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Author (s):	Antonio Luque Aranda
Affiliation (s)	University of Malaga, Málaga, Spain
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Shibuya Station as a Megastructure: Lessons for Future Urban Mobility

Antonio Luque Aranda*

University of Malaga, Spain

Abstract

Shibuya Station is regarded as a highly complicated transportation space in modern day Tokyo. The complication stems from overlaying railway networks, underground networks, commercial projects, as well as highly-dense urban environment. Therefore, the current study aimed to analyze Shibuya Station in terms of megastructural assemblage, wherein the spatial arrangement of the station has undergone phases of growth and restructuring. The station was analyzed by performing a qualitative architectural reading of its infrastructural layering, integration of functions, and its connection with the environment in the city. Instead of suggesting a prescriptive model, the research established repetitive space conditions including incremental expansion, compromising of activities, and long-term adaptability, defining big metropolis mobility centers. The study situated Shibuya Station, in the context of the current discussions on the urban movement and large-scale infrastructures, to assume an important part in the critical comprehension of how large transport nodes are formed by dense urban landscapes.

***Keywords*:** compact city, megastructure, sustainable mobility, transportation hub, urban density, urban regeneration

Introduction

Large railway stations have been transformed into multi-faceted urban systems, which combine movement, trade, and civic activities in high-density urban spaces. The infrastructures in global cities are becoming multi-layered nodes (Shah et al., 2023b) in which transport systems, retail, office, and civic programs overlap with each other. This alters morphology and everyday mobility patterns in the city.

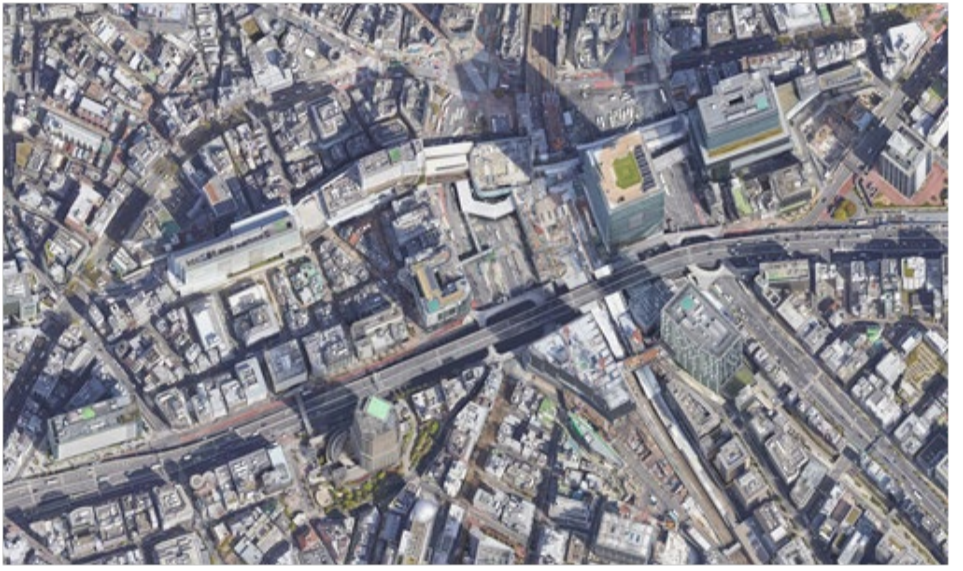
Over the past few decades, however, the idea of megastructure (Shah et al., 2023a), first developed in the 1960s, has been reconsidered in the

*Corresponding Author: anluacorreo@gmail.com

context of large-scale infrastructure to refer to structures and systems that can grow, change, and become programmably hybrid over time (Banham, 1976; Maki, 1964). Recent discussions of transit-oriented development, the concept of mobility hubs, and post-carbon urbanism have also highlighted the adaptability (Zainab et al., 2023), density, and infrastructural integration as the primary traits of sustainable metropolitan development (Bertolini & Spit, 2019; Newman & Kenworthy, 2015; Sheller, 2018). A considerable part of this literature is based on theoretical conceptualization or planned large-scale interventions. However, less has been addressed to infrastructures that have been developed over time through incremental layers of redevelopment.

