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# Making Megaprojects: The Practices and Politics of Scale-Making

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## ABSTRACT

The world is currently experiencing a surge of investment in, and development of, large-scale infrastructural building projects, frequently captured by the term ‘megaprojects’. Distinguished by the bulk of their envisioned materiality, the volume of financial capital required to build them, and the complexity of technical, legal, administrative, and political tools needed to bring them into operation, megaprojects do not easily lend themselves to ethnographic inquiry. While in recent years, ethnographic attention to infrastructure has given rise to a burgeoning theoretical apparatus and a growing anthropological subfield in which the various aspects of megaprojects have been analysed, scale as a concept has remained under-theorised. Exploring scale-making ethnographically and unpacking the work that scale does for various actors and publics, the contributions collected in this issue make a theoretical contribution to the anthropology of infrastructure by showing how scale connects the everyday making and the spectacular politics of megaprojects.

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**KEYWORDS** Megaproject; infrastructure; scale; scale-making; politics

## Introduction

In the past decade, the world has witnessed an infrastructure boom, including the building of roads, bridges, railways, airports, dams, ports, telecommunication as well as energy systems, special economic zones and urban redevelopments. Governments are investing heavily in infrastructure development strategies by way of public private partnerships, of which the Chinese ‘New Silk Road Project’ (or ‘Belt and Road Initiative’), the US ‘Bipartisan Infrastructure Investment and Jobs Act’ and the International Space Station (ISS) are among the most spectacular ones. Infrastructures are increasingly built and delivered through megaprojects. As the name indicates, megaprojects are distinguished by their ‘meganess’. They are exorbitantly expensive, typically costing a

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billion dollars or more; feature a high level of technical and organisational complexity; involve multiple private and public stakeholders and diverse expertise, and extend into vast territories potentially drastically impacting human and non-human life. To justify their economic and environmental costs megaprojects are usually accompanied by far reaching claims about how they will (positively) transform society and the economy. The megaproject can therefore be seen as a specific form of infrastructure construction and delivery that is first and foremost defined by its scope and scale.

We might ask ourselves if and to what extent megaprojects are a new phenomenon. History is full of examples of large and socially transformative projects that could be classified as such. Think, for example, of the 600 km long Great Wall of China, which was built in stages between 400 BC and 1600 AD, or the Roman aqueduct in Segovia in present-day Spain. The historic irrigation systems built in what are today India, China, Egypt, Mexico and Peru, giving rise to what Wittfogel (1957) called ‘hydraulic civilizations’ with a strong state and central control could also be thought of as megaprojects. Yet scholars of contemporary megaprojects tend to point out that neither those historical endeavours, nor the more recent modernist large-scale works can be compared with those of today. Instead, they argue, megaprojects should be seen as a specifically contemporary phenomenon, due to their scope and modular, decentralised nature (Schindler *et al.* 2019: 1), the deployment of a transnational class of expatriate experts and workers (Ribeiro 1994: 116–149), and not least to their astronomical costs (Flyvbjerg 2014; 2017). Moreover, while the large-scale infrastructural projects of the twentieth century were predominantly conceived as forms of delivering nation-building ‘public works’,<sup>1</sup> in the contemporary era megaprojects signal a shift in the political and economic rationales behind such infrastructural developments. As an increasingly favoured tool for enacting neoliberal agendas and opening up new territories for capital’s expansion (Hildyard 2012; Bogaert 2018), current megaprojects distinguish themselves at the level of policy-making, funding mechanisms and promised returns (cf. Leivestad & Schober 2021). This special issue brings together anthropologists working on the construction of megaprojects in different parts of the world in a critical reflection of this specific form of infrastructure delivery that is increasingly dominating transnational landscapes. While scope and scale are intrinsic features of contemporary infrastructure projects and have been discussed in recent years, how scales are made and what scaling does remain under-theorised. We suggest a scale-centred analytic to improve our understanding two-fold. Firstly, how is the mega-dimension of projects produced both materially as well as discursively, and secondly, how does this scaling contribute to their appeal across a variety of stakeholders, while occasionally also serving as the reason for being resisted by certain publics. Taking megaprojects as ethnographic objects of inquiry that are particularly apt for illuminating how scales are made, we can thus arrive at a deeper understanding of the contemporary social and political allure of, and sometimes aversion to, infrastructures.

