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PUBLIC AWARENESS TOWARDS SMART CITY FACILITIES

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ABSTRACT - Smart city initiatives aim to improve urban living through the integration of technology, sustainable infrastructure, and citizen-centric services. This study examines the level of public awareness towards smart city facilities in Coimbatore and analyzes how awareness influences the utilization of these services. Primary data were collected from 665 respondents using a structured interview schedule, and a convenience sampling technique was adopted. The study employed percentage analysis to assess demographic characteristics and awareness levels, along with weighted average ranking to identify the most recognized smart city facilities. The findings reveal higher awareness of visible and technology-driven services such as e-governance, smart classrooms, Wi-Fi hotspots, smart bus stops, public sanitation, and non-motorized transport infrastructure. However, comparatively lower awareness was observed for vocational training, collaborative projects, and renewable energy initiatives. The study highlights the importance of enhancing public awareness through targeted outreach and digital engagement to ensure effective utilization, citizen participation, and the sustainable success of smart city initiatives.

Keywords: *Smart City Facilities, Public Awareness, Citizen Engagement, Urban Governance, Coimbatore*

INTRODUCTION AND BACKGROUND

Urbanization in India has been progressing at an unprecedented pace, resulting in significant challenges for city planning, infrastructure development, and the provision of essential services. Rapid population growth, increasing vehicular density, and rising demand for public utilities have put pressure on traditional urban management systems. In response, the Government of India launched the Smart Cities Mission (SCM) in 2015, aiming to develop cities that are technologically advanced, sustainable, and citizen-centric. The mission emphasizes the integration of digital technologies, data-driven governance, and innovative infrastructure solutions to enhance the quality of life and promote sustainable urban development. Smart city initiatives include a wide array of services, ranging from intelligent transportation systems, smart water management, renewable energy projects, advanced health facilities, and digital governance platforms, to community-centric programs such as smart parks, heritage conservation, and participatory urban planning. While technological implementation forms the backbone of these initiatives, citizen awareness and engagement play a critical role in ensuring their success. The effectiveness of smart city programs depends on how well citizens understand, access, and utilize these facilities. Without adequate awareness, even the most advanced services may remain underutilized, reducing the overall impact of smart city projects.

This study focuses on assessing the level of public awareness regarding smart city facilities in Coimbatore, with a sample size of 665 respondents representing diverse socio-economic, age, and educational backgrounds. Using simple percentage analysis and weighted average ranking, the study evaluates awareness across multiple domains, including e-governance services, intelligent traffic management, renewable energy initiatives, health and sanitation facilities, and community development programs. By analyzing awareness patterns, this research aims to provide valuable insights for policymakers, helping to improve communication strategies, increase citizen participation, and ensure that smart city initiatives align with public needs and expectations.

STATEMENT OF THE PROBLEM

Urbanization in India has created significant challenges for city infrastructure, governance, and the delivery of public services. The Smart Cities Mission was initiated to develop technologically advanced, sustainable, and citizen-friendly urban spaces. The effectiveness of smart city initiatives-such as e-governance services, intelligent traffic systems, renewable energy projects, and health facilities-largely depends on public awareness and utilization. Many citizens remain unaware of the facilities available or do not fully use them, which limits the impact of these initiatives. Assessing the level of public awareness is essential to identify gaps, enhance engagement, and ensure that smart city objectives meet the needs of the urban population.

SCOPE OF THE STUDY

This study focuses on examining the level of public awareness regarding smart city facilities in Coimbatore. It aims to cover various aspects of smart city initiatives, including e-governance services, intelligent traffic management, health and sanitation facilities, renewable energy projects, community participation programs, and digital infrastructure. The research emphasizes understanding how citizens access, perceive, and utilize these facilities in their daily lives, providing insights into the effectiveness of smart city programs. The study

involves a sample of 665 respondents, representing diverse socio-economic backgrounds, age groups, and educational levels, ensuring a comprehensive understanding of awareness patterns. By analyzing public knowledge and engagement, the research identifies gaps in communication, areas requiring improvement, and opportunities for enhancing citizen participation. The findings are intended to guide policymakers, urban planners, and local authorities in improving service delivery, promoting sustainable urban development, and ensuring that smart city initiatives are aligned with the needs and expectations of the urban population.

