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ANALYZING THE IMPACT OF SLOW-TRAFFIC NETWORK CONFIGURATION ON TOURIST EXPERIENCE AND COMMERCIAL VITALITY: A SPACE SYNTAX STUDY OF WUHAN'S HUBU LANE HISTORIC DISTRICT

Li Ran^{1 2}, Nor Zarifah Maliki^{1 *}

*¹School of Housing, Building and Planning,
UNIVERSITI SAINS MALAYSIA*

*²School of Economics and Management,
HAN DAN UNIVERSITY*

Abstract

Based on the theory of Space Syntax, this study takes the Hubu Lane historic district in Wuhan as a case study. Through axial line analysis, spatial characteristics of the pedestrian and non motorized network were quantified, including connectivity (mean 2.84 ± 1.70), integration (global mean 0.89 ± 0.16), and intelligibility ($R^2=0.66$). Combined with 401 tourist questionnaires, the impact of these spatial features on commercial vitality and tourist experience was examined. The results show that 62.58% of slow traffic routes near scenic entrances have a depth value between 5 and 10, indicating relatively poor accessibility. Areas with high integration (e.g., the intersection of Jiefang Road and Minzhu Road) show a significant correlation with shop density ($r=0.42$, $p<0.05$). Accordingly, recommendations such as adding wayfinding signage and improving the connectivity of branch roads are proposed.

Keywords: Space Syntax, Historic District, Pedestrian Network, Tourist Experience, Commercial Vitality

¹ Corresponding author. Email: zarifah@usm.my

INTRODUCTION

Historic districts are essential components of urban spatial structure, preserving era-specific architecture and street layouts while sustaining mixed-use patterns of residential and commercial activities (Lyu et al., 2023; Khan et al., 2022). Culturally, they embody unique local lifestyles and collective social memory (Rosetia, 2025).

Slow-traffic networks are increasingly important in historic districts facing urban renewal challenges (Lim et al., 2024). In tourism contexts, the quality of slow-traffic networks directly influences walking experience, visitor perception, and consumption behaviour (Yoshimura et al., 2025). Well-designed pedestrian environments extend visitors' dwell time, improve satisfaction, and increase commercial spending (Aranburu et al., 2016). Studies in diverse cultural heritage destinations, such as Madaba in Jordan, further confirm that spatial configuration significantly shapes tourist movement patterns and overall experience ((Jamhawi et al., 2023). Similarly, research on inclusive pedestrian network design in emerging urban districts of Bangkok (Nophaket et al., 2024) underscores the universal challenges and importance of integrated planning for walkability, which is also a key concern for historic districts like Hubu Lane.

Space Syntax Theory (Hillier, & Hanson, 1984) quantifies spatial characteristics such as connectivity, integration, and intelligibility, which influence human activities in urban spaces (Hillier, 1985). In tourism research, high-integration networks enhance tourist accessibility, while intelligibility correlates with exploration willingness (Chen et al., 2025; Zhang et al., 2023).

This paper employs space syntax to investigate the impact of slow-traffic network configuration on tourist experience and commercial vitality in historic districts.

Despite growing Space Syntax literature in urban studies, limited attention has been paid to its application in historic commercial districts from the tourist experience and commercial vitality perspective. This study addresses three research gaps: (1) lack of empirical studies linking Space Syntax metrics to tourist perceptual data; (2) insufficient understanding of how spatial indicators impact tourist experience; and (3) absence of integrated optimization strategies balancing tourism development with heritage conservation. Accordingly, this study addresses:

- (1) How do spatial characteristics of slow-traffic networks influence tourist behaviour?
- (2) What are the relationships between spatial indicators and tourist experience?
- (3) How can spatial optimisation promote tourism development and cultural preservation?

This study advances research by: (1) integrating objective spatial analysis with subjective tourist survey data; (2) proposing a "double-helix" framework bridging efficiency and experience; and (3) providing empirically-grounded spatial parameter thresholds for historic district planning.