Figure 1

Satellite Image of Shibuya with the Station Highlighted



Note. Source: Google Earth.

Shibuya Station in Tokyo provides a particularly relevant case in this regard. The station was not conceived as a single, unified architectural project. Instead, it has evolved over more than a century through successive expansions, reconfigurations, and vertical additions. The involvement of multiple railway operators, along with various independent redevelopment efforts, has led to a layered form of growth. As a result, the station has become a complex assemblage shaped primarily by

infrastructural needs and commercial pressures, rather than by a coherent architectural or urban vision. The outcome is a congested and multi-tiered transport and business development built into one of the most densely-urbanized areas in the world.

The current study aimed to explore the claims that Shibuya Station can be viewed as a modern megastructural assemblage, formed by incremental development instead of the complete design.

Research Question

The current study aimed to address the following research question:1. To what extent does Shibuya Station meet the defining features of the megastructural theory, and how does the reinterpretation of this concept help to address the existing discussion on the large-scale mobility hubs and post-carbon urban futures?

The study sought to rebrand Shibuya as not merely an immense transport infrastructure but as a vibrant infrastructural system, the spatial stratification of which provides clues to the flexible capacity of metropolitan transport centers in the long term.

Transport nodes in the modern metropolitan areas have increasingly become more than infrastructural terminals. Massive rail terminals are becoming urban condensers of considerable magnitude where mobility, commerce, leisure, and public space overlap in dense vertical assemblage. This change is confronting traditional typological differences between architecture and infrastructure, which requires new theoretical tools that may be used to comprehend new hybrid spatial systems.

Despite the fact that the very notion of megastructure has mainly been employed in post-war avant-garde architecture, it provides a rather productive perspective with the help of which one could reconsider such modern-day formations. Although the original megastructural projects were usually speculative or half-realized, their focus on flexibility, infrastructural connectivity, and long-term development appeals to the contemporary discussion of resilient cities and high-density mobility centers. Returning to the megastructural theory under the influence of the current metropolitan circumstances can thus demonstrate its underlying applicability instead of its outdated irrelevance.

The setting of the Japanese metropolitan railways offers quite an interesting and an adequate location to such reinterpretation. The vertically integrated model of the private railway has long-standing historical erosion of the lines between the transport operation and the real estate development, and has formed the infrastructural-commercial hybrids that defy the worldview of Western planning. In this case, the Shibuya Station is not only a giant transport exchange point but a spatially stratified and an economically interconnected city area. Examining its configuration through explicitly defined analytical criteria allows for a structured reassessment of megastructural logic in contemporary urban practice.

Megastructural Theory Revisited

Megastructural theory emerged in the post-war period as a response to rapid urban growth and technological optimism. Architects and theorists, such as Fumihiko Maki, Reyner Banham, and members of Archigram envisioned large-scale structural frameworks, capable of accommodating dynamic urban life through modular expansion and infrastructural integration (Ali et al., 2024). Rather than conceiving architecture as a static object, megastructural proposals imagined cities as evolving systems composed of permanent infrastructural skeletons and replaceable programmatic components.

Even though they were conceptually influential, many megastructural projects did not get built or were built in small parts. Critics claimed that their size and technological aspiration were not linked to reality in the economic and social spheres. However, the contemporary conditions of the megacities (Zahra et al., 2025), with the infrastructural density, multimodality of movement, and mixed forms of buildings, have accidentally created the environment that reflects the logic of megastructures more closely than the projects themselves.

In this regard, going back to megastructural theory is not an act of nostalgia but a way of critically reading out the spatial formations that have been created by gradual and market-driven processes. The utopian projection to the empirical reinterpretation enables the shift of megastructure as an infrastructural state to be conceived not as a form of style but as a form of infrastructure. This rebranding applies especially in the high density Asian metropolitan settings, whereby the railway

networks and real estate development have traditionally been viewed as symbiotic systems.