REVIEW IF LITERATURE

Recent studies emphasize that public awareness is a critical catalyst for the success of smart city initiatives, as awareness shapes acceptance, participation, and satisfaction with urban innovations. Research across diverse city contexts reveals that informed citizens are more likely to support and utilize smart infrastructure, thereby enhancing the efficiency of local governance and service delivery. Investigations into awareness of key facilities-such as smart water meters, e-governance platforms, Wi-Fi hotspots, telemedicine services, intelligent traffic management systems (ITMS), and waste-to-energy plants-demonstrate that familiarity with these technologies significantly influences the perceived usefulness and public uptake of smart city programs. Comparative studies in India and other emerging economies observe that education level, media exposure, and access to digital tools strongly determine variation in awareness, suggesting that digital inclusion strategies remain central to equitable smart city development. More evidence from municipal programs integrating smart classrooms, vocational training centres, renewable energy projects, and community participation models indicates that awareness not only fosters acceptance but also cultivates collective responsibility towards sustainable urban living. The role of government outreach programs, participatory communication, and transparent data-sharing mechanisms has been found to be indispensable in building public trust and engagement. Scholars argue that when citizens are well-informed about infrastructure improvements, environmental measures such as rainwater harvesting and solar energy, and social initiatives like women's safety and differently-abled accessibility, their perception of governance legitimacy and service satisfaction increases substantially. Analytical approaches including simple percentage analysis and weighted average ranking methods have been widely adopted to quantify respondent awareness levels and rank the prominence of various facilities among populations. The emerging literature underscores that awareness is not merely about knowledge of physical infrastructure, but about creating a framework of trust, inclusion, and responsiveness. Bridging awareness gaps through effective communication, citizen education, and sustained engagement remains essential to translating smart city investments into tangible public value. For a medium-sized urban centre like Coimbatore, where this research draws from 665 respondents, measuring and interpreting awareness across multiple domains-technological, environmental, and social-offers valuable insights into how citizens experience, evaluate, and contribute to the city's transformation towards a smarter, more sustainable urban ecosystem.

OBJECTIVE OF THE STUDY

To identify the level of public awareness of smart city facilities.

SIGNIFICANCE OF THE STUDY

This study is significant as it evaluates the level of public awareness regarding smart city facilities, providing insights into how citizens access, perceive, and utilize urban services. Understanding awareness patterns helps policymakers and urban planners identify gaps in communication, improve service delivery, and design targeted awareness programs. Increased awareness promotes citizen engagement, acceptance, and responsible participation, enhancing the efficiency and sustainability of smart city initiatives. For Coimbatore, the findings offer valuable guidance to optimize technological, environmental, and social interventions, ensuring that investments in smart infrastructure translate into tangible benefits and foster a more inclusive and responsive urban environment.

RESEARCH METHODOLOGY

Source of Data

The study is based entirely on primary data collected directly from the general public in Coimbatore. A structured interview schedule was used to gather first-hand and reliable information on public awareness of smart city facilities. The structured format ensured uniformity in the questions asked, enabling consistency and comparability across all respondents. This approach enhanced the reliability and validity of the data, allowing for a systematic assessment of citizens' knowledge, engagement, and behavior concerning various smart city initiatives.

