

*Research Article*

Factors Influencing the Development of the Night-Time Economy: Constructing and Validating a Measurement Scale in Ho Chi Minh City, Vietnam

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Abstract: The night-time economy (NTE) plays a crucial role in urban development, employment generation, and economic growth, particularly in rapidly expanding cities such as Ho Chi Minh City (HCM City). Although Decision No. 1129/QĐ-TTg (2020) formally mandated NTE development across Vietnamese cities, no validated measurement instrument has been established to assess its key determinants, guide municipal resource allocation, or evaluate policy outcomes at the city level. This study develops and validates a multidimensional scale for measuring factors influencing NTE development in HCM City through a sequential exploratory mixed-methods approach integrating qualitative and quantitative analyses. The findings identify six key factors: governance and institutions, urban infrastructure, community awareness, security and safety, diversity of night-time products and services, and digital technology, among which security and product diversity show the strongest influence. This study delivers the first localized NTE measurement scale in HCM City, reinforcing the theory of planned behavior and institutional theory. It provides policymakers and businesses with actionable insights to enhance security, diversify services, improve infrastructure, raise community awareness, strengthen governance and institutions, and promote digitalization for the sustainable advancement of NTE in HCM City.

Keywords: Ho Chi Minh City; Night economy measurement scale; Night-time economy (NTE); Night-time product diversity

1. Introduction

The NTE is increasingly recognized as a strategic component of urban socioeconomic development worldwide, especially as cities transition toward creative and service-oriented economic models (Sampériz et al., 2025). Beyond generating employment and supporting economic growth, the NTE enriches cultural life, enhances experiences for residents and visitors, and improves a city's image and appeal (Le et al., 2023; Nam, 2023). Furthermore, the NTE contributes to urban innovation, strengthens city branding, and enhances urban centers' global competitiveness (Lin et al., 2022; Seijas & Gelders, 2021).

The NTE generally encompasses economic activities between 6:00 PM and 6:00 AM, spanning diverse sectors such as dining, culture, entertainment, arts, festivals, events, sports, night-time tourism, shopping, transportation, and healthcare services (Seijas & Gelders, 2021; Yan et al., 2024). Defining a universal NTE timeframe is challenging due to different cultural norms and daily rhythms. For instance, in Australia, the NTE operates from 6:00 PM to 6:00 AM (Beer, 2011), whereas it is narrower in the Netherlands, from 8:00 PM to 6:00 AM (Brands et al., 2014). In Madrid, the NTE spans from 7:00 PM, when most end their workday, to 7:00 AM, when many begin their day (Sampériz et al., 2025). Despite these variations, effective NTE can

enhance urban vitality, promote cultural diversity, and stimulate night-time value chains when effectively managed (Kramer & Wittmann, 2023).

International experience demonstrates that successful NTE development depends on the interplay of governance arrangements, transport accessibility, service diversity, safety management, community acceptance, and digital infrastructure (Moreno & Sulasula, 2024). Table 2 summarizes the selected city models in the methods section to contextualize the survey design of this study. Among the cases reviewed, Bangkok and Seoul are the most directly comparable to HCM City. Bangkok shares a Southeast Asian urban context, an informal street food and night market culture, tourism-driven night-time demand, and reliance on event-based programming, all of which characterize HCM City's current NTE. Seoul demonstrates how digital platform integration, including ride-hailing, food delivery, and cashless payment systems, can reshape nocturnal mobility and service access in a rapidly urbanizing environment. Shanghai is a relevant reference for commercial clustering and cultural tourism at a comparable urban scale. London, while more institutionally developed, provides a useful governance benchmark, as its Night Czar coordination model and evidence-based licensing reform address the interagency fragmentation and regulatory inconsistency that currently constrains the NTE of HCM City. Collectively, these cases indicate that coherent institutional arrangements, multimodal transport access, active community management, and expanding digital infrastructure are required for sustainable NTE development (Moreno & Sulasula, 2024).

This study's theoretical foundation draws on four complementary perspectives. The theory of planned behavior explains participation in night-time activities through attitudes, social norms, and perceived control, including perceptions of benefits such as income and culture as well as risks related to noise or security (Ajzen, 1991; Chatterton & Hollands, 2002). Institutional theory highlights the importance of formal rules, informal norms, and enforcement capacity in shaping night-time business environments (Busenitz et al., 2000; North, 1990). Urban agglomeration theory explains why NTE activities are concentrated in dense city centers that benefit from shared infrastructure and labor markets but also warns of congestion and environmental pressures when governance is weak (Duranton & Puga, 2004). The experience economy perspective emphasizes that the value of night-time activities lies in memorable experiences and cultural offerings rather than in standard goods and services (Pine & Gilmore, 2019).

Building on these foundations, recent contributions describe the NTE as a dynamic system in which technological, environmental, economic, social, and institutional elements co-evolve through continuous supply-demand feedback (Ho & Pham, 2025). NTE performance is enhanced by infrastructure, policy support, and complementary services, while digital technologies such as mobile applications, electronic payments, and data-driven management tools improve convenience, health protection, and resource efficiency (De Luna et al., 2019; Li & Tu, 2021; Lyu, 2025). Studies of global cities, such as London and New York, underline the role of community participation, the introduction of night mayors and similar coordination roles, and the management of safety, noise, and local culture in improving outcomes (Hadfield, 2009; Philpot et al., 2019; Seijas & Gelders, 2021). Other work points to the importance of staff training, fair working conditions, and human resource incentives in sustaining service quality during night shifts (Deery & Jago, 2015; Tai et al., 2022), while lighting, safety, commercial facilities, and service diversity are closely related to tourism and economic indicators (Lin et al., 2022).

In Vietnam, Decision No. 1129/QĐ-TTg on July 27, 2020, formally recognized the potential of the NTE, which approved a national plan to develop the NTE with the goals of boosting domestic consumption, stimulating tourism development, and improving the material and spiritual well-being of citizens (Prime Minister of Vietnam, 2020). Major cities, such as Hanoi, Da Nang, and HCM City, have launched pilot initiatives, such as pedestrian streets, night markets, and culinary districts, to more effectively harness this potential. HCM City, the country's largest economic hub, has developed active night-time areas, such as the Nguyen Hue walking street and the Bui Vien Western Quarter, together with cultural events that create a foundation for NTE development (Nam, 2023; Tuong, 2022). Empirical work on the NTE in Vietnam has begun to

appear but remains fragmented across locations and themes. In Da Nang, Le et al. (2023) identified service diversity, legal regulations and security, cultural experiences, infrastructure and transport, and pricing as important influences on NTE development, whereas natural resources and promotional activities had limited effects. Research in Sapa highlights the environment, culture, services, infrastructure, security, and tourism policy, highlighting the importance of safety and basic facilities (Thi et al., 2023). Hanoi institutions, infrastructure and safety, promotion, and natural resources are emphasized (Son et al., 2023). For HCM City, existing work points to policy, business environment, socio-cultural factors, consumer trends, infrastructure, and human resources as influential but pays less attention to digital technology or community awareness (Nam, 2023).

Despite this growing body of evidence, the NTE in Vietnam, particularly in HCM City, continues to face persistent shortcomings, including fragmented development, ineffective governance, limited risk management, public safety concerns, and weak digital integration (Ho & Pham, 2025). A review of international and domestic literature reveals three gaps that motivated this study. First, few studies have proposed a validated multidimensional instrument that jointly captures institutional governance, urban infrastructure, community awareness, security and safety, human resources, product and service diversity, and digital technology. However, Decision No. 1129/QĐ-TTg mandated NTE development across Vietnamese cities, and no standardized assessment tool has been established (Prime Minister of Vietnam, 2020). Second, despite their growing importance in advanced urban economies, the role of digital tools, including mobile applications, artificial intelligence, and social media, remains underexplored in the Vietnamese NTE context (De Luna et al., 2019; Li & Tu, 2021; Lyu, 2025). Third, most domestic studies rely on single-method cross-sectional surveys and have not fully adopted mixed-methods procedures to develop and validate measurement instruments, limiting construct validity and transferability (Creswell & Clark, 2017; Hair Jr et al., 2019).