Nonetheless, there was also a lot of criticism against megastructural discourse in the late twentieth century. Its focus on entire structures, said critics, threatened to create too technocratic a setting that is disconnected to social and human-sized concerns. The perceived failures of some of the large-scale infrastructural projects led to the fall of the megastructural enthusiasm in Western settings (Imai & Tokyo Institute of Technology Tsukamoto, 2002). Reconsidering the notion today demands a great deal of caution about delineating between speculative formalism and empirically-based infrastructural evolution.

Megastructure and Japanese Metabolism

Although the discourse of megastructure has frequently been introduced by Western architectural avant-garde, its echoes in post-war Japan are especially worth discussing. In reaction to the high pace of urbanization and lack of land, the Metabolist movement, typified by Kenzo Tange, Kisho Kurokawa, and Fumihiko Maki, redefined large-scale infrastructural thought. In contrast to the utopian vision of technology offered by Archigram (Sadler, 2005), Japanese Metabolism participated in the actual limitations of urban development, suggesting a framework which could be expanded through organic growth.

Though Shibuya Station was not thought of as a project in the Metabolism style, its spatial development captures some metabolic values. The idea of an infrastructural spine, that is unchangeable but can be changed by replacement or adjustable parts, is similar to the difference in collective form and compositional architecture introduced by Maki. The constant regeneration of business layers surrounding comparatively stable transportation frames incorporates an operational metabolism that forms part of economic cycles.

Furthermore, the urban form of Tokyo is based on the railway-oriented development, which is in contrast to the Western traditions of planning. Transport, for instance private railway corporations, always combined transport provision with real estate development, which led to the creation of nodal intensifications around stations (Calimente, 2012). This type of an institutional model creates urban agglomerations that are concentric

and vertical around infrastructural cores. This is the characteristic of Shibuya, which is a multi-layered organism. Furthermore, it is not just an architectural or infrastructural transformation, rather a hybrid one.

Methodology

The current study used a qualitative case study design to analyze Shibuya Station as a modern megastructural assembly. The qualitative design is suitable due to the objective of the research, which is not to quantify the performance indicators but to evaluate the spatial, infrastructural, and programmatic features according to the developed theoretical standards.

Research Design and Unit of Analysis

The study concentrated on Shibuya Station and the immediate redevelopment zone around it as the major unit of analysis. The time frame focused on the dramatic stages of change, between the end of the previous century and the latest redevelopment plans located between the years 2012 and 2023. Moreover, the redevelopment plans also included the incorporation of new railway lines, vertical extensions, and mixed-use towers that have direct links with the station facilities.

Analytical Framework

The framework was based on the classical theory of megastructure (Maki, 1964; Banham, 1976) and its recent reinterpretations in infrastructural urbanism and transit-oriented development (Bertolini & Spit, 2019; Salat & Ollivier, 2017). According to this literature, a set of operation criteria was established so as to determine whether Shibuya Station is a megastructural one.

These criteria included:

- High scale spatial footprint.
- Functional integration and programmatic hybridity.
- Vertical and horizontal infrastructural stratification.
- Framework and plugin logic.

- There are no systems of circulation that are hierarchical.
- The gradual and dynamic development with time.
- Combination of logistics and business systems.
- Long-term transformational ability.

These dimensions are not set definitions but analytical lenses, and a structured interpretation of the spatial organization and development of the station is possible.

Data Sources and Analysis Procedure

The research has a foundation of numerous sources of information:

- Railway operators and architectural design office publications of architectural plans and redevelopment documentation.
- The academic literature on megastructuralism, mobility hubs, and urban infrastructure.
- History of the stages of expansion of Shibuya Station.
- Spatial observation and documentation (on-site).

Secondary information on the movements of passengers, and transport integration, where possible.

The analysis was done in three phases. To begin with, the development of the station throughout history was mapped to define the moments of transformation. Secondly, the analysis of the spatial and programmatic structure was performed against the stipulated analytical parameters. Thirdly, the results were discussed in the framework of more general discussions of post-carbon city and metropolitan mobility.

Analytical Procedure

The analysis process was composed of the systematic assessment of the Shibuya Station in regard to the eight working criteria it had with the

megastructural theory. The study is based on a designed qualitative framework whereby the various criteria serve as analytical prisms as opposed to relying on a pure descriptive observation. In this way, a clear and repeatable evaluation of the achievement of the defining features of megastructural systems in the case study is possible.

