International Journal of Project Management 43 (2025) 102676

Contents lists available at ScienceDirect

International Journal of Project Management

journal homepage: www.elsevier.com/locate/ijproman

The dark legacy of megaprojects: A case of local disengagement, missed opportunities, and social value dissipation

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ARTICLE INFO

Keywords:
Megaprojects
Social legacy
Local communities
Stakeholder disengagement
Value dissipation

ABSTRACT

Megaprojects can foster modernization and enhance social and economic development but also perpetuate poverty and deprivation. This dark legacy is fostered by weak governmental structures, where local communities lack representation and social welfare is sacrificed for economic gain. Through a normative stakeholder theory and social value perspective, we examine the nuanced interplay between local authorities and the project owner organization in the controversial case of Brazil's Suape Port. The substantial economic gains triggered by the Suape megaproject did not improve the social conditions for local communities. While the original business case primarily focused on economic profitability, the disengagement of local authorities and their communities prevented benefits from materializing at the local level. By examining these missed opportunities, we introduce the concept of *value dissipation* to explain how social value diminishes over time, resulting in a shortfall in social benefits and a poor legacy for local communities.

1. Introduction

Megaprojects significantly affect how countries provide social welfare (Drouin & Turner, 2022). As essential tools for fostering modernization, megaprojects are large-scale, complex ventures that take many years to develop and build, are capital-intensive, transformational, and involve multiple public and private stakeholders (Flyvbjerg, 2014). Megaprojects span various sectors, including major ICT software development, space station design, new vaccine creation, and, as discussed in this article, the development of large and complex infrastructure. Established as standalone temporary organizations, examples of such infrastructure megaprojects include high-speed rail links, airports, seaports, motorways, large hospitals, landmark architecture, large dams, and wind farms. While such infrastructure megaprojects can be cornerstones of economic and social growth (Kara, Tas & Ada, 2016), they require an enormous usage of resources and present conflicting stakeholder interests (Denicol, Davies & Krystallis, 2020).

The impact of an infrastructure megaproject (from now on megaproject) on stakeholders such as local communities begins during construction spanning across the infrastructure life cycle (Di Maddaloni & Davis, 2018), including decommissioning (Invernizzi, Locatelli & Brookes, 2017). In proponents' narratives, megaprojects are often meant to favorably impact local communities through poverty alleviation, other infrastructure provisions (e.g., sanitation, healthcare facilities, housing, energy, transportation) and job creation. However, megaprojects can also unfavorably impact local communities, leaving negative legacies such as land acquisition and displacement, loss of biodiversity and trade, and the erosion of sense of place, social cohesion, and identity. These adverse impacts contribute to the low public opinion of megaprojects (Kundu, James & Rigby, 2023), mistrust (Cerić, Vukomanović, Ivić & Kolarić, 2021), and unpopularity (van de Ende & van Marrewijk, 2019).

The terms 'benefit,' 'outcome,' 'impact,' and 'value' have often been used interchangeably in the project management literature due to ill-defined terminology (Zwikael, Chih & Meredith, 2018). In this article, we build on the discussion by Zwikael and Huemann (2023), emphasizing 'legacy' as a fundamental criterion for assessing project impact. Accordingly, we concur that project outcomes can be categorized as

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https://doi.org/10.1016/j.ijproman.2025.102676
Received 19 August 2024; Received in revised form 20 January 2025; Accepted 22 January 2025
Available online 23 January 2025

either 'benefits' (desirable outcomes) or 'disbenefits' (undesirable outcomes), which can be either anticipated or unanticipated (planned or unplanned). Similarly, we adopt the definition of project 'value' as the net worth of a project to its funding organization and stakeholders (Pinto et al., 2022), perceived as the difference between its outcomes (benefits/disbenefits) and life-cycle costs (e.g., development and maintenance). Therefore, in line with Zwikael and Hueman (2023) benefit management process, we conclude that a project's 'impact' - through the process of value creation and distribution (Gil, 2023) – refers to the *effect* on stakeholders that is directly attributable to the value created and distributed to them.

However, while previous studies (e.g., Ika & Pinto, 2023; Zwikael, 2024) have advanced the project management debate on benefits management and success, there is little debate on the short-, medium-, and long-term effects of value creation and distribution, each having a different degree of impact on the structural changes in society that a project or program may bring to its stakeholders (Preuss, 2019). Therefore, this paper builds on the temporal nature of 'impact' and borrows the concept of 'legacy' (Preuss, 2019; Teixeira, Banza, Almeida & Sesinando, 2023) as a fundamental criterion for assessing megaprojects.

Despite scholars agreeing that legacy is a long-term change (e.g., Hiller, 2000; Preuss, 2007), there is no exact time frame or single theory, definition, or law about what constitutes 'legacy' (Scheu, Preuß & Könecke, 2021). Legacy encompasses economic, social, political, technological, and cultural achievements inherited from one generation, person, or organization to another (Gillett & Tennent, 2017). As such, in the absence of an agreed-on definition (Scheu, 2021; Thomson et al., 2010), this paper settles for a broad definition of 'legacy' as simply 'what is left behind' after the implementation and/or completion of an infrastructure megaproject.

In essence, while this paper conceptualizes 'impact' as the direct and indirect effects of project actions, 'legacy' refers to the lasting project impacts and achievements that continue to shape future generations. Specifically, we consider both infrastructural and non-infrastructural impacts that stakeholders might inherit from megaprojects through the short-, medium-, and long-term effects of value creation and distribution. In doing so and to introduce the concept of legacy in project studies, we explore a particularly under-researched aspect (Bakhsh, Taks & Parent, 2023; Minnaert, 2012): the megaprojects' social legacy for local communities.

As said, project legacy is the lasting impact of project actions and achievements. This impact is reflected in the continued effects on stakeholders and the lasting value it provides to the community (Girginov & Preuss, 2022; Preuss, 2019). As such, the notion of value—both within and beyond economic rent-based terms—is central, as projects can struggle to secure support and approval from the communities in which they are embedded, as well as to deliver the promised value (Babaei, Locatelli & Sainati, 2023; Derakhshan, 2022). Yet, from a normative standpoint, megaprojects do not always foster social value and sustainability (Di Maddaloni & Sabini, 2022). Too often, megaprojects lack inclusive processes of social development and collaborative processes where multiple stakeholders work together to create joint value for all the parties involved (Gil & Fu, 2021).

Scholarly ideas of value and the level at which it accrues (individual, organization, or society) remain vastly different (e.g., Bridoux & Stoelhorst, 2022; Lepak, Smith & Taylor, 2007). As a result, a project's social value evolves throughout its lifecycle and outcome (Mulholland, Ejohwomu & Chan, 2019), exhibiting multiple dimensions and forms, particularly concerning stakeholders and their needs (Doloi, 2018). Hence, social value outcomes in a project are often intricate and emergent due to interactions among different stakeholders (Gil, 2023). As such, the creation and distribution of social value in megaprojects aimed at local communities needs to be better understood and cluttered by a rhetorical narrative on the disruption (but not the value) that such stakeholders often face (Lehtinen, Ninan, Di Maddaloni, Johanna & van Marrewijk, 2023).

The concept of social value has been increasingly discussed from a stakeholder perspective, as project-based organizations have been encouraged to ground their social purpose on localized efforts to create and distribute value for their communities, with which they should nurture extensive and intimate ties (Kujala, Sachs, Leinonen, Heikkinen & Laude, 2022; Ninan & Sergeeva, 2021). However, while community engagement has been widely recognized as pivotal in improving project performance (e.g., Di Maddaloni & Davis, 2017), little is known about the value and long-lasting social impact that megaprojects leave behind for affected communities (Yamasaki Sato & de Freitas Chagas, 2014). By understanding and emphasizing the concept of legacy, we help clarify the true 'winners' or 'losers' in megaprojects.

This paper contributes to the literature on social value and stakeholder engagement from a normative stakeholder theory perspective (e.g., Eskerod & Huemann, 2013; Freeman, Harrison, Wicks, Parmar & De Colle, 2010). We aim to investigate the legacy of megaprojects by examining the effects of social value, particularly towards 'disempowered' actors such as local communities. By exploring the nuanced interplay of local stakeholder engagement and focusing on the lasting impacts of megaprojects on local communities as the unit of analysis, we address the following question: *How does local community engagement influence the value and social legacy of infrastructure megaprojects?*

The rest of this article is structured as follows. First, we outline the main concepts of 'project legacy' relevant to this study by highlighting that research often focuses on imminent effects (but not lasting impacts) grounded on economic dimensions, disregarding social considerations for the 'disempowered' local communities. We review the social value perspective of infrastructure megaprojects and identify how their performance shifted toward broader stakeholder consideration and value distribution, which needs to be assessed over time. We then emphasize the engagement of local stakeholders and the often-overlooked role of local authorities (such as municipalities) in mediating local needs to ensure that megaprojects leave a positive social legacy for the affected communities. We propose a framework addressing key themes in community engagement and social value to account for the potential value dissipation that infrastructure megaprojects may trigger when they fail to sustain social value effects over time, thereby leaving a 'dark' legacy. Finally, we summarize the article's contributions to theory and practice, the limitations, and areas for future research.

2. Literature review

2.1. The legacy of megaprojects

Despite the growing emphasis on business purpose, benefits realization, and value creation and distribution, the concept of 'legacy' remains surprisingly under-researched in social science in general and project studies in particular. Current knowledge on megaprojects legacy mainly builds from urban planning and mega events literature due to their cultural impacts (economic, financial, political and social) on the host communities (Reis, Telles & Teixeira, 2023; Scheu et al., 2019). While there is no agreed definition of 'legacy', the term first appeared in 1956 during the Melbourne, Australia, Olympic Games. Contemporary scholarly work in the field of legacy deals with the distinctions between impacts and legacies, as most of our understanding draws from short-term project effects linked to positive and negative impacts (e.g., Holy & Ruta, 2015; Yamasaki Sato & de Freitas Chagas, 2014). Only recently, impacts and legacies were connected to short-, medium- and long-term effects to obtain a more complete view of the economic, environmental, and social results (Preuss, 2019; Teixeira et al., 2023). While this literature has been valuable, studies focus on the direct and indirect effects of project actions rather than on the lasting legacy of impacts and achievements that continue to shape future generations (Dickson & Darcy, 2022). Additionally, some studies focus on legacy outcomes for particular stakeholders without considering the structures

that were changed for them (Preuss, 2019).

Despite the growing interest in benefits management and value realization in project studies (e.g., Zwikael, 2024; Zwikael and Hueman, 2023), the responsibility of the project owner organization (the organization initiating projects and owning the assets) (Winch & Leiringer, 2016; Zwikael & Meredith, 2019), has been confined within post-project review activities in the hands of project managers. This is a major empirical and theoretical limitation since these reviews evaluate whether "planning, organizing, staffing direction, and control have been effectively accomplished" (Cleland, 1985, p.12). While these post-reviews are undoubtedly beneficial for the successful delivery of future projects (von Zedtwitz, 2002), these have been mainly discussed from the perspective of primary stakeholders and within the termination stage of the project (e.g., Zwikael & Meredith, 2019), limiting our understanding of project lasting impacts on society and hosting communities. These inquiries focus on what happened during the projects (e.g., cost and time performance, quality and safety, etc.), but since they are conducted at the end of the commissioning, they cannot include long-term effects. Instead, the concept of 'legacy' emphasizes a much longer-term perspective, serving as a crucial evaluation criterion for the performance of megaprojects (Flyvbjerg & Stewart, 2012) that have beneficial or detrimental structural changes on businesses and society.