## Unpacking Megaprojects

Megaprojects have proven to be notoriously difficult to implement (Morris & Pinto 2004; Miller & Lessard 2008). They are plagued by cost overruns, delays and rarely

produce the expected returns (Flyvbjerg 2017: 14). In addition, most (if not all) megaprojects have negative environmental impacts and the lack of transparency, accountability and citizen dialogue when it comes to these endeavours often give rise to local protests and media debates (cf. Abbink 2012; Howe & Boyer 2016; Li 2018). Despite this, megaprojects continue to proliferate and attract investors and appeal to those in power. The current infrastructure boom could be said to constitute what Flyvbjerg (2017) calls the ‘megaproject paradox’. He and others have suggested that the puzzle of why megaprojects multiply despite their poor track record can be explained by considering the multiple sublimities that megaprojects entail. The ‘technological sublime’, drawing on the work of Leo Marx (1967), refers to the rapture that engineers get from pushing the limits of technology (Trapenberg Karen 2008). ‘Political sublime’ refers to the desire of politicians to build spectacular works to stand as monuments that generate great media impact and ‘economic sublime’ concerns the economic opportunities that megaprojects open up for construction companies, consultants, banks, investors and workers. The ‘aesthetical sublime’, captures the interest among designers to build something that is emblematic and aesthetically pleasing (Flyvbjerg 2017: 6–8). A fifth sublime, that of sustainability, has recently been proposed to motivate stakeholders to create megaprojects that contribute to the UN Sustainable Development Goals (SDGs), for the benefit of society and the planet (Sankaran *et al.* 2020). Moving beyond these observations, it is evident that each of these draws on or overlaps with the other ‘sublimities’ to a certain extent. For example, the ‘aesthetic sublime’ is often used to stoke support for the political, while the political may be used to stoke support for the economic and vice-versa. As they conjure up a form of awe, separately as well as through their overlaps, these sublime aspects of megaprojects do more to conceal than reveal what is at work in their making as well as the intended and unintended work that megaprojects perform once they are initiated. What is more, this theory has little to say about how these sublimities are produced, engaged with, and understood by social actors. Instead they are considered inherent to the realms of politicians, planners and engineers. Anthropologists have problematised such understandings by showing, for example, how road engineers, while embracing the promise of technology, are at the same time well aware of the incoherence, unpredictability and risks of large-scale projects (Harvey & Knox 2015; Harvey 2018). We suggest here that it is precisely the work performed by scale and scale-making that enables these sublime dimensions of megaprojects.

To date, the bulk of research on megaprojects is found in the business management and organisational studies, and focuses mainly on internal organisational structures, decision-making processes and governance.<sup>2</sup> While scrutinising megaprojects critically, this type of research strives to enhance their design and improve their implementation, and is less concerned with problematising the socio-material grounds on which megaprojects stand. This perspective, we argue, is insufficient for understanding the megaproject paradox. In contrast, our anthropological approach is critically oriented by taking the power relations of megaprojects as a basic premise and highlighting other driving forces behind the phenomenon. In comparison to the ways in which megaprojects are analysed in management studies, our approach broadens the scope

of analysis by including the often-conflicting interests that characterise megaprojects, both within the project organisation and in the '(dis)encounter' (Stensrud 2019) with local communities. One way of critically approaching megaprojects is also to problematise a basic premise of the megaproject, namely its 'scalability', that is, 'the ability to expand ... without rethinking basic elements' (Tsing 2012: 505). In the management literature on megaprojects mentioned above, scales are generally taken for granted leading to a 'scale blind' approach (Bird-David 2017). We now turn to the anthropological literature on infrastructure and on scale from which we take our cues to unpack and illuminate the makings of contemporary megaprojects.