This study constructs and validates a multidimensional measurement scale for the factors influencing NTE development in HCM City, directly addressing these gaps, providing a systematic basis for assessing their relative impacts and informing evidence-based urban policy. Specifically, it addresses the following two questions:

- (i) What factors influence NTE development in HCM City?
- (ii) To what extent does each factor impact the development of NTE in HCM City?

This study's factor groups are grounded in established theoretical perspectives and prior empirical evidence. Studies on regulatory quality, licensing reform, and interagency coordination in NTE settings support institutional governance (IGOV) (Busenitz et al., 2000; North, 1990; Seijas & Gelders, 2021; Son et al., 2023). Urban infrastructure (INF) draws on research linking transport networks, public lighting, sanitation, and digital connectivity to NTE accessibility and performance (Ho & Pham, 2025; Li & Tu, 2021; Lin et al., 2022). Community awareness and attitudes (CAA) are grounded in the theory of planned behavior and empirical studies on resident participation and social acceptance of night-time activities (Ajzen, 1991; Chatterton & Hollands, 2002; Nguyen, 2023). Security and safety (SEC) are consistently identified as threshold conditions for night-time participation across multiple urban contexts (Philpot et al., 2019; Schnitzer et al., 2010; Son et al., 2023). Evidence on workforce training, shift conditions, and service quality in night-time hospitality settings supports human resources (HR) (Deery & Jago, 2015; Tai et al., 2022). Studies linking varied dining, entertainment, shopping, and cultural offerings to visitor dwell time, expenditure, and urban vitality indices (Chatterton & Hollands, 2002; Lin et al., 2022; Tuong, 2022) have derived the diversity of night-time products and services (PD). Digital technology (DT) is identified as an emerging enabler of NTE efficiency and customer engagement through mobile applications, electronic payments, and social media promotion, with particular relevance to the Vietnamese context where this dimension remains understudied (De Luna et al., 2019; Li & Tu, 2021; Lyu, 2025). Building on this foundation, this study constructs and validates an integrated measurement scale for these seven dimensions

and estimates their relative contribution to NTE development in HCM City through exploratory factor analysis, multivariate regression, and in-depth interviews.

1.1 H01: IGOV positively influences NTE development

Governance and institutional quality shape the conditions under which the NTE can grow. Effective institutions, transparent licensing, and coherent regulations reduce investors' uncertainty and allow extended opening hours and new night-time activities (Busenitz et al., 2000; Roberts & Eldridge, 2009; Seijas & Gelders, 2021). Incentive-based policies, such as tax reductions and simplified administrative procedures, mitigate investment risks and stimulate private-sector participation (Ho & Pham, 2025). However, a lack of policy transparency or overly complex administrative procedures may create institutional barriers that discourage entrepreneurial engagement in the NTE. Son et al. (2023) found that local government efforts to manage noise, sanitation, and safety strengthen community trust and encourage participation in night-time consumption. The "Night Czar" model in London illustrates how interagency coordination and stakeholder engagement can reduce conflicts and enhance institutional effectiveness (Seijas & Gelders, 2021). Additionally, clear regulatory frameworks and responsive administrative support in licensing, security, and fire safety are crucial for sustaining a secure and dynamic NTE (North, 1990).

1.2 H02: INF positively influences the development of NTE

According to Lin et al. (2022), physical infrastructure, encompassing electricity, water, lighting, and sanitation, serves as the "backbone" of night-time spaces, determining the attractiveness and safety of economic activities after regular hours. The availability and quality of public lighting systems reduce customer concerns, enhance safety, and extend dwell time (Le et al., 2023; Son et al., 2023). Furthermore, night-time public transportation (e.g., metro, night buses, and river buses) not only alleviates traffic congestion but also encourages residents and tourists to participate more in activities (Ho & Pham, 2025). Notably, international cities such as London and Paris have heavily invested in NTE-supporting infrastructure, ranging from artistic urban lighting to seamless night-time transportation networks (Evans, 2014; Seijas & Gelders, 2021). Additionally, complementary services, such as ride-hailing and taxi platforms, further facilitate safe, flexible mobility between night districts (Lin et al., 2022).

Beyond the physical dimension, digital infrastructure has become integral to modern NTE ecosystems. Comprehensive Wi-Fi/4G/5G connectivity and mobile payment systems enhance convenience, speed transactions, and user engagement (De Luna et al., 2019; Li & Tu, 2021). Additionally, 24/7 facilities such as convenience stores, ATMs, healthcare centers, and electric vehicle charging stations not only meet essential needs but also enable night-time entertainment venues to operate continuously and safely.

1.3 H03: CAA positively influences NTE development

Community awareness and attitudes influence both support for policies and direct participation in night-time activities in NTE models. Planned behavior theory suggests that residents are more willing to engage when they perceive economic and cultural benefits and social norms are favorable. However, they can become resistant when they associate NTE with noise, disorder, or insecurity (Ajzen, 1991; Chatterton & Hollands, 2002). Empirical studies in London and New York reveal that positive community attitudes reduce social opposition and enhance the attractiveness of night-time spaces (Seijas & Gelders, 2021). Moreover, the NTE's "perceived social cohesion" encourages residents to participate in night-time events and promote them to friends. In the Vietnamese context, Nguyen (2023) observed that when Hanoi residents perceive the NTE as beneficial to employment, consumption, and cultural exchange, their acceptance and word-of-mouth promotion through social networks increase significantly. Consultation and communication between authorities and communities can help address concerns about mobility,

safety, and cleanliness and encourage residents to act as partners in maintaining order in NTE areas.

1.4 H04: SEC positively influences NTE development

SEC is a central condition for NTE participation. Schnitzer et al. (2010) indicated that night-time crime rates, such as theft or alcohol-related violence, directly influence the decisions of residents and visitors to engage in night-time activities. A comprehensive 24/7 surveillance system enables effective crime detection and prevention, enhancing the sense of security of participants (Philpot et al., 2019). Police patrols and private security significantly reduce safety concerns and extend visitors' night-time dwell time (Ho & Pham, 2025). Public trust in rapid police and medical response further encourages night-time participation (Nguyen, 2023). Additionally, Rowe et al. (2008) highlighted that designated pedestrian sidewalks and lanes create safe spaces, minimizing conflicts between vehicles and pedestrians while reducing opportunities for criminal activities. When security and safety measures are strengthened (e.g., through surveillance, patrols, and dedicated infrastructure), the NTE not only attracts more visitors but also establishes a "social license" for night-time businesses to expand their services without facing opposition. For instance, camera systems and patrols have significantly reduced night-time crime in London, boosting entertainment district revenue (Hadfield, 2009). Comprehensive fire safety equipment in night-time venues ensures operational continuity and attracts investment (Son et al., 2023). Ultimately, safety measures interact synergistically with infrastructure (lighting, transportation) and policy frameworks (operating hours) to foster sustainable NTE development.

1.5 H05: HR positively influences NTE development

HR refers to the workforce's capacity, quality, and readiness for after-hours and overnight shifts. Tai et al. (2022) reported that night-shift employees who receive training in intercultural communication and adaptive problem-solving are more likely to enhance customer experience and minimize service disruptions. Specialized training in areas such as bartending and hospitality is also essential to ensure consistent service quality during night hours, which often reflect consumption behaviors that differ from those during the day. Furthermore, Deery and Jago (2015) highlighted that flexible night-time shift schedules and health care support help employees sustain performance, reduce stress, and prevent early turnover. Notably, night shift allowances and additional benefits, such as meal subsidies and insurance, serve as incentives to retain workers and prevent them from shifting to other industries. Moreover, comprehensive incentives, including competitive wages, bonuses, and occupational safety measures, foster a sustainable work environment, attracting long-term employees, and addressing labor shortages during peak night-time hours.