Thus, legacy has a long-term view, with its positive or negative inherence left by the project (Preuss, 2015). Specifically, readapting Preuss's (2007, p.211) commonly accepted definition of sport mega-events, we define a megaproject's legacy as *'all open-ended, planned and unplanned, positive and negative, tangible and intangible structures created for and by an infrastructure megaproject that remains longer than the construction project itself'*. Accordingly, the lasting impacts and consequent structural changes made for or by the megaproject to its affected communities through the short- (planning and zoning), medium- (construction), and long-term (post-construction) effects of value creation and distribution are all fundamental elements of legacy.

Scholars have sometimes discussed the intangible nature of legacy through the lens of company founders or CEOs and their profound impact on organizational behavior (e.g., Feldman, 2014; Quigley & Hambrick, 2012), as well as through political motives aimed at establishing a legacy from a particular mandate (Fox, Tost & Wade-Benzoni, 2010). However, while megaprojects also tend to acquire symbolic significance in the eyes of various stakeholders (e.g., Floricel & Brunet, 2023), the literature on megaprojects often focuses more on tangible outcomes, such as economic 'boosterisms' (e.g., Baade & Matheson, 2004) or the frequently poor legacy of underutilized assets, which can lead to 'white elephants' and their associated financial burdens (e.g., Robinson & Torvik, 2005). High-profile examples include the venues for the Athens 2004 Olympic Games or the FIFA World Cups held in Korea/Japan in 2002, South Africa in 2010, and Brazil in 2014. This effect is known as the "winner's curse" (Andreff, 2012, p.45), where a city, or even an entire country, becomes financially worse off due to winning the bid and hosting the mega-event.

Therefore, while numerous theoretical and empirical works to explain megaproject (under) performance have been proposed in the last three decades, most of our knowledge draws mainly on the project front-end or construction phase (Edkins, Geraldi, Morris & Smith, 2013; Zerjav, McArthur & Edkins, 2021). This gap is even more evident when investigating the performance of such projects beyond economic returns and by looking at their performance through a social lens interested in understanding how infrastructure developments have contributed to or hindered the achievement of the UN Sustainable Development Goals (SDGs) (United Nations, 2020) and thus improved or worsen local communities.

2.2. Social value in megaprojects

While megaprojects hold the potential to drive societal advancement and bolster economic prosperity (Geddes, 2011), they simultaneously can disrupt communities and ecosystems (Lehtinen et al., 2023). Therefore, while organizations planning, delivering, and operating megaprojects are urged by civil society to rethink their purpose beyond economic returns and shareholders profit maximization to enable sustainable development (United Nations, 2020), both theory and practice are called for to understand better the performance of megaprojects and how such developments have benefitted society at large (Gil & Fu, 2021; Locatelli, Paravano, Terenzi & Trucco, 2023).

The concepts of benefits realization and value creation are different but interrelated. While 'benefits' usually refer to the project outcomes and the specific, measurable gains or advantages that individuals or groups receive (Zwikael et al., 2018), 'value' tends to encompass a broader spectrum of positive effects that a project or action may have on society as a whole or for a specific community (Bridoux & Stoelhorst, 2022). As such, the conception of value and the individual, organization, or society level at which it accrues remains considerably different (e.g., Lepak et al., 2007). Nonetheless, the concept of value presents a multidimensional nature, appearing in various economic, social, and environmental facets (Kivilä, Martinsuo & Vuorinen, 2017; Martinsuo, Klakegg & van Marrewijk, 2019) and in symbolic and political dimensions (Eskerod & Ang, 2017). The value-creation process is complex and protracts over time, involving multiple stakeholders with different value rationales (Martinsuo, 2020; Zerjav, 2021).

Similarly, as the benefits or shortfalls of megaprojects are shaped through the eyes of different stakeholders (Davis, 2014), each with their own perceptions of the organization's outcome (Di Maddaloni & Derakhshan, 2023), defining social value isn't straightforward and lacks a universal definition; literature conceptualization is often framed beyond the interests of the focal actor or organization (Lehtinen et al., 2023; Miles, 2017). Therefore, scholars have recognized the value accruing to broader segments of society, such as social constituents or stakeholders more generally (Di Maddaloni & Davis, 2017; Freeman et al., 2010). From this perspective, social value steams beyond economic returns as the social benefits created, delivered, and captured for a given population (Kroeger & Weber, 2014), whose effects transform into the long-lasting impacts of legacy (Preuss, 2019). Therefore, such social value creation effects and impact lead to legacy, which can be differentiated between tangible and intangible or infrastructural and non-infrastructural (Preuss, 2007).

The tangible and most visible impacts of megaprojects on the host communities are often related to the built environment linked to 'hard legacy gains' (Minnaert, 2012), examples of which are buildings and other infrastructural improvements, a clean-up and re-orientation of city spaces, new types of land use, and improved transportation and accessibility. The non-infrastructural, intangible impacts of megaprojects are less visible and investigated. These social effects are more difficult to record and measure but equally important at individual and community levels (Minnaert, 2012). Impacts on individuals can be divided into 'skills' as megaprojects represent opportunities for gathering and developing skills, employment opportunities and increasing employability. At the same time, individual impacts are also linked to 'social capital', which might strengthen relationships and networks between individuals (LERI, 2007). Impacts relating to community tend to refer to community links and cooperation. Terms used to describe this impact are community cohesion, cooperative entrepreneurship, social inclusion, reinforcing collective identities, and social interactions (Atkinson, Mourato, Szymanski & Ozdemiroglu, 2008; LERI, 2007). Moreover, image, status, and sense of place are also categorized under intangible social value, as these are claimed to affect local communities positively (Atkinson et al., 2008; Gu & Ryan, 2007).

When linked to the tangible/intangible, planned/unplanned, and positive/negative impacts of megaprojects, we concur with Chappelet (2019) in stressing that such social (legacy) impacts must be seen from the perspective of a particular stakeholder and their global/local, territorial/personal, short-/medium-/long-term implications. While megaprojects can enhance and broaden the profile of a city, region or

country, they can also foster socioeconomic inequalities. These undertakings might increase living costs and have negligible employment opportunities or material outcomes for local communities (Hall & Hubbard, 1998). As such, local communities are often excluded from the value that the infrastructure generates as *"those who benefit are consultants, developers and large companies […], the existing asset holders and the affluent middle class"* (Ryan-Collins & Jackson, 2008, p.4).

Megaproject value is therefore created and transmuted into legacy when the use of infrastructure assets enables a variety of commercial and social activities, which feed into the broader economy (Frischmann, 2012). Different studies have highlighted how the front end of megaprojects is where early ideas on project value will be established, negotiated and consolidated to justify the case for the project before its sanctioning (Edkins et al., 2013; Zerjav et al., 2021). However, the physical infrastructure and its operational characteristics generate value, such as service quality, accessibility, and affordability (Koppenjan, Charles & Ryan, 2008). While Kenter et al. (2015) emphasize the importance of integrative thinking to deliver social value across different dimensions, such as public safety, quality of life, and environmental sustainability, Invernizzi et al. (2017) argue for the importance of temporality when such social value should be captured.

Yet, little is known about the social value generated and retained over time for the local communities impacted by such developments. Those effects change the structure of the impacted communities (Preuss, 2019) and shape the impact generated by the infrastructure megaproject leading to the legacy. Understanding the social impacts beyond megaproject completion is particularly important when such endeavors are based on the complex and socially constructed concepts of public and private value, as is typically the case in major infrastructure delivery (Zerjav et al., 2021).

Local communities, especially in developing countries, represent the most vulnerable stakeholders to which project organizations should serve to alleviate poverty and income inequality and ensure justice and prosperity. In such contexts, megaprojects can be arenas for local disengagement and global/national economic interests at the expense of social considerations for the 'disempowered' local communities (Bandé, Ika & Ouédraogo, 2024).

2.3. Local (dis)engagement in megaprojects

The growing importance of societal benefits, coupled with the vulnerable position of 'disempowered' stakeholders - such as local communities, NGOs, the public, or special interest groups, who lack direct economic exchange and well-defined property rights over the project - highlights the need to engage these stakeholders in value creation activities that are sustained over time and extend beyond merely maximizing shareholder wealth (Meynhardt, 2009). As such, while from a normative stakeholder theory (e.g., Eskerod & Huemann, 2013; Freeman et al., 2010), stakeholder engagement has been widely recognized as a crucial process for creating and distributing value among public and private actors (Aaltonen, Derakhshan, Di Maddaloni & Turner, 2024), the effects of such local engagement (or disengagement) on the lasting impacts of megaprojects on local communities deserve more attention.

Despite the growing literature on local communities and their engagement in megaprojects, scant attention has been devoted to local authorities (i.e., municipalities) as a key representative of local needs (Di Maddaloni & Sabini, 2022). While national governments plan and award megaproject contracts to project delivery organizations, there is an increasing tendency to empower local governments as mediators between public and private needs to shape value outcomes considering the concerns of the local communities (Graute, 2016). As the different value perspectives driving these different stakeholders often conflict and lead to delays, reframing, or total failure of infrastructure projects, such multi-stakeholder constellation interests provide a fertile ground to reveal insights about how the outcomes of infrastructure megaprojects have contributed (or not) to the life of the affected local communities.

Within such multi-stakeholder collaborations, local authorities play an essential role by providing local knowledge, mobilizing resources and local engagement (Di Maddaloni & Davis, 2018; Nijhoff, 1968). When local authorities are sufficiently well-equipped – financially, administratively, technically, and politically – they can enhance socially valuable outcomes for their communities by ensuring that local voices are represented in national and regional development plans and thus positively contribute to the integration of city life and adaptation of social values to address rapid social changes (Graute, 2016).

Local authorities in developed countries are, or should be, empowered by national governments (Graute, 2016) to build local capacity and enhance the role and effectiveness of local governments in fostering development (Bardhan & Mookherjee, 2006). However, while local governments increasingly play a significant role in the approval, planning, and implementation of infrastructure developments, poor or inadequate local government institutional conditions can seriously undermine the performance of megaprojects (Crescenzi, Di Cataldo & Rodríguez-Pose, 2016). Weak local government structures can lead to poor performance or even megaproject failure (Crescenzi et al., 2016; Wong, Wang, Luo, Zhang & Rozelle, 2017), especially when embedded into the weak institutional contexts of developing countries (Bandé et al., 2024; Williams, 2017). As such, improving the way local authorities achieve sustainable economic growth and infrastructure, reduce urban inequalities, and create wide-ranging partnerships in society, as highlighted by the UN SDGs, remains an important issue and a grand challenge that needs to be addressed by researchers and policymakers.

