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From Global Agendas to Streets in Serbia: Evaluating the Impact of Smart Technologies and Spatial Governance on Public Open Spaces

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Abstract

Global development frameworks, including the New Urban Agenda (NUA) and the Sustainable Development Goals (SDGs), advocate for safe, inclusive, and accessible public open spaces (POSs). However, their implementation in transitional post-socialist urban contexts requires balancing urban safety, technological innovation, and democratic use of public space. This paper examines how these global agendas are localized in Novi Sad, Serbia, investigating the relationship between international policy objectives and urban governance during times of crisis. A triangulated mixed-methods approach was employed, combining a structured survey of 1200 residents on perceptions of safety and smart-city surveillance, a media review of POS-related violence (2021–2026), and direct field observations of mass gatherings, including COVID-19-era events and subsequent major citizen protests. The findings indicate important differences between official approaches to spatial governance and citizens' lived experience. While technological and spatial management measures supported urban safety objectives, surveys and field observation findings suggest that perceived safety remained closely associated with visible presence, public trust, and community organization. The study highlights the challenges of balancing urban safety, civil liberties, and democratic access to POS in transitional urban contexts, concluding that achieving the objectives of the NUA requires governance frameworks that integrate technological innovation with participatory and inclusive urban planning.

Keywords: public open spaces; spatial governance; smart city; urban safety; right to the city; New Urban Agenda; post-socialist cities; Serbia



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1. Introduction

Today, urbanization is being widely criticized as a poorly managed, rapid, and complex process that could be contributing to an increase in poverty, marginalization, and spatial inequality, particularly within the context of political instability and conflict [1]. These spatial inequalities often manifest physically in the built environment, leaving marginalized populations disproportionately exposed to risks and structural vulnerabilities driven by rapid urban expansion [2]. In such complexity of modern cities and towns, national and local leadership frequently fail to focus on fundamental ideas of equality, social justice, and democracy, resulting in urban environments where public open spaces (POSs) might no longer function as platforms for social and cultural growth, but rather as resources for financial exploitation or other private interests [3]. POSs in cities and towns are not only the settings where such erosions of civic rights become particularly evident, but they are

also the vital places that can efficiently revive a city's original democratic significance [4]. However, to ensure that POSs realize their true purpose, remain at the service of the people, and achieve the genuine democratization of cities, they must be developed based on an integrated perspective that goes far beyond their own physical boundaries to address several fundamental dimensions, such as their social and political aspects, economy, and mobility [5–7].

In response to these global urban challenges, in October 2016, at the United Nations (UN) Conference on Housing and Sustainable Urban Development Habitat III held in Quito, Ecuador, the representatives of UN member states discussed and later adopted the New Urban Agenda (NUA) [6], which is a global framework for urban development for the period 2016–2036, prepared in a participatory manner [8]. The NUA includes provisions on POS. Similarly, the global Sustainable Development Goals (SDGs) also include provisions on POS; Goal 11, sub-goal 11.7 explicitly calls for the qualitative development of POSs that are green, safe, inclusive and accessible, especially for women and children, the elderly, and people with disabilities [9–11].

1.1. Right to the City

The foundational theoretical premise underlying the democratic potential of these urban environments is rooted in the concept of the “right to the city,” envisioned by Henri Lefebvre in the late 1960s. This concept understands that citizens have a right not merely to access the city but to transform it. This right involves the “capacity to do things,” associating democracy strongly with the act of participation in the physical environment [12]. POSs serve as the nuclei of these processes, becoming stages for “demonstrations, pamphleteering and soapbox orations” [13] and “internal deliberation” [14]. Scholars argue that claiming the right to the city requires constant vigilance, “never taking that right for granted and never being satisfied with the status quo” [15].

Consequently, the right to the city has been discussed through various interconnected concepts, including bridging the urban divide, enacting democracy, justice within disaster planning, and resisting gated communities. Therefore, the concept is sometimes based on “movements on specific identities” and other times on “specific themes of action” [16]. In addition to referring to the right to the city, recent scholarship utilizes the concept of “spatial justice” as an essential framework for analyzing POS [17]. As our cities grow, inclusive urban goods are becoming increasingly relevant as civic institutions for encounters, dialogue, and cooperation. The city's non-commercial property is becoming important for social inclusion and universal access. Although it maintains diversity, a common affiliation with POS has the unique potential to transform conflicts into productive associations that actively oppose the conditions of antagonism [18].