1.6 H06: PD positively influences the development of NTE

According to Tuong (2022), the NTE encompasses a wide range of economic and cultural activities occurring between 6:00 PM and 4:00 AM, primarily including entertainment-based services such as bars, nightclubs, karaoke venues, restaurants, live music venues, fashion shows, performing arts, night markets, and commercial night-time zones. Therefore, the diversity of night-time products and services is considered a key factor in extending the length of stay for both residents and tourists, while simultaneously increasing overall expenditure in the NTE. Lin et al. (2022) demonstrated that the "night-time economy vitality" index is closely correlated with the diversity of dining, shopping, and entertainment options after regular hours, with cities offering a wide range of night-time services exhibiting greater appeal. Chatterton and Hollands (2002) also emphasize that diverse urban nightscapes, encompassing various forms of entertainment (bars, nightclubs, and performing arts), provide a foundation for vibrant night-time communities, fostering expenditure and enhancing safety through high participation rates.

Heath (1997) further demonstrates that mobile business models contribute to prolonging economic activity hours. Overall, the diversity of core NTE products and services, including food and beverage, shopping, entertainment, cultural and artistic performances, accommodation, and night-time city tours, collectively enhances urban night-time vitality, attractiveness, and sustainability.

1.7 H07: DT positively influences the development of NTE

DT serves as the connective tissue linking consumers to NTE services, optimizing user experiences, and driving visitor traffic. DT can improve service delivery and create added value in economic activities (Berawi, 2023), whereas digital maturity reflects the extent to which such solutions are embedded in operational processes (Babkin et al., 2025). According to Li and Tu (2021), the use of mobile applications for ordering food, booking event tickets, or reserving night-time seating enhances convenience and planning capabilities, thereby extending dwell time and increasing expenditure. Notably, night-time businesses are increasingly leveraging social media platforms, such as Facebook, Instagram, and TikTok, to promote events, enhance brand visibility, maintain connections, update information, and encourage customers to share their experiences. De Luna et al. (2019) highlighted that the adoption of QR and NFC technologies in night-time businesses enables the rapid provision of information on menus, promotions, and events, boosting engagement and improving immediate sales potential. Moreover, when accessing night-time services, receiving personalized promotional offers, such as vouchers or discounts, through applications or social media has become a trend, improving customer satisfaction and stimulating consumption. However, while the application of big data or artificial intelligence (AI) for predicting crowd density holds potential, its feasibility in large urban settings requires further investigation.

Following this introduction, the methodology section presents the research design, scale development, data collection, and analysis procedures, followed by the results and discussion, conclusions, policy implications, limitations, and future research directions.

2. Methods

This study adopts a sequential exploratory mixed-methods design that combines qualitative and quantitative stages to develop and validate a measurement scale for factors influencing the development of NTE in HCM City (Creswell & Clark, 2017; Hair Jr et al., 2019). The research process comprises six steps, as shown in Figure 1. Panels A and B form an integrated framework: Panel A establishes the theoretical foundation by proposing seven factor groups hypothesized to influence NTE development (IGOV, INF, CAA, SEC, HR, PD, and DT), and this structure directly informs the design of Panel B. The seven constructs in Panel A constitute the initial item pool in Step 1 (49 items across 7 factor groups). Steps 1 and 2 then translate these constructs into a measurable instrument through literature synthesis and expert validation; Step 3 pilots and administers the instrument to a representative sample; Steps 4 and 5 evaluate construct retention and estimate the relative weight of each factor in explaining NTE development outcomes; and Step 6 triangulates the quantitative findings through in-depth qualitative interviews, completing Panel A's empirical cycle.

Step 1: The initial measurement scale was constructed based on a synthesis of studies from Scopus and Web of Science, proposing seven key factor groups influencing the NTE: IGOV, INF, CAA, SEC, HR, PD, and DT (Figure 1). The draft scale consisted of 49 items, utilizing a five-point Likert scale (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree), adapted from domestic and international scales and tailored to the context of HCM City.

Step 2: Expert focus group discussion, a qualitative method involving selected individuals discussing specific topics under facilitator guidance (Krueger, 2014), was employed to refine the measurement scale. Following the recommended participant ranges of 6–10 (Morgan, 1996) and

6–9 (Krueger, 2014), six experts were recruited: one official from the HCM City Department of Tourism, one police officer from District 1, one official from District 3 People’s Committee (coded as CG01, CG02, and CG03, respectively), three researchers specializing in urban services (coded as CG04, CG05, and CG06), and one member of the research team (one serving as the moderator and one as the note-taker). The session, which occurred on April 9, 2025, lasted two hours and was conducted in person. The focus group process included (i) introducing the purpose and participation rules and providing both printed copies and electronic files of the measurement scale to the experts; (ii) presenting background information; (iii) recording and storing discussion information through direct note-taking; (iv) systematically evaluating each factor group’s importance, clarity, redundancy, and contextual relevance to HCM City; (v) achieving consensus on retaining, merging, adding, or eliminating items through collaborative discussion; and (vi) concluding with a second discussion round where participants reviewed outcomes, achieved high consensus, and provided general remarks on results’ significance for NTE measurement scale development. Table 1 summarizes the detailed outcomes of this process, including item retention, adjustment, and elimination across factor groups.

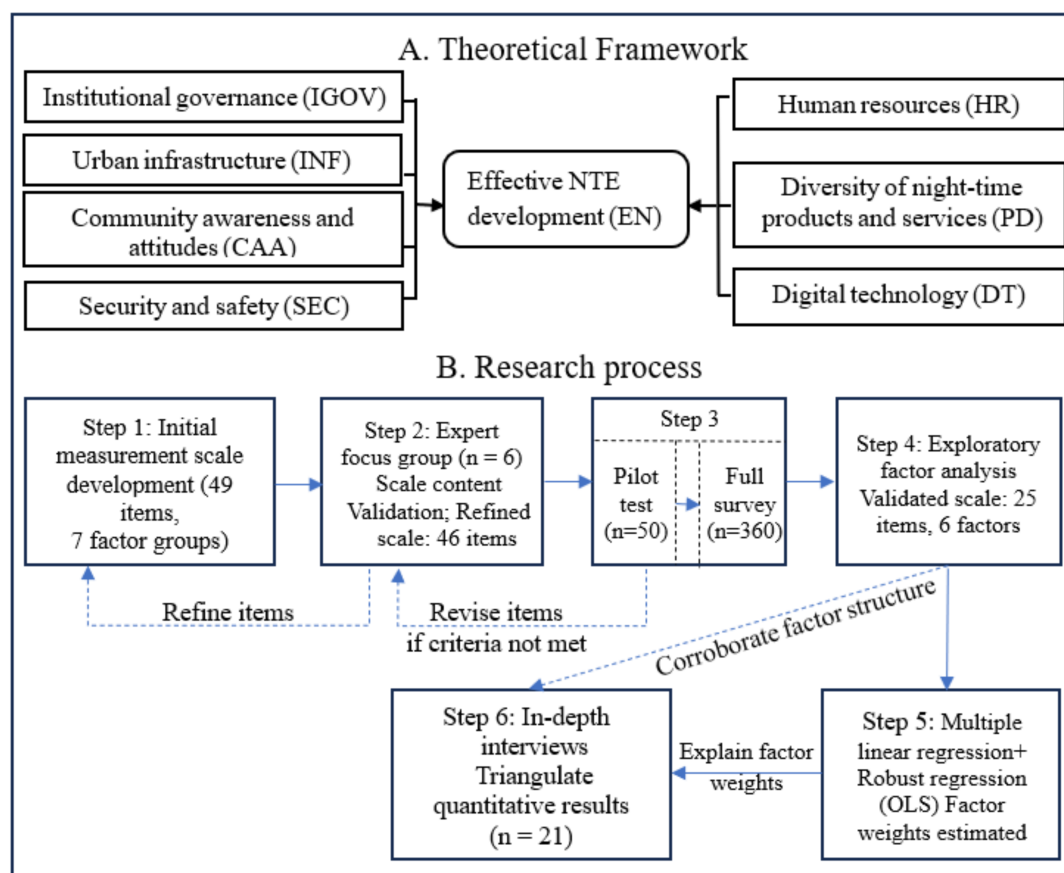


Figure 1 Theoretical framework and research process for NTE measurement scale development in HCM City

Note. Panel A presents the theoretical framework comprising seven hypothesized factor groups and their proposed positive relationships with effective NTE development. Panel B presents the six-step research process through which these constructs are operationalized and examined empirically. Iterative refinement between Steps 1–2 and Steps 2–3 ensures alignment with the theoretical structure throughout the scale development process.