The sources of primary data comprised documents that were publicly-available, such as planning documents, architectural drawings, transport authority publications, redevelopment reports, and academic literature. These literature sources were analyzed to recognize spatial arrangement, infrastructural superposition, logic of circulation, programmatic distribution, and redevelopment stages. Special emphasis was placed on the chronological development of the station in the context of determining incremental development and long-term change.

All the eight criteria were assessed separately in the results section. This direct correspondence of the methodological structure with the results of the analysis provides internal consistency and brings the research questions to the forefront. The approach is not aimed at the quantification of spatial performance measures rather at the conceptual matching of theoretical qualities and empirical states.

Although of a qualitative nature, the framework offers a comparative tool that can be used in other metropolitan transport nodes in future studies. The study contributes to current debates on large urban infrastructure by turning megastructural characteristics into clear and assessable concepts.

Results

In 1885, Shibuya Station was a small railway station, which served a then-outskirts area of Tokyo. In the twentieth century, the station was enlarged by the various railway operators (JR East, Tokyu Corporation, Keio Corporation, Tokyo Metro) as the station architecture was stretched out in response to the passenger demand and urbanization. As the expansions progressed, new platforms, underground lines, and commercial facilities were introduced, turning the location gradually into one of the most developed transport hubs in Japan.

Redevelopment was greatly spurred by the post-war economic boom.

The combination of the department stores and the retail complexes directly over and beside the railway stations started a form of development where the transport infrastructure served as the generator of the urban commercial value. In contrast to centrally-planned megastructures, the change at Shibuya Station was negotiated between various actors who were both private and public.

The latest redevelopment stage, which began in the early 2000s and is still continuing in the 2020s, was large-scale vertical reconfiguration, such as the relocation of Tokyu Toyoko Line underground and the building of high-rise towers including Shibuya Hikarie and Shibuya Scramble Square. These interventions were not substitutions of the station but re-layered them, making them more of a three-dimensional complexity, not interrupting operational continuity.

This overlaying of history is essential to comprehending Shibuya as not an intended megastructure but an infrastructural assemblage.

Figure 2

Satellite Image of Shibuya with the Station Highlighted

Note. Source: Google Earth. https://earth.google.com, 2010.

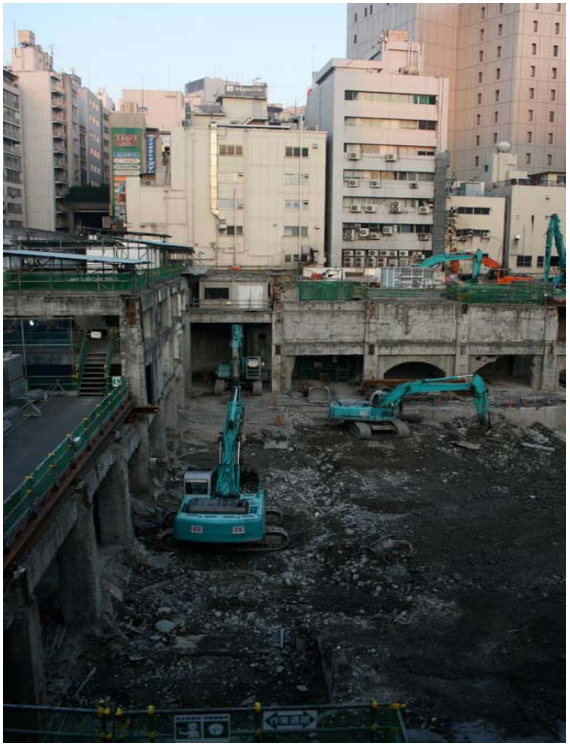
Large-scale Spatial Footprint

One of the defining characteristics of megastructural systems is their capacity to operate at an urban scale that exceeds conventional building dimensions. Shibuya Station extends over approximately half a kilometer in length and integrates multiple railway operators within a vertically-layered configuration. The spatial footprint includes above-ground platforms, underground lines, commercial concourses, and direct connections to adjacent mixed-use towers.

