



AWARENESS OF SMART CITY PROJECTS: A COMPARATIVE ANALYSIS OF DAVANGERE AND BELAGAVI CITIES

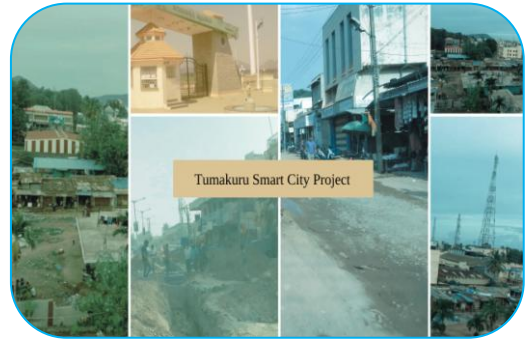
Mr. Vijay Badiger¹ and Dr. Suchitra S.²

¹Research scholar, Department of Studies in Economics, Davanagere University.
Davanagere. Karnataka.

²Professor, Department of Studies in Economics, Davanagere University.
Davanagere. Karnataka.

ABSTRACT

This study presents an empirical analysis of the level of public awareness regarding Smart City projects in two selected cities: Davangere and Belagavi. Using a structured survey, data were collected from 435 respondents in Davangere and 490 in Belagavi to assess variations in awareness based on demographic and socio-economic factors. The findings reveal significant differences in awareness across these variables. While both cities demonstrate moderate awareness levels, the study identifies key areas where awareness can be enhanced, particularly among lower-income and less-educated populations. The study emphasizes the need for targeted communication strategies and citizen engagement programs to bridge these gaps and foster greater public participation in the development of Smart City projects. The insights generated from this comparative analysis offer valuable guidance for policymakers and urban planners to improve outreach and ensure that the benefits of Smart City projects are understood and utilized by all segments of society.



KEYWORDS: Citizen engagement, Smart City Mission, Socio-economic factors, Urban development.

1. INTRODUCTION

Context and Importance of Smart City Mission

Urbanization in India has been growing at an unprecedented pace, placing immense pressure on existing infrastructure and governance frameworks. In response to these challenges, the Indian government launched the Smart City Mission in 2015, aiming to promote sustainable and inclusive urban development by integrating technology, innovation, and smart solutions. The mission aspires to transform 100 cities across India into hubs of economic growth, environmental sustainability, and enhanced quality of life, utilizing the principles of "smart" technology and data-driven governance (Ministry of Housing and Urban Affairs, 2018). The Smart City Mission emphasizes a citizen-centric approach, where cities are designed to improve the quality of urban living by focusing on smart solutions related to transportation, water management, waste disposal, housing, and governance.

Importance of public awareness for the success of Smart City projects

The success of the Smart City Mission hinges not only on technological advancements but also on the extent of public awareness and engagement. Citizens play a crucial role in shaping the outcomes of Smart City initiatives by participating in the planning and implementation processes. Effective communication and awareness strategies are necessary for fostering active participation, which in turn can influence the prioritization of urban challenges and the selection of appropriate solutions. Studies have demonstrated that in urban development projects, a lack of public awareness often leads to resistance, misalignment of objectives, and underutilization of resources (Kumar & Prakash, 2021). Therefore, raising awareness about Smart City projects is essential for ensuring that the urban population is engaged, supportive, and able to benefit from the proposed interventions.

Study Area: Davangere and Belagavi

Brief introduction to Davangere and Belagavi as Smart Cities

Davangere and Belagavi, two prominent cities in the state of Karnataka, India, were selected under the Indian government's Smart City Mission in 2015 and 2016, respectively. As part of the mission, these cities aim to develop sustainable and technologically advanced urban infrastructures that enhance the quality of life for their citizens through smart solutions.

Davangere is often referred to as the "Manchester of Karnataka" due to its historical significance as a textile and industrial hub. In recent years, Davangere has shifted its focus toward becoming a smart and sustainable city, investing in improved urban mobility, water management, waste treatment, and the promotion of digital services. The city's Smart City plan emphasizes the modernization of infrastructure, development of public spaces, and the integration of information technology to facilitate efficient governance and enhance public service delivery (Government of Karnataka, 2020).

Belagavi, known for its cultural diversity and strategic location near the Maharashtra-Goa borders, is another key city selected under the Smart City Mission. With a rich history in trade, education, and defense, Belagavi's smart city agenda centers on developing its urban mobility infrastructure, green spaces, and digital connectivity, while promoting economic growth through industrial and commercial activities. The Smart City plan for Belagavi includes the establishment of energy-efficient solutions, improved governance through e-governance initiatives, and the creation of citizen-friendly public spaces (Smart Cities Mission, 2019).

Both cities, as part of their Smart City initiatives, are working toward balancing rapid urbanization with sustainability. However, the success of these projects depends heavily on local citizens' understanding, participation, and support, making public awareness a critical factor in their implementation.