Table 1 Summary of the results of the expert focus group discussion

Factor group	Initial no. of scale items	Adjusted no. of scale items	Experts agreeing to retain / consensus (%)	Experts agreeing to adjust / consensus (%)	Experts agreeing to eliminate / consensus (%)	Experts agreeing to retain and adjust / consensus (%)
IGOV	6	6	34/36 (94.44%)	2/36 (5.56%)	0	36/36 (100%)
INF	9	8	43/54 (79.63%)	4/54 (7.41%)	7/54 (12.96%)	47/54 (87.04%)
CAA	6	6	33/36 (91.67%)	3/36 (8.33%)	0	36/36 (100%)
SEC	7	7	40/42 (95.24%)	2/42 (4.76%)	0	42/42 (100%)
HR	7	6	36/42 (85.71%)	1/42 (2.38%)	5/42 (11.90%)	37/42 (88.10%)
PD	7	7	42/42 (100%)	0	0	42/42 (100%)
DT	7	6	34/42 (80.95%)	0	8/42 (19.05%)	34/42 (80.95%)
Total	49	46	262/294 (89.12%)	12/294 (4.08%)	20/294 (6.80%)	274/294 (93.20%)

Step 3: Based on the reviewed measurement scale, a pilot test with 50 participants was conducted to assess internal reliability ($KMO \geq 0.7$; Cronbach's $\alpha > 0.7$) (DeVellis, 2017; Kaiser, 1974). The five-point Likert scale questionnaire was administered through direct methods in May 2025. Data were coded and secured using separate lookup tables accessible only to the research team and deleted upon analysis completion (Saunders et al., 2009).

Table 2 presents selected international NTE models to inform the geographic scope and sectoral coverage of the data collection instrument, illustrating the range of operating time frames, sectoral configurations, and governance arrangements across urban contexts comparable to HCM City. The comparative evidence from Bangkok, Seoul, Shanghai, London, and Amsterdam guided the operationalization of survey items related to governance, digital infrastructure, safety, transport, and service diversity and informed the selection of survey zones within District 1, District 3, District 7, and Thu Duc City as representative NTE areas in HCM City.

An absolute sample size of $N \geq 200$ provides sufficient statistical power for factor analysis (Hoe, 2008). The minimum sample size must exceed the total observed variables ($N > m$) (Dimitrov, 2014), with recommended $N:m$ ratios ranging from 5:1 with minimum $N > 100$ (Dimitrov, 2014) to 10:1 (Wang & Wang, 2019). The resulting sample comprised 360 observations, including 100 local residents (coded CD01–CD100), 160 tourists (coded KT01–KT160), and 100 night-time business entities (coded DN01–DN100) from wards located within District 1, District 3, District 7, and Thu Duc City, as defined according to the administrative divisions that existed prior to the boundary reorganization effective on July 1, 2025. Experts who participated in the focus group (CG01–CG06) were excluded from the quantitative survey sample but were scheduled for in-depth interviews in the final step to cross-validate the results.

Step 4: Exploratory factor analysis (EFA) was conducted using R software to identify the underlying structure of the factors. The evaluation criteria included a Kaiser-Meyer-Olkin (KMO) value ≥ 0.7 , a Bartlett's Test of Sphericity p -value < 0.05 , and eigenvalues of > 1 (Hair Jr et al., 2019; Kaiser, 1974). Principal Component Analysis (PCA) was employed for factor extraction, followed by Promax oblique rotation to optimize factor structure while allowing inter-factor correlations, reflecting the interrelated nature of NTE variables. Items were retained if they had factor loadings ≥ 0.5 and communalities (h^2) within the range of 0.30–0.99, indicating adequate variance explanation.

Table 2 Selected overseas NTE models: operating time, key sectors, and governance measures

City	Main operating time	Main sectors involved	Key governance or support measures	Sources
London, UK	Evening (18:00) to Late Night (03:00–06:00)	Food and beverage (pubs, street food), cultural and entertainment venues (West End theatres), nightlife (clubs), retail (24-hour convenience), night transport (Night Tube)	Night Czar coordination, 24-hour city strategy, licensing and safety management	Evans (2014); Seijas and Gelders (2021); London Assembly (2025)
Amsterdam, Netherlands	Evening (18:00) to Early Morning (04:00–07:00)	Nightlife (clubs, bars), cultural events (ADE, Melkweg), tourism (canal tours), live music, creative hubs	Collaborative governance, venue support, noise and safety regulation	Seijas and Gelders (2021); Gemeente Amsterdam (2023)
Seoul, South Korea	Evening (18:00) to Late Night (02:00–05:00)	Digitally mediated services (delivery, substitute driving), retail and food and beverage (24-hour convenience), nightlife (Hongdae district), smart mobility	Digital platform integration, nocturnal service concentration, nighttime mobility support	Yun (2022)
Shanghai, China	Evening (18:00) to Late Night (02:00–05:00)	Retail and shopping (malls), cultural tourism (river cruises), food and beverage (bar districts), cultural consumption (live shows), digital services (Alipay)	Commercial clustering support, cultural night-opening strategies, agglomeration monitoring	Li and Tu (2021); Huang and Wei (2024)
Bangkok, Thailand	Evening (18:00) to Late Night (02:00–04:00)	Tourism (markets, rooftop venues), food and beverage (street food), nightlife (entertainment districts), cultural festivals, digital delivery services	Nightlife tourism promotion, event-based programming, informal sector inclusion	Nghiêm-Phú (2020); Phucharoen et al. (2023)

Step 5: Multiple linear regression analysis was used to assess the impact of identified factors on NTE development effectiveness, expressed as follows:

$$EN = \alpha + \beta_1 IGOV + \beta_2 INF + \beta_3 CAA + \beta_4 SEC + \beta_5 HR + \beta_6 PD + \beta_7 DT + \varepsilon_i \quad (1)$$

Where: EN: Effectiveness of NTE development; β_i : Regression coefficients for each retained factor (IGOV, INF, CAA, SEC, HR, PD, DT); α : Intercept; ε_i : Error term, assumed to follow a normal distribution, be independent, have a mean of 0, and a variance of σ^2 .

The analysis process included the following steps: (i) assessing the statistical significance of regression coefficients using *t*-tests to evaluate the impact of each independent variable (Hair Jr et al., 2019); (ii) evaluating the model's explanatory power through the adjusted *R*-square coefficient (Montgomery et al., 2021); (iii) conducting an *F*-test to determine the model's overall fit; (iv) checking for multicollinearity using the variance inflation factor (VIF), where $VIF > 10$ indicates potential severe multicollinearity (Montgomery et al., 2021); (v) testing for autocorrelation using the Durbin-Watson statistic (Durbin & Watson, 1951); (vi) verifying the assumption

of constant error variance through the Breusch-Pagan test (Fomby et al., 2012); and (vii) examining the normality of residuals using the Shapiro-Wilk test (Razali & Wah, 2011). As the residuals from the Ordinary Least Squares (OLS) regression showed signs of non-normality, robust regression was applied to address non-standard errors and outliers, enhancing the reliability of the estimated coefficients (Huber, 1981; Wilcox, 2011).