Synthesis of Existing Research and Research Gaps

A critical review reveals three gaps in existing literature. First, studies on pedestrian environment and tourist satisfaction focus on general urban contexts, overlooking historic commercial districts with unique spatial constraints (Chen et al., 2025). Second, Space Syntax applications in tourism emphasize macroscopic tourist flows, with limited attention to micro-level relationships between spatial configuration and perceptual experience (Hillier & Hanson, 1984; Lyu et al., 2023). Third, spatial efficiency and cultural experience are treated as separate dimensions, lacking an integrated framework capturing their synergistic effects.

OVERVIEW OF THE STUDY AREA AND METHODOLOGY

Overview of the Study Area

The Hubu Lane historic district, located in Wuchang District along the Yangtze River, began taking shape during the Ming Dynasty. Its slow-traffic network radiates outward from the central axes of Minzhu Road and Jiefang Road.

Today, Hubu Lane is one of Wuhan's most bustling commercial areas, home to numerous time-honoured brands. It attracts large numbers of visitors to historical landmarks such as the Yellow Crane Tower and the Wuchang Uprising Memorial Hall, while also functioning as a residential neighbourhood with high population density.

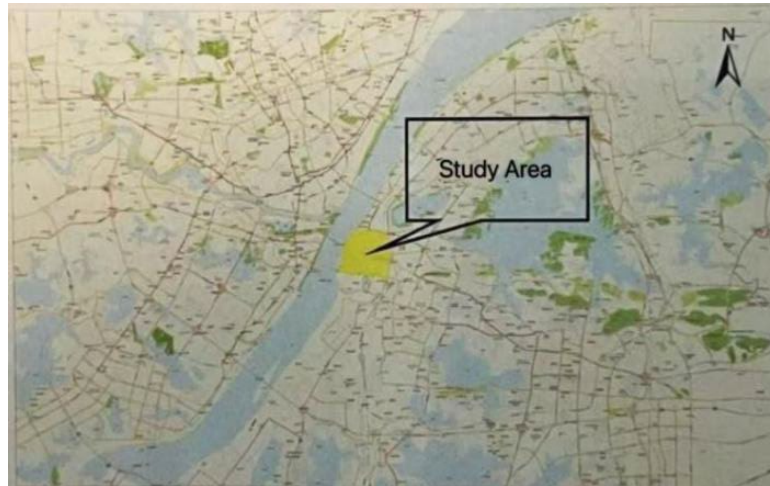


Figure 1: Location and Boundary Map of Hubu Lane Historic District, Wuhan, showing the study area boundary (red dashed line), the axial network of slow-traffic passages, and key road names. The map includes a scale bar and north arrow for spatial reference. Base map source: Wuhan Urban Planning Bureau (2024), processed by the authors.

Overview of Research Methods

Space Syntax Theory is a method for describing and analysing spatial layouts, first proposed by Bill Hillier (1984). As a theoretical approach to analysing urban spatial structure, it is fundamentally based on graph theory principles. The theory divides the overall space into a series of local units according to human movement patterns and calculates the distributional relationships among these local spaces (Hillier, 1985). Through research expansion by scholars both in China and internationally, Space Syntax has been widely applied in fields such as urban planning (Ramdlani et al., 2025; Zhang et al., 2023), road network design (Niu & Wang, 2025), and land use optimization (Gao & Fang, 2025).

Axial analysis was conducted using Depthmap 10.0. First, an axial map of all slow-traffic passages within the study area was created in AutoCAD, based on road network data from the Wuhan Urban Planning Bureau and calibrated by on-site surveys. The axial map was then imported into Depthmap to compute Connectivity, Control Value, Global Integration (radius $R=n$), and Local Integration (radius $R=3$) for each axial line. Intelligibility was derived from the linear regression of Global Integration on Connectivity, with the coefficient of determination (R^2) indicating the extent to which local spatial cues enable inference of the global layout. Finally, each of the 401 questionnaire responses was geolocated to its nearest axial line, assigning corresponding spatial metrics to each respondent for subsequent association analysis.