While governments and project promoters have been called upon to nurture constructive, mutually beneficial relationships with communities (e.g., Global Infrastructure Hub, 2021; The World Economic Forum, 2020; UN Global Compact, 2021), there is still a lack of agreement in theory and practice regarding the treatment and prioritization of 'often-disempowered' stakeholders (local communities *in primis*) and how value for such stakeholder could be enhanced in megaproject developments through local representation and engagement (Cuganesan & Floris, 2020; van den Ende & van Marrewijk, 2019). Despite the general notion that 'inclusion is a good thing', little attention has been devoted to understanding the engagement mechanisms leading local actors to become the victims but not the beneficiaries of megaprojects (Di Maddaloni & Davis, 2017). On the one hand, in alignment with business and management research, the limited value delivered to such stakeholders has been attributed, at least in part, to managers focusing on the attribute of 'power' in the stakeholder network and prioritizing shareholder wealth maximization as the single-valued objective of the corporation (e.g., Jones & Felps, 2013). On the other hand, project managers' over-reliance on the resource-based view, where stakeholders are seen as resource providers for the organization and not vice versa (Di Maddaloni & Davis, 2018), especially when these stakeholders tend to be outside project contracts and outside the reach of rules and regulations, and therefore cannot be approached with these instruments (e.g., Mitchell, Agle & Wood, 1997).

Therefore, multi-stakeholder engagement for social value to be generated and retained in the context of infrastructure megaprojects presents a significant challenge with profound implications for project performance. Organizations responsible for the planning, delivering, and operating of such infrastructure often appear ill-prepared to embrace an inclusive process of social development and a collaborative approach where multiple stakeholders work together to create shared value beneficial to all parties involved (Gil, 2023). This highlights that, despite the growing body of knowledge related to moral and ethical obligations concerning the inclusion of communities in project value-creation processes (Baba, Mohammad & Young, 2021; Eskerod & Huemann, 2013), additional empirical studies are required to investigate local engagement influence in generating and retaining value over time, thereby facilitating a positive social legacy of megaprojects for the

impacted local communities.

3. Methodology

Authors' epistemological position is toward interpretivism (Yimaz, 2013). This involves examining the relationship between the researcher and what is being researched (Bryman & Bell, 2015). Our investigation uses a longitudinal case study design to detect how variance occurred over time (Eisenhardt, 1989; Yin, 2018). A single, in-depth case study allows us to acquire rich data and provide in-depth analysis. Our case is an infrastructure megaproject, the Suape Port Industrial Complex, in Pernambuco, Brazil, which was studied as a single entity. The holistic case study approach (Yin, 2003) enables us to understand the case in its entirety, capturing its complexities and nuances through multiple data sources, such as interviews, observations, and documents. This comprehensive view facilitates a broader understanding by moving from the specific to the general (Baxter & Jack, 2008). This approach is considered suitable for investigating the overall lasting impact of the megaproject on its local community without comparing different sub-units, encouraging a descriptive stage, and tracing key project events that led to the observable social legacy within local communities. An inductive, exploratory stage then followed this longitudinal analysis to uncover the underlying reasons behind this legacy. Investigating real-life phenomena through detailed contextual analysis of a limited number of events or conditions also promoted theoretical reflection (Bryman & Bell, 2015).

3.1. Case selection: identifying a legacy controversy

Recife, one of the oldest Brazilian cities, developed around its old port and the exportation of sugarcane products. Sugarcane cultivation sustained its growth and importance during the colonial period (1500–1822) and after Brazilian independence (1822). In the 20th century, the Recife's population grew from just over 100,000 in 1906 to almost 1500,000. In the mid-1970s, this led the State Government to plan for a new port, the Suape Megaproject, to accommodate a modern industrial complex (Cabo de Santo Agostinho, 2006). This complex would attract primary industries, shipyards, oil refineries, petrochemical plants, and metal-mechanical industries.

Our empirical focus is on the impact on local communities and the controversy surrounding the legacy of the Suape megaproject. Based on a historical reconstruction of key events (Fig. 1), we chose this case for three main reasons. First, three of the authors are Brazilian academics who were born and continue to live in the area, thus possessing deep knowledge of the megaproject through their direct experience. Second, several economic, environmental, health and safety uncertainties surrounded the megaproject. The main uncertainties of the megaproject were linked to the location chosen for the port and industrial complex,

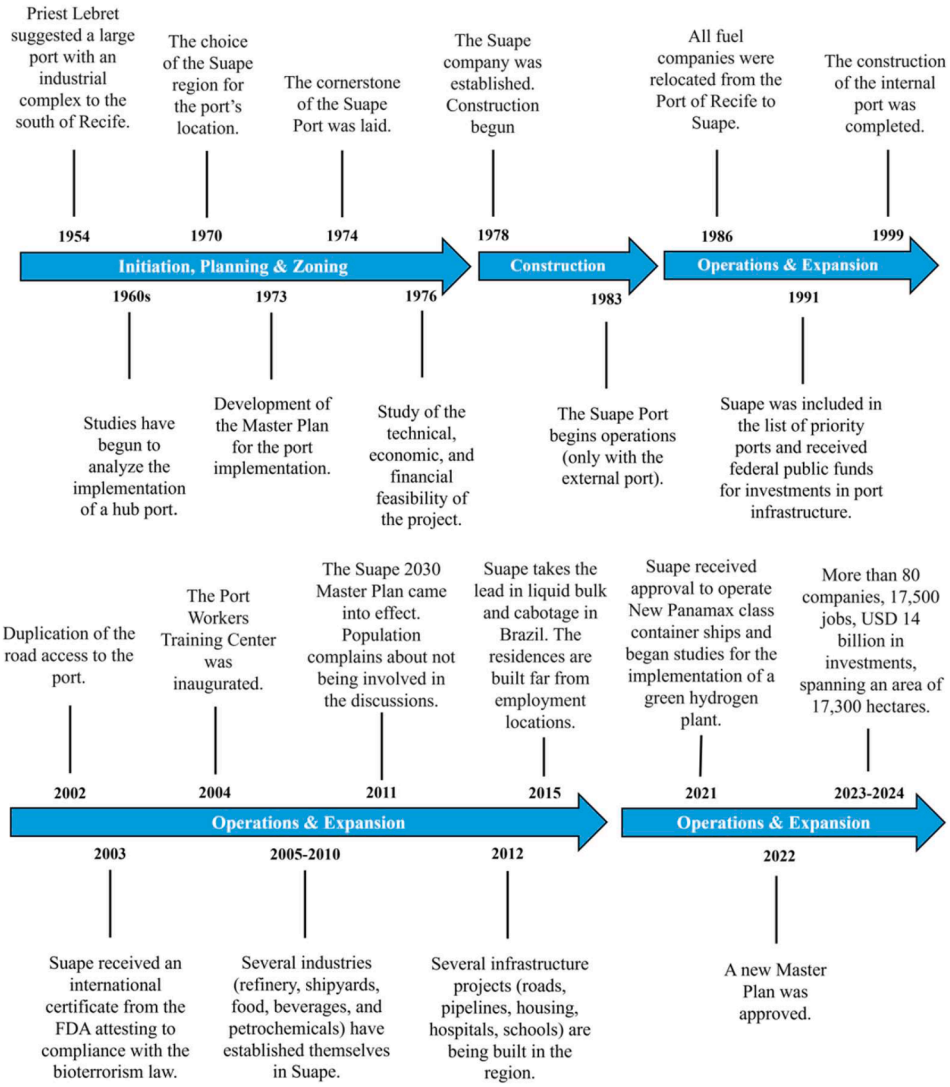

Fig. 1. Megaproject timeline and key events.

which occupied an extensive estuarine area with mangroves, sugarcane cultivation, and remnants of the Atlantic Forest. These lands belonged to municipalities peripheral to Recife, with a dispersed local population, predominantly poor, with low levels of education, and traditionally linked to sugarcane cultivation and fishing (Domingues, Santos & Gurgel, 2014; Ministry of Transport, 2019). Despite these tangible impacts, the planning and implementation of the port and industrial complex were welcomed with enthusiasm by local communities. The megaproject, primarily motivated by the rescue of an economy that tended towards stagnation, offered an opportunity to address significant regional gaps through infrastructure provision, local growth, and poverty alleviation (Mendes, 2015; Suape, 2022).

Third, the Suape project started operations in 1983, and its ongoing expansion through subsequential completed projects is part of a megaproject established in 1973. Therefore, it is possible to assess and reflect upon the social legacy of the megaproject over its 40 years of activity. It is possible to reveal the project's transformative effects in terms of both the regional economy and social aspects of local communities. Controversially, while the port complex has grown exponentially, attracting national and international investments, the economic growth did not improve local communities' living conditions and social wealth. As such, while some momentary local developments have occurred during the more intensive construction periods, the port's positive effects have yet to be transformative for the local communities.

In summary, Suape serves as a compelling case for discussing and interpreting the local impacts of megaprojects, as observed ex-post after it became operational in 1983, making this case ideal for learning about local disengagement and missed opportunities.

In this research, we refer to 'Suape Port' as the state-owned enterprise that owns the project and acts on behalf of the state government funding it, while the megaproject itself is simply referred to as 'Suape'.

3.2. Data collection

Case study research allows for combining and capitalizing on different data collection methods (Martinsuo & Huemann, 2021; Yin, 2018). We offer a historical and longitudinal perspective based on primary and secondary data. We relied primarily on secondary archival data to uncover the dynamics through which community stakeholder engagement influenced the social value generated and retained and the consequent legacy of the megaproject. To inform this inquiry, we engage with local authorities (municipalities) and the project owner organization (the entity that initiates and funds the project) that typically interact for social value to be created, captured, and retained over time for their local communities (Crescenzi et al., 2016; Graute, 2016). We validated and enriched our interpretation with direct observations, interviews, and a knowledge co-creation workshop. The multi-method approach triangulated and compensated for the problems of archival silence and selection (Decker, 2013), increasing the trustworthiness of the proposed results.

3.2.1. Archival research

To avoid the presentism of much project management research (Biesenthal, Sankaran, Pitsis & Clegg, 2015), using historical methods was valuable because a temporal perspective allowed us to see the longitudinal effects of a project (Gillett & Tennent, 2017). Studying documents generated from the 1980s was ideal for understanding how the Suape megaproject was contextualized within the economic and social settings of the 1980s and until now. As we draw insights from a range of data sources to evaluate the case study, this archival analysis enables us to track its evolution over time, emphasizing the importance of historical specificity (Eisenhardt, 1989; Gillett & Tennent, 2017) and uncovering the "dynamics of phenomena" (Maclean, Harvey & Clegg, 2016, pp. 612–613).

The in-depth use of secondary historical data, including archival information, copies of letters, official reports, documentaries, and quality daily national newspapers, enhanced the richness of the study (Table 1). While some selected documents focused strictly on the project (e.g., masterplans, long-term strategy reports, newspapers), other documents were used to compare national, regional, and local social and economic indicators (e.g., yearbooks, state databases, national census). These data sources and types were essential for assessing the value generated by the megaproject and its lasting impact at the local community level compared with national and regional indicators.

