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Exploring the Conditions for Delivering Mega-Urban Projects That Create Social and Economic Value

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Abstract: If carefully planned by the government, mega-urban infrastructure projects like seaport development can create social value for communities and the region where they are built. But, achieving this requires a rigorous and quality investment at the front-end during project preparation, which involves cost and time, which most governments are unwilling to take. This research attempts to provide a framework that can help to address that challenge, using a case study analysis of the development of two seaports in Nigeria and Croatia. Four best practices that, if followed by infrastructure stockholders, can aid in the preparation of bankable mega-urban infrastructure projects, whether through a public-private partnership or public procurement, where identified.

Keywords; Mega-urban projects; economic growth; social values;

I. Introduction

Mega-urban projects (MUP) such as urban transport systems, special economic zones, seaports, power plants, and urban redevelopments have become a popular strategy among governments both at the national and subnational level for driving sustained social and economic value, including making cities attractive, inclusive, and competitive. MUPs do not only make major fiscal contributions (via taxation or profit-sharing) to state coffers and promote economic transformation; they can also facilitate domestic firms' linkage to global value chains (World Bank 2012) and reposition cities in the competitive landscape. No doubt, they have become great symbols of modern engineering and globalization and, if well-thought-out, promise greater global connectivity, economic growth, and sustainable development (Anand et al., 2018).
However, Nyarirangwe & Babatunde (2019) have associated MUPs with persisting and nagging technical, financial, social, and environmental underperformance. As explained in Locatelli et al. (2017), megaprojects are prone to negatively impacting their local communities' environments and economies; they could destroy "shareholder wealth" (Flyvbjerg, 2014) and "anything and everything involved—the investing companies, the local population, and the environment" (Söderlund et al., 2017, p.5). Moreover, highly publicized cases of public opposition abound (Jooste & Scott, 2012), including several contract renegotiations and cancellations because such projects cannot create sustainable economic value and social benefits.

Megaprojects are change agents that could drive economic growth and are socio-economic infrastructure systems usually initiated by governments and delivered through either traditional procurement or public-private partnerships (PPP). It is, therefore, imperative to study how the government (as an institutional actor) can intentionally plan, frame, build, and operate these projects within their dynamic social, political, and economic contexts. However, historically, infrastructure investment decisions, planning, and delivery have been framed in relative isolation from one another, as well as from broader social contexts and consequences (Flyvbjerg, 2014; Locatelli et al., 2017; Söderlund et al., 2017; Nyarirangwe and Babatunde, 2019). For example, investment decisions for transport infrastructure tend to be made based on customer journey time savings and associated productivity increases, whilst the wider benefits such as improved health and wellbeing outcomes or any biodiversity net gains may be under-emphasized.

This raises the question of whether the current parameters for decision-making are sufficient to drive maximum returns to society as the government strives to build infrastructure with clear economic and social benefits (OMEGA Centre 2012). This goes beyond creating an enabling environment in terms of policy, regulatory, and institutional framework but includes some form of government intentionality (Ward et al., 2019; Shen et al., 2021). Thus, we require an understanding of how to frame, plan, build, and operate these infrastructures to unlock and maximise both social and economic value.

This paper aims to address this gap. Specifically, we seek to understand under what conditions can seaport development be framed as mega-urban projects to unlock both social and economic value for businesses, communities, and port citizens. Given the multifaceted nature of the problem and a general lack of relevant theories and empirical studies, this paper adopts a largely exploratory multiple case research design to discover some of the best practices that ought to be carried out by the government to improve not only their selection but also their economic and social benefits.

We study two seaport developments; the Lekki Deep Sea Port, Lekki, in Nigeria (a developing country in sub-Sahara Africa) and the Rijeka Gateway, Croatia (a developed country in Europe). Seaport development projects are confronted with the substantial challenge of striking a balance between creating economic value and creating social value for their region (Bocheski et al., 2021) and therefore offer a suitable context to investigate how to frame mega-urban projects to create social value. In this strategy, the port not only becomes a site of innovation and economic activity but also includes office and industrial parks, commercial districts, housing, and a range of other facilities and infrastructure linked to it. Thus, they provide multiple opportunities to deliver social value to the communities where they take place.

