



A study on the factors influencing residents' willingness to participate in smart community governance

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Abstract. This research paper explores the concept of "smart communities" and investigates residents' willingness to participate in smart community governance in the context of Changsha City, a pioneer in smart community development in the central region of China. The study draws on a literature review, theoretical analysis, and field research to identify and extract variables related to residents' participation willingness, constructing a conceptual model for analysis. The research findings reveal that guiding smart community construction based on residents' needs and interests is vital, with education level, residence duration, perceived personal benefits, and protection of residents' rights as key determinants of participation willingness. The study emphasizes the importance of understanding smart community governance and the need to align community construction with cultural life needs to cultivate public spirit and awareness. While certain limitations are acknowledged, this paper presents insights into residents' participation in smart community governance, offering suggestions and countermeasures to enhance residents' willingness to participate. Future research is proposed to delve deeper into influencing factors and refine the questionnaire design for a more comprehensive analysis.

Keywords: Smart Community Governance, willingness, Resident

1 Introduction

In the publication, "Smart Cities: Technology drives harmony," Wu and Yan define a "smart community" as a digitally integrated and intelligent communal space, leveraging interconnected information, networks, and management technologies to manage infrastructure development and all facets of communal life effectively. Similarly, Fang describes a smart community as an intelligent, virtual space comprising numerous shared spaces, where a variety of virtual organizations can be connected within each independent smart space^[3]. The objective is to facilitate quick and efficient sharing of knowledge, resources, and computing capabilities by interlinking these independent smart spaces.

Moreover, Xie suggests that the establishment of smart communities is significantly influenced by intelligent integrated systems, which he considers integral to the process. These systems ought to be open, progressive, forward-looking, and reflective of China's

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current developmental state. Expanding on this work, Yu, X. emphasized that a smart community is a geographically specific community of residents, interconnected digitally and intelligently, making it conducive to social life.

Yu also pointed out that the "design-first" approach has proven successful in the developmental stages. However, moving forward, it is important to consider ways to cater to the distinct needs of individual communities, community groups, and residents. This tailoring of services should align with the fundamental functions of smart community development.

2 Residents' participation in the content of smart community governance

Yang contends that resident involvement is fundamental to social governance, proposing that it arises through all activities influencing public policy and communal life. Such involvement stimulates societal vitality and augments harmony within society. However, Wang, Zhang and Sui, and Yang express that the current community concept remains tethered to a 'big government' development model, which overemphasizes the government's central role in community governance. They advocate for a "one core, many members" structure, where the Party operates as the guiding core, while the government and neighborhood committees constitute the primary forces and the main bodies of community governance^[6], with other entities participating within the community. This structure, however, seems to overlook the market mechanism and residents' initiative.

In the realm of innovation in community governance, a collaborative guidance issued by eight ministries and commissions promotes the healthy development of smart cities. This guidance specifically endorses the integrated use of information technology to address residents' practical needs^[8], emphasizing smart buildings and communities, innovation in service models, and provision of convenient, humane new services for city residents^[1]. As part of smart city planning, elements such as smart terminals, cloud computing, visualization, virtualization, intelligence, and small applications represent the developmental direction for smart communities.

Regarding smart community governance and services, Wu suggests employing Internet, Internet of Things, sensor networks, and other network technologies for services like housing, health, and medical care. Full utilization of these resources could revolutionize traditional community governance. Similarly, Duanmu et al. propose using dynamic community planning, networked management, smart community service aggregation technology, and resident self-governance to achieve smart community services. To rectify misconceptions in community governance regarding perception and behavior, it is thus essential to comprehensively and systematically examine the key issues, particularly from the residents' participation perspective.

