

Waterfront Redevelopment Five Decades Later: An Updated Typology and Research Agenda

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Abstract

Since the second half of the twentieth century, when maritime practices began migrating outside their traditional central city areas, urban regeneration at the water’s edge has been one of the key issues in port cities’ planning agendas. Waterfronts in port cities have become strategic areas for a range of reasons, such as economic growth, city branding, and addressing housing pressures. However, recent studies also show how their transformation is now more profoundly influenced by hypermobile capital and global finance, and by broad sustainability concerns. The established narrative of waterfront redevelopment as a response to weakening port-city relationships no longer necessarily represents the present of all port cities, as more nuanced accounts are needed. With examples from Europe and across the world, this article reflects on waterfront redevelopment practices, by building on existing attempts to provide typologies and periodise the history of this phenomenon and focussing on the key approaches emerging in the last decades. It is argued that today’s approaches to waterfront redevelopment, and ultimately contemporary relationships between ports and cities, are changing and possibly differentiating from the “port out, city in” rationale underpinning past schemes. Current practices appear to be ranging from the wholesale transformation of redundant waterfronts into neoliberal urban spaces for consumption and capital accumulation to more “fine-grained” planning strategies to build more (environmentally, but also economically, socially, and culturally) sustainable urban waterfronts by integrating or restoring port-related activities within mixed-used areas.

Keywords

port cities; port-city relationships; urban regeneration; waterfront redevelopment

1. Introduction

Many would agree that urban waterfronts are once again—albeit in a different way—the “shimmering theatre” of the world, as Meyer (1999, p. 32) described waterfronts in industrial port cities in the 19th century. After their decline due to port restructuring in the late 20th century, these areas have been bouncing back in economic but also symbolic terms (Hoyle & Pinder, 1992; R. Marshall, 2001; Porfyriou & Sepe, 2017). If it is true that waterfront redevelopment was a crucial issue for urban planning in the 1980s and 1990s (R. Marshall, 2001), its relevance seems to be undiminished today. Schemes currently being implemented such as Rotterdam’s Makers District (Jansen et al., 2021) or the £5.5 billion Liverpool Waters project (P. Jones, 2015), as well as a range of experiences in developing countries (Furlan et al., 2019; H. Wang, 2014) show how waterfront redevelopment is set to shape planning agendas in the years to come. However, after about five decades since the first experiences in US cities, waterfront redevelopment processes are arguably changing and differentiating. On the one hand, this is linked to changing relationships between ports and cities (Wiegman & Louw, 2011). If it is true that in the late 20th century, “ports disappeared from the minds and hearts of port city residents” (Jansen & Hein, 2023, p. 213) as traditional ties between ports and cities gradually dissolved, then different port-city relationships are emerging. We are witnessing a renewed interest from ports to be in the city (e.g., the central location of Rotterdam’s World Port Center), and a return of industrial activities in post-Covid cities, port-related, or otherwise (Novy, 2022), such as compatible industrial activities or technology hubs. Therefore, port city scholars have no longer necessarily been asking how the takeover of urban port areas by expanding cities takes place, but whether it should take place (Daamen & Vries, 2013, p. 4). These trends are coupled with stronger sustainability concerns (Daamen & Vries, 2013; C. Evans et al., 2022; Fusco Girard et al., 2014) based on the recognition that urban waterfronts are very much exposed to the impacts of climate breakdown, but also that they are opportunities for cities to pursue all dimensions of sustainable development. On the other hand, one must acknowledge that the socio-economic and political framework in which waterfront redevelopment schemes now operate is not the same as that of the emerging globalisation and neoliberalism, or of large-scale public investment in waterfront regeneration, that characterised the 1980s and 1990s (Tommarchi & Jonas, 2024). Rather, such practices are happening in a socio-economic and political framework shaped by greater uncertainty (see Turnbull, 2022) and the immense power of hypermobile global capital (Rossi & Enright, 2018).