In contemporary urban dynamics, POS are increasingly becoming platforms where communities fight for their future, assume civic and social roles, and promote sustainable development [19]. The use of POS as a platform promotes participatory approaches to development by ensuring equal access for everyone [20]. The value of POS depends heavily on how they support social causes that facilitate personal development and enhance the quality of life of urban dwellers [21–23].

This is particularly evident during periods of civic unrest; the density, diversity, and function of cities make them natural sites for social movements and protests [24]. In an era marked by widening inequalities, citizens frequently reclaim urban public spaces as sites of resistance, utilizing these physical arenas to reassert the power of the people against neoliberal restructuring. However, the physical environment is no longer the sole arena for these civic negotiations. Recent theoretical contributions to the right to the city have

expanded the concept to include a “Digital Right to the City,” which involves thinking about the urban environment with the help of accessible code and information [25,26].

1.2. Digital Right to the City

The use of information and communication technologies (ICTs) since the beginning of the 1990s has become imperative for cities striving for innovation [27]. ICT serves cities for planning and managing public transport, migration, tourism, and civic engagement. In recent years, the use of ICT has become increasingly common in the process of improving the safety of POS in urban areas.

As the number of citizens using ICT is exponentially increasing, there is a need for POS to gain a certain “cyber” dimension. The potential of ICT for solving security problems and facilitating democratic engagement in urban areas is proven by numerous studies and public policies in the sphere of urban security. ICT encompasses a wide range of technologies, including surveillance systems, mobile applications, smart lighting, social media, and data analysis systems. These technologies have profound potential to improve urban security by improving real-time monitoring and alerting of POS users and enabling faster response by authorities.

Furthermore, the deployment of mobile phone location-based services (LBS) now allows authorities to track human mobility and behavioral anomalies at highly granular, household levels during periods of disruption or crisis, illustrating the profound monitoring capabilities of modern urban ICT [28].

One of the primary theoretical frameworks supporting the use of ICT for urban security and governance is the concept of the “smart city”, which is defined as a city that uses advanced technologies to improve the quality of life of its citizens and to improve its sustainability. These concepts were also discussed by the United Nations. In paragraph 66 of the New Urban Agenda, it is stated that governments should adopt an approach towards a “smart city” that would take advantage of the possibilities of digitization, clean energy, and technology, as well as innovative transport technologies [6,29]. The goal is for cities to achieve sustainable economic development and for citizens to have better urban services. In the so-called “smart city”, the use of ICT is seen to improve the safety of POS in cities, among other things, by improving the effectiveness of the work of city agencies and other state services. Building on this, the concept of a “smarter city” has emerged as an upgrade of the previous concept, considered as a city that actively processes data in real time and uses it for the dynamic functioning of the city and its services [27,30]. However, urban theorists argue that there are two different, sometimes conflicting, approaches to reaching a “smart city”: an approach from the aspect of technology (prioritizing platforms, algorithms, and applications) and a people-centered approach (where the focus is on citizens, collective knowledge, and accessible services) [31]. Critical scholars warn that purely algorithmic logic for automation and optimization is not enough for delivering the full potential of urban sustainability; true smart city development must reconcile humans and technology, ensuring that citizens remain in control of their spatial and digital environments [32,33].

Another theoretical framework relevant to the use of ICT for POS security is the concept of “situational crime prevention”. This is a strategy that seeks to reduce opportunities for criminal acts by modifying the physical and social environment, improving natural surveillance, and providing real-time warnings about potential criminal activities [34].

For example, the presence of surveillance cameras in POS can theoretically deter criminals from committing certain acts and help authorities identify the perpetrators of crimes [35], while mobile applications can provide citizens with a secure way to report potential situations, thereby warning and inviting the competent authorities to act. However, the intersection of situational crime prevention, smart city technologies, and the right to

the city creates a complex paradox. When POS become heavily digitized and surveilled to ensure safety, they risk becoming sterilized environments that suppress the very demonstrations and protests that Lefebvre and Mitchell identified as essential to spatial justice and urban democracy.

Considering these converging theoretical frameworks, spanning the democratic necessity of the right to the city, the global mandates of the NUA, and the rapid digitization of urban safety through smart city technologies, the actual implementation of these concepts requires rigorous empirical examination.

