

## INTEGRATION OF THEATER LANDSCAPES WITHIN URBAN PUBLIC SPACE SYSTEMS: STRATEGIC PRINCIPLES

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**Abstract:** *In contemporary urban planning and architectural practice, a rapid shift is being observed from the traditional “closed-box” typology of theater spaces toward open, socially active cultural hubs. This article is devoted to an in-depth analysis of the processes of integrating theater landscapes into the system of urban public spaces, as well as to the development of strategic principles for their organization.*

*The research methodology includes comparative analysis, a graph-analytical method based on spatial syntax, case studies of architectural objects, and functional-ergonomic design modeling approaches. International practices from 2018 to 2025, including experiences from Denmark, Saudi Arabia, and Uzbekistan, were comparatively analyzed from both empirical and theoretical perspectives.*

*Based on the obtained results, three principal models of interaction between the theater and its surrounding landscape were identified: emanative, isolation-based, and interference-based patterns. In addition, six strategic design principles for shaping open spaces around theaters were scientifically substantiated: scenographic landscape, event-based polyvalence, tactile ergonomics, visual permeability, ecological integration, and temporal adaptability.*

*The developed conceptual multi-layered landscape model serves to ensure a sustainable synergy between urban public activity and the cultural functions of the theater. The practical significance of the research lies in the fact that the proposed strategic principles and metric parameters can be directly applied as guidelines in the reconstruction of existing theater complexes and in the design of new ones within the urban fabric.*

**Keywords:** *Theatre landscape, city public spaces, spatial integration, interference model, grapho-analytical method, scenographic design, architectural environment.*

### INTRODUCTION

Historically, theater buildings have served a strong representational function and have often developed as autonomous architectural objects that maintained minimal, often symbolic, connections with their immediate landscape context. The classical European tradition of ancient Greek and Roman theaters, which were

organically integrated with the natural topography and landscape, completely changed direction by the 19th and 20th centuries. Under the influence of the Industrial Revolution and the strict rules of modernist architecture, theater buildings became completely isolated from their external environment, adopting the “closed box” or “black box” paradigm.

However, in the contemporary urban environment of the 21st century, theater spaces are compelled to move beyond their traditional status as “temples of art” and become an active, inseparable part of the urban fabric. This process, in turn, requires a complex interplay with the landscape, that is, an organic architectural dialogue with the surrounding environment. The rapid, multi-nodal development of city centers, coupled with the growing social demand for open public spaces, strongly necessitates a reevaluation of the traditional boundaries between theater architecture and landscape architecture. Today, at the international level, scholarly perspectives increasingly advocate that theaters and their surroundings should transform, in accordance with evolving social standards and expectations, into open public spaces of cultural significance.

The relevance of this study can be explained by three interrelated factors emerging in contemporary architectural and urban planning theory. First, fundamental conceptual changes are taking place in the functional model of the theater: it is transforming from an elite cultural institution serving only a specific segment of society into a multifunctional community center open for various forms of social engagement, informal education, and recreation.

Second, against the backdrop of rapid urbanization and global climate change, enhancing the attractiveness of urban public spaces and reshaping them based on principles of social, economic, and environmental sustainability has become an everyday necessity.

Third, the lack of clear, scientifically grounded strategic principles and methodological guidelines for integrating theater buildings into the urban landscape creates a number of practical urbanistic challenges. Although some international studies, including works by R. Skinner (2018), C. Mackie (2019), and D. Hamilton (2020), have examined certain architectural and typological aspects of theater spaces, systematic and comprehensive approaches from the perspective of landscape architecture have still not been sufficiently developed.

Moreover, the development strategy of Uzbekistan through 2030 emphasizes increasing urban green spaces, making cultural and artistic venues more accessible to the public, and creating inclusive public spaces for all social groups—underscoring the timeliness and significance of this research in the context of the country’s socio-economic development.

The aim of this research is to develop and scientifically substantiate innovative and strategic design principles that ensure the complex integration of

theater landscapes within contemporary urban public space systems. To achieve this main goal, a logical sequence of interrelated scientific tasks has been defined.

The first task involves a comparative analysis of the most successful international and local theater projects in recent years, particularly between 2018 and 2025, to identify case studies and determine the typology of spatial relationships between architecture and nature.

The second task focuses on a detailed evaluation of the visual, functional, and communicative interactions between theater buildings and their adjacent open spaces, using graph-analytic methods based on precise mathematical measurements.