This article proposes an updated typology of approaches to waterfront redevelopment that complements existing frameworks—including periodisations reflecting on dominant approaches—by including experiences of waterfront redevelopment taking place in the last 25 years. An updated typology is needed to acknowledge the different contexts in which waterfront redevelopment as a process operates today and to categorise its more recent manifestations. Such a typology provides a common terminology for port city scholars and waterfront redevelopment specialists, which connects to the broader structural conditions in which these processes are taking place. The proposed typology distinguishes between tertiary-led, culture-led, event-led, late neoliberal, and holistic approaches. The first three typologies have already been identified in the literature, although with different terms (in the case of event-led approaches) or without an explicit acknowledgement of their connection to water or the area’s maritime character (in the case of culture-led regeneration). Here, the article proposes a common terminology. Late neoliberal and holistic approaches are proposed in this article as new categories to interpret emerging waterfront redevelopment practices.

The article explores practices of waterfront redevelopment through an encompassing comparative strategy (Robinson, 2011; Tilly, 1984), which can be defined as a form of comparative analysis based on examining individual cases as manifestations of a broader structural process that is theoretically defined, and that serves as a framework to guide the analysis. This allows for exploring a range of cases of waterfront regeneration as instances of the same phenomenon—occurring globally (e.g., Brownhill, 2013)—of waterfront redevelopment under neoliberal capitalism, thereby establishing a mutual connection between the individual case and the structural process shaping it. This exercise is informed by the following methods. First, a review of the existing research on waterfront redevelopment, culture, and event-led regeneration on the waterfront. Second, desk research on the individual cases cited in Section 3, encompassing existing studies, policy documents available online, newspaper articles, and institutional websites. Third, further reflection on the findings of a research project undertaken by the author in 2016–2020, which included an in-depth analysis of event-led regeneration in Genoa, Rotterdam, and Valencia through policy analysis, semi-structured interviews with policymakers, senior civil servants, planners, experts and activists, street surveys, and non-participant observations (Tommarchi, 2022), and by the author’s experience in the field.

The following Section 2 provides an overview of some of the existing attempts to categorise approaches to waterfront redevelopment. Many of these attempts look at the history of the phenomenon and therefore provide periodisations highlighting the dominant approach at one given time. Section 3 presents the typology of approaches proposed in this article, focussing on late neoliberal and holistic approaches as these are the new proposed categories. Section 4 outlines a research agenda stemming from the recognition of these two emerging typologies of approaches and in the light of the changing context in which waterfront redevelopment practices are likely to occur in the immediate future.

2. A Brief History of Waterfront Redevelopment

Urban port areas in central city locations—made redundant as a result of port restructuring taking place in the second half of the 20th century (Hoyle, 2000; Hoyle & Pinder, 1992; Hoyle et al., 1988)—have become strategic assets for real estate development and urban regeneration in many port cities (Hein, 2016; Ward, 2011). This section explores the key aspects of the process of waterfront redevelopment and gives an account of existing attempts to interpret its history through the identification of phases displaying common features. It is important to note that whilst such accounts focus on the periodisation of waterfront redevelopment as a global phenomenon, this article proposes a typology of common approaches (see Section 3).

Schubert (2008) outlines a generally applicable model of a transformation cycle at the interface between ports and cities to explain this phenomenon. The cycle starts with the abandonment of urban port areas due to the development of more modern port facilities outside the city. This leads to urban development visions for the transformation of these relatively central areas. Plans are implemented through the introduction of new uses (e.g., tertiary, housing, and leisure). Finally, new uses and facilities contribute to revitalising the area and increasing its appeal. Schubert’s cycle successfully portrays how the redevelopment of waterfronts generally—albeit not exclusively—consists in the replacement of abandoned, or still partially working, port areas and structures with new urban amenities and uses, which port-related activities compete with for space (Hayuth, 1988). Through such a “port out, city in” strategy, former urban port areas are taken over by urban uses and transformed into what Breen and Rigby (1996) defined—depending on the predominant functions—as “commercial,” “cultural educational and environmental,” “historic,” “recreational,” “residential,”

or “working” waterfronts. Functions may include employment, housing (often in the upper sections of the market), recreational activities targeting the middle class, hospitality, culture, and heritage (Norcliffe et al., 1996).