Transitional post-socialist cities provide a particularly valuable setting for examining these issues. Following political and economic transition, many municipalities have simultaneously pursued institutional democratization, digital modernization, and smart-city policies while facing fiscal constraints, evolving governance structures, and increasing social polarization. These characteristics make such cities especially relevant for studying how global urban agendas are translated into local practice. Countries globally, including Serbia, have started localizing and implementing the NUA to achieve the SDGs. The Government of Serbia is regularly providing reports to the UN on its implementation of the NUA and is especially promoting its localized work on POS. Yet, due to various severe and overlapping circumstances, such as recent public health issues [36], significant south-to-north migration through the country, increased violence in society, and massive nationwide protests, there appears to be a stark contrast between official policy narratives and the actual lived experience of urban residents. The spatial justice, safety, inclusivity, and accessibility of Serbian POS are currently being fundamentally questioned. Serbia represents a particularly relevant case because, as a transitional post-socialist country undergoing rapid institutional transformation, it provides an opportunity to examine how global urban agendas are interpreted within governance systems that combine contemporary smart-city ambitions with evolving democratic institutions. Often, academic research regarding these localized implementations does not reach end users because the latter find it difficult to access such research or do not understand the language used in such narratives [3].

Despite the growing body of literature on the right to the city, smart cities, and the implementation of the NUA, relatively little empirical research has examined how these global normative frameworks are translated into the governance of POS in transitional post-socialist urban contexts. Existing studies predominantly focus either on the theoretical implications of digital surveillance and urban governance or on smart city implementation in established democratic settings. Consequently, there remains limited empirical evidence on how technological approaches to urban safety interact with democratic use of POS during periods of uncertainty and civic unrest in post-socialist cities.

Therefore, the main aim of the paper is to directly address the following critical questions, especially in a year when the World Urban Forum was organized, where the NUA implementation was discussed and globally evaluated:

1. To what extent are the principles of safety, inclusivity, and accessibility promoted by the NUA reflected in the governance of POS in Novi Sad?
2. How do citizens perceive the contribution of smart-city technologies and surveillance systems to safety in POS in Novi Sad?
3. What discrepancies emerge between global policy objectives and observed governance practices during periods of public health emergency and civic unrest?

This question is particularly asked in the framework of the NUA and the digitalization of urban spaces, examining whether the deployment of ICT and smart city frameworks in Serbia genuinely enhances citizen safety and inclusivity, or whether it restricts the democratic right to the city during times of protest and unrest. To achieve this goal, this paper compares the theoretical foundations of the NUA, the right to the city, and smart

city crime prevention with the urban realities in Serbia's city of Novi Sad. This study contributes to a complex understanding of urban safety, accessibility, and inclusion in Serbia and discusses their potentially disturbed and limited use in times of uncertainty. By evaluating their dynamics, the research seeks to uncover whether the localization of global agendas and the introduction of smart technologies are fostering democratic urban environments, or merely sanitizing POS at the expense of civic expression. This study contributes to literature in three ways. First, it provides one of the few empirical assessments of the localization of the NUA within a post-socialist urban context. Second, it integrates survey data, field observations, and media analysis to examine both institutional practices and citizens' perceptions of POS governance. Third, it contributes to the ongoing debate on balancing public safety, smart-city technologies, and democratic use of POS during periods of crisis.

2. Materials and Methods

Guided by the research questions outlined in the Introduction, this paper employs a mixed-method approach to assess the intersection between the ideas of global agendas on POS, specifically regarding safety, inclusivity, and accessibility, and their actual implementation. Novi Sad, Serbia's second-largest city, was selected as the empirical case because it represents a transitional post-socialist urban context that has recently experienced significant investments in public space through the European Capital of Culture 2022 program while simultaneously facing multiple crises, including the COVID-19 pandemic and large-scale civic protests related to ecology, and following the collapse of the railway station canopy in November 2024. These overlapping events provided an opportunity to examine how public open spaces were governed under rapidly changing social conditions.

The case study was selected because it enables examination of all three research questions: 1. localization of the NUA; 2. citizens' perceptions of smart technologies; and 3. discrepancies between policy objectives and observed governance practices.

The research was conducted in three complementary steps: The first step consisted of a contextual assessment of recent changes affecting public open spaces in Novi Sad between 2021 and 2026. The assessment included a review of municipal policies, implementation of the NUA, major public events, the COVID-19 pandemic, and civic protests to establish the institutional and socio-political context within which the empirical research was conducted.