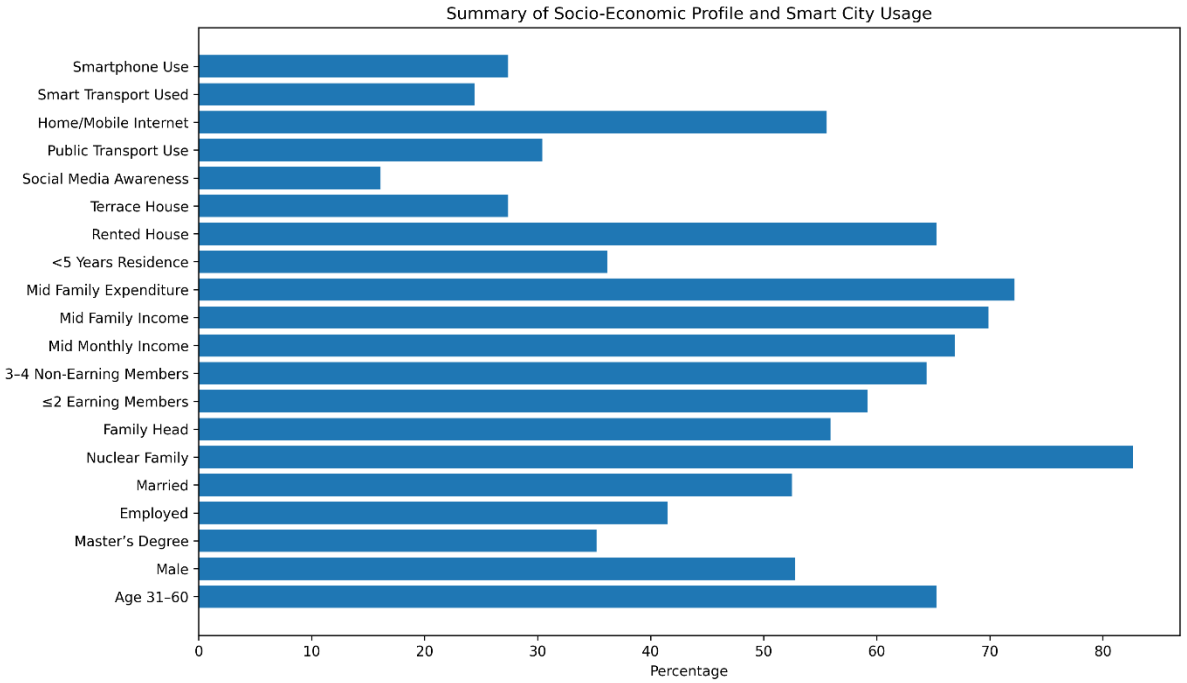
Sampling Technique and Sample Size

The study employed a convenience sampling technique to select participants from different areas of Coimbatore city. A total of 665 respondents were surveyed. Convenience sampling was chosen for its practical feasibility and ease of accessing respondents willing to participate. It is recognized that this non-probability sampling method may limit the generalizability of findings beyond the study area.

Framework of Analysis

Data were analyzed using descriptive and inferential statistical tools. Percentage analysis was used to present the demographic profile of respondents and summarize the level of awareness of smart city facilities. Weighted average ranking was applied to identify and rank key lifestyle practices that influence the use and adoption of smart city services, providing insight into citizen engagement patterns and priorities.

ANALYSIS AND INTERPRETATION



INTERPRETATION

The consolidated chart presents a comprehensive overview of the dominant socio-economic characteristics of the respondents. The majority of respondents belong to the economically active age group of 31–60 years, with a slight male predominance. A substantial proportion of respondents possess higher educational qualifications, particularly master's degrees, and are predominantly employed, indicating a relatively educated and working population. Most respondents are married, belong to nuclear families, and act as heads of their households, with up to two earning members and three to four non-earning members in the family. Income and expenditure patterns largely fall within the middle-income range, reflecting financial stability. A majority reside in rented and terrace houses and have lived in the city for less than five years. Social media emerges as a key source of smart city awareness, while public transportation is the most commonly used commuting mode. Internet access is mainly through home broadband and mobile devices, with smartphones being the most frequently used digital device, indicating readiness for smart city service adoption.

