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GLOBAL CONTAINER URBANISM AND SUSTAINABLE URBAN DEVELOPMENT

ABSTRACT The crisis of urbanization, marked by rising property values, a lack of affordable housing, and chronic homelessness in cities, has fueled experiments with sustainable alternatives such as shipping container architecture. Shipping container homes are more cost-effective, energy-efficient, ecologically sustainable, versatile, have a lower carbon footprint, and are more durable than conventional construction methods. This study uses semi-structured interviews with container modular firms in selected cities to demonstrate the potential and challenges of construction innovation and the diffusion of container architecture in urban space. The findings call into question the fetishization of environmental friendliness and the allure of rational, mass-produced container homes as a solution to the urban housing crisis. Instead, the study draws attention to the paradox of sustainability,

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competition, and opposition from the traditional real estate market, regulations, and planning permitting systems, and the standardization-customization divergence of container urbanism.

KEYWORDS: container urbanism, cities, housing, modularity, sustainability

INTRODUCTION

> Containers dominate. They abound. (Martin 2016: 16)

while shipping containers are the most dominant forms of global intermodality, these metal boxes have significantly evolved to serve other uses in urban design and sustainability (Abrasheva *et al*. 2012; Abrasheva *et al*. 2013; Kucukvar *et al*. 2021; Islam *et al*. 2016). Crucially, repurposed shipping containers for temporary and permanent structures have increased exponentially in recent years (Bertolini and Guardigli 2020; Shuttleworth *et al*. 2022; da Costa *et al*. 2023; Ehwi *et al*. 2023; Dziwornu 2024). A thriving industry and movement have emerged as a direct result of the global housing and climate change crisis to offer container modular home solutions (Shen *et al*. 2019). For instance, the global container homes market is expected to grow from $44,768.6 million in 2017 to $73,070.5 million by 2025 (Allied Market Research 2019). This study aims to answer a key question raised by Parker (2013: 373) about container urbanism: What is it about the container that is so important? To understand the significance of the container, this study examines the perspectives of container modular firms, that design and build container dwellings. Understanding the perspectives of people who buy and live in container dwellings is undoubtedly crucial for gaining a comprehensive understanding of the significance of the container in the context of sustainable urban development. As the end-users and direct beneficiaries of container urbanism, their experiences, preferences, and insights into the lived realities of residing in container homes are invaluable. However, it is equally important to recognize the unique and specialized knowledge that container modular firms possess, as they are the driving force behind the design, construction, and implementation of container dwellings. These firms have a deep understanding of the technical, logistical, and architectural aspects of transforming shipping containers into functional and sustainable living spaces.

The study also draws on Klose's (2015: 292) question: What is a house? What is needed to transform a simple container into a home? And what becomes of the category "home" with such logistical container dwellings? The traditional construction industry, which produces

real estate and housing, is not compatible with urban development (MBI 2019). To address these challenges and promote more inclusive, safe, resilient, and sustainable urban development, innovative solutions like container urbanism have emerged as a promising alternative (Boyle 2016). This study explores the benefits and challenges of using containers as sustainable alternatives to conventional buildings in cities.

Traditional construction methods are unsustainable and wasteful (MBI 2019). They produce millions of tons of demolition materials every year in the U.S. and the EU (MBI 2019). Eco-friendly buildings are designed to minimize their impact on the environment through sustainable materials, energy efficiency, and waste reduction (Koengkan *et al*. 2023). Container urbanism achieves eco-friendly credentials through several means. Firstly, the reuse of existing shipping containers reduces waste and the demand for new building materials, thereby minimizing the environmental impacts associated with material extraction, processing, and transportation (Schwarzer 2013; Islam *et al*. 2016). Additionally, container homes can be designed to be energy-efficient, incorporating features such as insulation, natural ventilation, and renewable energy systems (Ginelli *et al*. 2020). This approach not only reduces energy consumption but also decreases greenhouse gas emissions.