## On Infrastructure and Scale

Research on infrastructure has been prolific in recent years in anthropology and adjacent disciplines<sup>3</sup> and serves us well in thinking through megaprojects, which, we argue, constitute a specific form of infrastructure delivery. This research points to the work of infrastructure in mediating social and political relations involving experts, technicians, bureaucrats and politicians (Harvey & Knox 2015; Anand 2017) as well as human and non-human interactions (Carse 2019; Myers 2019) in dynamic and experimental ways (Jensen & Morita 2017). This body of work has also underlined that infrastructure development is intimately tied up with promises of greater connectivity, playing on long standing modernist enchantments, fantasies and desires of prosperity (Harvey & Knox 2012; Larkin 2013; Hetherington 2014). Here we see a parallel to the sublime theory mentioned above, but more importantly, we see a connection between the scale-making of megaprojects and the promises they are afforded. This particular connection has not received sufficient systematic attention in the anthropology of infrastructure to date. Focusing on scale-making, we argue, will aid us in elucidating the current allure of megaprojects, as well as the reasons behind their occasional contestation.

Concerns with matters of scale have had a long trajectory in anthropology, making scale implicit to anthropological (and social) theory since its inception through binary concepts such as the universal-particular and the micro-macro heuristics deployed to deal with social and cultural complexity (Strathern 1995; 2004). This perspective takes scale as a given – an understanding that has imbued much anthropological thinking, not least about how the state, colonialism, governance, capitalism and globalisation structure social processes, people's lives and engagements (cf. Appadurai 1996; Hannerz 1996; Scott 1998; Eriksen 2018). On the other side, we find those who problematise the notion of scale, arguing that there are no intrinsic scalar distinctions to be found 'out there'. Instead this notion is best understood as a verb since social actors scale their worlds (Callon & Latour 1981) through ideologies of scale and projects of scale making (Tsing 2000: 347) enacted through material and semiotic practices (Carr & Lempert 2016). Within the realm of the anthropology of infrastructure, Vonderau (2019), in her research on the emerging data centre industry in Northern Sweden, takes a neo-materialist approach and addresses scale in the realm of communication infrastructures. Starting from the local infrastructure of the global cloud, she shows that this establishment creates translocal geographies that 'are

made real and relevant through diverse strategies of scaling' by involved stakeholders. Similar arguments about scales as assembled are put forward by Jensen, who has undertaken ethnographic research on different infrastructure projects in Cambodia and beyond (2017; 2021; 2022). Megaprojects such as the Belt and Road Initiative, he argues, are afforded scales that, conversely, mediate the material and discursive rescaling of the towns and environments wherever the project unfolds (Jensen 2022). Along these lines, Cross and Street (2022) show how humanitarian entrepreneurs strive to turn minimalist technologies, such as a portable diagnostic device and a solar-powered lantern, into universal devices in a global poverty alleviation infrastructure to 'maximise their effects at the level of the population and stimulate a market for more such goods' (114). When such 'doing well by doing good' projects stall, they argue, it is not because of business management flaws, but because they fail at scaling (up) to the humanitarian market.

In approaching megaprojects as ethnographic objects of inquiry, we problematise the scale concept in line with the above-mentioned works in anthropology, not only to eschew the scale blindness characterising the organisational management literature on megaprojects, but also to contribute to the anthropological theorisation of infrastructure. By focusing on the practices and politics of scale-making present in different megaprojects, we combine an approach that analyses the everyday making of infrastructures with one that highlights their eventfulness. We propose that making this connection will enhance our understanding of the allure they hold for governments, corporations, experts and some publics, while at the same time making them the target of contestation by other publics. In order to grasp this ethnographically, the articles in this special issue examine the diverse ways in which scales are conceptualised, practised, negotiated and institutionalised in different megaproject contexts. We show that people and organisations involved in the dreaming, planning and execution of megaprojects, and those negotiating or resisting them, produce and rely upon different scales to organise experiences, orient ideas and actions, and value people and things.

## The Articles

The articles in the special issue are firmly grounded in ethnography and analyse cases as varied as the Southern Gas Corridor from Azerbaijan to Southern Europe for the transport of natural gas, the water pipeline between Turkey and Northern Cyprus, high-speed railways in Morocco and Italy, and a water supply system in Peru. In approaching megaprojects ethnographically, scale is not only a central theoretical concern but also a methodological one. Contributors have undertaken single-sited as well as multi- and translocal fieldwork in planning offices, government ministries, engineering companies and construction sites, in urban as well as rural settings.