2. LITERATURE REVIEW

Awareness and Public Participation in Urban Development

Public awareness and participation are recognized as essential components in the success of urban development projects, particularly in the context of Smart City initiatives. Research conducted in European and North American cities, for instance, highlights how public awareness of smart city projects significantly enhances civic engagement, enabling more transparent governance and the effective utilization of smart technologies (Kitchin, 2014). In these regions, citizen-centric approaches have been adopted to promote inclusive urban development, where local communities are directly involved in decision-making processes, thereby increasing the legitimacy and success of Smart City initiatives (Nam & Pardo, 2011).

In the Indian context, the Smart City Mission is a flagship program aimed at fostering urban renewal and transformation through the integration of smart technologies. However, several studies indicate that public awareness remains a critical challenge in ensuring the success of such projects. Kumar and Arora (2019) explored the relationship between public awareness and Smart City project implementation in various Indian cities, concluding that a significant portion of the population lacks a comprehensive understanding of these initiatives. Similarly, studies conducted by Sharma and Gupta

(2020) found that while urban residents are aware of the term "Smart City," their understanding of the specific projects and technologies involved is limited. This gap in awareness often results in lower levels of public participation, as residents are not fully informed about how these initiatives could directly improve their quality of life (Jha & Bhattacharya, 2018).

Several determinants influence the level of public awareness regarding Smart City projects, with socio-economic status, education, digital literacy, and local governance communication being among the most prominent. Socio-economic factors such as income and occupation are widely recognized as key predictors of awareness levels.

3. OBJECTIVES OF THE STUDY

The study aims to evaluate the public's awareness of Smart City projects, with a particular focus on understanding how effectively these initiatives are communicated to residents in the cities of Davangere and Belagavi. Given the transformative potential of Smart City projects in fostering urban innovation, sustainability, and improved governance, it is essential to assess the level of public knowledge and engagement. The following objectives guide the study:

- a. To assessing the level of awareness of Smart City projects in the study area.
- b. To compare the awareness levels in Davangere and Belagavi.

The main goal of this research is to assess how well residents in Davangere and Belagavi are informed about the Smart City Mission's projects. Public awareness is crucial for the success of these initiatives, as it relies on citizen engagement and perception of benefits (Kumar & Arora, 2019). This study will measure awareness of smart technologies and urban renewal efforts aimed at improving living conditions.

A comparative analysis between Davangere and Belagavi will reveal regional differences in public knowledge about the Smart City projects. This comparison will help identify how demographic factors, governance practices, and communication strategies affect awareness levels (Mishra & Prakash, 2020).

4. METHODOLOGY

Study Area Description

The study focuses on two urban centers in Karnataka, Davangere and Belagavi, both of which are part of India's Smart City Mission. These cities have been selected due to their participation in this mission and their distinct socio-economic characteristics, making them suitable for a comparative analysis of public awareness regarding Smart City projects.

Davangere, located in central Karnataka, is known for its agrarian economy, with significant contributions from the textile and education sectors. The city's economic activities are centered around agriculture, agro-based industries, and small-scale manufacturing units (Government of Karnataka, 2018).

Belagavi, on the other hand, is a city located in the northern part of Karnataka and serves as a commercial and industrial hub with a population of 490,045 (Census of India, 2011). Its economy is diversified, encompassing agriculture, trade, and industries, particularly in the automobile and foundry sectors. Belagavi's Smart City initiatives aim to improve urban mobility, waste management, and governance through the integration of digital solutions (Kumar & Prakash, 2020).

Sampling Design

The study employed a stratified random sampling technique to ensure that different demographic and socio-economic groups were adequately represented. A total of 925 respondents were surveyed, comprising 435 residents from Davangere and 490 from Belagavi. The target groups for this study included residents from various age groups, genders, educational backgrounds, as well as business owners and government officials. This diversity within the sample ensures that the data collected reflects the broader community and stakeholders impacted by the Smart City initiatives. The

inclusion of business owners and government officials provides an additional perspective on how awareness and engagement levels vary across different societal roles (Kumar & Rao, 2020).

Data Collection Methods

Data was collected through a questionnaire method. A structured survey was administered to residents in both cities to assess their awareness of Smart City projects. The survey included questions related to the respondents' understanding of the ongoing and planned projects, their sources of information, and their perceived benefits or challenges. Additionally, semi-structured interviews were conducted with business owners and government officials to gather qualitative insights into their roles in promoting public awareness and participation.

Secondary data sources, such as official reports from the Smart City Mission, government publications, and previous academic studies, were used to contextualize the findings. These sources provided valuable information on the progress of the Smart City initiatives in Davangere and Belagavi, allowing for a deeper analysis of the communication strategies employed by local authorities (Sharma & Baig, 2019).

Data Analysis

The data collected from surveys is analyzed using a range of statistical tools. Descriptive statistics, including frequency distribution and cross-tabulations, were used to summarize the demographic characteristics of the respondents and their awareness levels. Additionally, inferential statistical methods, such as t-test is employed to identify relationships between key variables, such as socio-economic status, education, and awareness of Smart City initiatives. The comparative analysis between Davangere and Belagavi focused on identifying significant differences in awareness levels across demographic groups and cities.

5. FINDINGS AND DISCUSSION

The demographic analysis of respondents from Davangere and Belagavi reveals key insights into the composition of the sample population, as detailed in Table 1.