The flexibility of container homes lies in their modular design, which allows for easy customization and adaptation to various contexts (Zhu 2017; Shen *et al*. 2019). Container homes can be designed to accommodate different spatial needs, from small studios to large family dwellings, and can be easily relocated or reconfigured as needed (Schwarzer 2013). This adaptability makes container urbanism an attractive option for urban areas where space is limited and flexibility is essential.

The principles of sustainable architecture, as outlined by Allen (2005), aim to reduce the environmental impact of buildings through sustainable design, materials, and operations. Container urbanism aligns with these principles by promoting material reuse, reducing waste, and incorporating energy-efficient design elements. Furthermore, container homes can be designed to incorporate green roofs, rainwater harvesting systems, and other sustainable features that minimize their environmental footprint (Taleb *et al*. 2019).

CONCEPTUALIZING THE CONTAINER HOME MARKET

But there were many modern technologies—less dramatic than the railroad, more personal than a cofferdam—that, in their seemingly mundane insignificance, passed relatively unnoticed by the public or un-regulated by the state, their presence only marginally attested to in newspapers and photographs, or the incidental, background material to novels and short stories (Arnold 2013: 11).

Arnold (2013) explores how everyday technologies disrupt urban life worldwide. Martin (2016: 4) observed that containers are everywhere but often ignored. This study examines how containers shape urban space through the lens of Schumpeter's theory of capitalist evolution. According to Madanipour (2017: 41), this theory involves innovation, competition, and destruction. Schumpeter (2003) also showed how free market innovation creates new methods, markets, and forms of production- such as the containerization of urban space. Martin (2016: 3) analyzed Cove Park, a series of studio spaces made from shipping containers on Scotland's west coast. Martin (2016) highlighted their low cost, design, and suitability for human use. He called them 'amphibious objects' to highlight their versatility in different environments.

In 2019, Richard J. Williams, a visual culture professor, criticized the spread of container architecture in cities in a New York Times article. For skeptics such as Williams:

These container environments inadvertently perpetuate a sense of a Darwinian world in which only the tough survive. That brutality can be fun if it's about creating a landscape for weekend partying; at Amsterdam's shipyard, you can live out your "Mad Max" fantasies for 24 h before heading back to the suburbs..... But the harsh landscape of the shipping container is a terrible shorthand for modernity..... And it's that the shipping container suggests a world in which everything is contingent and temporary, and humans are doing little more than camping. That's not the way to produce good offices, housing, or cities. (Williams 2019)

Williams questions the idealized or dystopian views of container urbanism as a disruptive innovation. For example, container architecture projects like *Container City I and II* have turned containers into decorative elements rather than symbols of urban challenges.

The 2019 report titled "Bleak Houses: Tackling the Crisis of Family Homelessness in England" by the Children's Commissioner for England presents alarming statistics that substantiate Williams's critique of container urbanism's impact on homeless children. According to the report, at the end of 2018, there were 124,000 children living in temporary accommodation in England, representing an 80% increase since 2010. This staggering figure underscores the tremendous rise in the number of homeless children growing up in unstable and often substandard housing conditions, including repurposed shipping containers.

The report showed that children living in shipping containers had more antisocial behavior. One child who lived there for three years said: "I don't like it here" (Children's Commissioner for England 2019: 12). The report also said that shipping containers were cheaper and more popular than other temporary housing options for councils in England (Children's Commissioner for England 2019).

Despite the opposition and challenges of container urbanism, entrant firms, DIY urban movements, and green building advocates are increasingly embracing this alternative urban process. The container housing market is projected to grow by 6.5% from 2018 to 2025, especially in the Asia-Pacific region (Allied Market Research 2019). Pop-up retailing using shipping containers is also a global trend among businesses of different sizes (Madanipour 2017: 2). Thus, some firms and individuals who are dissatisfied with the current urban space production system are adopting the standardized and mass-customized approach to housing production inspired by Le Corbusier, Walter Gropius, and Hermann Muthesius (Corbusier 1981, 2013; Birch 2011; Klose 2015).