Step 6: In-depth interviews were conducted to triangulate quantitative results, providing additional insights and deeper explanations for unclear phenomena related to the factors influencing the NTE in HCM City. This method adheres to the sequential exploratory mixed-methods design (Creswell & Clark, 2017), integrating qualitative analysis to elucidate quantitative findings.

Sample selection: A minimum of 12 interviews is required for qualitative research based on recommendations for data saturation (Fugard & Potts, 2015; Guest et al., 2006). Accordingly, six initial in-depth interviews were conducted with experts and researchers (coded CG01–CG06) to evaluate the factors, aligning with data saturation guidelines (Guest et al., 2006). If quantitative results indicated a need, an additional 15 interviews were conducted with business entities (DN01–DN05), residents (CD01–CD05), and tourists (KT01–KT05) to clarify practical issues, ensuring comprehensiveness (Creswell & Clark, 2017).

Implementation of the interview and ethical considerations: Semi-structured interviews were conducted between May 15, 2025, and July 30, 2025, using a predesigned questionnaire (Adams, 2015). All interviews were audio-recorded and transcribed verbatim to ensure accuracy and reliability. Participants were adults aged 18 years. The identities of the participants were anonymized through a coding system, and all identifying information was stored in a separate lookup table accessible only to the research team. The dataset was securely maintained and permanently deleted after the completion of the data analysis (Saunders et al., 2009).

This study was conducted in accordance with the Declaration of Helsinki and was approved by the Institutional Review Board of Ho Chi Minh City University of Technology and Education (now Ho Chi Minh City University of Technology and Engineering), HCM City, Vietnam (approval date: May 10, 2025). All data collection occurred after the ethical approval had been granted. Before each interview, the participants were provided with a written information sheet explaining the study objectives, data collection procedures, audio-recording arrangements, confidentiality safeguards, and their right to withdraw at any time without negative consequences. In accordance with the approved ethics protocol, verbal informed consent was obtained in lieu of a signed consent form and was documented by the interviewer in the field notes, together with the date, location, and participant code, before the interview began. Participation was strictly voluntary, and no adverse consequences followed from declining to answer or withdrawing from the study. Confidentiality was safeguarded by assigning each respondent a unique identification code and removing direct identifiers from the transcripts. The linkage file containing identifying information was stored separately in a secure location, accessible only to the research team, and was destroyed after the data analysis was completed.

3. Results and Discussion

3.1 Results

Table 3 presents the demographic and behavioral characteristics of the 360 survey respondents. Table 4 presents the descriptive statistics of the latent constructs. The sample exhibits a balanced gender distribution (51.94% male, 48.06% female), with 51.11% aged 26–35, reflecting a young, active demographic. Most respondents (42.78%) participated in dining and entertainment activities and were surveyed in District 1 (47.22%), aligning with the city's vibrant NTE hubs. Spending predominantly ranged from 500,000 to 3,000,000 VND (62.50%), with 53.61% reporting monthly incomes of 10–20 million VND, which is consistent with urban consumption patterns. Mean scores range from 3.54 (CAA) to 3.91 (HR), with mild negative skewness and near-zero kurtosis across all constructs, confirming generally favorable perceptions and data suitability for factor analysis (Hair Jr et al., 2019). The skewness value for EN (−0.81) indicated

mild non-normality, indicating the application of robust regression. Although HR recorded the highest mean, it was excluded from EFA as its KMO value fell below the 0.70 threshold, possibly reflecting the informal economy in HCM City, where night-time labor often lacks clear distinctions in skills or benefits.

Table 3 Demographic and behavioral characteristics of the respondents

Variable	Definition	Number	Percent
Gender	Male participants	187	51.94%
	Female participants	173	48.06%
Age	Age group 18–25 years	125	34.72%
	Age group 26–35 years	184	51.11%
	Age group over 35 years	51	14.17%
NTE type	Night-time shopping services (night markets, pedestrian streets)	78	21.67%
	Dining and entertainment (restaurants, bars, karaoke, etc.)	154	42.78%
	Night tours and urban sightseeing	63	17.50%
	Performances and other night-time events	65	18.06%
Area	District 1	170	47.22%
	Thu Duc City	75	20.83%
	District 3	55	15.28%
	District 7	60	16.67%
Respondent type	Residents	100	27.78%
	Tourists	160	44.44%
	Business entities (individuals, households, and enterprises)	100	27.78%
Nightly expenditure	Expenditure below 500,000 VND	101	28.06%
	Expenditure from 500,000 to 3,000,000 VND	225	62.50%
	Expenditure above 3,000,000 VND	34	9.44%
Income	Income below 10 million VND	94	26.11%
	Income from 10 to 20 million VND	193	53.61%
	Income above 20 million VND	73	20.28%

Table 4 Descriptive statistics

Variable	Definition	Mean	SD	Median	Skew	Kurtosis
IGOV	Institutional governance	3.76	0.66	3.83	−0.48	0.15
INF	Urban infrastructure	3.74	0.56	3.88	−0.58	0.00
CAA	Community awareness and attitudes	3.54	0.65	3.67	−0.44	−0.08
SEC	Security and safety	3.67	0.67	3.71	−0.69	0.18
HR	Human resources	3.91	0.43	4.00	−0.35	−0.04
PD	Diversity of night-time products and services	3.66	0.43	3.71	−0.50	−0.28
DT	Digital technology	3.59	0.74	3.83	−0.61	−0.47
EN	Effective NTE development	3.68	1.00	4.00	−0.81	0.35

Note: N = 360. A five-point Likert scale was used to measure the IGOV, INF, CAA, SEC, HR, PD, DT, and EN constructs. Variables such as gender, age, NTE type, area, expenditure, and income are reported in frequency and percentage. The HR variable was included to reflect the initial survey data but was excluded from the EFA

because of a KMO value < 0.7 (Hair Jr et al., 2019).

Figure 2 shows that items within the same construct are strongly correlated, while correlations across constructs remain moderate, which supports the measurement model's convergent and discriminant validity (Hair Jr et al., 2019; Lin et al., 2022). The presence of significant correlations, visualized through darker shading, confirms the suitability of the data for factor extraction, with no evidence of multicollinearity ($VIF < 1.21902$).