WEIGHTED AVERAGE RANKING – PUBLIC AWARENESS TOWARDS SMART CITY FACILITIES

AWARENESS							
S.No	**Educational Level**	**Highly Aware**	**Aware**	**Not Aware**	**Total**	**Mean Score**	**Rank**
		3	**2**	**1**			
1	Smart Water Meters	175	367	123	665	2.0782	**3**
		525	734	123	1382		
2	Smart Zoning Regulations	134	365	166	665	1.9519	**5**
		402	730	166	1298		
3	E-Governance Services	203	374	88	665	2.1729	**1**
		609	748	88	1445		
4	Vocational Training Centers	137	388	140	665	1.9955	**4**
		411	776	140	1327		
5	Smart Classrooms	185	357	123	665	2.0932	**2**
		555	714	123	1392		
S.No	**Access to Information Technology**	**Highly Aware**	**Aware**	**Not Aware**	**Total**	**Mean Score**	**Rank**
		3	**2**	**1**			
1	Emergency Response Systems	280	307	78	665	2.3038	**2**
		840	614	78	1532		
2	Smart Parking Solutions	165	390	110	665	2.0827	**7**
		495	780	110	1385		
3	Urban Data Centre’s	200	355	120	675	2.1185	**6**
		600	710	120	1430		
4	Digital Property Management	263	339	63	665	2.3008	**3**
		789	678	63	1530		
5	Telemedicine Facilities	221	339	105	665	2.1744	**5**
		663	678	105	1446		
6	Advanced Ambulance Services	266	301	98	665	2.2526	**4**
		798	602	98	1498		
7	Wi-Fi Hotspots	351	201	113	665	2.3579	**1**
		1053	402	113	1568		
S.No	**Media Exposure**	**Highly Aware**	**Aware**	**Not Aware**	**Total**	**Mean Score**	**Rank**
		3	**2**	**1**			
1	Cultural Events and Spaces	182	352	131	665	2.0767	**8**
		546	704	131	1381		
2	Intelligent Traffic Management System (ITMS)	293	299	73	665	2.3308	**3**
		879	598	73	1550		
3	Smart Bus Stops	320	282	63	665	2.3865	**1**
		960	564	63	1587		
4	Flyovers and Underpasses	197	363	105	665	2.1383	**5**
		591	726	105	1422		
5	Slum Rehabilitation	185	357	123	665	2.0932	**6**
		555	714	123	1392		
6	Heritage Conservation	186	338	141	665	2.0677	**9**
		558	676	141	1375		

7	Solar Power Initiatives	155 465	400 800	100 100	655 1365	2.0840	**7**
8	Smart Street Lighting	285 855	345 690	35 35	665 1580	2.3759	**2**
9	Early Warning Systems	275 825	289 578	101 101	665 1504	2.2617	**4**

S.No	**Government Outreach Programs**	**Highly Aware** **3**	**Aware** **2**	**Not Aware** **1**	**Total**	**Mean Score**	**Rank**
1	Rainwater Harvesting	288 864	261 522	116 116	665 1502	2.2586	**3**
2	Lake and Riverfront Development	165 495	377 754	123 123	665 1372	2.0632	**6**
3	Smart Waste Collection	191 573	371 742	103 103	665 1418	2.1323	**4**
4	Smart Health centre's	187 561	370 740	108 108	665 1409	2.1188	**5**
5	Public Toilets and Sanitation	305 915	320 640	40 40	665 1595	2.3985	**1**
6	Collaborative Projects	125 375	390 780	150 150	665 1305	1.9624	**9**
7	Waste-to-Energy Plants	194 582	303 606	168 168	665 1356	2.0391	**8**
8	Smart Housing Projects	265 795	326 652	74 74	665 1521	2.2872	**2**
9	Renewable Energy Projects	155 465	400 800	115 115	670 1380	2.0597	**7**

S.No	**Community Participation**	**Highly Aware** **3**	**Aware** **2**	**Not Aware** **1**	**Total**	**Mean Score**	**Rank**
1	Online Citizen Grievance Redressal	194 582	368 736	103 103	665 1421	2.1368	**6**
2	Road Infrastructure Improvements	197 591	363 726	105 105	665 1422	2.1383	**5**
3	Women's Safety Initiatives	206 618	357 714	102 102	665 1434	2.1564	**4**
4	Transit-Oriented Development (TOD)	182 546	362 724	121 121	665 1391	2.0917	**8**
5	Smart Parks	185 555	370 740	110 110	665 1405	2.1128	**7**
6	Non-Motorized Transport (NMT) Infrastructure	285 855	345 690	35 35	665 1580	2.3759	**1**
7	24x7 Water Supply	217 651	343 686	105 105	665 1442	2.1684	**3**
8	Smart Solutions for Differently-Abled	280 840	307 614	78 78	665 1532	2.3038	**2**