Modular homes which are prefabricated buildings composed of modular units manufactured offsite (Fischer *et al*. 2022), disrupting the traditional housing market by organizing fairs and workshops worldwide. For example, the 9th China Prefab House, Modular Building, Mobile House & Space Fair in China (PMMHF) showcased the benefits of container homes, such as cost, efficiency, and environmental protection. Research has shown that upcycling shipping containers as building components can significantly reduce environmental impacts, such as greenhouse gas emissions and waste generation (Abrasheva *et al*. 2012, 2013; Bertolini and Guardigli 2020; Ling and Tan 2020; Satola *et al*. 2020). Specifically, shipping containers result in a reduction between 20 and 25 tons of CO2 equivalent emissions, in comparison to the use of steel frames (Bertolini and Guardigli 2020). The 4th Container Traders & Innovators Association (CTIA) in London in 2018 discussed the opportunities and challenges of container housing, such as urban regeneration, homelessness, conversion criteria, and public acceptability. Container conversions offer a niche market for temporary accommodation in the UK (CTIA 2018).

Container urbanism has enabled DIY movements to co-create urban space through small-scale interventions by ordinary citizens (Talen 2015). One example is the Spontaneous Interventions exhibition at the 13th International Venice Architecture Biennale, which showcased 124 projects that used unconventional strategies to foster accessible, inclusive, and sustainable cities (Ho 2013). Among them was the Periscope Project, a co-created space made of four shipping containers in San Diego, California, that served as a platform for networking, cultural exchange, and activism. The project exploited temporary-use zoning loopholes to promote a new paradigm of urban citizenry engaged with the built environment (Ho 2013). Another example is the Camiones, Contenedores, Colectivos initiative by Recetas Urbanas, which also involves container-based co-creation of urban space (Volont 2019). Using 12 empty containers, Recetas Urbanas, the City Council of Zaragoza, and various groups and communities created spaces for

social services, housing, and DIY projects. Benfield (2011) saw this as an example of tactical urbanism: a low-cost, low-tech, temporary, and informal way of transforming public spaces.

MATERIALS AND METHODS

A purposive sampling approach was employed in this study to capture a diverse range of perspectives and experiences within the container conversion industry. The companies were selected from two associations: the Modular Building Institute (MBI) and the Container Traders and Innovators Association (CTIA). The MBI is an international nonprofit organization with a vast network of member companies ranging from dealers and contractors, manufacturers, owners and developers, and associates. CTIA, on the other hand, represents the interest of container traders and conversion specialists (CTIA 2019). The decision to select companies from the Modular Building Institute (MBI) and the Container Traders and Innovators Association (CTIA) was based on the recognition that these organizations represent key players and industry leaders in the field of modular and container-based construction. The study considered a robust pool of potential participants representing a wide spectrum of scales, approaches, and geographical locations in the container modular construction sector in selecting eight companies from the broader pool of MBI and CTIA members (Table 1). The study contacted the companies through their emails on the MBI and CTIA websites and asked them about their container modular projects. This direct engagement ensured the companies' suitability and willingness to participate in the study, ensuring a well-informed and cooperative sample. The interviews were conducted in English and then transcribed and coded. The fieldwork lasted from September 2018 to March 2019. Regarding the analytic approach, the study employed qualitative data analysis techniques to analyze the interview transcripts. Specifically, a thematic coding process was used to identify recurring themes, patterns, and insights related to the benefits, challenges, and industry perspectives on container conversions. This systematic analysis allowed for a deep understanding of the key issues and experiences within the industry, as expressed by the business leaders themselves.

FINDINGS

The interviews with container construction firms revealed several key trends related to the housing crisis, container urbanism, and the firms' business strategies. Many respondents highlighted the severe housing shortages and unaffordability in their local markets. For instance, the Sales Manager of Container Conversions in South Africa described a "very wide gap between those living in poverty and those with a high earning rate," with most citizens unable to own property (CG 17/09/2018). Similarly, the Marketing Manager of QED Sustainable Urban Developments in the UK noted that the country is "suffering

Table 1. Characteristics of the container prefabrication firms.