The third task consists of modeling a practical system of design guidelines that ensures the ergonomic comfort, scenographic appeal, and ecological sustainability of theater landscapes, based on all theoretical and analytical data obtained.

The object of this research is theater spaces within multifunctional contemporary urban structures, encompassing not only the theater building itself but also all adjacent landscape areas that maintain direct functional and visual connections with it, including transit zones, theater promenades, and landscaped gardens. The subject of the research, in turn, consists of the principles of landscape architecture, socio-spatial strategies, and innovative design approaches that enable the seamless integration of monumental theater structures into complex urban environments and facilitate the creation of high-quality cultural public spaces.

The scientific novelty of this study lies in the fact that, for the first time, the methods of interaction between theater buildings and the urban landscape have been investigated using a complex, systemic approach and synchronized within a tripartite typological model of environmental relations: emanative, interference, and isolative models. Additionally, the space syntax theory and justified plan graph methodology-previously applied mainly to the study of enclosed rooms or complex urban street transit-were, for the first time, specifically adapted and applied to objectively measure the social permeability of open theater spaces. Furthermore, the principles of transferring scenographic ideas from enclosed stages to open-air natural environments and using each element of the landscape as a distinct architectural mediator have been scientifically and practically substantiated.

The practical significance of this research lies in the fact that its results and developed strategies can be widely applied in contemporary urban planning practice. In particular, these principles serve as a direct methodological foundation when designing the architecture of newly constructed cultural complexes in rapidly urbanizing cities of Uzbekistan, and when reconstructing existing theater buildings and surrounding areas-such as the spaces around the Alisher Navoi State Academic Grand Theater in Tashkent-according to modern standards. The

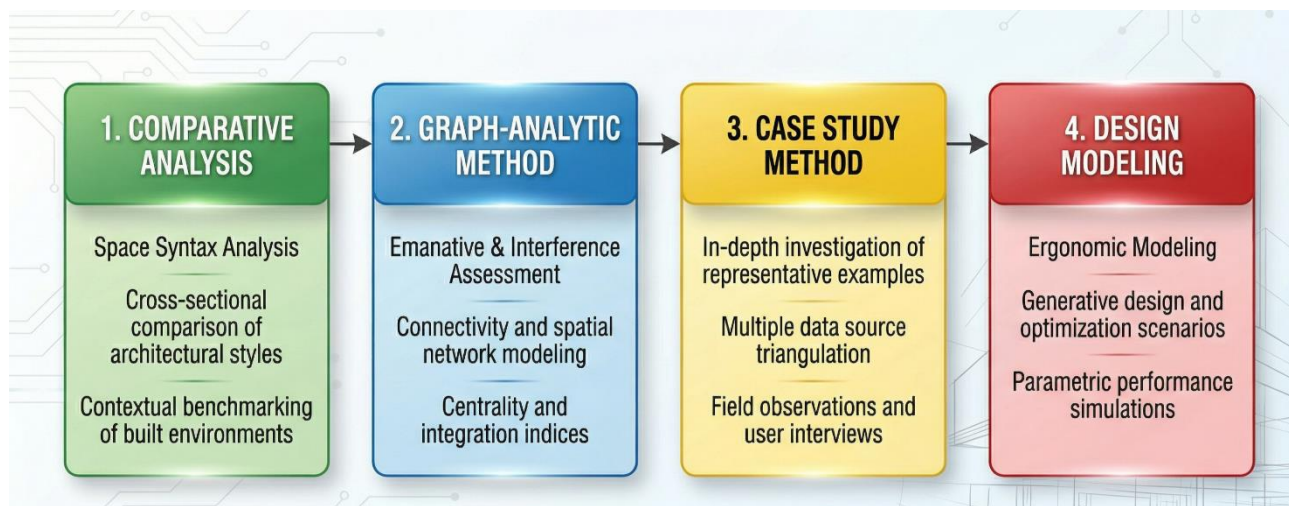
developed table of metric parameters and scenographic design principles functions as an invaluable methodological guide for urban architects, landscape designers, and municipal authorities in creating climate-adapted, well-organized spaces and inclusive environments that are equally accessible to all citizens.