Excavating machines are digging deeper. For the expansion of Shibuya Station, several stories have been constructed below the ground. Even though land is scarce in Tokyo, there seems to be no limit to the size and complexity of Shibuya Station

Figure 3

Excavating Machines for the Expansion of Shibuya Station



Note. *Source: Antonio Luque.*

It is not just a quantitative scale but a relative one: the station creates an alternative urban concept which is in marked contrast to the smaller parcel structure of the urban Tokyo fabric. The complex is infrastructural, which brings it nearer to the system of territories rather than to the object of architecture.

In addition to the physical size, Shibuya Station accommodates around three million users every day of its various operators, making it one of the busiest transportation hubs in the world. This degree of movement every day strengthens the definition of this as an infrastructural system and not a traditional building. The space concentration of these flows on a small urban base results in an extraordinary spatial pressure, necessitating vertical stratifying and distributed circulation, as well as requiring distributed circulation systems.

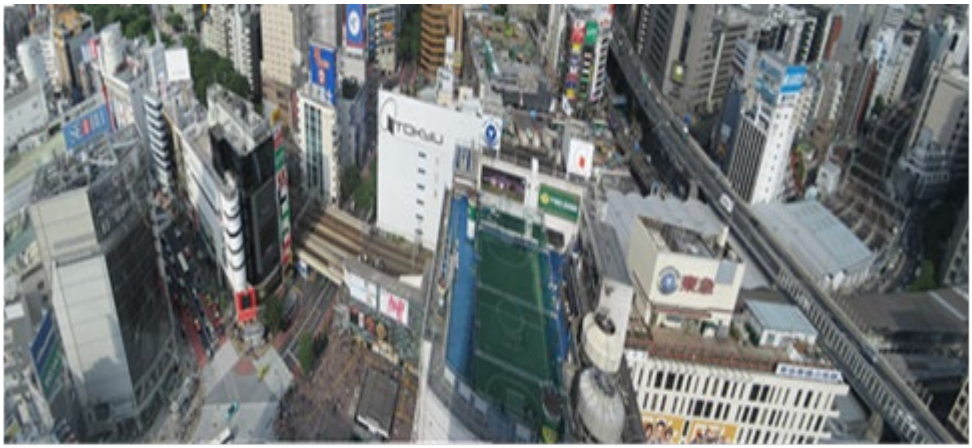
The correlation between the volume of passengers and spatial layering is essential. The horizontal expansion is limited by the density of surrounding urban areas hence, the growth of the station has been vertical and underground. This verticalization is more of a logistical than architectural nature, enabling the transport interchange, commercial activity, and pedestrian circulation to be handled simultaneously. The magnitude of transport and economic activity within the confines of the station only adds to the fact that the station can be considered a mega cluster of metropolitan magnitude.

Programmatic Hybridity and Functional Integration

The megastructural theory focuses on the incorporation of various programs into one structural unit. Shibuya is a city in which railway systems are distributed among retail complexes, office buildings, hotel facilities, and the space of pedestrian circulation.

It is also systemic, not additive: commercial revenue models are structurally-connected to the railway operations, which strengthens the relationship between mobility and urban economy. This hybridization conforms to the modern transit-oriented growth models but is overtaken by these models in vertical and infrastructural concentration.

Figure 4
Aereal Perspective of Shibuya



Note. Source: Antonio Luque

Vertical and Horizontal Infrastructural Layering

Shibuya has been designed as a vertical stratification as opposed to the traditional terminal stations that were built along a linear axis. The railway tracks cross at various levels and human foot traffic is spread in underground tunnels, elevated walkways, and middle concourses.

The multi-level structure forms three-dimensional mobility matrix instead of a hall-based hierarchical structure being centralized. The lack of single dominant axis favors the view of the station as a distributed infrastructural system.

Framework and Plug-in Logic

In line with the theoretical differentiation of permanent structure and replaceable units (Banham, 1976; Maki, 1964), Shibuya shows the stability of a core infrastructure that consists of platforms, structural systems, and circulatory shafts, and around them continually changing, flexible, commercial, and spatial elements are arranged.