Name of Firm	City/Country	Business Model	Services	Number of Years in the Market	Container Units Built as of 2018	Major Clients
Container Conversions (Pty) Ltd	Pretoria/South Africa	To be the preferred supplier of temporary facilities in Southern Africa	Rental and sale of converted containers, Park homes, and Flatpacks – Offices, ablutions, stores, accommodation, kitchens, libraries, classrooms, etc	35	3500	Builders
QED Sustainable Urban Developments	Brighton/United Kingdom	QED's vision is one of a mobile, diverse and sustainable built- environment. We are delivering this by bringing brownfield land back into productive use; with our buildings routinely constructed from a kit of reusable parts.	Property Development and Mixed-use	5	285	The Government

(*Continued*)

Table 1. Continued

Name of Firm	City/Country	Business Model	Services	Number of Years in the Market	Container Units Built as of 2018	Major Clients
Sea Box, Inc.	Philadelphia, Pennsylvania/ United States	To be the premier modifier of ISO steel shipping containers in the world.	All forms of container modification	35	7000	Architects
Boxman Studios	Charlotte/United States	We create remarkable experiences.	Design, Develop, Deploy	10	200	Experimental Marketing, Food Service, Retail
Custom Container Living	Kansas City/ United States	To provide single and double container structures (homes, offices, bedrooms, cabins, etc.), pre-built and delivered to anyone within the continental U.S.	Building container structures.	4	50	Homeowners
Tempohousing Ghana Ltd.	Accra/Ghana	To solve housing needs with prefabricated modular containerised building systems	Turn-key design-build	2	30	Builders

Table 1. Continued

Name of Firm	City/Country	Business Model	Services	Number of Years in the Market	Container Units Built as of 2018	Major Clients
Truth Box, Inc.	Providence/ United States	Sustainable design and development for the same cost as conventional construction	Architectural services and real estate development	12	0	Architectural clients (fee for service), tenants (real estate development)
TAYNR	Sacramento/ United States	To provide a finished product that surpasses the client's expectations.	We manufacture homes out of Shipping containers & also steel framing. We build in a warehouse & deliver to the client	4	6	Homeowners, Contractors & Developers

Source: Field Survey, 2018/2019.

from a housing crisis" and consistently missing home-building targets (HS 17/09/2018). These responses illustrate the widespread nature of the housing crisis across different global contexts. In response to these challenges, the interviewed firms have embraced shipping container structures as a core business strategy. Respondents emphasized the flexibility, speed, and quality control benefits of modular container solutions. As the QED Marketing Manager explained, "Modular solutions offer the flexibility to meet immediate needs (quickly) and for the future… By using modular solutions, we can quickly activate a site and test viability" (HS 17/09/2018). This flexibility stems from the modular nature of container structures, which allows for easy transportation, reconfiguration, and adaptation to various site conditions and project requirements. The Principal of Truth Box Inc. in the US was also drawn to containers' aesthetic appeal and perceived cost savings compared to conventional materials, saying, "They are ready to go – they can be installed much faster than conventional construction" (PG 11/03/2019). These examples show how container construction is seen as an innovative solution to urban housing issues.

Quality control was also cited as a benefit. With container construction, much of the fabrication and assembly takes place in a controlled factory environment, resulting in higher quality standards and fewer on-site variables that could impact construction quality. The Business Development Director of Tempohousing Ghana Ltd. emphasized this advantage (FJ 14/01/2019).

The firms generally positioned themselves as "modular construction disruptors" and were optimistic about the growth potential of container urbanism, especially in markets like South Africa. However, they acknowledged some challenges, such as the rising cost of shipping containers and competition with traditional construction methods. One respondent noted that "Container housing is not cheaper than regular building methods in South Africa," due to low raw material and labor costs (CG 17/09/2018).