Following Ward et al. (2019) and OMEGA Centre (2012), we argue in this paper that in addition to creating an enabling environment through policies and legal framework, some kind of "government intentionality" is required in planning and framing mega infrastructure to unlock social and economic value. Specifically, this study argues that the linkage between infrastructure and inclusive development, as evidenced in economic growth theories, can be realized when the government frames urban infrastructure as mega-urban projects with clear economic and social benefits. The rest of the paper is organized as follows. First, we reviewed the literature focusing on framing urban infrastructure as MUP to unlock social value. In the next section, we will describe the research method and context. We then present our results in the next section, followed by our recommendation and conclusion.

II. Literature review and theoretical background

Mega-urban projects and inclusive economic growth

Mega-urban projects have been found to drive economic growth and create additional social value in terms of job creation, access to health, education, and market access (Sánchez-Róbles, 1998; Calderón and Servén, 2010; Fedderke and Garlick, 2008; Henckel and McKibbin, 2017; Saghir, 2017), especially if they are intentionally positioned as the core of any economic growth policy (World Bank, 2003) and not narrowly framed and planned (OMEGA Centre, 2012; Ward, et al., 2019). For example, while previous studies focused on the direct impact of (mega) infrastructure on the economy, recent research, particularly that conducted by the World Bank and the Asian Development Bank Institute (ADBI), has identified and quantified the positive spillover effect (job creation, increase in foreign direct investment, and taxes) delivered by (mega) infrastructure investment.

For example, studies on the Tashguzar–Boysun–Kumkurgon railway line in Uzbekistan and the STAR highway in the Philippines by the ADBI identified a positive impact on the Gross Domestic Product (GDP) growth rate in the affected regions, in addition to value-added to industry and services and improved business taxes. (Yoshino & Abidhadjaev, 2015; Yoshino & Pontines, 2015). In addition to providing a wider and deeper market for output and employment (Henckel& McKibbin 2017), other authors argue that "better roads reduce accidents and improve public safety; water systems reduce the level of diseases; waste management improves health and aesthetics of the environment" (Snieka and Šimkūnaitė2009). They also stated that many of the benefits accrue to firms, such as lower production costs and expanded market opportunities. China's "long-running rapid" economic growth, according to KPMG (2013) and Zeng et al. (2015), offers a better understanding of the potential positive spillover effect of infrastructure development. Both papers argue that there is good evidence of the

positive effects of infrastructure development in China, from reduced transport costs to improved trade and job creation (KPMG, 2013; Zeng et al., 2015).

This is not to say that there are no opposing views in research and practice regarding the performance of MUPs. For example, studies like Nyarirangwe & Babatunde (2019) and Denicol et al. (2020) have highlighted the failure of megaprojects when measured against planned budget, schedule, and benefits. Nevertheless, more and more megaprojects are being proposed because of their transformational effect on society (Flyvbjerg, Bruzelius&Rothengatter, 2003; Denicol, Davies &Krystallis, 2020). Even some of the authors who described them as "destroyers of shareholder wealth" (Flyvbjerg, 2014) and "anything and everything involved" (Söderlund et al., 2017, p.5) do agree that MIPs could have substantial impacts on society.

However, it should be noted that, while investment in (mega) infrastructure could stimulate economic growth, the relationship between (mega) infrastructure and economic growth is not linear but heterogeneous (Henckel& McKibbin, 2017). The authors went further to argue that the heterogeneous relationship between (mega) infrastructures and economic growth could lead to a complex interdependent process. For example, "infrastructure determines the patterns of trade, and in turn, the patterns of trade determine the level and type of infrastructure" (Henckel& McKibbin, 2017, p. 263). This non-linear effect is evident in megaregions (Harrison &Hoyler, 2015), developed as economic zones with massive investment in megaprojects (particularly transport and energy infrastructure, airports, seaports, and innovation centres).