## METHODS

To fully achieve the complex, multi-layered, and multifaceted objectives of this research, a comprehensive methodological system integrating interdisciplinary approaches was developed and applied in practice. The primary scientific focus was directed not only at the visual or superficial aesthetic aspects of the studied architectural object but also at revealing, in detail, its deep socio-spatial, anthropometric, ergonomic, and structural-functional principles. Therefore, the research methods were carefully formed based on the advanced theoretical and practical tools of related fields such as architectural composition, urban morphology, contemporary landscape design, and social geography.

The specially selected methods include comparative analysis, graph-analytic methods based on computer modeling, in-depth case studies, and scenographic project modeling. Each of these methods proved crucial for generating unique architectural knowledge.

To create the conceptual framework of the research, in the first stage a schema was developed that logically unified all selected approaches. This, in turn, clearly illustrated how the results of each stage influence subsequent stages.



**Figure 1.** "Integrated methodological approach: from analysis to modeling".

The comparative analysis method serves as the primary tool for creating the macroscopic overview of the research. Through this approach, eight leading theater complexes, designed, completed, or fundamentally reconstructed internationally

between 2018 and 2025, along with their surrounding environments, were studied in detail. The analysis compared projects in the United States, China, France, Spain, Poland, Canada, as well as Operaparken (Opera Park) in Copenhagen, the opera theater in Jeddah, Saudi Arabia, and the Alisher Navoi Grand Theater in Uzbekistan.

The main aim of this method was to compare how theater buildings relate to open public spaces across different climate regions, unique cultural values, and varying urban density conditions, and to identify the most sustainable and successful trends. Comparative criteria included the location scenario of the object within the urban fabric, the total area of open recreational and waiting zones, the degree of landscaping, the type of ecological coverings, and the logical distribution of pedestrian flows.

The grafo-analytic method was used to mathematically and geometrically model the invisible relationships between the building and the landscape that guide human movement. Within this complex method, the Justified Plan Graph (JPG) analytical approach, based on the Space Syntax theory developed in the United Kingdom, was applied in depth.

During implementation, convex maps of the analyzed theater areas were first created. These topological maps divide the space into visual zones based on sight lines, obstacles, and movement axes. In the next step, these zones were represented according to the strict rules of graph theory as central nodes and connecting edges. Each node represents an open or enclosed space with a specific social function, while an edge indicates a direct physical passage between them or, at minimum, visual accessibility.

For each open area, the Total Depth (TD), Mean Depth (MD), Relative Asymmetry (RA), as well as Beta and Gamma indices were calculated mathematically. TD represents the sum of all transition steps from a given space to the theater's main entrance or central square. The mean depth is calculated using the formula  $MD = TD / (K-1)$ , where K is the total number of nodes in the system. The Beta index ( $E/V$ , i.e., the number of edges divided by the number of nodes) indicates the degree of circulation within the network, while the Gamma index ( $E / (3(V-2))$ ) represents the density and cohesion of connectivity in the public space in absolute numerical terms.

This analytical method allows for empirically quantifying how accessible, cognitively legible, and open the pedestrian paths and landscape areas leading to the theater are.

The case-study method was chosen to conduct an in-depth investigation of the unique historical, geo-spatial, and functional conditions of practical landscape architecture. It is well known that in landscape architecture theory, the vast majority of practical knowledge is formed through written and visual documentation of long-

term projects, as well as architectural narratives. The case-study method, in particular, helps cognitively understand the singular "spirit" (genius loci) of a place and the identification of space.

In this research, taking into account Uzbekistan's national architectural traditions and climatic context, the site of the Alisher Navoi State Academic Grand Theater in the center of Tashkent was studied as the primary research case. The analysis examined all historical layers, including the architectural transformation of the fountain complex on the theater grounds, the history of surrounding green zones, the construction of the building by the renowned Soviet architect Aleksey Shchusev between 1940 and 1947, and the labor performed by Japanese prisoners of war in the final stage.

Furthermore, the symbolic impact of the six uniquely styled halls inside the building (Tashkent, Bukhara, Samarkand, Khiva, Fergana, and Termez) on the external landscape was analyzed, along with architectural and social transformations in the area from the mid-20th century to the present, particularly during the 2012–2015 major reconstruction.

The case-study method treats architectural works not merely as physical structures of concrete and brick, but as living cultural phenomena. Through observation (without intervention), it records how people use the public space before and after performances. In addition, conceptual elements of the VIKOR model, incorporating dimensions of Ownership, Management, Access, and User, were applied to evaluate the publicness of the open areas.