There are several, slightly different periodisations of waterfront redevelopment (Table 1). Scholars acknowledge the origin of these practices in the pioneering experiences taking place in North American cities, starting from Baltimore, in the 1960s and 1970s. In the 1980s, the perceived success of initiatives in the US led to widespread attempts of replication through large-scale mixed-used schemes (Schubert, 2011) in other parts of the world, a phenomenon referred to as the Baltimore syndrome (Huang et al., 2007; Vallega, 2001) or the tragedy of such American-inspired attempts (Hajer, 1993). In the 1980s, waterfront redevelopment practices became widespread across European cities as well, including smaller cities and towns (Shaw, 2001), where mixed-use schemes (Andrade & Costa, 2020) included residential uses and public-led interventions (Shaw, 2001). European schemes present a variety of strategies such as tertiary-led (London Docklands), culture-led (Bilbao), or housing-led (Amsterdam, see Schubert, 2008). Hoyle (2000) sees this stage as a watershed between an initial phase of waterfront redevelopment that affirmed the separation between ports and cities, and a following phase starting in the 1980s where port-city links, including more symbolic ones, began to be reframed and retightened. Redundant urban waterfronts became tremendous opportunities to produce urban environments promoting contemporary—meaning post-industrial, neoliberal—values about urbanism, culture, and society (Malone, 1996; R. Marshall, 2001; Norcliffe et al., 1996; Vallega, 2001), often through urban spectacles celebrating the dynamism of port cities (Dovey, 2005; Tommarchi, 2024). Pagés Sánchez and Daamen (2020) argue that a global waterfront imaginary has begun to emerge as a result of these practices, as an assemblage of images and concepts that shape similar schemes around the world; and that these in turn strive to adhere to emerging expectations about the nature of these urban environments, leaving no room for port activities.

Table 1. Common phases of waterfront redevelopment identified in the literature.

Phases	Timeframe	Key features	Key literature
Pioneering initiatives in North America	1960s–1970s	Largely tertiary-led, similar functional and design features, and deregulated planning frameworks	Schubert (2008, 2011)
American-inspired experiences	1980s	Largely tertiary-led schemes in other parts of the world (drawing on American examples)	Schubert (2011); Vallega (2001)
European initiatives	1980s	Mixed-used developments, variety of strategies, retightening of port-city relationships, and smaller cities	Andrade and Costa (2020); Hoyle (2000); Shaw (2001)
Global waterfronts	1990s–Present	The growing role of globalisation and public-private partnerships	Fageir et al. (2021); Schubert (2008, 2011)
Mega-tertiary waterfronts	1990s–Present	Cultural/sporting mega-events as catalysts for change, large public investment, and physical transformation	Andrade and Costa (2020); Pinto and Lopes dos Santos (2022)

In commenting on waterfront redevelopment practices in the 1990s, scholars emphasise the different socio-economic context of that decade, marked by globalisation (Fageir et al., 2021), economic recession, and the need to rethink how resources were being used (Shaw, 2001), leading to the emergence of public-private partnerships (Schubert, 2011). Andrade and Costa (2020) introduce the idea of the “mega-tertiary waterfront” to describe large-scale redevelopments in the 1990s triggered by major/mega events such as the Olympic Games, highlighting that such schemes aimed at regenerating the city as a whole. They see a continuation of this phase into the 21st century, with attempts to retain port activities, thereby questioning the established “port out, city in” model, for example through a growing relevance of cruise tourism.

By drawing on these periodisations of waterfront redevelopment practices, Section 3 moves from a chronological categorisation to a typology of approaches, which highlights the key aspects of common strategies behind these processes of urban transformation.