The recent work of Shibuya Hikarie and Shibuya Scramble Square can be regarded as the extension of this structure, serving as large-scale plug-in elements linked to the station‘s structural and circulation systems.

Non-hierarchical Circulation Structure

Shibuya does not have one monumental entrance or space axis. It instead functions using several points of access and dispersed channels. The patterns of movement are decentralized, and spatial orientation is satisfied by a system of interconnecting pathways and not a well-established architectural hierarchy.

The circulation experience of space in Shibuya is incomparable to the linear typologies of stations that are typical in Europe. Movement can be seen on several vertical and horizontal axes at the same time, creating overlapping foot traffic pathways. This situation generates spatial dynamism and complexity of navigation which supports the interpretation of the station as a multistage infrastructural field and not a hierarchically-arranged architectural object.

This state facilitates a cluster-based spatial logic that is aligned with non-hierarchical megastructural models.

Incremental Growth and Long-term Adaptability

One of the major differences between theoretical megastructures and Shibuya is the way it was formed. Instead of being designed all at once, the station has been developed gradually in a span of more than a century. The system has changed over time with additions, relocations, and rebuilds to suit shifts in the technology, the demands of the operators, and pressures of redevelopment.

Such an accretural process implies that megastructural features cannot develop as part of utopian planning rather as a result of adjustment infrastructure over time.

Integration of Transport and Commercial Systems

The past development pattern used in Shibuya by the railway operators consists of a vertically-integrated model where transport infrastructure is economically and spatially connected to the retail and office development. In contrast to the traditional European airports where commercial spaces are secondary to the railway operations, the economic paradigm of Shibuya economically enslaves the mobility and commerce. Department stores, office towers, and retail complexes contribute to revenue that

supports the operation of the railway, and a systemic interdependence between the transport flows and the urban consumption patterns is reinforced. This is more than a mere programmatic mix and a sign of an infrastructural-economic merging that is typical of the current megastructural settings.

Capacity for Long-term Transformation

The redevelopment strategy of the station also indicates the ability to maintain a changing structure over time and not to experience an interruptive collapse of the system. Underground line insertions, platform relocations, and building vertically-integrated towers have been carried out without operational continuity. This reconfigurability of massive scale infrastructural rearrangement of an operational urban system suggests a longer adapting capacity in line with the logic of megastructures. Instead of a fixed design, Shibuya is a dynamic infrastructural system that is able to accommodate technological, economic, and even spatial transformation.

Discussion

Conceptual Clarification: The Megacluster

For the purpose of this study, the term megacluster is defined as a distributed, multi-operator, and vertically-layered infrastructural assemblage that integrates transport systems, commercial developments, and urban circulation within a continuously adaptable spatial framework. Unlike classical megastructures, which were typically conceived as unified master-planned frameworks, the megacluster emerges through incremental redevelopment processes driven by infrastructural necessity and economic interdependence. Its defining characteristics include infrastructural density, systemic integration of mobility and real estate, non-hierarchical circulation networks, and long-term transformative capacity without structural rupture.

This definition positions the megacluster not as a stylistic category but as an analytical tool for interpreting contemporary high-density mobility nodes, which resemble the rail-integrated communities observed in Tokyo and other Japanese city-regions (Sorensen & Okata, 2011).

Reinterpreting Megastructural Logic through Incremental Formation

The results indicate that Shibuya Station meets some of the key defining features that have traditionally been attributed to the megastructural theory but in a formulation that is quite different to what the ambitions of the 1960s had in mind. Classical megastructural projects discussed by Maki (1964) and Banham (1976) tended to be designed as complete structures that were planned in advance so as to allow grow later. Shibuya, in its turn, shows that megastructural attributes can be developed in the form of layered redevelopment, instead of master planning.

This is an important distinction. Unlike in the early megastructural designs which were based on observed structural grids and formal expression, the framework of Shibuya is infrastructural and functioning as opposed to geometrically overt. Its flexibility is not found in grand elevation of structure but in its ability to accommodate future infrastructural injections without a break in the continuity of the system. In this respect, Shibuya redefines the logic of megastructures in terms of the modern economic and technological circumstances.