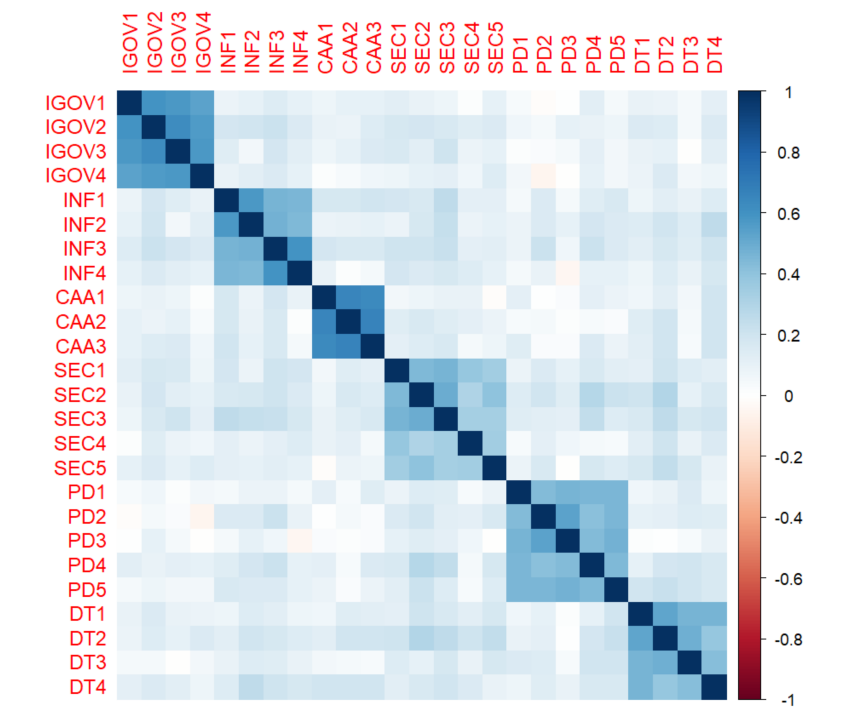


Figure 2 Correlation matrix of the observed variables

The initial instrument, which was developed from theoretical foundations and expert consultations, comprised 46 observed variables across seven latent constructs. The EFA revealed that the HR construct did not meet the minimum KMO threshold of 0.70 (Hair Jr et al., 2019), leading to the exclusion of all six associated items. Furthermore, additional items from the remaining constructs were eliminated due to low factor loadings (< 0.50) or communalities (< 0.30), specifically IGOV5–IGOV6, four items from INF, three from CAA, two from SEC, and two each from PD and DT. The final structure retained 25 items across six constructs: IGOV (4 items), INF (4 items), CAA (3 items), SEC (5 items), PD (5 items), and DT (4 items). All retained constructs achieved satisfactory KMO values ranging from 0.73 to 0.84, and Bartlett's tests yielded highly significant results, indicating sampling adequacy and factorability (Table 5). The removal of HR reflects the contextual characteristics of HCM City, where statistical distinctiveness in night-shift labor may be limited, while infrastructure and public safety demonstrate stronger empirical contributions to the NTE framework (Le et al., 2023).

As reported in Table 5, Cronbach's alpha values range from 0.76 (SEC) to 0.85 (CAA), confirming good internal consistency for all retained constructs, with community awareness showing the highest reliability and security slightly lower but still within acceptable bounds.

Table 6 presents the factor-loading matrix following Promax rotation for 25 items across six factors influencing the NTE in HCM City. Factor loadings ranged from 0.680 to 0.881, all of which exceeded the 0.5 threshold, while communality values (h^2) varied from 0.453 to 0.781, confirming item appropriateness. CAA exhibited the highest factor loadings (0.870–0.881), followed by IGOV (0.817–0.836), indicating that these constructs are particularly well-defined in the NTE context of HCM City.

Table 5 Combined results of KMO, Bartlett's test, and reliability analysis for measurement scales of factors influencing the NTE in HCM City

Factor Group	No. of Items	Overall KMO	Item-Level MSA	Cronbach's Alpha	Raw Alpha	Bartlett's Test
IGOV	4	0.82	IGOV1: 0.83; IGOV2: 0.80; IGOV3: 0.81; IGOV4: 0.84	0.84	IGOV1: 0.81; IGOV2: 0.79; IGOV3: 0.80; IGOV4: 0.82	$\chi^2 = 356.1791$; $p < 7.27 \times 10^{-74}$
INF	4	0.76	INF1: 0.77; INF2: 0.76; INF3: 0.75; INF4: 0.75	0.80	INF1: 0.75; INF2: 0.76; INF3: 0.75; INF4: 0.75	
CAA	3	0.73	CAA1: 0.75; CAA2: 0.72; CAA3: 0.73	0.85	CAA1: 0.80; CAA2: 0.78; CAA3: 0.79	
SEC	5	0.80	SEC1: 0.80; SEC2: 0.78; SEC3: 0.79; SEC4: 0.82; SEC5: 0.83	0.76	SEC1: 0.70; SEC2: 0.70; SEC3: 0.70; SEC4: 0.74; SEC5: 0.73	
PD	5	0.84	PD1: 0.85; PD2: 0.83; PD3: 0.82; PD4: 0.86; PD5: 0.85	0.81	PD1: 0.77; PD2: 0.77; PD3: 0.76; PD4: 0.78; PD5: 0.77	
DT	4	0.77	DT1: 0.75; DT2: 0.76; DT3: 0.79; DT4: 0.80	0.77	DT1: 0.69; DT2: 0.71; DT3: 0.72; DT4: 0.74	

Table 6 Factor loading matrix after the promax rotation

Construct	Number of Items	Factor Loading Range	Communality (h^2) Range
PD	5	0.688–0.832	0.546–0.643
IGOV	4	0.817–0.836	0.659–0.710
SEC	5	0.682–0.764	0.453–0.569
INF	4	0.769–0.826	0.629–0.646
DT	4	0.680–0.837	0.531–0.661
CAA	3	0.870–0.881	0.761–0.781

Figure 3 illustrates the Exploratory Graph Analysis (EGA) network of the six validated constructs: IGOV (institutional governance), INF (urban infrastructure), CAA (community awareness and attitudes), SEC (security and safety), PD (diversity of night-time products and services), and DT (digital technology). Nodes represent individual scale items; node colors denote factor membership identified through the walktrap community-detection algorithm; edge thickness reflects the strength of partial correlations between items. The tight clustering of items within each construct reflects convergent validity, whereas the spatial separation between clusters confirms discriminant validity.

Table 7 presents the OLS and robust regression results for six factors influencing NTE development in HCM City. All variables demonstrated significant positive effects. SEC exhibited the strongest impact, followed by PD and DT, which were established as primary determinants. IGOV, CAA, and INF showed small but significant contributions. The model explained 53.78% of the variance. The model diagnostics confirmed the appropriateness of the analytical approach. The VIF values remained well within acceptable ranges, indicating that multicollinearity posed no concern. The Durbin-Watson statistic indicated the absence of problematic autocorrelation, whereas the Breusch-Pagan test revealed only marginal heteroscedasticity. The Shapiro-Wilk test detected a mild deviation from residual normality, which prompted the application of robust regression techniques to enhance the stability of the coefficient (Huber, 1981). Reassuringly, the robust estimates closely aligned with the OLS findings, reinforcing confidence in the reliability of the results. These findings provide empirical support for H01, H02, H03, H04, H06, and H07. Notably, H05 concerning human resources could not be tested because the HR construct was excluded from EFA due to insufficient sampling adequacy reflected in low KMO values.

The regression results reveal a hierarchical structure of determinants, with SEC and PD exerting the strongest effects, followed by DT, IGOV, CAA, and INF, all of which are statistically significant and positive.

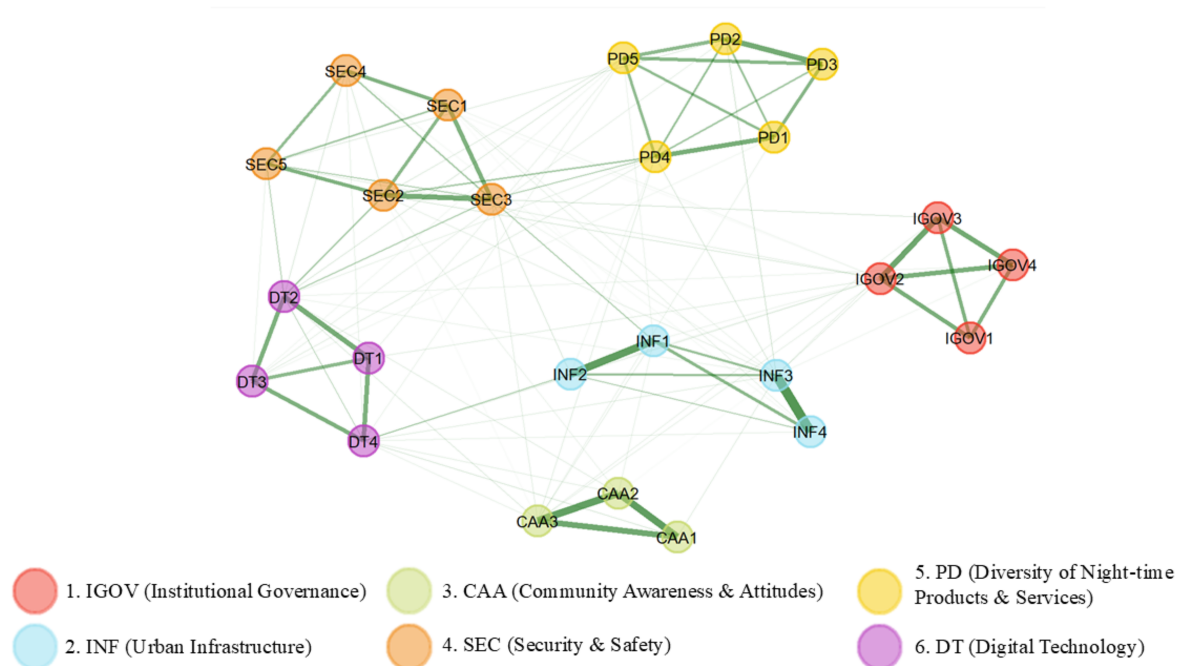


Figure 3 Clustered factor structure of variables influencing the development of NTE