3. An Updated Typology of Approaches to Waterfront Redevelopment

With more than 50 years of experience around the world and in a changing socio-economic and political context, it is perhaps time to reflect on the typology of approaches to waterfront redevelopment, looking at relatively recent examples. The proposed typology (Table 2) should be intended as a guide to explore different strategies of waterfront redevelopment in the last decades. The typology focuses on dominant approaches guiding the transformation of the waterfront. Three categories are drawn up, based on the existing studies explored in Section 2. Two further categories are proposed in this article and are identified on the basis of the similarities across recent cases of waterfront redevelopment. First, tertiary-led approaches are identified as based on the provision of tertiary functions. Second, culture-led approaches encompass waterfront redevelopment strategies leveraging the role of culture in urban regeneration. Third, event-led approaches include strategies based on harnessing the transformative power of cultural or sporting major or mega events, regardless of the functions introduced on the waterfront. Fourth, late neoliberal approaches are identified as rent-seeking strategies that focus on maximising the value that can be extracted from urban spaces and assets. Finally, holistic approaches are identified as more balanced strategies focussing on a range of dimensions of sustainability. Each approach arguably had or is having its heyday in the indicative timeframe mentioned. However, these approaches do coexist through time. Mixed approaches are not uncommon, and different strategies may be visible within the long-term redevelopment of waterfront areas in the same city as well. For example, port cities such as Barcelona or Liverpool display several of the approaches discussed in this section (Fageir et al., 2021; Ferreira & Visser, 2007).

3.1. Tertiary-Led

Waterfront redevelopment practices in the 1980s tended to be dominated by property-led and tertiary-led approaches, which emerged in a context of largely deregulated planning frameworks (Schubert, 2008). The transformation of the waterfront tended in these cases to target companies and investors, embracing the mantra “if we build it, they will come.” These schemes were profoundly influenced by previous experiences in the US and were dominated by a “port out, city in” rationale. The key functions introduced on the waterfront were office blocks, retail facilities, and (predominantly luxury) housing. The regeneration of Canary Wharf in London (Gordon & Warren, 2022) is a prominent example, where the Enterprise Zone

Table 2. Dominant approaches to waterfront redevelopment since the 1980s.

Typology (approach)	Prevalent in	Key features	Promoter	Examples
Tertiary-led	1980s–1990s	Commercial and retail uses	Public-private partnerships	Buenos Aires (Puerto Madero) Cape Town (Victoria and Alfred Waterfront) London (Canary Wharf) Luanda (Baia de Luanda) Rotterdam (Kop van Zuid)
Culture-led	1980s–2000s	Flagship cultural facilities and public space	State/local authorities	Bilbao Dundee (Central Waterfront) Liverpool (Albert Dock, Mann Island) Newcastle-Gateshead (Quayside) Rotterdam (Museum Triangle)
Event-led	1990s–2010s	Large-scale transformation and (problematic) reuse of event facilities	State/local authorities	Barcelona (Port Vell, Port Olímpic, and Parc del Fòrum) Genoa (Porto Antico) Qingdao (Olympic Sailing Centre) Rio de Janeiro (Porto Maravilha) Shanghai (Expo area, 2010) Valencia (Port America's Cup)
Late neoliberal	2000s–2020s	Entertainment venues, retail and hospitality, and luxury housing	Private sector	Barcelona (Diagonal Mar) Belgrade Jeddah (Corniche) Liverpool (Kings Dock, Liverpool Waters) London (Vauxhall, Nine Elms, and Battersea) Newcastle (Giants on the Quayside)
Holistic	2000s–2020s	Attention to sustainability and attempts to re-integrate port and/or industrial activities	Public-private partnerships	Hamburg (HafenCity) Rotterdam (Makers District) Trieste (Porto Vivo)

Note: Information about examples from: Andreatta and Herce (2012); Bailey et al. (2004); Camerin (2019); Comune di Trieste (n.d.); Croese (2016); den Hartog (2021); Doucet (2013); Fageir et al. (2021); Ferreira and Visser (2007); Gordon and Warren (2022); Hajer (1993); Jansen et al. (2021); Koelemaj (2021); Larco (2009); T. Marshall (2004); Martinez Perez and Sanz (2022); Mostafa (2017); Schubert (2020); Smith et al. (2016); Tommarchi (2023); X. Wang (2021).

regime facilitated the development of what is today one of London's key business districts. Another example is Rotterdam's Kop van Zuid (Figure 1), initially planned as a housing-led redevelopment and later reframed as a mixed-used regeneration scheme led by tertiary functions (Doucet, 2013). These schemes have been criticised for their similar characteristics and aesthetics (e.g., Norcliffe et al., 1996; Schubert, 2008), each shaped by flows of capital (Malone, 1996) and planning ideas (Ward, 2011) across deregulated planning frameworks such as the Enterprise Zone regime mentioned above, in an increasingly neoliberal economy.