The reality is that infrastructure systems and economies are intricately intertwined. Infrastructure can increase all the key enablers of economic growth. Still, this study posits that understanding, measuring, and capturing the opportunities from the heterogeneous relationship, though difficult, is the key to unlocking the economic value of MUPs. So, ensuring that the right projects are selected and executed correctly should be the goal of government to avoid wasting resources and losing benefits (Hulten, 1996). Because, although MUPs are rhetorically framed around the concept of "less state involvement," in reality, they are not. Theyare "clearly and almost without exception, led by the state and often financed by the state" (Moulaert et al., 2003, p. 551).

As a result, it is not about constructing more infrastructure—roads, railways, airports, and so on—but rather linking infrastructure investment and development with planned economic growth and competitiveness (which could include infrastructure upgrade, re-use, and regeneration, rather than new construction) whether build through public private partnerships or directly by the government.

III. Theory of growth

The theoretical foundations for the effect of infrastructure on economic growth are mostly found in economic growth theories and the new economic geography literature. Generally, economic growth theory begins with Solow's neoclassical growth model (also known as the exogenous model). In contrast to early classical models, the exogenous model, attributed growth to aggregate capital and labour and an exogenous shift in technology and population. However, the neoclassical growth model has been criticized (Sánchez-Róbles, 1998; Calderón &Servén, 2010) for having failed in explaining "technological progress and cross-country income differences" (Kondongo&Ojah, 2016). This identified weakness led to the development of endogenous growth models, "which posits that economic growth is a result of endogenous variables like an investment instead of external forces" (Cantu, 2017, p. 86) and therefore, public expenditure or "productive infrastructure" can stimulate economic growth. Advocates of this view, for example, Fedderke& Garlick (2008), argue that the "accumulation and productivity of a factor" (e.g., labour) is "incentivized by infrastructure" (e.g., airports and seaport facilities and roads to access those facilities). Such stimulation can lead to the desired path (national goal) (Kondongo&Ojah, 2016).

This paper aligns with these views and explores how infrastructure planning as an investment by the state can create both social and economic value. Specifically, we argued that a narrow framing urban infrastructure project will drain economic resources rather than stimulate inclusive development. Thus, to maximize the positive effect of MUPs, the state must have a set of policies, procedures, and systems that define and guide decision-making and socio-economic interactions, through which the state manages the affairs of a given society towards some

objectives (in this case, economic growth through investment in mega infrastructure). This we describe as 'governance.'

IV. Research methods and context

To explore and gain an in-depth understanding of how mega-urban projects can be framed to unlock economic growth and create social value, we adopted a case study research approach (Eisenhardt 1989). We selected two cases to explore what works and what does not work and not necessarily to compare the two cases. Following Osei–Kyei and Chan (2016) and Ninan (2020), we constructed the two cases using an online naturalistic inquiry method using mainly data from World Bank reports, interviews and articles in newspapers and magazines, and project-related reports and information from project websites. Ninan (2020, p.2) argued that an "online naturalistic inquiry addresses the 'Hawthorne effect' and other issues with the traditional qualitative research methodologies, which are heavily dependent on interviews." In this paper, the following two cases were selected (see Appendix A):

Lekki Deep Sea Port, Lekki, Nigeria: A multi-purpose, deep-sea port at the heart of the Lagos Free Trade Zone, the commercial capital of Nigeria (and the largest city in West Africa). Currently, under construction to become one of the most modern ports in West Africa, the port offers enormous support to the growing economy of Nigeria and the entire West African region.

Rijeka Gateway, Croatia: The Rijeka Gateway program is a complex development program focused on rehabilitating and modernizing the entire port complex to improve the port's connectivity with the international road and railway corridors. Croatia is a nation in Eastern Europe and a member of the European Union.

Several arguments make these cases interesting to study. First, a wide range of the projects are at various stages of completion and located in two countries, each at the continuum of the global divide; Nigeria is a developing country, and Croatia is a developed country. This will afford us the nuance of understanding the mediating effect of institutions in the planning and framing of the megaproject. Secondly, the projects are large-scale and were promoted as megaprojects that would transform their economies and societies.

