasingly blurring line between representing technology as something to be experienced *within* and something to be experienced *instead* of the physical space. More provocatively, one could read the promotional claim of the development, "NEOM will be like nowhere else on Earth" (NEOM, 2022b), as *being nowhere on Earth*, as an urban (intelligence) vision untethered from the physicality of space—and yet powered by the very geographic, cultural, and material cost of its construction. Here, the material dimension of both care and connectivity takes on a further political note.

Thinking about geomediatization as entangled with the (im)material construction of urbanity further responds to Lisa Parks' urging that:

> We must read media with an infrastructural disposition—that is, when viewing/consuming media we must think not only about what they represent and how they relate to a history of style, genre, or

meaning but also think more elementally about what they are made of and how they arrived. (Parks, 2015, p. 357)

Creating a "community where humans and machines interact seamlessly," as NEOM suggests, appears to follow Yuk Hui's assessment that the "opposition between the mechanist and the organismic has to be put into question" (Hui, 2020, p. 224). How, then, do we assess dimensions of care in a city imagined to be simultaneously technological and organic, real and virtual, artificial and natural, material and immaterial? In his work on urban imaginaries, Nick Dunn asks provocatively: "So can imagining the future change it? Do the ideas we have for urban futures build up over time and echo throughout history?" (Dunn, 2018, p. 376). The tabula rasa approach of The Line and its fellow development projects part of NEOM consciously disconnects the urban vision of a more sustainable, more liveable, more connected city from (a) the Saudi Arabian context on the one hand, but also (b) from more grounded and gradual approaches to greening the urban in other places. Returning to David Pinder's understanding of cities as always both imagined and real, immaterial and material, urban utopianism becomes a productive lens to critique the (re)presentation of The Line as urban alternative. As this article is being finalized, international news headlines have begun to (again) question the timeline, scale, and feasibility of the larger project, with recent reports (cf. Fattah & Martin, 2024) placing particular emphasis on the exponential costs—financial, human, and material. Rather than focusing on the question of whether The Line—and the other developments as part of NEOM—can and will ever be physically and completely built, I have aimed to shift attention to the environmental politics embedded within urban representation and urban imaginaries. Tracing care and connectivity through the discursive logic of "AI as the beating heart of the city" highlights the entanglement between technology and sustainability, between organic metaphors and artificial environments, between virtual connection and material exhaustion.

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Conflict of Interests

The author declares no conflict of interest.

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