Design modeling represents the most important synthesis stage in the research methodology, directly aimed at improving existing conditions through architectural tools and visualizing future landscape concepts. Using this method, the integrative relationships and potential interventions between the theater building and the urban landscape were schematically illustrated, and the placement principles of open-air scenographic elements were tested in an advanced three-dimensional virtual environment.

During the design modeling process, special attention was given to the ergonomic parameters of the space for human use, such as the width of transit areas for pedestrians and inclusive mobility devices (e.g., wheelchairs), proportions of rest zones, and artificial lighting systems. As a result, the process laid the foundation for visual concept models in the form of a collection of strategic, ecological, and functional guidelines, ready for direct application by practicing architects and urban planners.

## RESULTS

The research results reliably demonstrate that the relationship between theater architecture and the urban landscape has evolved in contemporary urban environments from merely an aesthetic ornament to an independent, complex, and

functional living ecosystem. Based on the data obtained through the methodological processes, a number of previously unforeseen spatial, social, and architectural principles were discovered. Specifically, it was confirmed that the interaction of analyzed international and local architectural objects with their surrounding environment can generally be classified into three fundamental models.

The first group includes objects shaped according to the Emanative Model. In this architectural principle, the emotional and cultural atmosphere of the theater's interior space "spills out" or gradually radiates beyond the physical boundaries of the building into the open-air landscape. In such projects, the landscape is not merely an open area surrounding the building but functions as a logical and functional extension of the theater stage itself. Open amphitheatres integrated into theater grounds, foyers with displays visible to city residents, and scenographic sculptural elements directed outward facilitate daily public engagement with art in urban spaces. For example, the Transformer Theater in Dali, China, transforms an industrial area into an extensive landscape stage, serving as a vivid expression of the emanative model.

The second group is represented by the traditional Isolated Model. This spatial principle is more often observed in ancient and 19th-century monumental buildings. The areas surrounding the theater and green zones primarily serve as protective buffer zones, keeping the sacred cultural hub entirely separated from urban noise and disorder, and highlighting its prestige from a distance. The isolated approach is highly characteristic of classical ideals, emphasizing the elite status of the object. However, empirical observations indicate that, in today's cities, this model is functionally insufficient for meeting public needs for open space and continuous social interaction. Here, impassable walls or rigid boundaries exist between the landscape and the building.

The third and, from an urbanistic perspective, most promising principle is the Interference Model. The phenomenon of interference reflects an extremely active interaction between architectural structures and landscape elements, allowing them to deeply penetrate each other both physically and visually. As a result, entirely new, hybrid spatial qualities emerge that do not replicate the characteristics of either component. In this model, living nature and artificial architectural structures continuously complement one another.

For example, open terraces starting from the building's roof may extend into an urban street plaza, while the topography of an external garden may intersect the building's atrium and become part of the interior design. Based on these three typological principles, all major architectural and landscape parameters of theater sites were analyzed, and a special comparative table was developed.

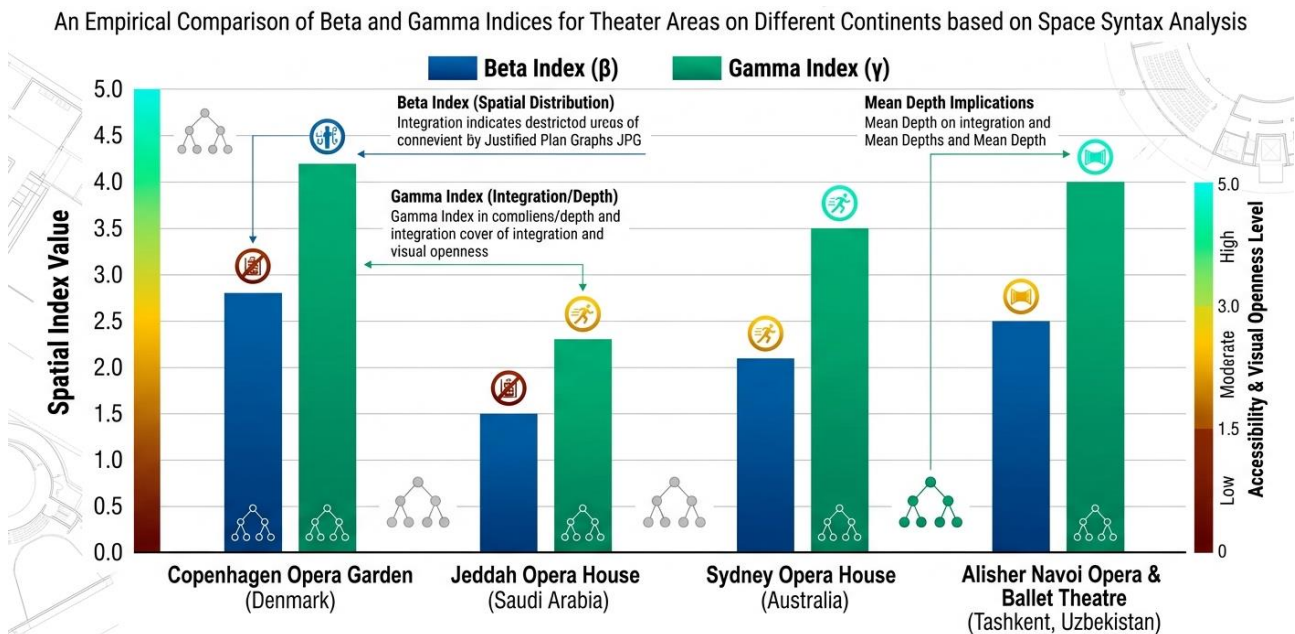
**Table 1.** Architectural Parameters of Theater-Landscape Interaction Models