Second, the survey was designed to answer the second research question by examining citizens' perceptions of public safety, surveillance technologies, and public space management. A questionnaire survey was deployed among citizens in Novi Sad to determine patterns of POS usage and public perception of safety and surveillance, 1200 times over time. The questionnaire consisted of 24 closed-ended questions (including yes/no answers) and two demographic questions regarding age group and sex. The survey was conducted in four waves (2022, 2024, 2025, and 2026). Each wave included 300 respondents, resulting in a total sample of 1200 participants. The sampling targeted a balanced gender representation (50% male and 50% female) and an equitable age group distribution. The survey was conducted both online (distributed via Viber, WhatsApp, and Facebook groups) and on-site, including during the protests and other events. For the on-site data collection, the authors approached citizens in multiple POS.

Third, to assess the state of safety and violence in the POS in Novi Sad, a media review was conducted. This step included an analysis of all online dailies published in the past 6 years to track the number of criminal activities, court cases, and physical interventions related specifically to POS. Police did not allow authors of this paper access to its data. In addition, the crime statistics do not systematically classify incidents according to specific POS. Therefore, a structured media review was used to identify protests, violence, and POS

related incidents reported across Novi Sad during the study period. Media reports were subsequently cross-checked through field observations and notes.

Finally, findings from all methodological stages were triangulated. Survey results were compared with field observations to identify consistencies and discrepancies between perceived and observed conditions. The contextual assessment and media review were used to interpret these findings within the broader framework of urban governance and implementation of the NUA.

3. Results

This section presents the empirical findings following the same sequence as the methodological framework. First, the contextual assessment established the urban governance setting of Novi Sad. The subsequent sections present the survey findings, the media review, and the field observations. Finally, the different sources of evidence are considered together to address the research questions.

3.1. Contextual Assessment of POS Governance

To address research question 1, a contextual assessment was undertaken to examine recent changes affecting the governance of POS in Novi Sad. Although the city has invested considerably in public space improvements following its designation as the European Capital of Culture 2022, the study period (2021–2026) was also characterised by a series of overlapping challenges, including the COVID-19 pandemic, increasing civic protests, and the collapse of the railway station canopy in November 2024. These events substantially changed the use of POS. During the pandemic, municipal authorities introduced temporary spatial management measures intended to reduce health risks at public gatherings. Following the railway station tragedy, POS increasingly became venues for civic mobilisation, demonstrations, and commemorative events. These developments created an appropriate context for examining how the principles of the NUA were implemented during periods of crisis and heightened public attention. The following sections present the empirical findings from the survey, media review, and field observations conducted within this context.

3.2. Survey Findings on Urban Safety and Surveillance

To address research question 2, the survey of 1200 participants, Novi Sad residents, conducted four times (2022, 2024, 2025, and 2026), revealed distinct patterns regarding perception of urban safety and the use of information and communications technology (ICT) for security. Most of the respondents (65.75%) believe that Novi Sad is a safe city. When asked about potential improvements to security, 47.42% of respondents indicated that they would feel safer if a uniformed police officer patrolled their neighborhood. Regarding digital surveillance, the results show a significant lack of public awareness: 54.5% of respondents are not sure whether the POS in which they spend the most time is being recorded by cameras. Furthermore, a substantial portion of the population is skeptical of technological safety measures, with 50.1% stating they would not feel safer even if they knew the POS was actively being recorded. The survey also captured citizen perceptions during pandemic-era mass gatherings. During these events, 95% of respondents agreed that the health and safety measures introduced by the city were necessary. Specifically addressing the 2021 New Year's Eve celebration, 90% of surveyed attendees felt the event was safe and stated they were able to maintain physical distance from other users, citing that the public space "was big enough" and "its paths were wide enough." Only minor, hyper-local safety concerns were raised, such as one respondent expressing fear that participants might fall from the bridge due to crowds. Given that the two survey waves conducted

in 2025 and 2026 followed the collapse of the railway station canopy in November 2024, the responses were also examined separately to explore potential shifts in public perceptions after this major civic tragedy. Although the overall perception of Novi Sad as a safe city remained relatively high, respondents surveyed after November 2024 expressed increased concern regarding public safety in large public spaces and demonstrated greater awareness of institutional responsibility for urban safety, while attitudes toward surveillance technologies showed more negative perceptions. Across both pre and post-event survey waves, respondents continued to express greater confidence in visible human presence than in technological surveillance as a means of enhancing safety. As the surveys represent independent cross-sectional samples rather than a longitudinal panel, these observations should be interpreted as indicative trends rather than causal changes over time.