3.2.2. Direct observations & semi-structured interviews

We were mainly concerned with the "How?" of our case, which was about motives and engagement decisions and, ultimately, the legacy of the megaproject. Although our analysis started with the past, we are interested in contemporary manifestations of legacy at the local community level. According to Yin (2018), controlling behavioral events was unnecessary because most had already occurred, while the ongoing legacy could be observed. Therefore, the lived experiences of local communities - specifically, the individual's personal and subjective experiences of life events shaped by their thoughts, emotions, and perceptions - were not in the scope of this study. Instead, we aimed to capture the observable, lasting impacts on these communities over 40 years of project operations. This legacy was documented through secondary data (e.g., newspaper articles and social and economic statistics), while the current living conditions of residents were observed and validated through 12 field visits. We have devoted particular attention to ensuring that data from different observations can be consistently compared and interpreted by examining various categories related to communities' living standards, such as housing and sanitation, security, mobility, working conditions, and trade. Using a standardized observation protocol for these categories, we ensured that all observers applied the same criteria, minimizing subjectivity and discrepancies in data collection. Direct observations of the Suape megaproject and affected local communities (Ipojuca and Cabo de Santo Agostinho) were conducted on several occasions by three authors, Brazilian citizens living in the region. This helped to depict a picture of the lasting impact and structural changes that the infrastructure megaproject has generated over time.

Therefore, building on the archival research results and direct observations as a testament to the social legacy of Suape to their impacted communities, we identified the study population and created the interview protocol. As such, semi-structured interviews were conducted either face-to-face or online with 16 key experts. This approach enabled the researchers to effectively address their research questions and achieve theoretical saturation after 13 interviews while contrasting and comparing the results through primary and secondary data triangulation. In line with Creswell and Creswell (2017), our purposive sampling aimed to obtain information-rich cases, enhancing the depth and quality of qualitative data while ensuring that the sampling was adaptable to the needs of the study. Therefore, sampling criteria included selecting representatives from the Suape Port (the organization owning the program), local authorities, and managers (i.e., urban planners and engineers) consulting for the project, which all agreed to participate also in the subsequent workshop event. Also, all interviewees had a senior managerial role (20+ years of experience), were currently involved, or had been involved, in the Suape megaproject. The protocol included questions aimed at gaining deeper insights into the megaproject local stakeholder engagement, the opportunities and challenges created at the local community level, and the enduring social legacy that the project has left behind in the present days (see Appendix 1). The population of the study is presented in Table 2.

3.2.3. Knowledge co-creation workshop

In June 2023, the researchers led a six-hour knowledge co-creation workshop with 8 participants among those interviewed. The workshop adopted a design science research strategy to delve into managerial tactics and obstacles in the investigated case study. Zwikael, Gregor &

Table 1
Suape port source and amount of secondary data.

Data	Amount	Source
Brazilian Public Security Yearbook 2014–2017	143 pages	Brazilian Public Security Forum
Brazilian Public Security Yearbook 2018–2021	256 pages	Brazilian Public Security Forum
Brazilian Public Security Yearbook 2022	516 pages	Brazilian Public Security Forum
Brazilian Public Security Yearbook 2023	360 pages	Brazilian Public Security Forum
Annual List of Social Information	66 pages	RAIS - Federal Government
Brazilian National Census	Online	Brazilian Institute for Geography and Statistics (IBGE)
School Enrollment Consultation	Online	National Institute of Educational Studies and Research Anísio Teixeira (INEP)
Physical Resources - Hospital and Admission Beds	Online	DATASUS - Federal Government
Brazil's GDP per capita	Online	CEIC Data
Pernambuco State Database	Online	DATASUS - Federal Government
Integrated Management Plan of Suape	141 pages	Suape Port Industrial Complex
Cabo de Santo Agostinho Master Plan	60 pages	City of Cabo de Santo Agostinho
Cabo de Santo Agostinho Master Plan	87 pages	City of Cabo de Santo Agostinho
Ipojuca Master Plan	61 pages	City of Ipojuca
Ipojuca Master Plan	179 pages	City of Ipojuca
Suape 2011 Master Plan	211 pages	Suape Port Industrial Complex
Suape 2022 Master Plan	112 pages	Suape Port Industrial Complex
Suape Strategic Territory	Online	Government of Pernambuco
Suape Port Development and Zoning Plan	192 pages	Suape Port Industrial Complex
Suape Port Development and Zoning Plan	263 pages	Suape Port Industrial Complex
Long-Term Strategy 2022–2026	9 pages	Suape Port Industrial Complex
Long-Term Strategy 2023–2027	9 pages	Suape Port Industrial Complex
Long-Term Strategy 2024–2028	10 pages	Suape Port Industrial Complex
Suape Global (Including EIA)	119 pages	Suape Port Industrial Complex
Municipal Risk Reduction Plan	35 pages	City of Cabo de Santo Agostinho
Municipal Profile of Cabo de Santo Agostinho	3 pages	Government of Pernambuco
Municipal Profile of Ipojuca	3 pages	Government of Pernambuco
Studies of the impacts of Investiments on the Economy of Pernambuco: Units of BR Foods, Hemobrás, Atlântico Sul Shipyard, PetroquímicaSuape, and Abreu e Lima Refinery	66 pages	Government of Pernambuco
Industry Reports: 4 documents	345 pages	Human Rights Platform – DHesca Brazil; Getulio Vargas Foundation; Suape Port Industrial Complex
Map of conflicts, environmental injustice, and health in Brazil	Online	Oswaldo Cruz Foundation (Fiocruz)
Master Plan of the Recife and Suape port complex	1095 pages	Federal Government
Academic Reports	122 pages	Tempus Acts of Public Health; Journal of Geography (Recife); Social Studies Notebooks; Federal Rural University of Pernambuco - Ômega Notebook; Gaia Scientia Journal; Architecton - Journal of Architecture and Urbanism; Brazilian Journal of Urban and Regional Studies; Journal of Psychology.
Newspaper Articles: 25 documents	36 pages (approx.)	Brazilian National Newspapers
Informative Report: 27 documents	108 pages (4 pages each)	Association Forum Suape
Filed Visits & Direct Observations	n.12 (61 pages of notes)	Suape Port Complex; Ipojuca; Cabo de Santo Agostinho

Table 2
Interviewee sample.

Stakeholder group	No.	Interviewees
State Government	1	Secretary of the Government of Pernambuco
Local Authorities	2	Local Secretary
	3	Senior Transport Engineer
	4	Senior Civil Engineer
	5	Local Representative
Project Owner Organization (Suape Port)	6	Former President
	7	Former President
	8	Director
	9	Director
	10	Director
	11	Former Director
Project Managers	12	Urbanist Consultant
	13	Urbanist Consultant
	14	Senior Transport Engineer
	15	Consultant Engineer
	16	Technical Engineer Consultant

Huemann (2023) recommend this approach, which fosters innovative, scientifically grounded practices and policies. Adam, Gregor, Hevner and Morana (2021) note that design science is distinct for its collaborative formulation of actionable insights involving participants and researchers to inform policymaking.

The workshop represented the capstone of our research process by enabling participants to engage directly with the preliminary research findings, enrich our results, and contribute to the validation of our study. Participants were divided into two groups in separate rooms, each moderated by two researchers and consisting of representatives from local authorities and the Suape Port. Based on the results of the archival research, direct observations and interviews, the preliminary findings were presented for discussion, revision, and validation. These findings covered three crucial themes, each discussed for 1 hour and 30 min: local engagement, the opportunities and challenges generated by the megaproject, and the enduring social impacts left behind. For each theme, each group was asked to present their discussion on the preliminary findings, expanding them by proposing areas for improvement and reflection over 30 min. This session facilitated the cross-fertilization of ideas among stakeholders, enriching the understanding of how megaprojects should better serve and engage their communities and how value can be retained over time, providing a foundation for future research endeavors.

3.3. Data analysis

We adopted an inductive approach to detect how variance occurred over time. Our data analysis process involved multiple steps, deriving insights iteratively. To account for the "dynamics of phenomena" (Maclean et al., 2016) in our analysis we carefully tracked and analyzed how these phenomena evolve while considering the contextual and causal factors that drive changes. Specifically, we: (1) used secondary data spanning multiple time points to capture short-term fluctuations

and long-term trends at local, regional, and national levels; (2) identified key evolving factors (behavioral, social, economic, and political) central to our research question to track changes over time; (3) combined various data collection techniques to examine shifts in participants' perceptions and experiences, enriching our understanding; and (4) considered nonlinear changes, time lags, and cyclical patterns in our interpretation, ensuring a nuanced view of temporal dynamics.

Step 1. *Descriptive historical reconstruction of key events*

Firstly, we developed a precise chronology of critical events, from the approval phases of the project to the start of the construction phase, its expansion, and the impacts that the major infrastructure had at its local level over 40 years of operations. We employed the 'temporal bracketing technique' (Langley, 1999) to make sense of our longitudinal dataset and isolate distinct periods within the megaproject development (Fig. 1). We constructed a chronicle of key events from secondary data that enabled us to identify the main turning points leading to the poor legacy of the megaproject.

Step 2. *Exploratory case analysis of social value*

We complemented our analysis by examining the lasting impact of the megaproject at the local community level. From a stakeholder engagement perspective, we explored the mechanisms associated with value creation and distribution for the affected communities. The analysis focused on the opportunities and challenges generated by the megaproject, mainly how local engagement between Suape Port and the local authorities - who control local resources and knowledge - fostered the processes of social value. A thematic analysis of the 16 interviews was performed by following Braun and Clarke's (2012) six phases: (1) familiarization with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing potential themes; (5) defining and naming themes and (6) producing the report.

Step 3. *Identification of distinct categorization strategies*

Through a knowledge co-creation workshop, we identified what characterized the value creation that the project owner organization and local authorities promoted or, on the other hand, its counterproductive effects. Thus, we identified the process and outcomes of these project-local community interactions. This workshop served as a forum for extending and validating our research findings and for stakeholders to ideate and refine practical solutions for improved collaborative practices in future projects. Discrepancies were solved through discussion and occasional reinterpretation.

After reconstructing key events through archival research, the combined analysis of the notes generated from direct observations, the knowledge-creation workshop, and verbatim transcripts of the 16 interviews produced more than 600 initial codes. The desired outcome of the coding process was to capture both diversity and patterns within the data. After shaping the thematic analysis into a process focusing on the comparison, contrast and similarity against patterns in the data set (Bazeley, 2013), 12 most relevant sub-themes emerged and clustered into three main themes: (1) "protracted local disengagement", (2) "missed opportunities", and (3) "value dissipation". We provide representative quotes from the data in Appendix 2 and elaborate on these findings in the next section.

4. Findings

Three main themes clearly emerged from our data: (1) Protracted local disengagement – The missing bridge between megaprojects and people; (2) Missed opportunities – Marginalization's impact on local communities' progress; (3) Until it lasts – The social value dissipation of megaprojects. The results from these three themes will be presented in turn.