In terms of target markets, the firms initially focused on millennials and middle-class urban residents but later expanded to a broader demographic. The owner of Custom Container Living found that their customers "span all age ranges and socio-economic classes" (LH 01/10/2018).

The interviews also highlighted the role of the Internet and social media in the resurgence of mail-order housing. Mail-order housing was popular in the early 1900s thanks to companies like Sears, Roebuck, and Company (Klose 2015). Firms relied heavily on online marketing to reach urban consumers, with strategies like "a sales team, our website & social media, and branding our rental units" (CG 17/09/2018). They emphasized value propositions around customization, speed, and portability. However, sustainability was not always a major selling point, as one respondent admitted: "Sustainability isn't a pivotal value proposition for our clients, although it tells a nice story" (EP 21/09/2018).

Innovative container projects like LOT-EK's Mobile Dwelling Unit and the Office of Mobile Design's portable homes demonstrate the disruptive potential of mail-order container housing in urban spaces The New York-based design studio aimed the MDU at global nomads who could travel with their own live/work equipment and belongings. The architects Ada Tolla and Giuseppe Lignano explained that the MDU could also be adapted for permanent residency and had basic amenities such as a kitchen, a bed, and a bathroom (Scoates 2003). The interviewed firms sought to stay competitive through strategies like cost savings, customization, and serving both consumers and large retail clients. However, local market conditions played a key role in shaping demand.

The findings reveal the dynamics of container urbanism as a response to the global housing crisis. While container construction offers benefits in terms of flexibility, speed, and cost, it also faces challenges related to affordability, perception, and competition with traditional building methods. The role of online marketing and the need to adapt to local contexts are also significant themes. As container urbanism continues to evolve, it will be important to monitor its impact on urban housing markets and resident experiences.

Despite the potential benefits, the findings reveal that local market conditions played a crucial role in shaping demand and strategies for container urbanism. As the Business Development Director of Tempohousing Ghana Ltd. noted, "Factory-built products are predictable in terms of time to deliver, quality, and imperative considering the inefficient and expensive nature of the real estate market in Accra" (FJ, 14/01/2019). To overcome these challenges, firms like Tempohousing sought financial support and government subsidies to facilitate the expansion of container urbanism in Ghanaian cities. Additionally, the firm planned to establish a local production facility in Accra to streamline the manufacturing and distribution of affordable container homes for low and middle-income households and businesses.

DISCUSSION

Shipping containers are versatile and durable structures that can reduce construction time, and cost and enhance urban development (Zafra *et al*. 2021; Shuttleworth *et al*. 2022). For instance, Shuttleworth *et al*. (2022) investigated fire resistance times offered by passive fire protection configurations for shipping container structures. Zafra *et al*. (2021) emphasized the structural performance of shipping containers when subjected to various loads, including gravity, earthquakes, and strong typhoons their modularity and strength for temporary or permanent housing in disaster-prone areas.

According to Boxman Studios, a US-based container prefabrication firm, shipping containers can cut construction timeframe by 30%–50% and offer mobility, branding, and tax benefits to developers. SG Blocks,

another leading container modular firm, also claims that containers can save 10%–20% on construction costs and increase the value of urban real estate by creating temporary and flexible spaces (Betram et al. 2019). Both firms have received certification from the International Code Council (ICC) for their container fabrication methods, which demonstrates the normalization of this innovation in the construction sector. The *Stack Newcastle*, a container park that opened in 2018, is an example of how containers can create opportunities for small businesses and revitalize urban areas (Douglas 2019). The *Stack Newcastle* is a container park that offers low-cost leases to independent bars, shops, and food outlets. It is part of a UK-wide trend of 'creative container communities' that appeal to millennials and revitalize empty urban spaces (Tighe 2018).