The result of weighted average rank discloses that, it is inferred that respondents are highly aware of E-Governance Services, followed by Smart Classrooms and Smart Water Meters under educational level. With respect to access to information technology, respondents show high awareness toward Wi-Fi Hotspots, Emergency Response Systems, and Digital Property Management, indicating these services are more prominently recognized. Under media exposure, Smart Bus Stops, Smart Street Lighting, and Intelligent Traffic Management Systems are the most highly aware facilities among respondents. In terms of government outreach programs, respondents are highly aware of Public Toilets and Sanitation, followed by Smart Housing Projects and Rainwater Harvesting. Regarding community participation, respondents exhibit high awareness of Non-Motorized Transport (NMT) Infrastructure, Smart Solutions for Differently-Abled, and 24×7 Water Supply. Overall, the results indicate that respondents are most aware of services that are frequently visible, technology-enabled, and directly improve daily convenience and safety.

SUGGESTIONS

- Increase awareness campaigns about lesser-known smart city facilities such as vocational training centers, smart zoning regulations, and collaborative projects to ensure wider citizen engagement.
- Promote digital literacy programs targeting all age groups to improve access to e-governance services, telemedicine, and digital property management systems.
- Enhance visibility and accessibility of technology-enabled services like smart bus stops, smart street lighting, and Wi-Fi hotspots to encourage regular usage and adoption.
- Strengthen government outreach initiatives for public utilities, including rainwater harvesting, smart housing projects, and waste-to-energy plants, to increase citizen knowledge and participation.
- Foster community participation programs, emphasizing non-motorized transport infrastructure, solutions for differently-abled citizens, and 24×7 water supply, to cultivate collective responsibility and sustainable urban practices.
- Utilize social media and digital platforms as key channels for information dissemination, ensuring timely updates on smart city services and initiatives to improve overall awareness and citizen satisfaction.

CONCLUSION

The study on public awareness towards smart city facilities in Coimbatore provides important insights into citizens' knowledge, engagement, and utilization of urban services. The analysis reveals that most respondents belong to the economically active age group (31–60 years), are educated, employed, and show readiness to adopt technology-enabled services, indicating a population capable of engaging with smart city initiatives. Weighted average ranking shows that citizens are most aware of E-Governance Services, Smart Classrooms, Smart Water Meters, Wi-Fi Hotspots, Smart Bus Stops, Smart Street Lighting, Public Toilets, and Non-Motorized Transport (NMT) Infrastructure, which are highly visible, technology-driven, and directly improve

daily convenience and safety. Awareness of facilities such as vocational training centers, collaborative projects, renewable energy projects, and smart zoning regulations is comparatively lower, highlighting the need for targeted outreach. The findings emphasize that public awareness fosters participation, trust, and collective responsibility. By enhancing awareness through digital literacy programs, social media campaigns, government outreach, and community engagement, Coimbatore can increase the effective utilization, sustainability, and inclusiveness of its smart city initiatives, translating investments into tangible benefits for all citizens.

FUTURE SCOPE

This study provides a foundational understanding of public awareness regarding smart city facilities in Coimbatore, but future research can expand its scope in several ways. Longitudinal studies could track changes in awareness as new technologies and services are introduced. Comparative research across multiple cities would highlight regional differences and best practices in smart city implementation. Incorporating qualitative approaches, such as interviews and focus groups, could provide deeper insights into citizen perceptions, motivations, and barriers to utilization. Additionally, evaluating the effectiveness of targeted awareness campaigns and digital literacy programs can guide policymakers to enhance citizen engagement, participation, and the overall success of smart city initiatives.

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