Model Type	Spatial Boundary Type	Visual Transparency Level	Dominant Function	International & Local Case Examples
Emanative Model	Porous interface with blurred transitions; architectural energy flows outward into the landscape via open plazas.	High transparency; utilizes extensive glazing and "architectural penetration" to dissolve the wall between performer and nature.	Symbiosis & Expansion; aims to integrate the urban fabric, creating a seamless human experience through "soft" boundaries.	Int: Oslo Opera House (Norway) Loc: Renaissance Hall (Tashkent)
Isolation Model	Hermetic / Hard boundary; creates a distinct "buffer zone" to shield the internal performance from external chaos.	Low transparency; opaque facades and solid masses prioritize acoustic isolation and a controlled "black box" environment.	Concentration & Protection; focuses human attention strictly on the stage, treating the exterior as a separate, detached entity.	Int: Royal National Theatre (UK) Loc: Alisher Navoi Opera and Ballet Theatre
Interference Model	Layered/Overlapping; complex spatial intersections where the landscape and building collide and interlock.	Variable/Dynamic; fragmented views through architectural "voids" and multi-level platforms that disrupt linear sightlines.	Interaction & Tension; provokes active human engagement through unexpected spatial encounters and hybrid ecological zones.	Int: Seattle Central Library (USA) Loc: New Tashkent City Cultural Districts (Conceptual)

In the next stage of the research, results from the grapho-analytic analysis (space syntax) were used to transform the physical movement structures around theaters into measurable quantitative indicators. Specialized software was applied

to test the visual and pedestrian permeability of three different cultural sites, including the Navoiy Theater square in Tashkent and selected international examples. Mathematical calculations confirmed that the Mean Depth (MD) indicator is inversely proportional to public activity: as the number of obstacles, artificial walls, or stair steps that pedestrians must traverse to reach recreational and open spaces around the theater increases (particularly when MD exceeds 3.0 in convex mapping), the duration and intensity of public use of these areas sharply decrease.

Additionally, the degree of integration of each theater network was compared using the Beta and Gamma indices, which reflect the connectivity properties of the space. Theater squares with circular (Beta ≈ 1) or complex looped (Beta > 1) circulation paths were mathematically shown to support significantly greater opportunities for social interaction and longer dwell times than historical areas with only single-directional, linear transit paths (Beta < 1). A Gamma index approaching 1 indicates that the visual and physical connections around the space are extremely compact and open, allowing individuals to feel unconfined by barriers. These indicators were summarized comparatively in the following diagram.



**Diagramma 1.** Comparative Assessment of Spatial Connectivity via Justified Plan Graphs  
 Source: Authors' computation using Space Syntax methodology, contrasting integration levels and Mean Depth values across different continents.

In the synthesis stage of the research, modeling and comparative case studies led to the full development of six main strategic design principles for

planning future theater landscapes in contemporary urban environments. Their implementation was strongly recommended:

Firstly, scenographic Landscape principle. The open space surrounding the theater should function like a theater stage for everyday urban life, with artificial topography, complex lighting systems, and seasonal flora. This philosophical and practical idea aims to transform the movement of passersby into an integral part of the theater experience, creating unique visual intrigue at every step. As noted by renowned specialist L.A. Wilson, a deliberately designed scenographic landscape can exert a directly transformative effect on people's emotions.