Figure 1. Kop van Zuid in Rotterdam.

Although prevalent in the 1980s, variations of tertiary-led approaches are visible in more recent schemes that focus on the provision of office space and the use of ultramodern architecture (e.g., Baía de Luanda; see Croese, 2016).

3.2. Culture-Led

Culture-led urban regeneration is a form of urban regeneration where cultural activity is the catalyst for transformation (G. Evans & Shaw, 2004). The culture-led transformation of waterfronts (as underlined by Schubert, 2008) has often taken place through the provision of flagship cultural facilities—such as theatres, museums, or art galleries—with the hope of triggering broader processes of urban regeneration. These flagship facilities are hosted in either new buildings designed by star architects, or refurbished heritage buildings, i.e., structures of great symbolic power at the water’s edge. “Port out, city in” rationales tend to underpin these schemes as well.

In Liverpool’s Albert Dock, the Maritime Museum (established in 1986) and Tate Liverpool (in 1988) led to a transformation of the area that was respectful of local maritime heritage and identity. The construction of the Museum of Liverpool (2011) supported the redevelopment of Mann Island (Fageir et al., 2021). Another prominent example is the redevelopment of Newcastle-Gateshead Quayside in the early 2000s (Bailey et al., 2004; Figure 2), through The Baltic Centre for Contemporary Art (established in 2002 in a former flour mill) and the Sage Gateshead (built-in 2004), along with the Gateshead Millennium Bridge (opened in 2001).

3.3. Event-Led

The emergence of mega-tertiary (Andrade & Costa, 2020) or Olympic (Pinto & Lopes dos Santos, 2022) waterfronts—where transformation is triggered by cultural or sporting mega-events—have arguably marked redevelopment practices in the 1990s and have been emerging ever since. Often, these processes feature rapid and extensive transformation, which is substantially state-led. These schemes display a variety of approaches in terms of port-city relationships. In some cases, such as Genoa, event-led waterfront



Figure 2. (Left to right) Millennium Bridge, Baltic Centre for Contemporary Art, Baltic Quay residential development, and The Glasshouse International Centre for Music (formerly Sage Gateshead) on Newcastle-Gateshead Quayside.

redevelopment was a means to transform port areas that were neither active nor of interest to the port, whilst in others, Valencia for instance, the City Council and the Port Authority worked together to ensure that new urban uses and still active port functions could coexist, for example through the physical separation of leisure and maritime traffic (Tommarchi, 2022; Figure 3).

Examples include the redevelopment of Port Vell and the construction of Port Olímpic ahead of the 1992 Olympic Games in Barcelona (T. Marshall, 2004), the regeneration of Genoa's Porto Antico in the same period to host the 1992 Columbus Expo (Z. M. Jones, 2020), the transformation of Valencia's inner harbour to host the 2007 America's Cup (Tommarchi, 2022), and Rio de Janeiro's Porto Maravilha scheme ahead of the 2016 Olympic Games (Andreatta & Herce, 2012).

One key critical aspect of event-led waterfront redevelopment is the reuse of venues and spaces post-event (see Cavalcanti et al., 2016; Tommarchi, 2023), which can substantially impact the porosity and accessibility of



Figure 3. Promenade (left) and working port area (right) on the exit channel of Valencia's inner harbour.

redeveloped waterfronts, as well as future port-city relationships. Pinto and Lopes dos Santos (2022) propose an evaluation framework to examine the failures of event-led regeneration on the waterfront by looking at five “wrongs,” including the lack of attention to local specificities, inaccurate cost/benefit analyses, short-term views, poor project management, and the damaging impact or missed opportunities of poor accessibility and unnecessary use of concrete surfaces.