3.3. Media Review of POS Incidents

To address research question 3, the review of 2021–2026 daily newspapers and city security records highlighted specific spatial hotspots for urban violence. Areas such as Laze Telečkog Street and Trifkovićev Trg were frequently cited in the media for fights and severe criminal acts spilling over from nightlife venues into the street—yet, those were not linked with events themselves (reported under Section 3.2); rather, they were areas where the citizens would pass by post-events. In response to these incidents, municipal authorities installed a dense network of 20 surveillance cameras along a 100 m stretch of the pedestrian street. This technological intervention was paired with traditional security measures, resulting in daily evening patrols by police intervention units during high-frequency hours.

3.4. Direct Observations of Public Events

During the pandemic and post-pandemic, the city of Novi Sad organized several cultural events, and several protests happened.

Festival of Street Musicians (3–9 September 2021): Held in the Sub-district of the Petrovaradin fortress, the event zone was created by blocking Beogradska Street in two places. These physical roadblocks simultaneously served as virus testing points, where attendees without proof of vaccination were given free rapid antigen tests to safely access the POS.

New Year's Eve Celebration (31 December 2021, and 2024): The city moved this mass event from its largest POS (Trg Slobode, capacity 100,000) to the residential area of Podgrađe, which features relatively small public open spaces. No public notification of health measures was officially broadcast before the event. Direct observation and photo documentation (Figure 1) revealed a stark discrepancy between the survey respondents' claims of adequate physical distancing and the actual crowded conditions on site. Following the New Year's Eve celebrations, reported daily COVID-19 cases in Novi Sad increased approximately 20–30 to 150–300. While this temporal association coincided with the event, no causal relationship can be inferred from these observations alone.

The authors monitored and documented the full series of protest events that took place in Novi Sad during the study period, drawing on systematic media review, field observation, and publicly available records of demonstrations occurring at multiple sites across the city. This broader dataset provides an empirical background for understanding patterns of civic mobilization and the use of POS in Novi Sad. However, for this paper, the analysis focuses on one selected protest event that is particularly illustrative of the relationship between the POS, civic expression, and the socio-political context in which these protests emerged.

Observed on 17 June 2023, from 18:00 to 21:00, the protest began at the plateau in front of the Serbian National Theatre in Novi Sad (Figure 2), a space fully covered

by municipal surveillance cameras. However, the subsequent walking route was not completely covered by cameras. The walk took place during daylight with sufficient lighting, and the route was not fenced off. No police patrol cars or uniformed personnel were present; instead, safety was maintained entirely by the organizers' volunteer orderlies. Despite earlier announcements regarding the radicalization of the protest, a considerable number of participants attended with small children. No visible drone surveillance was done by the Government, though participants deployed two private drones for social media documentation.

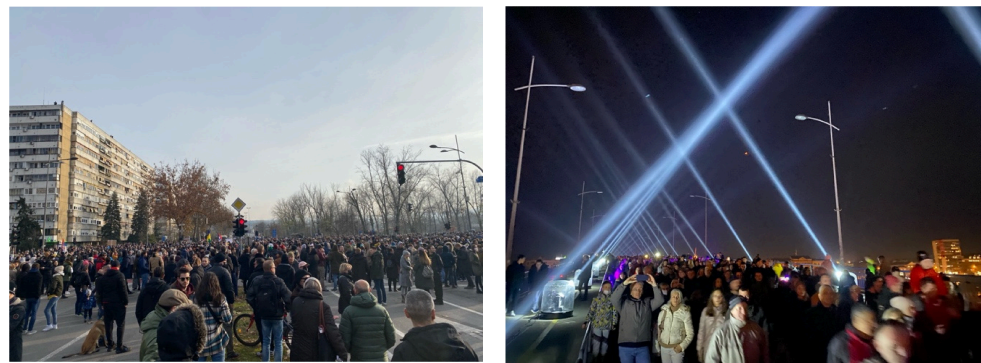


Figure 1. Environment-related protest on 4 December 2021 (**left**) at the main city boulevard in contrast with the New Year's Celebration days after on 31 December 2021 (**right**) © Ilija Gubić.