Secondly, event polyvalence principle. The theater landscape must not become a "dead zone" used only for official performances or concerts. Instead, it should serve as a multifunctional, highly adaptable space throughout the year, accommodating a variety of socio-cultural events such as open-air exhibitions, street musicians' improvisations, literary readings, family picnics, and city festivals.

Thirdly, Tactile Ergonomics principle. All surfacing materials widely used in public spaces-such as paving stones (flat and natural), seating surfaces designed for long-term sitting, textures of pedestrian paths, and touchable edges of water features-should positively stimulate human haptic (sensory) perception. They must also be thermally comfortable, avoiding excessive cold in winter or heat in summer, and fully anthropometrically suitable for body biomechanics.

Fourthly, Visual Permeability principle. Traditional physical barriers between the building and its surroundings-solid walls, high staircases, and thick columns-should not obstruct people's line of sight into the theater interior. Expansive stained-glass windows and clearly visible open atriums from the outside create a psychological sense of attraction and openness.

Fifthly, Ecological Integration principle. Within theater complexes, urban green design methods should be widely applied, including the extensive use of flora resilient to local complex climatic conditions and the collection and filtration of rainwater for reuse in irrigation systems. For example, the Opera Park in Copenhagen, Denmark, is one of the world's most exemplary projects in this regard. Covering an area equivalent to three football fields, the park features a glass greenhouse at its center, where 223 species of unique and local plants interact ecologically with architectural structures. Surrounding trees shield visitors from strong winds coming from the sea, creating an ideal microclimate for people



**Figure 2.** Ecological Integration in Copenhagen Opera Park.

Sixthly, Temporal Adaptability principle. This principle reflects the capacity of the space to undergo visual and climatic transformations according to the seasons of the year and time of day. In the context of Uzbekistan, it particularly involves solutions such as specialized structures providing intensive shade during extremely hot summer months, cooling effects in the evening, and designs that do not obscure the landscape in winter.

Specifically, in the case of the Alisher Navoiy State Academic Grand Theater square in Tashkent, analyzed as a local case study, in-depth design conclusions were drawn. Although the original architectural gem, constructed between 1940 and 1947 based on Aleksey Shchusev's design, was founded on a classical isolated concept, the square's nearly seven-hectare area now shows a clear potential for partial transition to the aforementioned Interference Model. Features such as the interactive musical fountain and surrounding green buffer zones illustrate its capacity to evolve into a fully interactive public space.



**Figure 3.** Strategic Landscape Vision for Alisher Navoi Theater Plaza.

All the multifaceted design conclusions obtained convincingly confirm that, rather than enclosing a theater building within four solid walls, extending its aesthetic, intellectual, and emotional aura into the adjacent urban landscape represents the most appropriate and inclusive solution from a contemporary architectural perspective. When the principles identified in this scientific research are correctly integrated into practice, any cultural complex can transform from a simple performance venue into a powerful social attraction at the city scale, thereby providing a significant impetus for societal spirituality and regional development.

### **DISCUSSION**

The extensive results obtained and the theoretical interpretation of the newly discovered principles compel a complete rethinking of the mechanisms for activating social-spatial life in urban areas within contemporary architectural and urban planning discourse. It must be emphasized that theater architecture is no longer merely a narrow, utilitarian building designed to meet acoustic and stage-technical needs. Instead, it fully assumes the role of an “attractor”, generating continuous social interaction and vibrant city life among the wider public.

In line with the works of theorists such as Lewicka and Kozięń-Woźniak, the practical predominance of the Interference Model is increasingly evident, indicating the erosion of traditional rigid architectural boundaries. This positive development reflects spatial openness, whereby any city pedestrian can freely, without tickets, time restrictions, or special permissions, experience the aura of theater art through

skillfully designed open amphitheaters, landscape art, water features, and artistically crafted benches.

Our graph-analytic calculations scientifically support that theater squares with high Beta (circulation) and Gamma (connectivity) indices strongly attract individuals cognitively and psychologically. Furthermore, because these areas are socially monitored, incidents of crime or vandalism remain extremely low.

When the principles developed in this research were compared with the landscape strategies of the architectural firms OMA (Jussieu project) and SANAA (Rolex Learning Centre), as well as the analytical studies on the works of architect P. Eisenman conducted by Steenbergen and Rehning (2003), notable theoretical differences as well as commonalities became evident.