4.1. Protracted local disengagement – the missing bridge between megaprojects and people

The Suape megaproject can be portrayed around developing and revising three master plans (1973, 2011, 2022). The first 1973 master plan conceived during the Brazilian Military Dictatorship (1964–1985) was based on the idea of a port that would have been the largest in the Brazilian Northeast. Crucially, this plan did not foresee involving the two most affected municipalities, namely Ipojuca and Cabo de Santo Agostinho (Gumiero, 2018; Medeiros et al., 2014). The project began in 1977, and *"the highly authoritarian government made the relationship with local communities far from ideal. The Government of Pernambuco was a kind of tractor that commanded and went over everyone. Local authorities had to comply"* (Interviewee 11). After the developmental period of the first master plan and project inauguration in 1983, the Federal Constitution changed in 1988, giving more autonomy to local authorities. However, "*What was present in the 1980's is still valid today. From what I have witnessed over the years, and since the first idea about Suape was launched, local authorities have no influence whatsoever in what is decided in Suape"* (Interviewee 6).

The first substantial revision of the 1973 master plan took place in 2011. The beginning of the 2000s was the moment of re-democratization and rebirth of the economy of Pernambuco, and the Suape megaproject was considered a catalyst for such rebirth. The country's changing political and economic landscapes in the early 2000s led to huge expectations of the project and attracted influential national and foreign investors (Marques, 2014; Santos, 2022). The project now had the economic fuel missing during the Military Regime (1964–1985), and it "*acted as an unstoppable machine for public and private economic gains"*. However, the over-emphasis on economic returns left local communities behind. The revised 2011 plan also lacked local community vision (Ministry of Transport, 2019), in which local authorities were still excluded as an essential bridge between the project and the people. In fact, although basic initiatives were introduced, such as resettlement and land regularization programs, *"these processes were only carried out partially, and mainly with the project owner being very imposing with local authorities […] a relationship with very little dialogue"* (Interviewee 13). Instead of evolving, the perception that local authorities and communities should be better served was decimated when the Modernization of Port Law was revised in 2013. This revision removed the deliberative character of the Port Authority Council (CAP), which was responsible for approving projects and was established in 1993. Although local authorities could still participate in the CAP, the 2013 revision marked a regression, as it only gave the CAP a consultative role, with final decisions returning to the Federal Government (TPF, 2019).

It is only in 2018 and in the recent revision of the 2022 master plan that a step forward was made, and engagement actions devoted to local communities were included in the plan as *"legislation changed and Suape went through an external audit for environmental and social impact which have standards to comply with"* (Interviewee 9). These actions included the establishment of a Sustainability Directorate within the Suape Port aimed at improving the dialogue with local authorities and communities, providing workforce training in partnership with the State Government, and envisioning to accommodate the existing population with the project area. However, while recent encouraging developments are envisioned towards better dialogue and engagement with local communities, *"this is a very difficult relationship because there is a historical trauma that exists within the community"* (Interviewee 5), to the point that in the recent review of the master plan "*I have witnessed very little engagement by local authorities in the process. I do not know if it is the Suape organization's fault or a lack of interest from the municipalities, but you do not have that engagement"* (Interviewee 13).

There has been very little dialogue with local actors in the initial stages of the megaproject and even throughout its implementation. The nonexistent bridge between the project and the local context had implications for the intense territorial and social transformations in native

communities which were not previously planned and evaluated. With the arrival of Suape, the profile and use of lands (mainly destined for agriculture use) changed drastically, with heavy expropriations, relocations and industrialization taking place as a consequence of the port activity (Cabo de Santo Agostinho; 2006; Marques, 2014). A decline in fishing, shellfish and fruit was also recorded along with other much broader environmental and ecological factors at play, impacting the daily life of native communities that, for generations, made from such natural resources their source of trade and income (Domingues et al., 2014; Mendes, 2015).

The communities surrounding Suape are still vulnerable, uneducated, and poor (Cabo de Santo Agostinho, 2006; Mendes, 2015). For example, Brazil had 20.0% of the illiterate population in 1991 and decreased to 9.60% in 2010 (latest data available). Cabo de Santo Agostinho had 26.4% illiterate in 1991 and 12.5% in 2010. The worst situation is in Ipojuca, which had 47.0% illiterate in 1991 and 20.30% in 2010, more than double the national percentage (IBGE, 2010). Brazil's Gini Index (commonly used to measure income inequality within a population; see, e.g., Farris, 2010) was 0.6383 and decreased to 0.6086 in 2010. In Cabo de Santo Agostinho, it was 0.5097 in 1991 and increased to 0.5586 in 2010. In Ipojuca, it rose from 0.4618 in 1991 to 0.5213 in 2010. Therefore, rather than decreasing, income inequality in the region worsened during the analyzed period. Thus, despite progress, the numbers are still significantly below the national average (DATASUS, 2010). Even though the port complex has grown exponentially in terms of territory and infrastructure, attracting national and international interests, it has not been concerned with the growth of the communities as such "*It would have been fantastic if it was possible to say that the port and the communities grew together, but that did not happen […] these communities were disillusioned and disappointed. They would demolish their houses to build industries. There was never a channel for dialogue*" (Interviewee 5). Moreover, *"Many of these people were relocated to rural settlements, others to urban areas. Life was calm and peaceful, and [after the project] it became a nightmare for most of them. Despite the great opportunities presented by the project, both the government and the project organization implemented a process without care for the people, without dialogue"* (Interviewee 8). In the next section, we unfold these missed opportunities that marginalized local communities from the development process of the Suape megaproject.

4.2. Missed opportunities – marginalization's impact on local communities' progress

In the last decade, Suape Port's concern to contribute to social development and environmental sustainability has considerably increased compared to 20 or 30 years ago. As such, there are two central values that the Suape Port seeks to deliver to its communities. First, the expectation is to be a hub for attracting investments and employment for local communities. Therefore, positioning itself as a development tool for the state of Pernambuco, Suape offers work opportunities for people and tax revenue for the local authorities. Second, *"Suape Port became finally aware of environmental and social issues in a way that generates value for its long-neglected local communities"* (Interviewee 1). As such, the Suape Port organization sought to implement housing developments for relocated residents, environmental compensations, reforestation, and conservation of 7000 Atlantic Forest hectares and deliver educational and professional qualification actions in the surrounding area. Moreover, all the tangible benefits of improved infrastructure when a large enterprise such as Suape Port comes in helped to ameliorate the situation of the local population. Interviewees believe that *"the megaproject brought territorial planning reducing illegal settlements and occupations"* (Interviewee 9). Furthermore, directly connected to the megaproject, significant developments in the road system and lighting have enhanced accessibility to both the beaches and the city center. Although the transportation system in the area remains inadequate, new forms of public transport, such as buses, have been introduced—a notable change from the past. Additionally, essential community facilities like schools, medical clinics, and a hospital have been established, filling crucial gaps in the territory.

Therefore, the megaproject has not only directly contributed to significant advancements in infrastructure, such as highways, but has also brought about notable improvements in key societal aspects compared to the average Brazilian national data. Considering healthcare, the count of hospital beds surged by 65% in Ipojuca and 36% in Cabo de Santo Agostinho between 2005 and 2023, according to DataSUS (2023). In the same period, the number of hospital beds in Brazil fell by 2.81% and in the state of Pernambuco, it grew by 4.27% (ibid). Similarly, a remarkable expansion took place in educational facilities. Between 2000 and 2023, school spaces increased. In Cabo de Santo Agostinho, there was a staggering 193.74% rise in early childhood education, 121.98% in primary education, 184.92% in secondary education, and 234.35% in adult education (Government of Pernambuco, 2023). Meanwhile, in Ipojuca, the growth was even more substantial, with a 355.95% surge in early childhood education, 194.66% in primary education, 325.82% in secondary education, and 305.64% in adult education (Government of Pernambuco, 2023). As a comparison, the evolution of the same indicators for the state of Pernambuco and Brazil, respectively, was 132.23% and 171.12% in early childhood education, 68.58% and 72.25% in primary education, 88.38% and 82.87% in secondary education, and 106.20% and 49.58% in adult education (INEP, 2024). Therefore, as outlined in Table 3, the port's presence correlates with increased GDP per capita of the adjacent local authorities, positioning them among Brazil's highest.[1]

However, these numbers are surprising when looking at the affected communities of Ipojuca and Cabo de Santo Agostinho. Indeed, the secondary data collected highlights a controversy between economic gains and the social conditions prevailing within the affected communities, which the researchers have directly observed and validated. As such, the poor social value can be observed as a 'missed opportunity' for the megaproject as there are still local people living in unacceptable conditions, in houses made of mud, with no access to basic sanitation or water (Ministry of Transport, 2019; TPF, 2019). Despite revenues flowing into local authorities, the weak local government structures failed to create, distribute and retain value for their communities. The lack of strategic alignment with the Suape Port, poor public management, and insufficient dialogue and accountability among all involved parties led to a governmental emphasis on investments to attract further private sector investments (e.g., providing more land or building transportation networks to facilitate their operations). This focus prevented the local population from prospering alongside the growing revenues of the megaproject, thereby obstructing a positive social legacy.

Despite these tangible and intangible structural changes in infrastructure, healthcare provision and education, deficiencies in training have prevented significant educational progress in recent decades. The Brazilian Basic Education Development Index (IDEB) illustrates this stagnation, showing that approximately 70% of Cabo de Santo Agostinho and Ipojuca residents have not completed high school, as per Table 4.

Weak local government structures were unable to cope with the magnitude of the megaproject as *"local authorities alone cannot meet the demand that Suape has generated"* (Interviewee 10) and, despite their growing responsibilities, *"what has been observed is a very great lack of local authorities' structure. There is a devaluation of planning and a*

[1] The fluctuation in the conversion rate between the US Dollar (USD) and the Brazilian Real (BRL) shifted from 1 USD = BRL 1.79 in 2000 to BRL 5.35 in 2022 (latest available data). This substantial devaluation of the Brazilian currency justifies the observed variation in GDP per capita when measured in USD across the years. GDP by municipality in Brazil was only published starting in 1999.

Table 3
Evolution of GDP per capita (USD). Sources: Government of Pernambuco (2023) and CEIC Data (2023).

Comparison	2000	2005	2010	2015	2020	2022
Cabo de Santo Agostinho (#644 in Brazil)	12,616.43	6051.21	13,890.79	15,420.08	12,014.02	12,138.23
Ipojuca (#56 in Brazil)	24,512.41	21,693.69	39,012.48	34,893.22	34,674.62	28,122.72
Pernambuco State	8745.56	5933.46	6423.69	6429.58	5000.34	4093.18
Brazil (5570 municipalities)	16,631.83	10,520.00	11,338.41	11,054.28	6968.07	7978.48

Table 4
People aged 10 or over, by level of education (2010 – last available data) - Source: Government of Pernambuco (2023).

Comparison	No education and incomplete elementary school	Complete elementary school and incomplete high school	Complete high school and incomplete higher education	Complete higher education
Cabo de Santo Agostinho	53.90%	16.05%	27.35%	2.69%
Ipojuca	65.43%	14.97%	17.55%	2.05%
Brazil	50.53%	17.48%	23.63%	8.36%

devaluation of public management" (Interviewee 2). As such, training schemes were mainly late and largely ineffective. Both disengagement and *"misalignment of actions"* (Interviewee 1) between local authorities and the owner organization significantly affected local labor absorption as the mainly illiterate workforce did not possess the required skills to operate modern machinery. *"The work required a much higher qualification than the local market could provide […] these training called 'Systems S' were initiatives of the local authorities which were very poorly prepared to evaluate such a megaproject magnitude. In Suape, it was never the initiative of the operating companies, the owner organization, or the federal or state government to do anything in this regard*" (Interviewee 6). This lack of education prevented local communities from capitalizing on qualified employment opportunities expected from the megaproject, as individuals from various cities and states across Brazil have primarily filled most of the qualified positions generated by the port complex.