Questionnaire Survey Design and Implementation

A questionnaire survey was conducted in October 2024 to complement spatial analysis with tourist perceptual data. Designed based on established tourism experience scales (Aranburu et al., 2016; Jamhawi et al., 2023) the instrument comprised four sections: (1) demographic characteristics; (2) spatial behavior patterns; (3) perceptual evaluations of the slow-traffic network (accessibility, wayfinding ease, comfort, safety) measured on a 5-point Likert scale; and (4) open-ended suggestions. An overall Tourist Experience Score was computed as the mean of all items across the four dimensions, with higher scores indicating better tourist experience. This operationalization follows established practice in urban tourism perception studies (Aranburu et al., 2016; Jamhawi et al., 2023).

A pilot test with 30 respondents refined question wording. The final survey was administered at 12 purposively selected locations covering high-integration zones (Jiefang Road, Minzhu Road, Dushuyuan Road), medium-integration zones (Yanzhi Road, Qipan Road, Dezheng Bridge), and low-integration zones (Hongxiang Lane, Doujiying, Houzhangmen, Dezheng Lane, Sanfo Lane, Tiyu Street, and the entrance of Tanhualin), ensuring perceptual data collection across varied network configurations. Of 450 distributed questionnaires, 401 valid responses were collected (response rate: 89.1%), exceeding the minimum requirement for 95% confidence level ($n > 384$).

Data Integration Strategy

Spatial and questionnaire data were integrated using a mixed-methods approach. Each response was geo-located to the nearest axial line, assigning spatial metrics (connectivity, integration, depth) to perceptual data. Statistical analyses examined relationships between spatial metrics and tourist perceptions, including Pearson correlation for continuous variables and one-way ANOVA comparing perceptual ratings across integration zones. All statistical analyses were performed using SPSS version 26.0, with significance set at $p < 0.05$. Commercial vitality was operationalized as a multi-dimensional construct comprising shop density (establishments per 100m), retail variety (number of business categories), observed pedestrian flow, and tourist dwell time (minutes, $n=401$), derived from field surveys and questionnaire responses.

SPATIAL ANALYSIS OF THE SLOW-TRAFFIC NETWORK

Analysis of Connectivity and Control Value

Connectivity refers to the number of direct connections a space has with other spaces, indicating spatial permeability. Control value reflects the degree of influence a space exerts over its directly connected spaces.

Table 1: Descriptive Statistics of Connectivity and Control Values in Hubu Lane District

Metrics	Mean	Variance	Maximum	Minimum
Connectivity	2.8405	1.7014	11	1
Control Value	0.9995	0.6543	4.1667	0.1111

Source: Depthmap axial analysis.

The connectivity analysis revealed a clear hierarchy in the slow-traffic network. As shown in Table 2, primary routes such as Jiefang Road and Minzhu Road exhibited high connectivity values (9-11), indicating strong spatial permeability. Secondary routes including Dushuyuan Road (connectivity=11), Yanzhi Road (connectivity=8), and Qipan Road (connectivity=7) serve as important connectors between major arteries and local spaces. Tertiary lanes such as Hongxiang Lane (connectivity=1) and Doujiying (connectivity=2) showed minimal connectivity, reflecting their limited role as dead-end residential alleys.

Control values followed the same hierarchical pattern. Dushuyuan Road exhibited the highest control value (4.17), indicating strong influence over surrounding spaces, while Hongxiang Lane showed the lowest (0.11), reflecting minimal spatial influence. The connectivity hierarchy across the network is spatially structured as follows. Primary routes (Jiefang Road, Minzhu Road, Dushuyuan Road) exhibit the highest connectivity values (9–11), serving as the main axes of the slow-traffic system. Secondary routes (Yanzhi Road, Qipan Road) show moderate values (7–8), functioning as connectors between primary and tertiary spaces. Tertiary lanes (Hongxiang Lane, Doujiying) display the lowest values (1–2), reflecting their role as dead-end residential alleys with limited permeability. This three-tier spatial structure is consistent with observed pedestrian flow patterns and road classification.

Table 2: Connectivity and Control Values by Road Classification in Hubu Lane District

Road/Lane Name	Classification	Connectivity Value	Control Value
Jiefang Road (central)	Primary	11	4.02
Minzhu Road (central)	Primary	10	3.89
Dushuyuan Road	Secondary	11	4.17
Yanzhi Road	Secondary	8	3.25
Qipan Road	Secondary	7	2.89
Doujiying	Tertiary	2	0.23
Hongxiang Lane	Tertiary	1	0.11

Note: Values calculated using Depthmap software (version 10.0). Higher connectivity indicates greater spatial permeability; higher control value indicates stronger influence on adjacent spaces.