In contemporary foreign practice, particularly in Europe, the ecological functionality of theater landscapes has been elevated to the highest level of architectural design. For example, the “Opera Park” project in Denmark transforms the theater square into not merely a lawn, but a fully functioning filtration ecosystem that retains moisture for the entire urban area and channels rainwater into underground reservoirs. All pathways are surfaced with naturally permeable gravel, and the central area is surrounded by a dense forest of 628 trees, serving as a thermal living buffer that protects the institution from strong sea winds.

In contrast, the Middle East, with its entirely different climate, demonstrates a different high-level approach to interference modeling. In the theater project in Jeddah, Saudi Arabia (designed by Henning Larsen Architects), the integration of architecture and landscape implements mechanisms for adapting to extreme heat. Here, shaded walkways, the rhythmic repetition of multi-layered Mashrabiya elements along outdoor spaces, pathways ensuring continuous natural ventilation, and coral stone surfaces that reflect rather than absorb heat collectively provide comfort and climate resilience.

Organizing landscape architecture in the context of Uzbekistan requires, in turn, careful consideration of the unique Tashkent Modernism school and the invaluable historical heritage of local climatic traditions. In Uzbek national architecture, enclosed, cool inner courtyards that protect from heat and pools that balance humidity have always occupied a central role. From this perspective, the fountain in the Navoiy State Academic Grand Theater square, designed by A. Shchusev, which serves to neutralize the hot and dry summer climate, represents a contemporary and monumental urban expression of this historical function.

While foreign, particularly European, researchers often interpret landscape permeability narrowly as the freedom of pedestrians to move physically through space, in the hot climate of Central Asia, permeability carries a broader meaning: it is primarily about “safely moving from one microclimatically comfortable cool area to another.” Likewise, just as the massive platform of the Sydney Opera House

emphasizes monumentality to psychologically prepare visitors for the ocean view (according to Jørn Utzon, inspired by the flat Yucatán mountains and ancient Mexican temple steps), scenographic solutions in Central Asia are necessarily concentrated around water surfaces, tree shade, and proportionally moderate microclimatic zones, as demonstrated in this study.

At the same time, it is essential to acknowledge certain objective limitations and constraints of the current study to provide a balanced evaluation of its conclusions. First, our mathematical and analytical analyses primarily considered the macroscopic configuration of buildings and urban voids, including global spatial permeability and movement axes of convex spaces (Justified Plan Graphs). However, in reality, in densely built multi-story urban environments, subtle parameters such as the frequency dynamics of invisible radio-wave or complex acoustic interference models and their Signal-to-Interference-plus-Noise Ratio (SINR)-which could negatively affect open-air theatrical performances, especially via dynamic Doppler effects-were not measured with microscopic engineering precision.

Second, within the Keys-stadi analysis and VIKOR model framework, the scope of sociological surveys and interviews with respondents may be insufficient or spatially limited to fully capture the entire cognitive and emotional spectrum of landscape psychology. Although practical spatial syntax metrics physically confirm where people are most likely to walk, they do not empirically measure the artistic, nostalgic, or aesthetic experiences that individuals undergo while spending time in those spaces; such insights were partially inferred through theoretical scenographic interpretations and previous research.

Future in-depth practical studies would benefit from addressing these methodological gaps using psychophysiological tools (e.g., wearable biometric sensors) to create a stronger and more inclusive approach to landscape design and public space activation.

## CONCLUSION

As a result of an in-depth study of theater landscapes within the urban public space system, both from architectural and social perspectives, this complex and multifaceted scientific-design research made it possible to draw a number of significant conclusions that enrich the field of urban planning. First, in the rapidly urbanizing modern cities of the twenty-first century, the traditional practice of designing a theater building as an autonomous entity, with its surrounding areas merely covered in lawns or asphalt as separate zones, has become completely obsolete. Today, a theater and its surrounding landscape must be recognized and evaluated as a single living organism-the "interference model"-in which the built environment and open space are deeply interwoven, ecologically and aesthetically coherent, and responsive to continuous public social activity. Second, when a

scenographic design approach that evokes distinctive emotions is transferred from the enclosed theater to the open urban environment, a previously dull avenue or underutilized square not only gains visual appeal but is transformed into an event-rich (polyvalent), interactive cultural space that is open and accessible to all. Third, through complex computer-based grapho-analytic (spatial syntax) analyses, it was mathematically demonstrated that the absence of visual and physical barriers, openness at the base of the building, and coherent, uncluttered transit paths directly contribute to free social interaction among residents, enhance the economic viability of public cultural spaces, and support the sustainable development of the city's microeconomy.