The analysis followed a similar approach adopted by Osei–Kyei and Chan (2016). First, we carefully read through each of the data sets to construct each of the cases. As we constructed the cases, notes were taken on what we thought was best practice or not based on comparison with existing literature. Next, the identified best practices were presented and reviewed. Finally, armed with these practices, the two cases were examined again to gain an in-depth understanding of the extent to which the four practices were used or not. Additionally, the author visited the Lekki seaport project site and also had a series of follow-up interactions on WhatsApp with a consultant that worked on the Rijeka seaport to gain further clarification and insights into each of the seaport's performance in terms of planning and socio-economic impact.

V. Discussion of findings

This section presents the key findings from the data of the two projects (Lekki Deep Seaport and the Rijeka Gateway). Our analysis revealed four best practices, explained below.

Project preparation is based on clearly defined objectives and socio-economic rationale.

Most mega projects are hurriedly conceived and selected based on unclear and non-transparent criteria. These criteria are mostly political and lack rigorous and detailed front-end investment and evaluation. This has undermined projects' successes and adversely affected society's economic value and benefits. To gain a competitive advantage, a robust and detailed project preparation must consider both the direct and indirect impact of the MIP (and its effects, such as value capture opportunities, increased taxes, job creation, access to health and education, and market access) on both the economy and society.

For example, the Rijeka project was subjected to a detailed project preparation process as part of the funding arrangement by the World Bank. As a result, a U.S. $1,5m project preparation facility was included in the project loan from the bank. During the preparation phase, the project objective was broadly and clearly defined to

ensure that the investments generated clear economic and public benefits to build a competitive advantage (see excerpt below).

"Increase private sector participation in seaport activities, improve the Port of Rijeka's financial performance, improve the quality of the port city of Rijeka, and better integrate it into international supply chains, all while making the city more liveable for its citizens and more appealing to tourists." (World Bank feature story: Transforming Croatia's Rijeka Port and City, accessed 10th February 2021)

As a result, envisaged institutional and market reforms and cross-sector related issues that could impact or enhance the project's success in terms of the defined objective were identified with appropriate recommendations such as the privatization of the port operations, revising of the motorway and road program, and urban redevelopment. The economic and social benefits of the project were evident even before the completion of phases I and II. The location of all port activities in one place has freed new and valuable space for the urban redevelopment of the Delta and Porto Baros into modern business-residential and public spaces. In addition, the construction of the D403 connecting road and the upgrade of the railway infrastructure (which is expected to continue) will greatly impact the capacity and efficiency of the Port of Rijeka.

Conversely, the Lekki seaport project preparation was weak and lacked the robustness and rigor required for such an investment. This was observed from the narrow definition of its objective.

The development of Lekki Deep Sea Port has been conceptualized on the basis of a significant gap in projected demand and capacity. Market studies indicate that the demand for containers is expected to grow at a CAGR of 12.9% up to 2025. However, given the expansion constraints on the existing infrastructure, the capacity in Lagos is incapable to meet the growing demand. The capacity shortfall for container terminal facilities in Lagos is projected to be 0.8 million TEUs in 2016 going up to 5.5 million TEUs in 2025. The strategic location, optimized layout, and modern facilities provide Lekki Port a distinct competitive edge over any other port facility in the West Africa region. (Culled from the project outline business case obtained from ICRC website, accessed 13th May 2020),

Based on the statement above, the Lekki seaport was clearly conceived to address the inability of the existing Apapa seaport to meet growing demand due to expansion constraints. In addition, the project's unexpected and unintended issues may have been exacerbated by the project's narrow definition of the goal as simply being a seaport rather than an economic investment with clear economic and social benefit and competitiveness (OMEGA, 2012). These include:

Bankability – the project's financial closure could only be achieved eight years after the commercial closure.
The deep seaport is without rail access, an effective road network, and an inland water transportation system for moving cargo out of the facility, which is not compatible with contemporary maritime operations.If not addressed, institutional and sectoral issues could affect the project's future benefits.
While the cost and timeline for resolving these issues are still speculative at this stage, it is clear that without a robust access network, the seaport will not be able to achieve that "distinct competitive edge" (as stated in the business case) over any other port facility in the West Africa region.Therefore, we argued that quality investment in MIP preparation could thus improve its bankability and lay the groundwork for its successful delivery. Conversely, weak or poor project preparation could lead to investing in MIP, which could become an economic burden and a financial drain pipe for any government, especially when financed with debt. This could also hurt the environment and society.