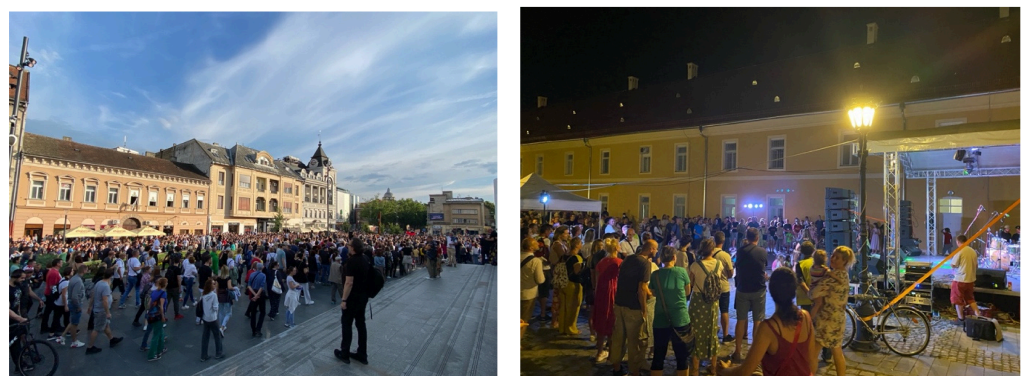


Figure 2. Protest on 17 June 2023 (**left**) in contrast with the music festival gathering in the next days, 25 August 2023 (**right**), © Ilija Gubić.

3.5. Integration of Findings

Taken together, the four sources of evidence reveal several consistent patterns. First, although survey respondents generally perceived Novi Sad as a safe city, this perception was not strongly associated with surveillance technologies. Instead, respondents expressed greater confidence in visible human presence. Second, field observations identified discrepancies between perceived and observed spatial conditions, particularly during major public events where respondents reported adequate physical distancing despite substantial crowding observed on site. Third, the media review demonstrated that public open spaces increasingly functioned as sites of civic mobilization during the study period, while field observations showed that many large public gatherings were maintained safely through combinations of formal and informal governance mechanisms. Overall, the triangulation of contextual analysis, survey findings, media review, and direct observation indicates that the governance of public open spaces in Novi Sad reflects a complex interaction between technological measures, institutional practices, and community-based forms of social organization. These findings provide the empirical basis for the discussion presented in the following section.

4. Discussion

This research examined how the normative principles embedded in the NUA, and the SDGs are translated into the governance of POS in Serbia. It explored whether the agenda's emphasis on safety, inclusivity, accessibility, and resilience is preserved when localized and implemented within a post-socialist urban context in Serbia. Unlike many smart-city studies conducted in established Western democracies, Novi Sad represents a governance setting shaped by institutional transition, evolving democratic practices, and increasing reliance on digital urban management. Examining the localization of global urban agendas in such contexts contributes to understanding how internationally promoted principles are interpreted under different political, institutional, and socio-economic conditions. The findings from Novi Sad suggest that although the NUA provides a common normative framework, its local implementation reflects the institutional capacities, governance traditions, and socio-political priorities of transitional urban systems.

This reinterpretation reflects broader dynamics associated with smart urbanism and urban governmentality. Rather than cultivating what Lefebvre conceptualized as the "right to the city", the collective capacity of inhabitants to shape urban space, the governance model observed in Novi Sad tends toward algorithmic urban management, where safety is framed as an administratively produced outcome achieved through technological infrastructures [37]. This dynamic is compounded by the "black box" nature of algorithmic profiling and deep learning models, which intensifies concerns surrounding civic surveillance, data privacy, and the potential for discriminatory outcomes against specific urban demographics [38].

Survey findings complicate the assumption, central to many smart city paradigms, that technological monitoring directly enhances perceived safety. Although most respondents (62.5%) perceive Novi Sad as a safe city, nearly half are unaware of whether their most frequently used public spaces are monitored by surveillance cameras. Moreover, 36.8% explicitly indicated that knowing they were being recorded would not make them feel safer. These findings suggest that subjective safety is not derived from algorithmic monitoring or digital oversight. Instead, respondents demonstrated a clear preference for visible human presence, with 45.5% reporting that they would feel safer with a uniformed police officer on patrol. Consistent with Jacobs' notion of "eyes on the street," these responses indicate that urban security is socially embedded and relational, emerging from familiarity, co-presence, and everyday social interaction rather than abstract technological visibility.