3.4. Late Neoliberal

There is widespread agreement among scholars that, as well summarized by Porfyriou and Sepe (2017, p. 7), waterfront redevelopment is ultimately about market-led regeneration, regardless of the approach taken. However, the first two decades of the 21st century have arguably heralded a number of implemented (or proposed, such as Liverpool Waters and Newcastle’s Giants on the Quayside) waterfront redevelopment schemes designed to maximise the value that can be extracted from these areas. Although these schemes resemble tertiary-led initiatives in the 1980s as manifestations of the mobility of capital and globalising pressures, they also display distinctive features. In such cases, the design and functions, as well as the spectacularisation, of the waterfront appear to be guided by what Phelps and Miao (2020) call urban speculation, where goals of rent-seeking, along with the power of global rent-seeking elites, are dominant, leading to aggressive, semi-authoritarian policies of real estate development—see Koelemanij’s (2021) idea of the “Dubaiification” of waterfronts—and city branding. This approach is intimately connected with the growing financialisation of real estate (Aalbers, 2016), which has turned into an array of assets where hypermobile global capital can be channelled, and ultimately a haven where wealth can be protected (see Atkinson, 2021). Waterfronts of this kind tend to include entertainment and event venues (*stadia*, arenas, and conference centres), retail and hospitality, and display the presence of large collective spaces that are nonetheless privately owned. They can also focus on a combination of super-luxury housing and retail, sometimes creating hyper-gentrified new parts of the city that are unaffordable to the vast majority of its dwellers, or urban enclaves. It is argued here that these processes, as opposed to public-led waterfront redevelopment processes in the 1980s and 1990s, can be analysed effectively through growth machine theory (Cox, 2017), by exploring how growth coalitions push for the implementation of such schemes. These schemes arguably tend to leverage the symbolic power of proximity to water in order to target affluent consumers and foreign capital. Therefore, there is no place for “the port,” intended either as an assemblage of port-related activities or as a vessel for vestiges of the city’s port culture and heritage.

The business-friendly (Camerin, 2019), Florida-inspired (Muñoz, 2006) Diagonal Mar in Barcelona (Figure 4)—next to the event-led Parc del Fòrum development—is an example. Its anyplace character is in stark contrast with previous waterfront redevelopment schemes implemented in the city. Liverpool’s Kings Dock is another example, where the Echo Arena and the nearby international hotels create a post-industrial, globalised urban space that erases any physical and symbolic connections with the city’s historic waterfront. In addition, Liverpool Waters (P. Jones, 2015), planned to be implemented just north of the city centre, led UNESCO to strip Liverpool’s historic port areas of their World Heritage Site status (West, 2022) based on the argument that the new development was going to compromise the historic value of the port cityscape. Other examples of this trend may be found in port cities in the Global South, such as the Jeddah Corniche Waterfront (Mostafa, 2017).



Figure 4. Shopping centre, hotel, and office block in Diagonal Mar (Barcelona).

Due to their design and mix of functions, these schemes present issues in terms of accessibility and “porosity” (as defined by Hein, 2021) of waterfronts, and safety outside their “working hours.” In a similar vein as 1980s tertiary-led schemes, they tend to push port-related activities out, and to be homogenised, giving “the sense that if you have seen one waterfront, you have seen them all” (Stevens & Dovey, 2004, p. 364). Consequently, this homogenisation prompts issues of erosion of local maritime culture and heritage in favour of the production of standardised urban environments and a more saleable image (raised for example by Chang & Huang, 2011; Kowalewski, 2018; Richards & Wilson, 2006). In other words, processes of economic and cultural de-maritimisation (Musso & Bennacchio, 2002; Tommarchi, 2021) can be observed as a characteristic of these schemes, which tend to generate opposition from residents.