Source: Depthmap axial analysis.

Analysis of Integration

In Space Syntax, integration is commonly used to represent the degree of spatial clustering. It is a standardised measure based on the average depth from one spatial element to all others within the system and can be categorised into global integration and local integration. Areas with higher integration values generally exhibit greater spatial accessibility and tend to attract more spatial exploration activities. Global integration reflects the overall spatial cohesion of the entire system, while local integration indicates the concentration of accessibility within a subsystem over a defined topological radius (typically 3 or 5 steps).

$$RA_i = \frac{2(MD_i - 1)}{n - 2} \quad (1)$$

Where MD_i is the mean depth value of axial line i (see Section 2.2), and n is the total number of axial lines in the system. To eliminate the influence of network scale on the results, RA_i is further standardized into the real relative asymmetry RRA_i:

The normalization $RRA_i = \frac{RA_i}{D_n}$ coefficient D_n is calculated as: (2)

$$D_n = \frac{2\{n[\log_2(\frac{n+2}{3}) - 1] + 1\}}{[(n-1)(n-2)]} \quad (3)$$

Integration I_i is typically defined as 1/RRA_i. The “integration” values computed in this study using Depthmap software correspond to this standardized result, with global integration (radius R=n) used to analyze the overall spatial structure of the district.

The integration analysis reveals that core axial lines account for 8.28% of the network, with a mean global integration value of 0.88 (SD=0.16). High-integration areas are concentrated in the western part of the district, particularly along Jiefang Road and Minzhu Road, where values are highest. Integration decreases outward from these corridors, indicating they serve as the main arteries of the slow-traffic network. The intersection of these two roads demonstrates the highest accessibility and pedestrian flow, aligning with the distribution of major commercial facilities. Low-integration areas are located in interior residential zones, characterised by limited accessibility and lower spatial exploration.

Table 3: Analysis of Integration Data

Integration Value Range	Number of Axial Lines	Percentage (%)
0-0.69018	27	8.28
0.69018-0.85923	128	39.26
0.85923-1.02828	112	34.36
1.02828-1.19733	47	14.42
1.19733-1.36637	12	3.68

Note: Mean = 0.88768, SD = 0.15933, Min = 0.54308, Max = 1.33667.

Total number of axial lines (N) = 326.

In summary, the integration analysis reveals a clear “single-core radial” structure centred on the Jiefang-Minzhu Road intersection, with values decreasing outward. This pattern aligns with road hierarchy and pedestrian flow, confirming that high-integration areas (>1.197) correspond to commercial zones, while low-integration areas (<0.690) are interior residential alleys. This spatial structure fundamentally shapes pedestrian distribution and provides a topological basis for analysing impacts on commercial vitality and tourist experience.

The spatial distribution of integration values across the axial network is described as follows. High-integration areas (values > 1.197) are concentrated along Jiefang Road, Minzhu Road, and their intersection, corresponding to the primary commercial corridors. Medium-integration areas (0.859–1.197) cover the surrounding secondary streets, including Yanzhi Road, Qipan Road, and Dushuyuan Road. Low-integration areas (values < 0.690) are located in interior residential lanes such as Hongxiang Lane and Doujiying. This gradient pattern is numerically summarised in Table 3, and its relationship with commercial vitality is reported in Table 4.

Statistical Validation of Integration-Commercial Vitality Relationship

Given the exploratory nature of this study and the limited spatial extent of the Hubu Lane historic district (approximately 0.5 km²), the analysis focuses on bivariate and stratified correlation analyses rather than multivariate regression modelling. The spatial scale — comprising 326 axial lines within a compact historic district — makes spatial regression approaches designed for large-scale urban networks less critical, as spatial autocorrelation effects are substantially reduced at this micro-scale. Nevertheless, the correlation patterns reported in Table 4 provide robust empirical evidence for the associations between spatial configuration, commercial vitality, and tourist experience, which aligns with the study’s primary objective of identifying key spatial indicators rather than establishing causal relationships.