Table 7 OLS and robust regression results for factors influencing NTE

Independent Variable	Beta Coeff. (β)	OLS		Robust Regression		VIF
		Std. Error	p-value	Robust Std. Error	p-value	
(Intercept)	-1.3851	0.26592	3.24×10^{-7} (***)	0.263696	2.598×10^{-7} (***)	—
IGOV	0.14619	0.04332	0.000821 (***)	0.051752	0.005001 (**)	1.07999
INF	0.12321	0.04779	0.010334 (*)	0.056451	0.029717 (*)	1.16668
CAA	0.12655	0.03804	0.000971 (***)	0.041163	0.002274 (**)	1.06993
SEC	0.43706	0.04917	$< 2 \times 10^{-16}$ (***)	0.057165	1.990×10^{-13} (***)	1.21902
PD	0.34492	0.04464	1.16×10^{-13} (***)	0.046982	1.469×10^{-12} (***)	1.09869
DT	0.23114	0.04310	1.48×10^{-7} (***)	0.050335	6.114×10^{-6} (***)	1.17755

$F(6, 353) = 68.46346$, $p < 2.2 \times 10^{-16}$; Multiple $R^2 = 0.53783$; Adjusted $R^2 = 0.52997$; Durbin–Watson statistic = 1.845718 ($p = 0.144$); Breusch–Pagan test: BP = 12.455, df = 6 ($p = 0.05255$); Shapiro–Wilk test: $W = 0.98794$ ($p = 0.004417$).

Note: (*) indicates significance at the 5% level $p < 0.05$; (**) indicates significance at the 1% level $p < 0.01$; (***) indicates significance at the 0.1% level $p < 0.001$.

3.2 Discussion

The findings show that institutional arrangements, infrastructure, community perceptions, public safety, service diversity, and digital tools all contribute to the development of NTE in HCM City, with security and product diversity exerting the strongest influence. These results are consistent with the idea that participation in night-time activities depends on perceived safety, attractive options, and enabling institutions (Ajzen, 1991; Busenitz et al., 2000; Lin et al., 2022). They also align with recent Vietnamese studies that emphasize the importance of security, infrastructure, and services for NTE growth in cities such as Hanoi, Da Nang, and Sapa (Le et al., 2023; Son et al., 2023; Thi et al., 2023).

Security and safety are the strongest determinants of NTE development, supporting H04, consistent with evidence that night-time crime rates suppress participation and that surveillance systems and visible policing broaden visitor engagement (Hadfield, 2009; Philpot et al., 2019; Schnitzer et al., 2010). This result is consistent with those of Son et al. (2023) and Le et al. (2023), who identified security as a primary NTE driver in Vietnamese cities. Expert CG01 noted, “*Since the security cameras were installed along Nguyen Hue Walking Street, petty theft at night has clearly gone down compared with before.*” Tourist KT01 (District 1) concurred,

stating, “*When I see police walking the beat in the evening, I feel comfortable staying out late and just wandering around.*” The evidence confirms that enhanced security fosters public confidence and generates measurable economic benefits for night-time businesses. Business entity DN02 (District 3) remarked, “*When customers feel the area is safe at night, they are more willing to come, stay longer, and spend more. Our revenues have increased as security has improved.*” In practice, at Bui Vien Street, where security personnel and police are consistently present, visitor numbers have risen, particularly on weekends, driving revenue growth for local businesses (as assessed by CG02). However, security remains limited in District 7 and Thu Duc City, raising safety concerns. Resident CD01 (District 7) expressed concern that “*fights still break out at some late-night bars*” and suggested that “*tighter control over alcohol sales and closing times would help keep things under control.*” Similarly, tourist KT03 (Thu Duc City) noted, “*In Thu Duc, I don’t see patrols very often at night, so I don’t feel as secure walking around.*” The contrast between central and peripheral areas confirms that visible security measures are foundational to NTE vibrancy, whereas gaps in enforcement in outer districts constrain growth.

Product and service diversity is the second strongest determinant, supporting H06, consistent with Lin et al. (2022), who directly linked the breadth of dining, shopping, and entertainment options to NTE performance, and with Chatterton and Hollands (2002), who demonstrated that varied urban nightscapes extend dwell times and increase per-capita expenditure. This finding also echoes those of Tuong (2022) and Pine and Gilmore (2019), who associate service diversification with repeat visitation and higher tourist spending. District 1 exemplifies this dynamic, with street food, night markets, bars, and cultural events creating varied evening programs. Tourist KT02 (District 1) enthusiastically shared, “*Saigon’s street food scene is incredibly diverse. At night, I feel like I have endless choices from sidewalk stalls and the Ben Thanh Night Market to late-night cafés and ice cream places.*” This richness encourages tourists to stay longer to experience more, rather than ending their evenings early. Expert CG02 added, “*Night-time events like light shows and music festivals on Nguyen Hue Walking Street have clearly drawn more people into the area and boosted revenues for surrounding businesses.*” Business entity DN01 (District 7) also noted, “*Whenever there are cultural events or night fairs, the crowds are much bigger and our shop’s sales go up noticeably.*” Respondents noted that the diversity remains spatially uneven. Resident CD02 (District 7) complained, “*There are too few food trucks or late-night food options, so it’s hard to find something to eat if you stay out late.*” Similarly, tourist KT03 remarked, “*Thao Dien is lively at night but lacks entertainment venues; more diverse night-time activities are needed.*” Central areas are expanding their night-time offerings, whereas peripheral districts lag and cannot fully capture NTE demand.

Digital technology positively influences NTE development, supporting H07 and consistent with evidence that mobile applications, QR-based services, and electronic payments enhance customer engagement and transaction efficiency in night-time settings (De Luna et al., 2019; Li & Tu, 2021; Lyu, 2025). The findings extend these conclusions to the Vietnamese context, where NTE digital enablement remains underexplored (Ho & Pham, 2025). Tourist KT02 emphasized the safety and convenience of electronic payments: “*I often use the Momo e-wallet when shopping or eating at night. It’s very convenient because I don’t have to carry much cash with me.*” Experts and businesses are increasingly leveraging digital tools to structure and promote night-time offerings. CG01 explained, “*We have developed an application that maps night-time dining and entertainment spots, together with an online portal for event information so tourists can quickly find what they need.*” Additionally, DN04 (Thu Duc City) noted that “*Using QR codes for menus and payments has clearly increased our night-time transactions; customers like how fast and seamless it is to order and pay.*” Furthermore, DN03 (District 1) shared that “*Accepting Momo, ZaloPay, and ViettelPay, combined with regular social media promotion, has helped us attract more young customers in the evening.*” As CG04 observed, social media is no longer only a promotional tool but also a channel for two-way interaction: “*Businesses are constantly updating their night-time deals and events on Facebook, Instagram, and TikTok and linking these with ride-hailing and delivery apps to create a more complete experience ecosystem.*” Simultaneously, the

interviewees pointed out that digital adoption remains uneven across locations. Resident CD03 (District 3) remarked, *“I rarely see any digital promotions or voucher campaigns for night-time services around my area.”* Tourist KT04 (District 3) suggested: *“A single, integrated app for booking bar tables or buying tickets for night events would make going out at night much more convenient.”*

Institutional governance has a significant but modest positive effect, supporting H01. This finding is consistent with institutional theory, which distinguishes between formal rules and their practical effectiveness (North, 1990), and with evidence that coordinated governance is a foundational but insufficient condition for NTE growth (Roberts & Eldridge, 2009; Seijas & Gelders, 2021; Son et al., 2023). Expert CG01 explained, *“A clear legal framework and better coordination between agencies are basic conditions for keeping night-time activities running smoothly.”* However, the respondents repeatedly pointed out that cumbersome procedures reduce the effectiveness of these policies. Expert CG03 noted, *“Regulations on operating hours are useful for maintaining order, but getting approval for night-time events takes far too long.”* In practice, several large-scale night-time events in District 1, such as light festivals on pedestrian streets and outdoor evening concerts, have been delayed or canceled due to prolonged licensing procedures. DN05 (District 1) recounted, *“We wanted to open a night market, but getting all the permits took months, so we had to put everything on hold.”* Strict regulations on curfews, alcohol advertising, and noise control maintain order but limit the scope for expanding night-time entertainment, positioning governance as a prerequisite condition rather than a direct growth driver.