General Awareness Levels

The study assesses public awareness of Smart City projects in Davangere and Belagavi, revealing notable differences between the two cities. Table 2 presents a cross-tabulation of city and awareness levels regarding Smart City projects.

Table 1: Cross tabulation of city and awareness on smart city project

			Awareness		Total
			Yes	No	
City	Davangere	N	321	114	435
		% of Total	34.7%	12.3%	47.0%
	Belagavi	Count	350	140	490
		% of Total	37.8%	15.1%	53.0%
Total		Count	671	254	925
		% of Total	72.5%	27.5%	100.0%

In Davangere, 321 respondents (34.7% of the total sample) reported awareness of Smart City initiatives, while 114 respondents (12.3%) indicated no awareness. Conversely, in Belagavi, a higher proportion of respondents—350 (37.8%)—were aware of the Smart City projects, compared to 140 (15.1%) who were not. This data demonstrates a generally higher level of awareness in Belagavi compared to Davangere, suggesting differences in outreach effectiveness or public engagement strategies between the two cities.

The overall awareness across both cities stands at 72.5%, with 671 out of 925 respondents acknowledging awareness of Smart City projects. This high level of awareness is indicative of effective communication and information dissemination efforts, yet the 27.5% of respondents who are unaware highlights a significant gap that needs addressing. Understanding the factors contributing to these disparities in awareness levels is crucial for tailoring targeted communication strategies and enhancing overall public engagement in Smart City initiatives.

The variance in awareness levels between Davangere and Belagavi could stem from differences in local governance practices, socio-economic conditions, or the effectiveness of awareness campaigns. Further investigation into these aspects is essential to identify specific areas for improvement and to ensure that all residents are equally informed about the benefits and progress of Smart City projects.

Comparison between the Two Cities

The comparative analysis of public awareness regarding Smart City projects in Davangere and Belagavi reveals significant insights into regional disparities and similarities. The statistical data provided in Tables 2 and 3 outlines these differences comprehensively.

Table 2: Group statistics

	City	N	Mean	Std. Deviation	Std. Error Mean
Awareness	Davanagere	435	14.77	4.362	.209
	Belagavi	490	17.53	2.886	.130

Table 2 presents the group statistics for awareness levels in both cities. The mean awareness score for Davangere is 14.77 (SD = 4.362), while Belagavi exhibits a higher mean score of 17.53 (SD = 2.886). The standard error mean values for Davangere and Belagavi are 0.209 and 0.130, respectively, indicating the degree of variation within each city's awareness levels. These differences suggest that residents in Belagavi have a higher average awareness of Smart City initiatives compared to those in Davangere.

Table 3: Independent sample t-test

	Assumption	Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference
Awareness	Equal variances	66.231	.000	-11.467	923	.000	-2.761
	Unequal variances			-11.203	737.895	.000	-2.761

Table 3 provides the results of the independent sample t-test, which assesses whether the differences in awareness scores between the two cities are statistically significant. The Levene's Test for Equality of Variances shows a significant F value (66.231, $p < .001$), indicating that the assumption of equal variances is not met. Consequently, the t-test for Equality of Means with unequal variances is used. The t-value of -11.203 ($p < .001$) confirms a significant difference between the mean awareness scores of Davangere and Belagavi, with Belagavi having a notably higher awareness level.

These findings illustrate that while both cities demonstrate substantial awareness of Smart City projects, Belagavi's residents are significantly more informed than those in Davangere. This discrepancy might be attributed to various factors including differences in local government outreach strategies, the effectiveness of communication channels, or socio-economic conditions impacting information dissemination.

SUMMARY OF KEY FINDINGS.

The study has elucidated several critical insights regarding public awareness of Smart City projects in Davangere and Belagavi. The findings indicate a notable variance in awareness levels between the two cities. Residents of Belagavi exhibit a higher average awareness score compared to those in Davangere, as evidenced by the statistical analysis presented. Specifically, the mean awareness score for Belagavi (M = 17.53) significantly surpasses that of Davangere (M = 14.77), suggesting that residents of Belagavi are more informed about Smart City initiatives (Table 3). The comparative analysis of demographic factors revealed that socio-economic status, education levels, and local governance communication strategies are key determinants influencing awareness levels.

The study also identified significant challenges, including gaps in information dissemination, inadequate communication channels, and socio-economic barriers affecting awareness. Factors such as media coverage, community participation, and local governance initiatives were found to play crucial roles in shaping public knowledge about Smart City projects (Table 4). Addressing these challenges through improved communication strategies and increased citizen participation can enhance the effectiveness of Smart City initiatives.

Importance of raising awareness for the success of Smart City projects in Davangere and Belagavi

Raising awareness about Smart City projects is pivotal for their success. Effective awareness campaigns can drive citizen engagement, foster community support, and ensure that the benefits of Smart City initiatives are widely realized. In Davangere and Belagavi, enhanced public awareness can lead to greater community involvement, more effective implementation of projects, and a stronger alignment of urban development goals with residents' needs. By bridging the awareness gap and addressing the identified challenges, local governments can create a more informed and engaged populace, which is essential for the successful execution and sustainability of Smart City projects.

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