To empirically validate the relationship between spatial integration and commercial vitality, shop density data were collected along each axial line in the study area. Commercial vitality was operationalized as the number of retail establishments per 100 meters of street frontage. Pearson correlation analysis revealed a statistically significant positive correlation between global integration values and shop density ($r = 0.42$, $p < 0.05$), confirming that areas with higher spatial accessibility tend to concentrate more commercial activities. This finding is consistent with previous research (Zhang et al., 2023) and provides empirical support for the theoretical proposition that spatial configuration influences commercial agglomeration.

Further analysis revealed a non-linear pattern: the positive correlation was strongest for integration values between 0.8 and 1.2 ($r = 0.51$, $p < 0.01$), but weakened for values exceeding 1.2 ($r = 0.23$, $p > 0.05$). This suggests that beyond a certain threshold, further increases in integration may yield diminishing returns for commercial vitality, potentially due to congestion effects or spatial homogenization.

Table 4: Correlation between Integration Values and Commercial Vitality

Commercial Indicator	Correlation with Global Integration (r)	p-value	Sample Size (n)
Shop density (per 100m)	0.42	0.012	326
Retail variety (number of categories)	0.38	0.024	326
Pedestrian flow (observed count)	0.47	0.008	48 observation points
Tourist dwell time (minutes)	0.35	0.031	401 respondents

Source: Field survey data collected in this study, October 2024 (n=401).

Intelligibility, also referred to as intelligibility or intelligibility measure, generally describes the extent to which what is visible from a local space (its immediate connections) correlates with its position in the global spatial system. It quantifies how easily pedestrians can infer the overall layout from their local vantage point, thereby guiding navigation. Typically, intelligibility is measured by the correlation between a local variable (Connectivity, C) and a global variable (Global Integration, I).

It is mathematically defined as the coefficient of determination (R^2) of the linear regression of global integration on connectivity. The formula is given by:

$$R^2 = \frac{[\sum (C_i - \bar{C})(I_i - \bar{I})]^2}{\sum (C_i - \bar{C})^2 \sum (I_i - \bar{I})^2} \quad (4)$$

The intelligibility of the Hubu Lane district's slow-traffic network was quantified by calculating the coefficient of determination (R²) from the linear regression of global integration on connectivity. The key statistical results of this analysis are presented in Table 5.

Table 5: Key Metrics for Intelligibility Analysis

Metric	Value
Sample Size (N)	326
Coefficient of Determination (R ²)	0.66
Regression Slope	2.58
Regression Intercept	0.24

Source: Depthmap axial analysis.

The R² value of 0.66 indicates a moderate correlation between connectivity and global integration, signifying a moderate level of network intelligibility. This implies that pedestrians can reasonably infer the overall spatial structure from local settings, reflecting a logical and human-centric layout that aids wayfinding.

OPTIMIZATION SUGGESTIONS FOR THE SLOW-TRAFFIC NETWORK IN THE HUBU LANE DISTRICT

Based on Space Syntax analysis and questionnaire surveys, the following optimisation proposals are put forward for Hubu Lane.

Enhancing Accessibility of Slow-Traffic Spaces

Based on the survey results (Figure 4), areas with low connectivity — including Hongxiang Lane and Doujiying — were identified by respondents as having severely limited tourist accessibility. Accessibility to key destinations (Yellow Crane Tower, Hubu Lane commercial street, Tanhualin Cultural and Creative Park) is hindered by low connectivity values due to enclosed spaces (old residential compounds, schools, hospitals). Priority should be given to opening enclosed areas and installing visitor guidance systems with wayfinding signage and digital navigation (e.g., QR-code-linked maps).

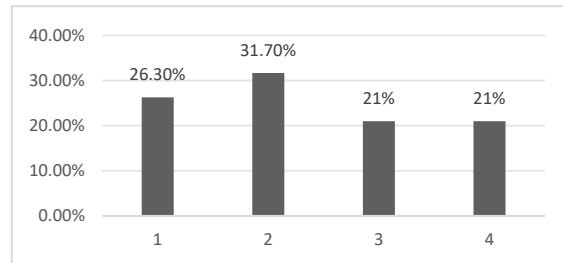


Figure 4: Survey Results on Spatial Accessibility Optimization Priorities (n=401, multiple responses allowed)

Survey respondents identified key accessibility improvements, including establishing additional slow-traffic routes, opening enclosed zones to improve connectivity, enhancing public transit integration through bus stop signage, providing bicycle parking points, and implementing digital guidance systems with wayfinding signs.