Data shows that many cities around the world are experiencing chronic housing crises due to unaffordable housing and gentrification (Hilber and Schöni 2022). For instance, South Africa is one of the most unequal countries in the world, with racial disparities in poverty and housing access (World Bank 2018). Despite public housing programs and subsidies, many people cannot afford decent housing in the Gauteng city-region, where they face high costs, limited mobility, and social segregation (OECD 2011). These inequalities create "ghettos" that isolate communities from employment opportunities and urban amenities (OECD 2011: 21). Moreover, the 2008 financial crisis increased the need for container architecture and other temporary housing options, especially in the US. Many people lost their homes due to subprime loans and foreclosures, creating more demand for modular units made of containers. Furthermore, to tackle the housing crisis and family homelessness, the Barcelona City Council (Spain) has built 12 temporary homes from shipping containers for evicted families (Blanchar 2019). These homes are called APROP (Provisional Proximity Accommodations) and can be placed on vacant lots without changing the urban landscape (Blanchar 2019). The Mayor of Barcelona said APROP is a fast, sustainable, and effective way to provide public housing for two to five years until permanent solutions are found (Blanchar 2019). The architects of APROP said the homes meet the highest sustainability standards. Similarly, Sheffield plans to build 600 container homes with social rent, which considers local income and housing cost, to address the UK's homelessness emergency (Davis 2019). Klose (2015: 286) argued that ordinary people did not care about grand architectural designs; they just wanted a home. This simple and practical view of housing explains the attraction of container urbanism. The firms interviewed for this study used this strategy to adapt to the urban market and saw benefits in terms of flexibility, speed, quality, and aesthetics.

The study finds that all the firms interviewed faced similar challenges, such as competition, high construction costs, regulation, and social inequalities. The firms also reported a shortage of labor skills

in insulation, metal cutting, chemical, and lead control. These findings are consistent with previous studies that have highlighted the barriers that hinder the widespread adoption of container urbanism (Forrest 2015; National Institute of Building Sciences 2018; Gaudoin 2019; Ling 2021).

The firms also align themselves with some of the arguments made by previous researchers on mail-order housing. For instance, Gaudoin (2019) showed how online images of creative container homes can inspire people to buy them. They said: "Now pre-fix your search with 'cool' for examples of 'container appropriation' and 'lateral living'. Picture after picture of metal residences stacked crazily on mountainsides; cantilevered precariously over water; nestled snugly into dunes and towering defiantly in desert landscapes, will send your imagination racing. Before you know it, you will be searching the web, your bank balance, and your backyard for somewhere to put one." The findings on container urbanism can be usefully examined through the lens of several key theories in economics, geography, and philosophy. Joseph Schumpeter's theory of creative destruction, David Harvey's concept of space-time compression, and Martin Heidegger's notion of planetary technology all offer valuable insights into the spread and implications of containerization. Schumpeter (1942) argued that the essence of capitalism is "creative destruction," a process where new innovations continually disrupt and replace old economic structures. This is evident in how container construction firms positioned themselves as "modular construction disruptors" challenging traditional building methods. As one respondent put it, "Container housing is not cheaper than regular building methods in South Africa," suggesting an ongoing competition between old and new (CG 17/09/2018). Schumpeter's theory helps explain the drive to innovate with containers as a means of securing a competitive advantage in a dynamic urban housing market. However, creative destruction also entails winners and losers. The findings hint at this with the acknowledgement that container housing is not always cheaper and that sustainability "tells a nice story" but is not always a "pivotal value proposition" (EP 21/09/2018). Schumpeter's framework is thus useful for understanding containerization as an evolving, contested process, but less helpful for grappling with its social and environmental implications. Harvey's (1989) idea of space-time compression refers to how capitalist innovations in transportation and communication technologies have radically shrunk spatial and temporal distances. This is highly relevant to containerization, which enables a global trade in modular housing units. The Marketing Manager at QED Sustainable Urban Developments highlighted how containers' "movability" allows firms to "quickly activate a site and test viability" (HS 17/09/2018), exemplifying a compression of the construction process. Online marketing also collapses the distance between firms and consumers. Space-time compression is a double-edged sword, however. It facilitates a more responsive, adaptable housing supply, but also engenders