Improved coordination among different levels of government and non-government actors
Seamless and robust coordination across all levels of government and private sector partners (promoters, financial institutions, etc.) is critical for cross-sectoral alignment and successful delivery and future benefit realization. Such a coordinating effort should encourage a balance between a national goal or perspective and sectoral and regional views. Our findings indicate that having a dedicated unit or institution responsible for such coordination could help in framing and planning a megaproject as an open system rather than an "infrastructure

type," as was done by the promoters of the Lekki seaport, where the Nigeria Port Authority was not involved in the preparation stage.
"if road construction were part of his functions, the road network would have been part of the original port plan."

This is in contrast to Rijeka's port, which was promoted by the government (through the state port authority and road companies) and the municipality of Rijeka. With the state port authority leading the project (though with close support from the World Bank), there was a clear alignment and balance between the Croatian government's goal, the several sectors (roads, housing, tourism), and the regional view (the Rijeka municipality). Also, we observed that strong governance and institutional arrangements could facilitate effective coordination across several levels of government and non-government actors, including the alignment of multiple objectives and goals. The World Bank's support helped facilitate such multi-sector and inter-government dialogues, especially at the front end of the Rijeka project. The bank was instrumental in coordinating and shaping the multi-stakeholder engagement around the project.

Aligning and engaging communities in shaping the project to promote inclusiveness.

Early and continuous engagement with communities helps projects gain social licenses for their execution and operation. There was evidence of community engagement in both cases, although the quality and timing varied. For example, during the Rijeka project preparation stage, there were many outreaches to the stakeholders, with particular efforts directed at the three trade unions active in the port. Also, there were public workshops on environmental assessment and the modernization of the Rijeka Port.

In the case of the Lekki project, public consultations in the form of public hearings on the social and environmental impact of the project were organized by the Lagos state government and the private promoters. The promoters also invest in several corporate social responsibility (CSR) projects in the affected communities. For instance, while the resettlement of the communities within the free trade zone where the seaport is located by the government has not been completed, the ongoing construction at the port without the communities' resistance is a result of the robust community engagement with support from the state government. Therefore, community engagement is a critical success factor.

Financing and appropriate delivery strategies

Our findings indicate that, while one size does not fit all, the government can identify the most efficient financing and delivery mode from public works to private-public partnerships or several hybrid approaches, although this depends on several factors like risk allocation and the level of control exercised; the political, sectoral, economic, and strategic goal; legitimacy; affordability; and value for money. In terms of finance, infrastructure needs long-term capital that takes into account the infrastructure lifecycle timelines and benefit realization.

It is evident from the Rijeka project that, working with Multilateral Development Financial Institutions (MDFIs) like the World Bank, IFC could help de-risking megaprojects and structuring bankable projects, which could facilitate financial closure at an early stage. The Rijeka project was developed in line with the financing strategy under a design and build contract (and not as a PPP as done in the Lekki project) and with the plan to concession the operations of all facilities. The funding came from a combination of World Bank loans, government grants, and concession fees.

The Lekki project, on the contrary, was privately promoted and structured as a PPP under a Design, Build, Operate, and Transfer (DBOT) contract. While there is no evidence linking the delay in financial closure to a lack of partnership and absence of MDFIs and multilateral institutions in the early stage of the contract, it was evident that the project's bankability was in question due to weak preparation. Moreover, although the financial closure deal is done eight years after commercial closure, it includes some MDFIs like the World Bank. Therefore, MDFIs and multilateral institutions (investors) can be said to be the glue that holds together the public and private sectors in a move towards inclusive, sustainable, and resilient infrastructure through two mechanisms:

facilitating easier engagement with the government through one entity and ensuring the projects have gone through a rigorous analysis for financial viability to attract private capital.