This hybrid state is the reason that the concept of the so-called megacluster was developed in the current study. The megacluster is a multi-layered, multi-operator, and distributed assemblage that develops through accretive changes as opposed to the singular monumental megastructure envisioned in the discourses of modernism. This notion can provide a more realistic analytical listing of comprehending modern transporting environments on a large scale in congested metropolitan areas.

Comparative and Critical Perspective

In addition to the fact that it re-invents classical megastructural theory, the Shibuya case becomes all the more relevant in context of the larger international and contemporary mobility discourses. In the context of the existing research on transit-oriented development and mobility hubs (Bertolini & Spit, 2019; Salat & Ollivier, 2017), Shibuya is both consistent and superior to the existing models. The intensity of Shibuya surpasses the density, mixed-use integration, and proximity to transit characteristic of TOD frameworks. This puts the station in three-dimensional urbanization and makes it a three-dimensional urban system. Mobility infrastructure

and urban development are economically reliant, which is the concept of the Japanese model of private railway, described by the integration of the railway activity, retail, and commercial development.

Additionally, the modern discussion of post-carbon cities emphasizes the necessity to decrease automobile addiction and strengthen the transport infrastructure (Newman & Kenworthy, 2015; Sheller, 2018). The high-density structure and multimodal integration of Shibuya reflect how big transport hubs can be used as drivers of concentrated urban activity, potentially decreasing the use of personal vehicles. Nevertheless, the case also demonstrates some shortcomings: the spatial overcomplexity, the inability to orient, and the inability to see through may redefine user experience and accessibility.

Shibuya, in comparison with the large European terminal stations like the ones in Paris, Berlin, or London displays a radically different developmental logic. The historical development of European stations was based on the monumental gateway with the central halls and the facade presentation, and Shibuya is a networked system incorporated into a wide commercial net. Its identity is infrastructural as opposed to representational.

On the same note, the recent Asian transport stations, such as the Seoul station or Hong Kong central district, portray high rates of mobility and trade integration. Nevertheless, it is the level of vertical stratification and the lack of a specific master plan that make Shibuya unique. Its structure is the result of negotiated stratification and not centralized organization.

This comparative approach supports the thesis that megastructural features can be developed with the help of a variety of institutional models. Instead of making a parallel of megastructure with monumental scale, the example of Shibuya states that infrastructural density, systemic integration, and adaptive continuity are the determining features of megastructure in the modern urban settings.

Nevertheless, there are tensions regarding the megastructural condition. The spatial ambiguity is created by the very density and infrastructural overlaying, which provides the adaptability. The complexity of wayfinding, perceptual disorientation, and cross circulation streams may question the accessibility and inclusivity. In this regard,

megastructural settings can support systemic efficacy and disregard spatial legibility.

Moreover, the fact that transport and retail are economically-integrated, begs the question of commodification of the public space. Commercial revenue keeps the infrastructural investment alive. However, the predominance of the retail programs may restrict the existence of the non-commercial civic roles. The station turns out to be a place of consumption as well as mobility. These tensions are complementary to the megacluster interpretation but they refract it. They emphasize that future mobility hubs have to be adaptive and dense but at the same time, they should be spatially clear and socially accessible. Shibuya case, therefore, offers a resilience model of infrastructural entities as well as a warning of the experiential issues of extreme urban concentration.

Limitations

The study has a few limitations as much as it has contributed. The evaluation was largely qualitative and was based on secondary documentation as opposed to a spatial evaluation and user-based empirical study. Therefore, the conceptual correspondence between the Shibuya Station and megastructural standards can be determined. However, the research fails to reveal any quantitative measure in terms of spatial effectiveness, perceptions of the users, as well as economic quality (Sadler, 2005).

Moreover, the narrowness of the research on one case study restricts the extrapolation of results. Even though Shibuya is a sophisticated form of integration of metropolitan infrastructures, the construction of this structure is entrenched in the particular institutional and economic system of privately-owned rail companies of Japan. It would also be interesting to compare it with European, North American or other Asian transport hubs in order to reinforce the argument and better understand whether the proposed condition of a megacluster belongs to a wider typological category or is still specific to the context.