Although previous studies have reported that visible human presence contributes to perceived safety, the present study extends this literature by demonstrating that this relationship also holds within a transitional post-socialist context experiencing simultaneous public-health emergencies, rapid expansion of smart-city technologies, and prolonged civic mobilization. Rather than suggesting that surveillance technologies are ineffective, the findings indicate that technological interventions alone are insufficient to generate public confidence without corresponding social trust and institutional legitimacy.

The concentration of surveillance infrastructure in areas such as Laze Telečkog Street, where numerous cameras monitor the city's nightlife district, illustrates a logic of situational crime prevention that prioritizes environmental control [39–42]. Such interventions can represent legitimate components of urban safety policy. Nevertheless, the effectiveness and public legitimacy of these measures depend on transparent governance, proportionality, and public trust. Where surveillance systems operate without sufficient transparency or public oversight, concerns regarding privacy, data governance, and excessive monitoring become increasingly relevant [38,39]. The findings therefore suggest that technological

interventions should complement, rather than replace, broader social and governance approaches to urban safety.

The management of mass events during the COVID-19 pandemic further illustrates the gap between the normative commitments of global urban agendas and the realities of local governance. Despite a high level of public trust, 95% of respondents agreed that health protection measures at mass events were necessary; the spatial governance of the 2021 New Year's Eve celebration revealed significant contradictions. The city relocated the event from Trg Slobode, a large central square capable of accommodating approximately 100,000 people, to the significantly more constrained streets of Podgrađe. Although 90% of surveyed attendees reported feeling safe and believed that physical distancing was maintained, field observations and photographic evidence revealed severe overcrowding. The resulting surge in local infection rates, from approximately 20–30 daily cases to between 150 and 300, illustrates how what may be described as “performative safety” can mask material vulnerabilities. This episode demonstrates how top-down decision-making structures, characteristic of many post-socialist urban governance systems, can undermine the inclusive and health-oriented principles promoted by global agendas [43].

The large-scale “Protest Against Violence”, and others that followed, reveal an additional dimension often underemphasized in the NUA: the democratic function of POS. While the NUA stresses social interaction and inclusivity, it pays limited attention to POS as arenas of political contestation and civic resistance. During the observed protests, participants largely maintained order through self-organized volunteer stewards, and many participants reported feeling sufficiently secure to attend with children despite limited formal surveillance and policing along parts of the route. This illustrates how social organization and civic trust can complement formal security measures in supporting safe public gathering.

The protest also demonstrates how digital technologies themselves constitute a contested terrain. Participants deployed private drones to document the scale of the gathering, effectively generating alternative visual records of the event. This practice reflects forms of counter-surveillance or sousveillance in which citizens appropriate technological tools to challenge official narratives and enhance public accountability [44]. Rather than rejecting digital technologies outright, such practices reveal the possibility of reconfiguring them within more democratic modes of urban governance.

Taken together, these findings suggest that the localization of global urban agendas in Serbia involves balancing multiple and sometimes competing objectives, including public safety, efficient urban management, privacy, democratic participation, and social inclusion. The smart city paradigm appears to offer valuable tools for supporting urban governance; however, their effectiveness depends not only on technological capacity but also on public trust, institutional transparency, and citizen participation.

Unlike studies conducted in long-established democratic settings, where surveillance technologies are frequently evaluated primarily in relation to privacy and civil liberties, the Novi Sad case highlights an additional dimension associated with transitional governance systems. Here, perceptions of safety appear to depend not only on technological capacity but also on broader levels of institutional trust, previous experiences with public institutions, and evolving democratic practices. Although the present study does not directly compare different political systems, it suggests that governance context influences how smart-city interventions are perceived by citizens.

The central implication of this research is therefore the need to reconceptualize urban safety not as a technological output but as a relational and political condition. POS can fulfill the emancipatory promise articulated in global agendas only when they remain open to negotiation, friction, and civic expression. In transitional contexts such as Serbia,

this requires moving beyond the technocratic reduction in global policy ideals toward governance models that recognize POS simultaneously as urban infrastructure and as a democratic common.

The principal contribution of this study is therefore not to argue against smart-city technologies, but to demonstrate that their effectiveness depends on the governance context within which they are implemented. In transitional post-socialist cities, achieving the objectives of the New Urban Agenda requires balancing technological innovation with institutional transparency, public participation, and democratic legitimacy. The findings therefore contribute to the broader debate on how global urban agendas are localized under different governance conditions rather than assuming that a single governance model applies universally.