Community awareness and attitudes have a positive but modest effect, supporting H03 and consistent with the theory of planned behavior, which predicts engagement when perceived benefits outweigh costs and social norms are favorable (Ajzen, 1991; Chatterton & Hollands, 2002). The partial support found here aligns with Nguyen (2023) and Seijas and Gelders (2021), who show that resident acceptance of the NTE depends on managing noise and disorder. Noise concerns remained salient in central areas, as noted by CG05: *“Many residents near Bui Vien Western Quarter are worried about the loud music from bars after midnight.”* Resident CD04 (Thu Duc City) shared, *“Personally, I would welcome a night market near my house because it would make the neighborhood more lively, but some of my neighbors complain a lot about the noise.”* In contrast, several respondents, especially tourists and younger residents, emphasized the upside of the study. Tourist KT05 (District 7) noted that *“The economic benefits of night-time activities are obvious, and the city should be more confident in expanding them.”* From the business perspective, DN03 argued that *“local authorities should run communication campaigns so residents better understand the economic and social benefits that the NTE can bring.”* Resident CD05 (District 1) shared, *“I often recommend restaurants and shopping malls in District 1 to friends and colleagues because they are convenient and have a great atmosphere in the evening.”* Community endorsement remains a supporting condition for NTE expansion rather than a driving condition.

Urban infrastructure has a positive but limited effect, supporting H02, consistent with evidence that physical infrastructure is necessary but insufficient for NTE vitality and yields stronger outcomes only when integrated with complementary governance and safety measures (Evans, 2014; Ho & Pham, 2025; Lin et al., 2022; Seijas & Gelders, 2021). Central areas benefit the most from lighting and pedestrian infrastructure. As CG06 explained, *“The street lighting and decorative illumination systems in the central area have clearly increased people’s confidence to go out and enjoy evening activities.”* However, DN02 noted that *“The lighting in the central area is very good, but customers coming to our place at night often struggle to find somewhere to park,”* highlighting parking shortages as a recurring complaint. CG06 further noted that *“Infrastructure supporting night-time activities remains limited, with shortages of parking lots, public restrooms, and efficient waste collection systems diminishing the overall experience for tourists and residents.”* Sanitation services are not adequately aligned with the density of night-time visitors, with waste often accumulating in crowded areas like Bui Vien or Sky Garden until the following morning. Furthermore, the absence of public transportation options, such as buses

and metro services, after 10:00 PM hinders night-time mobility, particularly in Thu Duc City and District 7. According to KT03, *“If the city really wants to attract more people to go out at night, there needs to be public transport running later into the night.”* Compared with cities with 24-hour transportation systems, such as Seoul or Amsterdam (Evans, 2014; Seijas & Gelders, 2021), HCM City lacks a comprehensive network of night buses, metros, river buses, and other supporting services.

4. Conclusion and Implications for Policy

This study developed and validated a multidimensional measurement framework for examining the factors influencing NTE development in HCM City. The results identified six factors with significant positive effects: institutional governance (H01), urban infrastructure (H02), community awareness and attitudes (H03), security and safety (H04), the diversity of night-time products and services (H06), and digital technology (H07). Security and safety together with the diversity of night-time offerings exert the strongest effects, which highlights the importance of a safe environment and attractive activities in encouraging participation in the NTE, while the exclusion of the human resources construct (H05) suggests that labor conditions in this sector remain underdeveloped and warrant further investigation. The study contributes to the literature by providing a context-specific measurement framework for evaluating NTE development in a rapidly urbanizing city and by extending the theory of planned behavior and institutional theory to the NTE context in Southeast Asia. Several policy priorities follow from these findings. Public safety deserves immediate attention through closer collaboration among government agencies, businesses, and local communities, while diversifying cultural, recreational, and commercial activities can enhance the attractiveness of the NTE and create opportunities for local enterprises and employment. Given their weight in the model, these two areas warrant the highest policy priority. Institutional governance should focus on simplifying administrative procedures and improving coordination among relevant agencies, while continued investment in late-night public transport, parking facilities, lighting, and other essential urban services would improve accessibility and support sustainable development. Expanding digital infrastructure and promoting wider adoption of digital services would raise operational efficiency and visitor convenience. Public communication should accompany these efforts to increase awareness of the economic and social benefits of the NTE while addressing concerns related to safety, noise, and environmental quality. Although focused on HCM City, the framework may offer a useful reference for other rapidly urbanizing cities in Southeast Asia facing comparable challenges.

Limitations and Directions for Future Research

While this study successfully developed and validated a multidimensional measurement scale for factors influencing the NTE in HCM City, several limitations warrant consideration to guide future research: (i) The human resources (HR) factor was excluded due to a low KMO value, likely reflecting the informal nature of the night-time labor market in HCM City; (ii) The study's scope primarily focused on central areas (Districts 1 and 3) and select peripheral areas (District 7 and Thu Duc City), which may not fully capture the diversity of other regions within the city; (iii) Although the survey sample provided sufficient statistical power, it may not comprehensively represent all relevant stakeholder groups, particularly small businesses and residents in peripheral areas; (iv) due to limitations in HCM City's digital infrastructure, the role of digital technology, particularly advanced applications such as artificial intelligence and big data, was not fully explored.

Building on these limitations, this study opens several avenues for future research to deepen the understanding of the NTE in HCM City and other developing urban contexts: (i) Investigate the quality, training, and retention of night-time workers in HCM City to understand why the HR factor did not meet statistical criteria and to integrate this factor into future NTE models; (ii) Expand research to other Vietnamese cities or Southeast Asian regions to validate

the measurement scale and identify distinct NTE characteristics across diverse urban contexts; (iii) Explore the application of artificial intelligence, big data, and the Internet of Things to enhance management efficiency, crowd forecasting, and user experience in the NTE; (iv) Employ advanced mixed-methods approaches, such as structural equation modeling or latent class analysis, to assess multidimensional, nonlinear, or latent group effects on stakeholder behaviors and perceptions (tourists, residents, businesses, and authorities).

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Author Contributions

Vo Thi Kim Loan: Conceptualized and designed the study, developed the methodology, conducted analysis, drafted the original manuscript and discussion, and revised and edited the intellectual content. Ho Ngoc Khuong: Conducted the literature review, contributed to methodology development, administered surveys, processed and analyzed data, used software, drafted the original manuscript and discussion, and edited for academic content. All authors have reviewed the results and approved the final version of the manuscript. We also agree to be accountable for all aspects of the work.

Disclosure Statement

No potential conflict of interest was reported by the authors.

Data Availability Statement

The dataset contains potentially identifiable information from human participants and cannot be shared publicly due to the institutional review boards' ethical restrictions. De-identified data may be made available from the corresponding author upon reasonable request and with approval from the relevant ethics committees.

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