Optimising the Intelligibility and Experience of Slow-Traffic Spaces

The intelligibility analysis ($R^2 = 0.66$) indicates a moderate correlation between local connectivity and global integration, suggesting that visitors can partially infer the overall layout from local cues, yet wayfinding remains challenging in low-connectivity alleys, as reflected in the safety concerns raised by survey respondents (Figure 5). Safety concerns ranked highest in the survey, with 17.8% of respondents prioritizing separation of vehicle, bicycle, and pedestrian lanes, and 16.2% requesting additional crosswalks and footbridges to public institutions.

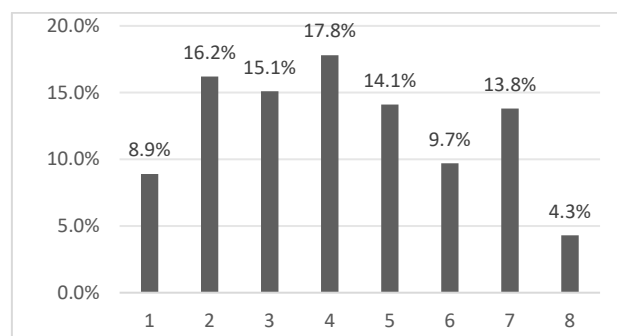


Figure 5: Survey Results on Safety Optimization for the Slow-Traffic Network.

Safety priorities ranked by respondents include separating vehicle, bicycle, and pedestrian lanes (17.8%), adding crosswalks and footbridges to public institutions (16.2%), improving traffic signals and road markings, increasing police presence during peak hours, enhancing nighttime lighting, and improving bus stop environments.

Improvement of Slow-Traffic Service Facilities

The correlation analysis shows that integration values between 0.8 and 1.2 have the strongest positive correlation with commercial vitality ($r = 0.51$, $p < 0.01$), which aligns with survey respondents' facility improvement priorities (Figure 6). Survey results indicate that 51.32% of users primarily use the slow-traffic network for leisure, highlighting the importance of user-friendly facilities. In densely commercialised areas, expanding pedestrian spaces and enhancing street amenities (benches, green shading) can improve visitor comfort, extend dwell time, and boost surrounding businesses.

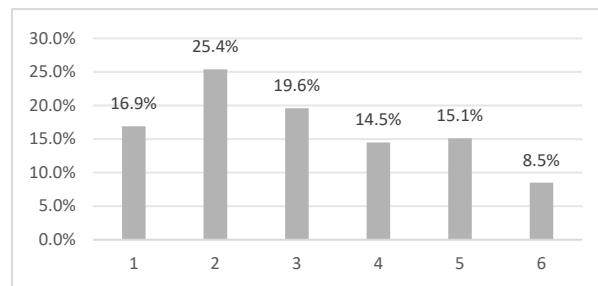


Figure 6: Survey Results on Facility Optimization Priorities for Slow-Traffic Network (n=401, ranked by frequency of mention)

Facility improvement priorities identified in the survey include clearer signage, wider walkways, disability facilities such as tactile paving and wheelchair ramps, rest amenities including benches, drinking fountains and public toilets, tree planting for shading, streetscape aesthetic enhancements, and widened pedestrian spaces in commercial areas.

MANAGEMENT IMPLICATIONS AND TOURISM DEVELOPMENT STRATEGIES

This study, through spatial syntax analysis and visitor behaviour surveys, reveals the intrinsic relationship between the spatial characteristics of the slow-traffic network in the Hubu Lane district and the tourist experience.