3 Influencing factors of residents' willingness to participate in smart community governance

In the early stages of smart community development, Wang et al. introduced the "government guidance, social participation and standards first" concept, which not only enhances the technical support for building smart communities but also advocates for a people-centric approach that pays heed to the masses' needs. The cornerstone of participatory governance resides in citizen empowerment, enabling them to fully partake. Its essence is democratic consultation to safeguard the expression of citizens' legitimate rights [7], with the foundation resting on autonomous governance, fostering a society rooted in citizens' subjectivity. The exploration of strategies to augment residents' active involvement in smart community construction, emphasize people's subjectivity, guide human governance, respect the masses' wisdom and creativity, and facilitate the development of governance structures has garnered significant societal attention.

In examining public satisfaction within a specific domain, researchers typically consider public expectation as an influential factor. Zhu defined public expectations as the psychological actions people undertake to achieve goals or meet psychological needs before using goods or services. These expectations form the basis for assessing public service quality [12]. If residents' expectations are not considered as a predictive variable when testing their willingness to participate in governance, effective measurement of public service quality becomes challenging. Residents' perceptions of smart communities are grounded in perceived intelligence, general perceptions, and subjective evaluations, with the general intelligence indicator directly influencing their willingness to participate in smart community governance.

Li postulated that perceived quality constitutes residents' overall perception of smart communities and their subjective feelings about the experience of providing smart services [2]. It encapsulates the actual feelings residents derive from managing communities and providing services, forming the direct basis for residents' expectations of smart communities and their pre-service requirements [10]. Zou states that community image fundamentally refers to the general perception of the value of public services and products provided by the community post smart building. However, because people's educational backgrounds, values, and social contexts differ, their perceptions of smart services can also vary significantly. Therefore, an essential factor in smart community development is their capacity to align citizens' subjective perceptions with objective conditions.

4 Literature Review

The focal point of this study is to explore the determinants influencing residents' willingness to participate in the governance of smart communities in Changsha City. In the domain of smart community research [4], there is a dearth of scholarly attention on residents' participation willingness, with minimal literature available on this subject within existing smart community research. Most studies on smart communities have predominantly centered on aspects of community planning, design, and construction.

Hence, this study takes Changsha, a pioneer city for smart communities in the central region, as a case study. It details the stages and current status of smart community construction in Changsha from two standpoints: a comprehensive overview and typical instances. Based on theoretical analysis and field research, the study identifies, and extracts variables related to residents' willingness to participate in smart community governance, constructs a conceptual model of residents' participation willingness, and collects data for calibration. The objective is to delineate the factors that influence residents' willingness to participate in smart community governance^[9]. This study aims to elucidate the determinants impacting residents' willingness to participate in smart community governance, subsequently proposing corresponding countermeasures and suggestions.

5 Research limitations and research outlook

Owing to both subjective and objective factors, as well as the author's research limitations, certain objectives of this dissertation remain unfulfilled^[11]. Consequently, based on the findings presented above, this section discusses the study's limitations and future prospects.

Firstly, while the author aimed to analyze factors influencing residents' willingness to participate by classifying them into four categories—respondents' characteristics, impediments to participation, residents' motivations for participation, and residents' participation expectations—the study does not explore other potential influencing factors in depth. This gap suggests a flaw in the research design and insufficient exploration of residents' participation willingness^[5]. Secondly, most conclusions in this paper rely on the survey's empirical results. The lack of higher-quality statistics and challenges in obtaining more accurate and comprehensive information about the respondents limit the number of indicators that could be used in statistical surveys. Consequently, the reliability and generalizability of the findings are dubious and warrant further examination in future surveys. Thirdly, the questionnaire suffers from a somewhat unclear and disorganized structure^[7]. Certain research ideas could not be actualized due to the constraints of the survey respondents and groups. The study initially intended a cross-sectional comparison between smart and non-smart communities, which could not be implemented due to several challenges encountered during the research.