VI. Conclusion

The main objective of this research is to identify and describe some of the best practices that the government can use to plan and execute the right projects, optimally deliver them, and realize economic and social benefits from them. To this end, the recommendations made in this research summarize the key findings from these case studies. They are meant to lay the foundation for a "mindset shift" from a linear relationship between infrastructure and economic growth to a heterogeneous one that offers the needed nuance for stimulating economic growth.

First, a transparent and robust decision-making process is critical for selecting and investing capital in the right megaprojects. This includes building and sustainably operating them for both now and the future. However, it requires having the right governance structure and institutional arrangement, which must be set up with a clear conceptual basis with the bureaucracy trimmed to execute the procedures and processes transparently.

Second, in order to maximize the opportunities from the heterogeneous relationship between mega infrastructures and economic growth, there must be a deliberate framing at the front-end of the project within its dynamic social, political, and economic contexts and in addition to its multifaceted relationship and interaction with the communities, institutions and sectors it serves traverses, and impacts upon (Ward et al., 2019). Achieving this requires a rigorous and quality investment at the front-end during project preparation. Unfortunately, this involves cost and time, which the government is not willing to take on in most cases. Taken together, this will require a mindset shift from the linear-rationalist perspective that has governed and encouraged narrow framing to a multi-dimensional perspective that views them as "open systems." These open systems should be planned, framed, built, and operated within their dynamic social, political, and economic contexts and inter-sector relationships.

Finally, mega urban projects can be transformational, delivering economic and social benefits far beyond the constructed assets, but understanding how to define and capture these benefits at the front-end is still a challenge, especially in countries with weak institutions. Our findings and recommendations from this research outline some steps that could help achieve sustainable economic value and competitiveness through megaprojects if governments and experts could adhere to them.

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Appendix A; Summary of the context of the two cases

	Rijeka Gateway Project	Lekki Deep Seaport
Overview of Business Case	A complex development program; focused on rehabilitating and modernizing the entire port complex to improve the port traffic connection with the international road and railway corridors. Croatia is a nation in Eastern Europe and a member of the European Union.	A multi-purpose, deep-sea port at the heart of the Lagos Free Trade Zone, the commercial capital of Nigeria (and the largest city in West Africa). Conceptualized based on a significant gap in capacity, a projected demand growth of 12.9 per cent CAGR by 2025 from market studies, and the inability of the exiting Apapa seaport to meet this growing demand given the expansion constraints on existing infrastructure
Delivery Strategy	Planned and framed as a multi-year design and built a program of seven development projects within an investment cycle financed by the World Bank, the state and concession fees.	Planned and framed narrowly as a single (megaproject) under a Design, Build, Finance and Operate contract for 45 years.
	The government promoted it (through the state port authority and road companies) and the municipality of Rijeka. The state port authority leading the project (though with close support from the World Bank), there was a clear alignment and balance between the Croatia government goal, the several sectors (roads, housing, tourism) and regional view (the Rijeka municipality).	It was promoted by a Special Purpose Vehicle led by the Lekki Port Investment Holding, an international consortium led by Chinese investors (Tolaram, an international conglomerate and China Harbor Engineering Company Limited (CHEC). The Special Purpose Vehicle (SPV) ownership structure The Lekki Port Investment Holding, an international consortium led by Tolaram and CHEC. – 75% The Lagos state government, 20% Nigeria Port Authority (NPA) – 5%
Project details	Estimated cost- $227.8 million Expected completion 2022	Estimated cost -$1.95bn Expected completion - 2022

Key issues	Institutional and regulatory issues delayed the redevelopment of the Delta and Porto Baros into a modern business-residential and public space. State legislation needed to amend the relevant laws to allow for clear ownership by the Rijeka municipality.	Bankability – the project financial closure could only be achieved eight years after the commercial closure. Access Network - the deep seaport location is without rail, an effective road network, and an inland water transportation system for moving cargo out of the facility that is not in tandem with contemporary maritime operations. If not addressed, institutional and sectoral issues could affect the project's future benefits.
Project preparation	Detailed project preparation led by the World Bank Effective coordination led by the state-run port authority with support from the World Bank	Weak cross–sectoral and multi-level government collaboration and project preparation The proposal and concept were approved within three months

Source; World Bank