5. Conclusions

This study examined how the principles of the NUA and the SDGs are localized within the governance of public open spaces in a transitional post-socialist city. The findings indicate that, in the case of Novi Sad, global policy objectives concerning safety, inclusivity, and accessibility are only partially reflected in local governance practices. While smart-city technologies and spatial management contribute to public safety objectives, citizens' perceptions of safety remain more strongly associated with visible human presence, community trust, and participatory use of public space than with technological surveillance alone. Instead, safety remains deeply rooted in social cohesion, community self-organization, and visible human presence, as also concluded in other research, for example [45].

The study further demonstrates that public health emergencies and civic protests represent fundamentally different governance contexts and therefore require different approaches to public space management. During pandemics, temporary spatial restrictions and public health interventions constitute legitimate responsibilities of public authorities in protecting population health. In contrast, civic protests require governance approaches that simultaneously maintain public safety while safeguarding democratic rights, including freedom of assembly and expression. Evaluating these two situations through the same governance lens risks overlooking their distinct legal, institutional, and democratic foundations.

The principal contribution of this study is its empirical examination of the localization of the NUA within a transitional post-socialist urban context. By integrating contextual analysis, citizen surveys, media review, and direct field observations, the study demonstrates that the effectiveness of smart-city interventions depends not only on technological capacity but also on governance transparency, institutional legitimacy, and public trust. Rather than rejecting technological approaches, the findings suggest that technological and human-centered approaches should complement one another in the governance of public open spaces.

More broadly, the findings suggest that the implementation of global urban agendas should be evaluated not only through the deployment of technological innovations but also through their ability to support inclusive governance, democratic participation, and citizens' lived experience of public space. For transitional post-socialist cities, balancing public safety, technological innovation, and civil liberties remains one of the central challenges for achieving the objectives of the NUA.

5.1. Research Limitations

This research has several limitations that should be acknowledged. First, the empirical analysis is based on a single case study, Novi Sad, which limits the generalizability of the findings to other cities in the region or to broader post-socialist contexts. While Novi Sad provides a relevant and illustrative example, urban governance practices and the localiza-

tion of global agendas may vary significantly across municipalities with different political, economic, and demographic profiles. Second, the study relies partly on self-reported survey data regarding perceptions of safety, awareness of surveillance, and attitudes toward POS governance. Such data may be influenced by recall bias, subjective interpretation, or limited knowledge of municipal technological infrastructures. The discrepancy identified between perceived and observed spatial conditions, particularly during mass events, highlights the complexity of measuring “safety” as both a psychological and spatial phenomenon. Third, the research primarily focuses on the relationship between surveillance technologies and perceived safety, without conducting a longitudinal quantitative analysis of crime rates, public health data, or long-term behavioral changes in POS. While correlations were observed, such as the surge in COVID-19 cases following overcrowded events, causality cannot be definitively established within the scope of this study. Finally, the analysis centers predominantly on the governance perspective and citizen perception, while less attention is given to the institutional decision-making processes, budgetary constraints, or political rationalities that shape municipal reliance on technological solutions.

5.2. Future Research Directions

Future research could expand this study in several important directions. Comparative multi-city analyses within the region or other post-socialist European contexts would allow for a broader understanding of how global development agendas are interpreted and implemented under varying governance structures. Such comparative work could clarify whether the observed discrepancy between global discourse and local practice represents a systemic regional pattern. Longitudinal studies examining the long-term social, behavioral, and spatial impacts of digital surveillance in POS would also be valuable. Integrating crime statistics, mobility data, and public health indicators could help determine whether technological interventions produce measurable improvements beyond perceived safety. Further research should also explore the institutional and political dimensions of “smart” urban governance, including procurement processes, public–private partnerships, and data governance frameworks. Understanding the economic and political incentives behind surveillance expansion would shed light on the structural drivers of technocratic urban management. Finally, greater theoretical attention should be given to the democratic function of POS. Future studies could investigate how civic movements, protest cultures, and grassroots digital practices reshape the meaning of safety and inclusivity in urban environments. Examining how citizens appropriate technology, such as drones, social media, and open data, to counterbalance top-down surveillance would contribute to a more nuanced understanding of digital urban citizenship.

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