The proposed criteria can be tested by including the spatial mapping technologies, pedestrian flow modeling, and comparative multi-case appraisal in future studies. This kind of expansion would provide empirical support to the conceptual construct that is being promoted in this

study.

Instead of promoting a direct replica of the spatial structure of Shibuya, the case recommends the idea of adaptability, infrastructural layering, and economic integration to be the key principles in the future design of the mobility hub. At that, Shibuya offers empirical basis to redefine megastructural thinking in the current urban restraints.

Implications for Future Urban Mobility Design

The new meaning of Shibuya as a megacluster provides a lesson on how metropolitan mobility hubs can be planned in the future. Instead of seeking single monumental forms, future stations could be served more easily by flexible infrastructural structures, which can be expanded over time, and also overlaid with programs. The ability to connect transport infrastructure and commercial and civic programs can boost economic sustainability, as well as strengthen urban density (Cook, 2003).

Adaptability should, however, be paired over spatial strategies that enhance orientation, day light penetrations, and quality of the public realm. The megacluster model recommends that complexity is bound to arise in high-density nodes but it should be dealt with by establishing hierarchies of coherent circulation and legible spatial transitions (Gerkan, 1997).

Within the framework of climate transition, the concentration of mobility in dense multimodal nodes may help decrease the automobile dependency. However, massive stations can serve as anchors of small urban form, serving walkability and integration of public transport. Shibuya is the example of how infrastructural investment can trigger urban regeneration. However, it also demonstrates that it has to be carefully governed and coordinated by a number of actors.

It is possible that in future, metropolitan mobility would not rely on the individual architectural symbols but systemic structures with the ability to adapt over time. Megacluster framework is one of the possible lenses with the help of which such environments can be conceptualized.

Conclusion

This study adopted the Shibuya Station as a case study under the

analytical approach of the megastructural theory. The purpose was to evaluate whether the spatial and infrastructural structure of this station is aligned to the conventional features of large-scale architectural schemes. The results showed that Shibuya meets several operational traits of megastructural systems, such as magnitude, programmatic hybridity, infrastructural layering, non-hierarchical circulation, and long-range flexibility.

Nevertheless, as opposed to the totalizing and formally explicit megastructures of the discourse of the mid-twentieth century, the structure of Shibuya has been formed as a result of gradual change due to infrastructural, economic, and regulatory imperatives. It appears in its progression to indicate that megastructural characteristics may occur by building up redevelopment processes as opposed to design-intentions.

The megacluster concept developed in the study seeks to define this condition as a multi-layered, distributed, and economically integrated assemblage in which architecture and infrastructure function simultaneously. This redefinition adds to the recent discourses on the mobility hubs and post-carbon urbanism by emphasizing flexibility, systemic integration, as major features of resilient transport environments.

In addition to an architectural implication, the rebranding of Shibuya as a megacluster has a contribution to a wider methodological discussion in the field of urban research. The work shows how the historical architectural discourse can be applied to the modern infrastructural analysis by translating theoretical ideas into operational criteria. This method is an interdisciplinary one between theory of architecture, urban planning, and studies of transport.

Furthermore, the appreciation of transport hubs as changing infrastructure systems can shape the design strategies in the future in a situation of climate change and technological shift. With metropolitan areas facing the challenges of ensuring sustainable mobility systems, the large-scale nodes would be increasingly central in organizing the life in urban areas. Shibuya depicts the possibilities and spatial conflicts presented by such concentration.

Although the example of Shibuya is historically local and determined by the Japanese model of the private railway, it provides more

comprehensive information about the way in which large metropolitan stations can be used as transformable technological and programmatic systems that can absorb change into the situation. Future research can be conducted by utilizing comparative studies and quantitative spatial analysis to further investigate the relevance of the megastructural criteria in other transport hubs of the world.

Through the empirical prism of Shibuya Station, this study proved that the historical ideas of architecture can be reinstated in order to understand modern infrastructural urbanism in the circumstances of high density and climate change.

Author Contribution

Antonio Luque Aranda: sole author

Conflict of Interest

The authors of the manuscript have no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

Data Availability Statement

Data supporting the findings of this study will be made available by the corresponding author upon request.

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