Cabo de Santo Agostinho and Ipojuca's lower educational attainment has directed their residents toward less appealing occupations in the port complex, such as security guards, janitors, gardeners, and similar roles. Additionally, the region stands as a renowned tourist hotspot, boasting beaches, hotels, and resorts. Consequently, local communities tend to gravitate toward employment opportunities within the tourism sector, assuming positions like cooks, salespersons, and waitstaff, rather than pursuing the more skilled roles available within the port complex. This trend becomes evident when examining Table 5, which delves into the distribution of formal market employees based on salary levels. It is important to note that while the industrial port complex spans across Cabo de Santo Agostinho and Ipojuca, the port is located in Ipojuca. The higher wages in Ipojuca, compared to the regional average, can be attributed to its much smaller population and the more significant number of contracted employees working in the port complex (estimated at around 2.8% in 2022).

There is a disconnection between the local community and the Suape port complex. The unplanned effects of the megaproject *"led to social exclusion, pockets of poverty, and social inequalities. The expansion of the port ended up fueling this situation"* (Interviewee 9). Consequently, many missed opportunities from local communities (both at the territorial and social level) were highlighted throughout the project life cycle, which did not allow the megaproject to thrive and gain economic power. Some of these opportunities that have *"disillusioned communities"* (Interviewee 8) are shown in Table 6.

Local authorities were unprepared to cope with the megaproject's impact and ensure that ongoing value was captured at the local level and retained over time. "*Suape is a successful story from a macro point of view, but from a micro perspective, it is a project that has brought tensions"* (Interviewee 8). *"The project presented itself as a great opportunity, but at no point did the port complex [Suape Port] have the sensitivity to engage in conversations with the local authorities, to say they need to prepare the population for this or that"* (Interviewee 11). Despite Suape being *"a generator of opportunities"* (Interviewee 7), both local authorities and communities have not been able to capitalize from it. Common beliefs from participants show that local authorities were not adequately prepared for the possibility of significant economic growth. *"As a result, you can see pockets of poverty and social issues like or even more severe than those in naturally less affluent cities"* (Interviewee 2). The following section shows the reasons for social 'value dissipation' and its implications for project management studies.

4.3. Until it lasts – the social value dissipation of megaprojects

A critical construct that emerged from the case is the *'value dissipation'*. While the primary concern of the Suape organization has been more focused on the economic aspect of the enterprise, creating added value for the state, bringing in companies, and consequently, generating jobs, the project's social value gradually dissipated over time, resulting in a shortfall of social benefits and a poor megaproject legacy for local communities. The dissipation of value arose from the lack of dialogue and accountability between the Suape organization and local authorities, as both should have prioritized the population's well-being more effectively to realize the potential value that the project could have generated.

The planned/unplanned, tangible/intangible positive impacts of the Suape megaproject diminished over time, with communities decreasingly benefitting from it. As one of the participants stated, *"Individuals came here initially for the implementation of these major transformative investments, but once the project was completed, they were left unemployed and stayed. And now the local authorities bear the burden of this situation, while the benefits have vanished"* (Interviewee 2). For example, the region

Table 5
Share of employees in the formal market (2021) - Sources: Government of Pernambuco (2023) and Federal Government of Brazil (2023).

Comparison	Up to 1 minimum wage	Between 1 to 3 minimum wages	Between 3 to 5 minimum wages	Between 5 to 10 minimum wages	More than 10 minimum wages
Cabo de S. Agostinho	6.42%	72.07%	13.64%	6.42%	1.45%
Ipojuca	13.91%	62.19%	10.84%	8.01%	5.05%
Pernambuco State	11.86%	67.70%	9.96%	7.04%	3.44%
Brazil*	8.32%	67.39%	12.67%	7.85%	3.77%

* In 2021, the Brazilian Minimum Wage was BRL 1100 (USD 213.18) per month.

Table 6
Missed opportunities.

Stage	Value Effects (short, medium, long-term)	What opportunities the project presented to local communities	Effects materialized at the local community level
Project Front-End Stage (1970s and 1980s)	Land acquisition	Regularization of land and public investment in new popular housing complexes	Almost all public investment went to purchasing land for direct use by the industrial complex (FGV, 2022)
	Relocation	Better housing	Improved housing conditions but very far from day-to-day trading activities and the Port complex (Fiocruz, 2014)
	Job opportunities	Stable jobs for the communities	Little or no jobs for the communities (DHesca, 2018)
	Improved infrastructure	Large investments in new infrastructure such as water supply, sanitation, schools, hospitals	Highways and some hospitals and schools have even been built, but water supply and sanitation remain precarious (Master Plan of the Recife and Suape port complex, 2019)
	Specialized training	Training offered to local communities	Not effective training programmes to allow locals to work in the Port (Ecopolis, 2009)
	Increased revenues	More money flowing at the local level and re-invested in the communities	More money flowing at the local level, inability to re-invest in the communities (Domingues et al., 2014)
	Improved life conditions	Considerable improvement of the life standard of local communities	No or little improvement was recorded in the local communities in the proximity of the project (Fiocruz, 2014)
	Improved social and economic indicators	Strong improvement in indicators such as HDI and Gini index	In Cabo de Santo Agostinho, the HDI is 0.686, and the Gini index is 0.5787. In Ipojuca, the HDI is 0.619, and the Gini index is 0.5213, with less than 15% improvement in the Gini index in the two municipalities in the last 20 years (IBGE, 2010)
Project Construction Stage (1990s and 2000s)	Urban Mobility	Local communities are able to access the port complex through efficient transportation links easily.	No efficient transportation links from the communities to the port were created (Moretti & Cox, 2016)
	Local employment	Local communities to work in the Port	Workers from other regions had to be recruited to work in the Port (FGV, 2022)
	Entrepreneurship	Great opportunities for opening small businesses locally to serve the port complex	Companies in the complex generally already had their suppliers and hired very few local services (Cabo de Santo Agostinho, 2006)
	Tax generation	Local communities benefiting from the corporate taxes generated by the Port	Inefficiency from local authorities in distributing such revenues in an effective way to improve the life of the population (G1PE News, 2018)
	Corporate social responsibility	Corporate social investments to boost the local economy and well-being of the affected communities.	Little or no understanding of local context with corporate social investments inadequately linked to local needs (Fiocruz, 2014)
Project Post-construction Stage (2010-present)	Funding	Financing for local environmental and sustainability projects	Companies in the complex generally open opportunities to finance environmental and sustainability projects in calls for the entire country without prioritizing local communities (Integrated Management Plan of Suape, 2012)
	Preservation	Preservation of historical and cultural heritage	Industrial activities are being planned and carried out in areas of historical and cultural heritage, generating constant protests among native communities (DHesca, 2018)
	Job stability	Local employees to preserve their job	Workers were fired after construction was terminated (DHesca, 2018)
	Social Growth	Local community to prosper along with the economic revenues of the Port	Local communities are left in poor living conditions, with no access to basic sanitation or water (Brazil, 2019).
	Urban control and security	Better control of illegal land occupations, territorial safety, and reduced crime.	Illegal settlements remain an unsolved problem. The overcrowded area became highly unsafe (high level of violence, crime, drug dealing,

(*continued on next page*)

Table 6 (*continued*)

Stage	Value Effects (short, medium, long-term)	What opportunities the project presented to local communities	Effects materialized at the local community level
			prostitution, alcoholism) (Fiocruz, 2014)
	Representation from local authorities	Local communities are being heard, represented and safeguarded by local government.	Local authorities are mainly concerned with the economic revenues generated through corporate tax collection, overlooking the real needs of the population (Marques, 2014)

received thousands of people during the construction phase (Ecopolis, 2009). These people were usually men who worked in construction. "*You had 6000 men longing for their families, far from their children. They didn't belong to the area, didn't know it. There were people seeking entertainment, drinks, prostitution, and anything else. It was a very strong urban savagery*" (Interviewee 2). When the construction ended, many men were without jobs and stayed in the region, increasing crimes related to drug trafficking, robberies, and rapes increased. The number of victims of Lethal and Intentional Violent Crime (LIVC) in Cabo de Santo Agostinho is 68.86 per 100,000 inhabitants, which ranks the municipality as the fifth highest in Brazil (among 5570). In Ipojuca, the LIVC rate is 37.92 per 100,000 inhabitants. Brazil's LIVC rate per 100,000 inhabitants is 23.40 (BPSF, 2023). "*There was an expectation that the Suape organization would take responsibility for providing housing and urbanization to accommodate those unemployed. Unfortunately, that did not happen […] the construction phase passed, and everything remained the same*" (Interviewee 14).

Therefore, the marginalization of local communities happened not only at the territorial level but also at the societal level, with different planned and unplanned implications for value creation and retention of the Suape megaproject over 40 years, leading to today's dark legacy. Interviewees reinforced how conditions for benefits realization at the local level were not nurtured with local actors. The lack of dialogue and engagement is evident at each project stage and beyond its continuous expansion. The data also highlight the weak local government structures that undermine local representation and accountability, preventing local authorities from effectively representing and balancing the interests and expectations of their communities with those of the project.

Therefore, despite Suape bringing about significant economic benefits, these benefits must be effectively harnessed. However, the participant believes that "*whether local authorities are efficient in distributing these new resources is a matter of concern*". Moreover, local authorities are generally not well-equipped to deal with the impact and magnitude of megaprojects; thus, local communities often lack representation, preventing them from benefiting from the project. In this specific case, the local authority's inability to prepare for the influx of people in these projects has resulted in a counterproductive effect on the initial value generated by the project. This has resulted in the creation of impoverishment around cities, leading to a range of consequences such as violence, drug trafficking, and issues with the local youth population (DHesca, 2018; Marques, 2014; TPF & CEPLAN, 2022).

There was a lack of preparation among local authorities to receive projects like Suape. Over the years, the lack of dialogue and engagement created issues in terms of accountability. As such, "*The preparation of the cities and their relationship with Suape seem to have a mismatch. Local authorities believe that the Suape Port can do everything, but the Suape Port cannot. The Suape Port believes that local authorities should be better prepared to serve the population, but the local authorities make it seem like it is not their responsibility*" (Interviewee 11). This lack of accountability directly affects how value is generated and retained over time. For example, because the Suape Port owns land within these municipalities, the local authorities sometimes believe that the Suape Port has control over urban planning, which is not the case since the Suape Port lacks the power to enforce urban regulations, for example, to prevent irregular occupation or invasions. Thus, there is a mismatch between what the Suape Port can do and what the municipalities expect the Suape organization to do. This stagnation led to ongoing tensions, lack of trust, and a negative social legacy of the megaproject in which "*What does not make sense is having cities like hours [Cabo de Santo Agostinho and Ipojuca] that have a huge profitable industrial complex and yet face deficits in public health, education, and solid waste management*" (Interviewee 2).

Considering the above findings, the following section presents our conceptual framework and discusses our theory and practice contributions.