From a practical recommendation standpoint, it is strongly advised that state urban planning committees, municipal authorities, and private architectural firms consider the design of theater landscapes not merely according to outdated greening standards or building codes (SNiP), but as an independently conceived public hub enriched with valuable interactive social functions. Such an approach treats the theater landscape as a fully realized, socially active urban space rather than a decorative afterthought.

In a sharply continental climate like Uzbekistan, it is essential to account for the hot summer months by incorporating tall, locally adapted shade trees (for example, plane trees or oaks) in the theater forecourt, as well as intelligent water features that disperse moisture and respond to prevailing wind directions, ensuring ergonomic comfort.

Furthermore, following the "Leave No One Behind" (LNOB) principle emphasized in the UN Sustainable Development Goals and Uzbekistan's Urbanization Strategy 2030 (SUS 2030), theater landscapes must be fully accessible for people with disabilities, the elderly, and parents with children in strollers, without any barriers.

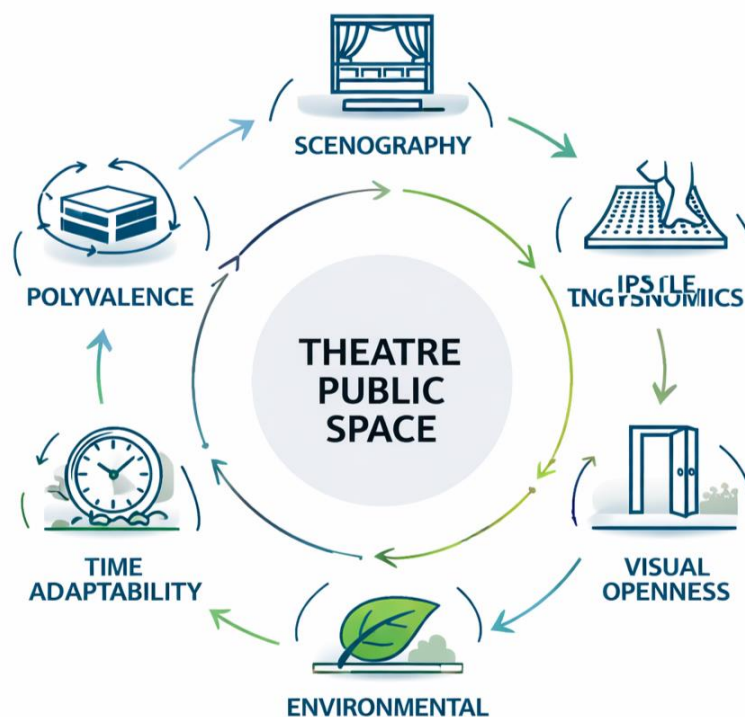
To achieve this, architectural ramps with gentle slopes, tactile paths with high-quality sensory feedback, and audio navigation elements should be organically and naturally integrated into the site design so that they do not disrupt the visual integrity of the space, while guaranteeing ease of movement for all users.

Future promising research directions should focus not only on the visual design of open architectural landscapes but also on their integration with the digital technology era, aligning closely with smart city engineering concepts. This approach is of paramount importance for contemporary urban research and design.

Key tasks for today's engineers include the appropriate use of interactive media facades on theater buildings, the development of complex acoustic control systems and noise-canceling solutions for open-air amphitheaters and recreational areas.

Additionally, micro-scale modeling of wind corridors and aerodynamic flows in theater plazas located between tall buildings-using advanced IT and computational programs such as OpenFOAM or CFD analyses-can elevate the climate comfort of urban cultural spaces to entirely new phenomenal levels.

Moreover, another important research direction involves systematically implementing post-occupancy evaluation (POE) methodologies for newly constructed or reconstructed theater spaces. This process allows for long-term, continuous monitoring to determine how effectively public investments in these spaces justify themselves and whether the design truly achieves measurable social return on investment (SROI). Globally, such research represents a highly significant and productive scientific domain with both scholarly and practical impact.



**Figure 4.** Comprehensive Strategic Framework for Theater Landscape Integration.

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