3.5. Holistic

In recent years, we have been witnessing a growing number of schemes that, despite being driven by the market, aim at a more balanced redevelopment model for urban waterfronts, by embracing the broader dimensions of sustainability and urban resilience and seeking a mix of functions including (affordable) housing, education and culture, commercial and retail, but also compatible industrial and port uses (Andrade, 2018; Bruns-Berentelg et al., 2022; Daamen & Vries, 2013). Some of these schemes respond to long-lasting critiques of “port out, city in” strategies pointing to the fact that urban and port/industrial uses could—and possibly should—coexist in port cities (Andrade, 2018; Charlier, 1992; Van Hooydonk, 2009). Similarly, some of them meet Stevens and Dovey’s (2004) suggestion to apply to waterfront redevelopment Jane Jacob’s remark that the development of the urban fabric should happen gradually, unsystematically and at a small scale. A relatively “fine-grained” approach encompasses a mix of functions and attempts to retain or reintroduce port-related or light industrial activities, sometimes pointing to processes of economic and cultural re-maritimisation (Musso & Bennacchio, 2002; Tommarchi, 2021).

For example, the development of HafenCity in Hamburg was envisioned as “a diverse yet physically small-scale mix of...uses, from residential to industrial” requiring “a sophisticated and well-balanced concept, with various uses mixed both vertically and horizontally: within a building, between buildings, within a quarter, and between quarters” (HafenCity, 2006, p. 55). HafenCity still displays a “port out, city in” approach (Daamen & Vries, 2013; Schubert, 2020), however, its mix of functions, quest for sustainability, and celebration of the proximity of this new part of the city to the working port also portray a different picture of what future urban waterfronts might look like. In Rotterdam, the development of the Makers District—referring to the Merwe Vierhaven and Rotterdamsche Droogdok Maatschappij areas—can be seen as a production-oriented waterfront redevelopment strategy, as opposed to the largely consumption-oriented strategies underpinning many of the cases cited in this article, that aims at bringing a range of productive activities back into the heart of the city. The redevelopment of the Merwe Vierhaven area sees a combination of manufacturing and creative functions that will coexist with other urban uses including housing, whilst the Rotterdamsche Droogdok Maatschappij campus (Figure 5) is a beacon of technological innovation, specifically in port-related activities, with both schemes effectively connecting to local maritime and water-related heritage assets and values (Jansen et al., 2021).



Figure 5. Rotterdamsche Droogdok Maatschappij campus in Rotterdam.

4. Where Are We Going? A Forward Look at Waterfront Redevelopment in the 21st Century

This article has proposed an updated typology of approaches to waterfront redevelopment, looking in particular at experiences in the last 25 years. It has shown how schemes identified here with the proposed terms “late neoliberal” or “holistic” have emerged, signalling not merely an evolution of existing approaches but the emergence of new ones. It is argued that such new approaches are set to become widespread in the immediate future. On the one hand, late neoliberal waterfront redevelopment schemes are expected to become more frequent, signalling a spatial manifestation of the growing power and mobility of global capital, and the greater pressure that powerful global players are able to exert locally. In an increasingly interconnected and uncertain economy, investment in real estate development is arguably likely to become more prominent as a “safer” option. On the other hand, holistic approaches to waterfront redevelopment are

also expected to become more widespread as a means to address climate change adaptation in coastal or riverside port cities (through coastal defence and water management infrastructure, mitigation of urban heat island effects, and carbon sequestration), and to pursue sustainable development more broadly in areas such as liveability, wellbeing, cultural opportunities, and inclusion. However, late neoliberal and holistic approaches display opposite strategies as regards their planning and the model of port-city relationships they promote, in a context of rapid economic and societal change, as well as of changing ties between ports and cities.