5. Discussions

With their potential to boost economies, enhance social welfare, and drive the innovation and change needed to alleviate poverty and inequality, megaprojects are a prominent organizational form for addressing pressing societal issues (Drouin & Turner, 2022), provided their purpose extends beyond a self-financing logic that overlooks distributional concerns among stakeholders (Gil, 2023). While calls for consolidating the empirical evidence of such benefits to society and 'disempowered' actors (i.e., local communities) are surging (Bandé et al., 2024; Derakhshan, 2022; Di Maddaloni & Sabini, 2022; Lehtinen et al., 2023), we suggest that understanding the legacy of megaprojects, which manifests through their long-lasting impact on stakeholders, is an important yet insufficiently acknowledged prerequisite. Project legacy influences the project's performance and should be considered when assessing, comparing, and integrating evidence of megaproject impacts. Taking a historical perspective and combining it with interviews, direct observations, and a knowledge co-creation workshop, we set out to develop a framework that advances research on stakeholder engagement and, more broadly, on social value in project management by (1) helping to map a long-term process that leads to the dark legacy of megaprojects, (2) introducing the concept of social value dissipation and its transformative nature (i.e., effects over time), (3) helping to juxtapose stakeholder engagement and social value through the mediating role of local authorities as a bridge between projects and communities.

Fig. 2 presents the conceptual framework for the study based on the results of various data collection techniques.

The framework shows how the protracted lack of local engagement and representation throughout the project life cycle and beyond its development leads to megaprojects' dark social legacy. Specifically, within weak local government structures that are unable to mediate impacts and retain social value over time for their communities, the project's lack of focus on social and environmental issues, along with the absence of dialogue and accountability between the project owner organization and local authorities, contributed to the marginalization of local actors. This, in turn, prevented local communities from capitalizing on both the continuous planned and unplanned, as well as tangible and intangible, impacts of the megaproject (Preuss, 2015). As such, the framework also points to the temporality of the value generated by the project and its short- to long-term effects (Holt & Ruta, 2015) at each major stage of its development (planning & zoning; construction; post-construction). By reducing the level of abstractness of such identified constructs, the introduced framework culminates into the lasting impact and social legacy that local communities have inherited from the megaproject. In doing so, we introduce the concept of *value dissipation* to elucidate, through a stakeholder (dis)engagement lens, how the initially generated social value of the megaproject gradually dissipates over time, leading to a shortfall in social benefits and a poor legacy for local

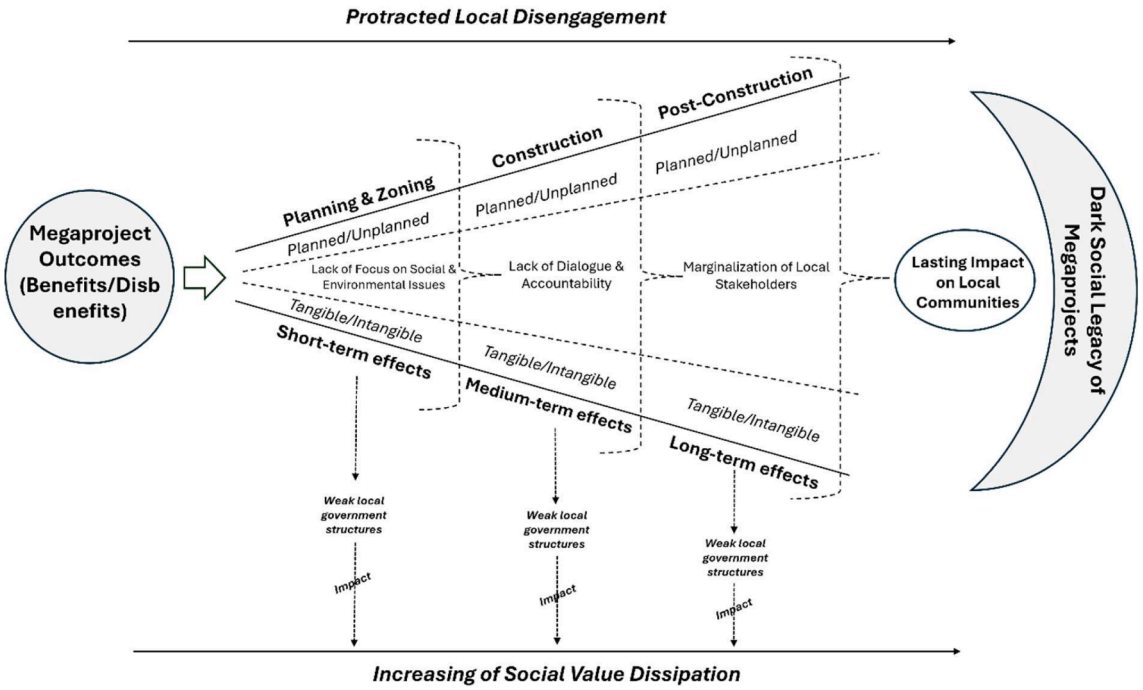

Fig. 2. Conceptual framework: the dark social legacy of megaprojects.

communities.

We unfolded a historical narrative sensemaking megaproject's lasting impact on local communities, an area that has received limited attention (Derakhshan, 2022; LERI, 2007). Megaproject performance has historically been assessed and discussed through their capacity to be economically viable and generate economic returns (e.g., Turner & Xue, 2018) or towards the managerial ability to deliver such projects within pre-determined targets of time, cost, and scope (e.g., Atkinson, 1999; Ika & Pinto, 2022). However, most of the empirical evidence overlooked the long-term social performance of such projects (Lehtinen et al., 2023; Zerjav et al., 2021). As such, most of our knowledge is derived from empirical evidence collected during or shortly after projects claiming to be about legacies, consequently focusing on short- to medium-term effects rather than on true legacy (Dickson & Darcy, 2022). Therefore, incorporating the concept of legacy aligns with the latest academic thinking regarding the contentious definition of 'project success', shifting from the question of 'what makes a given project successful' to 'what constitutes success' within the project (Ika & Pinto, 2023, p. 294).

By embracing the concept of legacy in project studies, our results highlight important theoretical implications from a stakeholder engagement and social value perspective. First, by taking a historical and longitudinal lens highly needed in project studies (Söderlund, 2023), we unveil a narrative that aids in comprehending "losers" and "winners" in such developments (Gil, 2023; Ryan-Collins & Jackson, 2008). In doing so, we answer the call of Locatelli et al. (2023) to provide a longer-term perspective on stakeholder value beyond the construction stage. As such, we expand the temporal dimension of (social) value from the one of Zwikael and Huemann(2023), by proposing an assessment of benefits that occur years after the project begins operations rather than during its implementation or immediately after its completion as is traditionally done (Lehtinen et al., 2023; Preuss, 2007; Scheu et al., 2021). Therefore, we conceptualize project value as manifesting through its short-, medium-, and long-term effects, each contributing to varying degrees of impact on stakeholders. In doing so, from a long-lasting impact perspective, this research investigates and expands on the traditionally limited focus on project legacy within project studies (Gillett & Tennent, 2017; Yamasaki Sato & de Freitas Chagas, 2014). It underscores legacy as a necessary criterion for discussing the social value generated by the project to its 'disempowered' actors (i.e., local communities). As such, it motivates project owner organizations and future researchers to consider performance *ex-post* beyond its lifecycle (Flyvbjerg & Stewart, 2012; Locatelli et al., 2023).

Second, our analysis draws on the intersection of stakeholder engagement and social value literature (Bridoux & Stoelhorst, 2022; Di Maddaloni & Sabini, 2022; Gil, 2023), showing that local engagement influences the value and social legacy of megaprojects local communities. We show that when local communities lack engagement and representation through local authorities, unbalanced power dynamics and a lack of accountability are likely to lead to social welfare being sacrificed for financial gains, resulting in a poor social legacy for the megaproject. The prioritization of economic profitability by the owner organization over social and environmental issues led to a lack of continuous dialogue and accountability among all parties involved, resulting in the marginalization of local communities. From a normative stance, this study contributes to stakeholder engagement theory by highlighting the pivotal role of local authorities as mediators between project impact and stakeholder value. The data showed that the local authorities' inability to mediate the positive or negative effects of the megaproject hindered its overall legacy for the local communities. As prompted by Di Maddaloni and Sabini (2022), this research contributes to advancing the scant research devoted to local authorities' engagement in project studies. It reinforces the growing importance of local governments as the bridging authority between multi-stakeholder interests (Gaute, 2016). Ideally, local authorities represent local needs by ensuring that the community's social growth corresponds to the economic revenues generated by the megaproject at each stage of its lifecycle and beyond. As demonstrated by the Suape megaproject, local authorities may be significantly excluded from the decision-making process, leaving them unprepared to manage the impacts of such a megaproject or ill-equipped to capitalize on it. Undoubtedly, more studies at the intersection between public administration and project management are needed, as local administration is shown to be pivotal for megaprojects to thrive during and beyond their conclusion.

Third, this study contributes to the discourse on project value, highlighting that the initial value generated by the project can vanish

over time, resulting in a shortfall of benefits for the impacted local communities. We explain this phenomenon by introducing the concept of *value dissipation*. The value dissipation concept emerges when the project's initial generated value and growing financial revenues do not mirror the deprived conditions within which their affected communities live. Specifically, when social welfare is sacrificed for financial gain, the intent of megaprojects as tools for fostering modernization and enhancing economic and social development (Kara et al., 2016) falls short of addressing rapid societal changes and poverty alleviation. Instead, it reinforces societal disparities by benefitting a few elites of public and private actors in such developments (Gil, 2023; Ryan-Collins & Jackson, 2008). We examine the value dissipation process through the lens of local disengagement, highlighting that especially within weak governmental structures, as is often the case in developing countries where local communities lack adequate representation (Bandé et al., 2024; Williams, 2017), the disengagement of local authorities prevented their communities from accessing or capitalizing from the potential benefits the megaproject generated.

As a result, this study also points to practical implications as project owner organizations have often overlooked the potential adverse effects that a project may generate over time, neglecting a crucial reflection on 'doing the right project' (Williams & Samset, 2010). Because the magnitude and structural changes of such large developments on the affected communities are unavoidable and occur in the short, medium, and long term, continuous engagement between the project owner organization and the local context is found to be necessary. This helps address changing local needs and competing expectations, ensuring that value to communities is retained (Babaei et al., 2023) and does not dissipate over time.

The policy implication of our research is clear evidence of the increasingly important role of local governments in value creation and distribution from projects to communities. As such, we unfold the performance of megaprojects from a long-term perspective. While project owner organizations are increasingly called to think about the purpose of projects and their value beyond national or international interests, an understanding of the local context and local governance is necessary for megaprojects to leave positive structural changes in society (Crescenzi et al., 2016; Gil & Fu, 2021). Therefore, while policymakers must reflect on the legacy that megaprojects aim to deliver as agents of change—especially in increasing the capacity of local governments, which are often ill-equipped to capitalize on the opportunities presented by such transformative developments—project owner organizations are encouraged to assess the performance of megaprojects years after their completion. This evaluation should focus on the value generated for a broader range of stakeholders, as post-project analyses are scarce (Locatelli et al., 2023). Such post-project studies are mainly confined to post-project review activities or often discussed in the mega-sport events but are more about the effects and not structural changes made for and by the megaproject (e.g., Hiller, 2000; Preuss, 2007). While these post-reviews are beneficial to develop a profile of lessons learned and knowledge transfer for projects, these have been mainly discussed within the termination stage of the project (e.g., Zwikael et al., 2019), preventing the 'legacy' concept from flourishing in project studies.