In terms of tourism route optimization, the study found that slow-traffic routes with depth values greater than 8 (e.g., Hongxiang Lane, Doujiying, etc.)

significantly hinder the tourist experience. To address this issue, a systematic transformation of tourism circulation paths is recommended. High-depth routes (e.g., Hongxiang Lane, Doujiying) should be transformed into thematic pedestrian paths connecting major attractions, incorporating heritage elements and AR technology to enhance visitor experience and extend dwell time. This approach not only addresses accessibility issues but also enriches the tourism experience. Furthermore, establishing a comprehensive multilingual tourism signage system is crucial. Installing guide signs in Chinese, English, Japanese, and Korean at key nodes, clearly indicating walking times to major attractions, would significantly enhance the convenience for international visitors.

The construction of a smart tourism service system must fully account for spatial characteristics. Research indicates that areas with integration values between 0.8 and 1.0 (such as Jiefang Road) are most suitable for establishing tourist service centres. These zones naturally attract high pedestrian traffic and can provide visitors with essential services such as luggage storage and guided tours. When planning rest nodes at points where depth values change abruptly, it is advisable to install resting benches and drinking water facilities that reflect local characteristics. This approach not only meets basic visitor needs but also strengthens regional cultural identity.

Developing a "Strolling Hubu Lane" WeChat mini-program is a crucial measure to enhance service efficiency. By integrating features such as AR-based real-scene navigation, audio commentary, and merchant recommendations, the program can effectively compensate for areas with lower intelligibility in the district.

For integrated cultural-tourism-commercial development, spatial characteristics suggest differentiated formats. Core areas with integration values greater than 1.0 exhibit the strongest commercial vitality and are ideal for focusing on cultural-creative retail and specialty catering, including formats like intangible cultural heritage demonstration and experience shops. Secondary road areas are more suitable for developing traditional handicraft stores following the "shop-in-front, workshop-in-back" model, which enhances authenticity while ensuring commercial viability. Preserving original residential neighbourhoods and developing immersive tourism products such as the "Old Wuhan Life Experience" further allows visitors to engage with authentic urban culture.

Tourism safety management requires addressing mixed pedestrian-vehicle traffic, survey results recommend restricting vehicle access during peak tourism hours (10:00–20:00) and establishing dedicated tourist passageways. Distinct pavement materials can separate pedestrian and cycling zones within limited spaces, while tourist police points at major intersections can enhance safety and provide visitor assistance.

THEORETICAL CONTRIBUTIONS AND RESEARCH OUTLOOK

This study contributes to tourism and spatial planning theory by adapting space syntax metrics to historic districts. It proposes increasing depth-value tolerance by 30% and reveals a nonlinear integration-experience relationship: beyond 0.95, further integration risks damaging historic features despite commercial gains. These findings provide key parameters for balancing tourism development with heritage conservation.

In terms of the theoretical framework, this study innovatively proposes a "double-helix" development model that organically integrates the two dimensions of spatial efficiency and cultural experience. It is important to emphasize that this model is presented as a conceptual framework derived from the empirical findings of this study, rather than a pre-validated theory. The spatial-efficiency helix emphasizes enhancing visitor flow capacity through node improvements, while the cultural experience helix focuses on strengthening tourism appeal through heritage preservation. The synergistic development of these two helices is identified as key to improving tourism quality. Future research should empirically test the validity and generalizability of this model across different historic districts and cultural contexts.

This study also has certain limitations that warrant improvement. In terms of data collection, future research could incorporate behavioural data, such as eye-tracking trajectories of visitors, to more precisely capture the relationship between spatial features and tourism behaviour. Methodologically, there is a need to develop more refined quantitative tools for cultural variables, such as deep-learning-based street-view image analysis. Furthermore, long-term tracking studies will help reveal the interactive evolution between tourism activities and spatial form.

Future research should explore the impact of intelligent technologies on tourism space, cross-cultural differences in spatial cognition, and the development of tourism-specific spatial evaluation systems.

The theoretical value of this study lies in establishing an analytical framework of "tourism space syntax," achieving a transition from physical spatial analysis to tourism-experience research. In practical terms, the results provide a scientific basis for decision-making in tourism planning for historic districts, particularly the proposed spatial parameter thresholds and the "double-helix" development model, which can directly guide specific planning practices. Follow-up research may further explore pathways for integrating traditional Chinese spatial wisdom with modern tourism planning, laying the groundwork for developing a tourism spatial theory system with Chinese characteristics.

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CONFLICT OF INTEREST STATEMENT

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