While extensive research exists on constructing smart communities and residents' participation in this process, both qualitative and quantitative, empirical and theoretical, and the content of relevant questionnaires continues to be enriched and improved, systematic and in-depth discussions on residents' participation are relatively scarce. Therefore, the author believes the topic of "residents' willingness to participate in smart city governance" warrants further exploration. In comparison to this study's findings and other researchers' work, the author intends to focus on two aspects in subsequent research: firstly, conduct a deeper examination of factors that more directly or significantly influence residents' willingness to participate, analyzing their functions and mechanisms. Secondly, the author aims to refine the questionnaire design and continue employing empirical analysis via questionnaires to obtain the most comprehensive and

current information and findings. The author also plans to compare the level of resident participation between smart and non-smart communities.

6 Conclusion

Guiding smart community construction by residents' needs is a scientifically sound approach. The 19th National Congress's new contradiction positioning explicitly highlights meeting the needs of the people as the fundamental development direction, embodying a people-oriented requirement. For smart communities, being people-oriented—that is, catering to residents' needs and interests—is the core orientation for their construction and development. This type of residents' needs manifests in research and practice as residents' participation, suggesting that residents' needs are the cornerstone of smart community construction.

Numerous intertwined factors impact residents' willingness to participate in smart community governance. Education level and residence duration are fundamental determinants of residents' willingness to participate, influencing their governance abilities. Perceived personal benefits and protection of residents' rights are latent factors affecting their participation, significantly impacting their personal needs and participation psychology. The promotion of community construction, and residents' participation expectation, are significant referential values that influence residents' participation willingness due to their regulation and changes. Laws and guidelines concerning residents' participation are exogenous factors for their participation willingness, affecting the smart community governance process through external regulation, thereby influencing residents' willingness to participate.

Proper understanding of smart community governance is a crucial prerequisite for enhancing residents' willingness to participate in smart community governance in Changsha. Countermeasures and suggestions to improve Changsha residents' participation willingness reveal our government's current lack of adequate attention and limited understanding. Presently, most smart community construction in China is confined by material functions and overlooks social, political, and cultural functions, thus failing to adapt to community residents' cultural life needs and rarely cultivating public spirit and public awareness. The lack of understanding of its operation mechanism results in inefficient or ineffective community management, subsequently impacting residents' willingness to participate.

References

1. Guo, Jie, and Wenhao Ling. "Impact of Smart City Planning and Construction on Community Governance under Dynamic Game." *Complexity* 2021 (2021): 1-11.
2. Okada, Norio. "Adaptive process for SMART community governance under persistent disruptive risks." *International Journal of Disaster Risk Science* 9 (2018): 454-463.
3. Xiao Yu. *Study on the development practice of smart community and its prospect in China*[D]. Shanghai Academy of Social Sciences, 2016.

4. Wan, Lijun, and Siqi Jiang. "Research on the Influencing Factors of Sustainable Development of Smart Community." *Mathematical Problems in Engineering* 2022 (2022).
5. Wang Ke. Characteristics, motivations and trends of urban community governance innovation in China[J]. *Urban Issues*,2019(03):67-76.
6. Yin, Jiyao, et al. "CRITIC-TOPSIS Based Evaluation of Smart Community Governance: A Case Study in China." *Sustainability* 15.3 (2023): 1923.
7. Yang Yaxia. Study on the change of public service supply mode and its optimization by smart community construction[J]. *China Administration*,2018(11):151-153.
8. Meijer, Albert, and Manuel Pedro Rodríguez Bolívar. "Governing the smart city: a review of the literature on smart urban governance." *International review of administrative sciences* 82.2 (2016): 392-408.
9. Li Bo,Yu Shui. Participatory governance: a new governance model[J]. *Theory and reform*,2016(06):69-74.
10. Song Xiaojuan,Wang Qinghua. Smart community: new relationship between subjects and new form of governance[J]. *E-Government*,2020(04):121-128.
11. Zhu Meiyun. Model construction and empirical research on public satisfaction index of smart community construction[D]. Xiangtan University,2016.
12. Li, Shuqin. "Research on the development trend of smart community." *International Journal of Social Science and Education Research* 4.7 (2021): 13-17.

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