6. Conclusions

In this article, we elucidate novel contributions from a stakeholder engagement and social value perspective, broadening our understanding of social legacy in megaprojects. Through analyzing a controversial megaproject in Brazil, our findings demonstrate that local engagement influences the value and social legacy of infrastructure megaprojects for impacted communities. Specifically, the disconnect between Suape Port and local authorities hindered local communities from capitalizing on the potential benefits the project could have generated. In answering our research question, we demonstrate that the lack of local engagement and the absence of a strong, mediating role by local authorities – the "missing bridge between the project and the people" - led to missed opportunities, further marginalizing communities from the development process. As a result, social value dissipated over time, leaving local stakeholders in poverty and creating a poor social legacy for local communities despite the growing economic revenues of the Suape megaproject.

While existing studies praise that the positive social value generated by megaprojects materializes over time, this study shows that this is only sometimes the case. Using in-depth case study research and multiple data sources provided an opportunity for a more nuanced conceptualization of value, highlighting its *dissipating* features. Therefore, when local communities lack representation and social welfare is sacrificed for financial gain, 'value dissipation' occurs in megaprojects. This research explains how the initially generated social value of the project gradually diminished over time, resulting in a shortfall in social benefits and a 'dark' legacy for the megaproject.

There are three main limitations in this study. Regardless of their geographical location or economic and social condition, infrastructure megaprojects impact local communities, with some being more disruptive than others. While this study provides valuable insights for readers interested in better understanding the impact of such developments on local communities and helping them recognize 'legacy' as an important element when assessing, comparing, and integrating evidence of megaproject impacts, our data are based on a single developing country (Brazil) and focus on an infrastructure megaproject specific to one site. To enhance the robustness of the findings, we suggest expanding the research to other geographical settings (ideally a developed country) and megaprojects geographically distributed, such as high-speed railways.

Second, this study mainly adopted the lens of stakeholder engagement to investigate the relationships between the project owner organization (Suape Port) and local authorities (Cabo de Santo Agostinho and Ipojuca) impacting the social legacy of the megaproject under study. Further studies would benefit from delving into the residents' feelings and beliefs to provide additional insights. Moreover, while our study highlighted the "dark" legacy of megaprojects and diligently considered institutional and political conditions in deriving results, it was beyond our scope to delve into the dark side elements of projects (Locatelli, Konstantinou, Geraldi & Sainati, 2022), such as corruption, bribery, or wrongdoing that often affect the performance and outcomes of infrastructure megaprojects (Castro & Ansari, 2017; Cornelio, Sainati & Locatelli, 2023). Further research could explore the influence of political and institutional fragility to complement the proposed findings further.

Lastly, we remained mindful of Preuss's (2007) different elements of legacy, such as social, cultural, environmental, political, economic (including tourism), sporting, psychological, physical (construction and urban renewal), information and education, symbols, memory, and history. However, while each of these legacy perspectives is worth considering on its own, we were mainly interested in the legacy of megaprojects from a social value perspective, as this remains understudied when compared to the economic or environmental dimensions of project legacy.

CRediT authorship contribution statement

Francesco Di Maddaloni: Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Conceptualization. **Leonardo Herszon Meira:** Data curation. **Mauricio Oliveira de Andrade:** Validation, Data curation. **Iury Ribeiro de Melo:** Data curation. **Armando Castro:** Writing – review & editing, Validation. **Giorgio Locatelli:** Writing – review & editing, Validation, Conceptualization.

Appendix

Appendix 1. Interview guide and purpose

Purpose	Semi-structured interview questions
Interviewee profile	1. Can you briefly tell me about yourself? What is your current role and responsibility? 2. How many years of managerial experience do you have? 3. How long have you been involved in Suape and what is, or it has been, your role and responsibility in such project?
Local stakeholder engagement	1. How did you engage with the different local communities impacted by the project? Was this engagement effective and changed over time? 2. Do you believe the relationship between the project organization and local authorities plays an important role in creating and distributing value to local communities (e.g., residents)? Why or why not? 3. How was the relation between the project organization and local authorities established? 4. How the project organization and local authorities engage throughout the project? Does this engagement differ in different stages and during operations? Why do you think so? 5. What have been the main challenges you had to face in this relationship? Why? 6. Under which circumstances this relationship will be effective? Why?
Opportunities and challenges generated by the megaproject at the local community level	1. What do you recognize as the main reasons for the Suape megaproject's implementation? 2. What do you believe are the main opportunities that a megaproject can create for its local communities? 3. Was this the case in the Suape megaproject? If so, why? 4. What do you think are the main challenges a megaproject can create for its local communities? Could you reflect on the case of the Suape megaproject from its inception to the present day? 5. Were local communities able to capture the value generated by Suape? Why do you believe this is the case? 6. From the early stages of the Suape project through its implementation and operations, what key expectations do you attribute to the project organization in creating and distributing value for the local community? Why do you think these expectations are important? 7. From the early stages of the Suape project through its implementation and operations, what key expectations do you attribute to local authorities in creating and distributing value for the local community? Why do you think these expectations are important? 8. How did you address the differing needs and expectations of the local authority and project organization to benefit their local communities?
Enduring social legacy that the megaproject has left behind	1. What do you think have been the expected (panned/unplanned) benefits and disbenefits of the Suape megaproject at the local level? 2. What do you think have been the short, medium and long effects of value creation and distribution to communities? Why do you think so? 3. Was the positive value created by the megaproject (if any) retained over time for its communities? How did this occur? 4. What have been the lasting impacts of the megaproject on local communities, and why? 5. How well prepared were local authorities in dealing with the impacts of the Suape megaproject, and how has this affected the creation and distribution of value at the local community level over time? Why do you believe this is the case?

Appendix 2. Illustrative data examples

Themes	Representative quotes from the data
Protracted local disengagement	
Power imbalances & autocratic decision making	"The Project was always conceived with an imposing view to dislocate people outside the project area. The territory was to be fully vacated […] I still believe that in general Suape remains very imposing. I won't say authoritative as it was in the past, but very imposing in relation to municipalities" (Interviewee 1) "When I was Secretary of Planning for Ipojuca ['80 s], there was no legislation that gave us the authority to question or demand anything from the private sector or federal or state government. It was a different treatment and there was no space for local authorities" (Interviewee 3) "Among the socio-environmental risks and impacts, rights violations, and illegalities observed in the CIPS project, the following stand out: The low level of public participation and the absence of prior consultation in decision-making processes concerning the use and destination of local common goods essential for maintaining the traditional ways of life in the territories" (DHesca, 2018)
Stakeholder prioritization & Economic focus	"They (businesses) are all excellent in terms of their social governance, but they are huge multinational corporations. Accordingly, Suape Port calls for investment on a global scale, without considering mitigating the local impacts these companies cause here. This socioeconomic equation is a mistake that affects Suape" (Interviewee 11) "In the case of taxes, a request came from the state or federal government [in the early '90 s] appealing to the mayor's sensitivity to grant tax reductions to the private sector, either in construction or in industrial or port activities" (Interviewee 3) "I emphasize again that the State government's concern was [until recent years] primary economic rather than the impacts caused by Suape. The state is not focused on social issue, and it is the population that it is suffering" (Interviewee 13)
Unfulfilled opportunities	
Marginalization of local stakeholders	"Opportunities and conditions were not given to local authorities to negotiate directly with public or private entrepreneurs [since the start of the project]. Therefore, I do not see how they could influence or request benefits for the local population" (Interviewee 3) "Suape should move beyond being solely an economic powerhouse and eliminate the unacceptable social vulnerability. It is unacceptable to have people living in houses made of mud without access to water, where they must walk 1 km to fetch water. Unfortunately, there are still marginalized people living in these unacceptable conditions" (Interviewee 7) "Today we start from a considerable deficit of 30,000 housing units. Once calculated per municipality, there is a need both to produce new housing and to improve existing ones. Soon, decisions must be made regarding the best locations, as well as the conditions to be established to ensure the surrounding area offers the highest quality of life. Simultaneously, the housing supply planned by the private sector and publicized through the media far exceeds the expectation of housing deficit. This supply is primarily aimed at the middle, upper-middle, and upper classes, whereas the current and projected housing deficit predominantly affects lower-income populations. The mismatch

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Themes	Representative quotes from the data
	between the income levels targeted by the housing supply planned by the private sector and the housing deficit of the region demonstrates that the local real estate dynamics require considerations beyond the projections and trends of the territory". (Integrated Management Plan of Suape, 2012)
Weak local government structures	"Municipalities have difficulty assuming their part. Suape Port can even provide resources to, for example, implement health or education facilities or to serve new housing developments. But it is necessary that the municipality be minimally organized to provide the service. What happens is that after Suape Port implements these types of equipment, municipalities often cannot maintain it" (Interviewee 6) "I am part of the management here at Ipojuca municipality and we are not prepared for what happened with the port complex […] There was complete mismanagement on the part of the municipalities. They were not and are not prepared to deal with the Suape project" (Interviewee 12) "The absence of state, local, and corporate planning to accommodate the social changes brought about by the injection of financing has resulted in a scenario of high housing deficit, disturbances in the mental health of the population, increases in cases of unwanted pregnancies, and a significant rise in urban violence" (DHesca, 2018)
Value dissipation	
Lack of representation of local needs	"Local authorities have been and are not prepared to deal with the impact of the port. They still do not understand the level of co-responsibility they have in representing local needs and managing this territory, including achieving the potential benefits it can generate. The municipalities often act as a victims […] it acts expecting the benefits and not acting more actively to obtain the benefits (Interviewee 1). "Suape has done some very good work, partly because it excels in its procedure, but in an isolated manner, without involving the municipalities and understanding local needs […] Unfortunately, the communities of Cabo de Santo Agostinho and Ipojuca do not feel like participants in the industrial complex. Cabo de Santo Agostinho is full of slums with water scarcity and basic sanitation" (Interviewee 11) "The riverside communities along the Capibaribe River, including those living in stilt houses, face problems with the silting of the riverbanks and river pollution caused by domestic and industrial sewage in the region. Furthermore, some of the houses lack basic sanitation and running water." (Master Plan of the Recife and Suape port complex, 2019)
Lack of dialogue & accountability	I believe that Suape Port needs to be seen as a partner, not just a provider by the municipalities. There is an expectation from the municipalities that refers to Suape Port as a provider, and sometimes some of these expectations from local authorities have absolutely nothing to do with the projects and Suape's objectives" (Interviewee 15). "What the local authorities expect from Suape Port is the possibility of occasional increases in municipal revenue and an expectation that Suape Port can solve problems, including structural ones for the municipalities. Although Suape Port can participate, it is not directly responsible for urban solutions expected by municipal managers" (Interviewee 16) "The local authorities completely exempt themselves from the responsibility of urban control in this territory despite that an environmental licensing is responsibility of the municipality" (Interviewee 2)

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