The articles address how scaling practices are enacted in one or more of the following dimensions: the geopolitical, the temporal, and the contentious. The geopolitical dimension is evidenced when megaprojects and their effects are framed spatially according to the levels of 'local', 'regional', 'national', 'transnational' and 'global', or contested and renegotiated in the production of uneven landscapes (cf. Ribeiro 1994; 2019).

However, what do these categories mean and especially to whom? How do megaprojects reproduce or rescale notions of territorially bounded units and transform geopolitical relationships? In the first contribution of the special issue, Bilge Firat takes on the challenge of studying the Southern Gas Corridor by following the corridor's contested 'steel route' through Azerbaijan, Georgia, Turkey, Greece, Albania and Italy. She argues that webs of elites and experts contribute to the creation of what she calls a 'geopolitical infrastructure' that challenges traditional notions of sovereignty, territoriality and statecraft as it is made into a compelling everyday scale materially, discursively and symbolically. Ezgican Özdemir's article focuses on a fresh water pipeline from Turkey to Northern Cyprus, the latest in a series of techno-political solutions to remedy water scarcity on the island. She shows how this megaproject plays a central role in the making of the 'state of exception' of the region, a paradigm and technique of government that is translated and scaled in vernacular ways across the north of the island. These practices are embedded in historical conditions of exceptionality, which illustrates how matters of scale imbue geopolitical concerns as much as local politics.

Temporal scales of megaprojects refer to the short-, medium- and long-term engagements and effects of such endeavours in social, economic, political and environmental terms. The temporal dimensions also account for tempo and timing, from anticipating future benefits and risks of projects, and designing and projecting plans, to building, operating, maintaining, improving and repairing systems. In her contribution to this special issue, Cristiana Strava unpacks the history and politics around Morocco's first high-speed railway, the LGV, and the cluster of related megaprojects, showing how this 'development corridor' is constituted through overlapping temporal scales of past, present and future including the colonial genealogy of infrastructure making, experiences of disruption and decaying public works, and anticipations of the future. Her article accounts for the ways in which the high-speed railway produced a re-scaling of both geographical and temporal relationships of belonging in Morocco, which questions the trope of scalar flow and progress by way of speed. Susann Baez Ullberg's article is a study of a long-standing water management project in Peru that has been in the making for the last four decades to understand how the promises that such endeavours entail are kept up despite constant deferral. She conceptualises the multi-temporality of this megaproject as timescaling and unpacks its durability despite many changes, interruptions and replacements over the years. Here, temporalities enacted on the long, medium, and short-term scales, range from remembering past benefits and sacrifices to anticipating future gains and risks of projects, which enable the endurance of promise and reproduce hope.

The final paper turns the gaze more explicitly to the publics of megaprojects and local politics of scale in the context of megaprojects, addressing the entanglement of megaprojects in relations of power, negotiation and contestation across scales and of scale making. In this vein, Mateusz Laszczkowski focuses on the No TAV movement protesting against a high-speed railway in Italy and shows how their contestation is enacted across a multiplicity of scales, from macroeconomics to toxic micro-dust. He argues that this multiscale politicisation and critique defies depoliticised megaprojects and opens up multiple planes for contestation, so vital to democracy.

This collection of articles presents different ethnographic resources and theoretical tools to critically engage with contemporary megaprojects and for thinking through the makings and effects of their scalability for the politics and practices of contemporary infrastructures.

## Notes

1. See for example the work by Hughes (1983) and Hecht (1998). Edgerton's (2007) work on techno-nationalist projects in the field of energy delivery is also pertinent here.
2. See for example the work by Altshuler and Luberoff (2003); Flyvbjerg (2011; 2014; 2017); Flyvbjerg *et al.* (2003); and Arena and Molloy (2013).
3. The list is too long to mention all relevant publications here, but the following works provide useful overviews of this multidisciplinary field: Anand *et al.* (2018); Harvey, Jensen and Morita (2017); Hetherington (2019); Jensen and Morita (2017); Larkin (2013); Venkatesan *et al.* (2018).

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