As noted in the mid-2000s by Sairinen and Kumpulainen (2006, p. 122), waterfront redevelopment “needs to be planned more cautiously” than in the past. Arguably, their interpretation is even more valid in today’s uncertain and crisis-prone world. Today, waterfront redevelopment strategies seem to be more dependent for their success on engaging with local meanings (Tommarchi & Jonas, 2024), which appeared to be less central to the—at least perceived—success of past practices (e.g., tertiary-led schemes in the 1980s). Positive forms of re-maritimisation where cities are reconnected with the sea and their port city culture (such as in the case of Genoa), the restoration and rediscovery of local history and heritage, greater accessibility, and better quality of urban spaces are more likely to be voiced as needs and expectations amongst port city dwellers. This becomes pivotal when considering the standardisation of urban environments (Stevens & Dovey, 2004) and the heightened socio-spatial inequalities and symbolic separation between the waterfront and the city (Porfyriou & Sepe, 2017) fostered by many of the previous examples mentioned. As a result, late neoliberal approaches are likely to generate more opposition and, ultimately, conflict, which may lead to the failure of these schemes. Studies exploring the politics behind regeneration show how the coalitions that develop around such schemes can deploy several tactics to build acceptance or stifle opposition (e.g., Kallin & Slater, 2014; MacLeod, 2011; Tarazona Vento, 2017). Further research is needed to explore this tension, for example in terms of changing governance processes behind waterfront redevelopment, growing socio-economic and spatial inequalities exacerbated by such practices, and the rise of forms of authoritarian capitalism.

On the other hand, changing port-city relationships are questioning the established “port out, city in” rationale behind waterfront redevelopment practices in the 20th century (Wiegmans & Louw, 2011), as well as the very nature of future urban waterfronts. Waterfront redevelopment has often been about replacing port/industrial functions with tertiary functions or spaces for consumption. We are witnessing a renewed interest from certain port-related or industrial activities (e.g., in the areas of logistics, renewable energy, recycling, and green manufacturing) to locate on urban waterfronts, which is welcome by port city governments as a means to pursue economic revitalisation and create jobs locally. More “holistic” approaches to the design of the 20th-century waterfront city (e.g., HafenCity and Makers District, and in particular where port-related activities are re-introduced) seem to address the current need for more economically and socially sustainable waterfronts that do not rely solely on consumption patterns and therefore are more resilient to abrupt economic fluctuations. Port land ownership regimes are arguably becoming even more relevant in a context of increasing deterritorialisation of ports (Daamen & Vries, 2013; Tommarchi, 2022) and a growing community of actors on the waterfront that are involved in global investment in real estate. Further research is needed to explore this growing governance complexity and the risks that physical fragmentation arising from complex ownership regimes undermines the efforts of planning new urban waterfronts at a more sustainable, fine-grained scale.

Holistic schemes such as the Porto Vivo (meaning “living port”) initiative in Trieste are emerging as bold initiatives to promote sustainable ideas and practices. Porto Vivo aims to transform a large section of the

historic harbour into a new urban waterfront area hosting hi-tech and creative industries, a sustainable transport network, and a large green area. Although large parks and areas at the port-city interface playing important ecological functions have been part of port-city planning agreements in the last decade (e.g., Valencia's Parque de Desembocadura), this approach seems to be fundamentally different from the strategies guiding the (internationally acclaimed successful) redevelopment of similar historic harbours in the past decades (e.g., Genoa and Barcelona). Research is needed to explore the implications of such a change in the fundamental ideas of what urban waterfronts are and can become. The shift is from a widespread notion of redeveloped waterfronts as inherently connected to leisure, to an understanding of waterfronts as dynamic parts of a port city where port and compatible industrial activities blend with creative businesses, affordable housing, and green infrastructure. Can this become a model for more sustainable urban waterfronts across port cities?

Finally, fundamental questions for future research on waterfront redevelopment are raised by the upcoming transition of ports to a post-oil economy (Hein, 2018), and the consequent profound restructuring of ports worldwide (Daamen & Vries, 2013). This is especially the case of the feasibility—and possibly the desirability—of the reuse and transformation of a range of urban port areas, both in terms of resources but also of planning concepts and sustainability concerns. Ultimately, as suggested by Dovey (2005) in relation to 20th-century schemes, the redevelopment of urban waterfronts will continue to be a major opportunity for experimenting with new concepts and practices of urban design, planning and governance.

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Conflict of Interests

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