new forms of instability and ephemerality, as in the "temporary or long-term options that can be relocated when necessary" (CG 17/09/2018). Harvey's theory highlights both the transformative potential and the unsettling flux of containerized urban space. Heidegger (1971) saw modern technology as a "planetary" phenomenon that reduces the world to a standing reserve of resources for human exploitation. Containerization embodies this in its repurposing of globally circulating shipping containers as modular housing stock. Heidegger's theory prompts us to question the sustainability of this "nice story," as one respondent put it (EP 21/09/2018), and to probe the ontological implications of dwelling in a world remade by containerization. While evocative, Heidegger's planetary perspective can feel totalizing and deterministic. The findings suggest a more dynamic story, with firms adapting containers to local needs and residents exerting agency in how they customize and inhabit these spaces.

The findings of the study also show that the firms recognize the benefits of customization to suit diverse needs and preferences. Consumer society and container urbanism have shifted from industrial standardization to artisanal customization, according to Schwarzer (2013). Brysch (2019: 333) explained that this preference was to "avoid a repetitive and impersonal building complex" in urban space. While shipping containers are inherently standardized units, the philosophy and practice of container urbanism embrace customization and adaptation as a means of transforming these uniform structures into unique and dynamic living environments. Through innovative design techniques and strategic modifications, container structures can achieve a remarkable level of individuality and character, effectively counteracting the potential for repetitiveness or impersonality. The integration of customized finishes, materials, and architectural elements can further enhance the distinctiveness and aesthetic appeal of container homes, reflecting the individual preferences and lifestyles of users.

CONCLUSION

The study explored the dynamics of global container urbanism as a response to the housing crisis and its potential as a sustainable solution for urban development. Through interviews with container construction firms, the study examined the perceived benefits, challenges, and diffusion mechanisms of this construction innovation. The findings revealed that firms have embraced shipping container structures as a core business strategy to address severe housing shortages and unaffordability in various urban markets. Respondents highlighted the flexibility, speed, and aesthetic appeal of modular container solutions. However, challenges such as the rising cost of containers, competition with traditional construction methods, and local market conditions were acknowledged. Online marketing and social media were identified as crucial drivers for the resurgence of mail-order

housing, enabling firms to reach urban consumers and promote value propositions like customization, speed, and portability.

The findings of the study contribute to the theoretical understanding of container urbanism through the lens of Schumpeter's creative destruction, Harvey's space-time compression, and Heidegger's notion of planetary technology. Schumpeter's theory shows the disruptive potential of container construction as a means of securing a competitive advantage in dynamic urban housing markets while Harvey's concept of space-time compression captures the impact of containerization on construction processes and the compression of spatial and temporal distances. Heidegger's perspective on the other hand prompts a critical reflection on the ontological implications of dwelling in a world remade by containerization and the sustainability narratives surrounding it. For instance, the study reveals that despite widespread "anxiety for environmental protection and sustainability" (Abrasheva *et al*. 2013), sustainability is not the main priority of the firms involved in container urbanism.

From a policy perspective, the study offers valuable insights for urban planners, policymakers, and construction firms. Container urbanism presents an innovative solution to address housing crises, promote sustainable construction practices, and revitalize urban spaces. Specifically, container homes can provide affordable and adaptable housing options while minimizing environmental impact. However, careful consideration must be given to local market conditions, regulatory frameworks, and the social and environmental implications of large-scale container urbanism.

While this study contributes to the understanding of global container urbanism, it is important to acknowledge its limitations. The research focused primarily on the perspectives of construction firms, and future studies could investigate the long-term sustainability and durability of container structures, as well as their integration into existing urban infrastructures.

In conclusion, the study highlights the potential of container urbanism as a sustainable and innovative solution to urban housing challenges. As cities grapple with increasing population densities, housing crises, and the need for sustainable development, container architecture offers a unique opportunity to reimagine urban spaces and address pressing social and environmental concerns.

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