

Article

Urban Communication in Smart Cities: Stakeholder Participation Motivators

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Highlights

What are the main findings?

- The study identifies four core motivators—social pressure, emotional trigger, rational motivation, and reward—that shape stakeholder participation in urban development within smart city contexts.
- Stakeholder participation is driven by heterogeneous patterns of participation motivators, with statistically significant differences observed across residents, municipal employees, politicians, and developers.
- Emotional triggers and social pressure dominate participation dynamics, while rational motivation and reward play differentiated roles depending on stakeholder position.

What are the implications of the main findings?

- Uniform, technocratic participation approaches are insufficient for smart city governance and risk excluding key stakeholder groups, underscoring the need for differentiated engagement strategies.
- Motivator-sensitive urban communication and participation approaches offer practical guidance for urban planners and policymakers to enhance inclusiveness, democratic legitimacy, and long-term stakeholder engagement in smart city development.

Abstract

The smart city concept has become a dominant framework for contemporary urban governance, largely driven by advances in digital technologies and data-driven decision-making. However, the prevailing technocratic orientation of smart city development risks marginalising the sociopolitical dimensions of urban governance, particularly citizen and stakeholder participation. Although smart governance frameworks increasingly recognise participation as a normative principle, limited empirical attention has been paid to the participation motivators that drive engagement among different urban stakeholder groups. This study addresses this gap by analysing the key motivators influencing stakeholder participation in urban development within a smart city context. Building on established behavioural and participation theories, the article develops an Urban Participation Motivator Model comprising four core motivators: social pressure, emotional trigger, rational motivation, and reward for participation. The model is empirically tested using quantitative survey data from 620 respondents representing four stakeholder groups in Riga, Latvia: municipal residents, municipal employees, municipal politicians, and real estate developers. Data are analysed using descriptive statistics and non-parametric methods, including the Kruskal–Wallis test. The results reveal statistically significant differences in the perceived



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importance of participation motivators across stakeholder groups. Emotional triggers and social pressure emerge as the most influential motivators overall, while rational motivation is particularly salient for professional stakeholders. Reward for participation plays a weaker but differentiated role, being most relevant for municipal employees. These findings highlight the need for differentiated motivator-sensitive urban communication and participation strategies to enhance inclusiveness, democratic legitimacy, and long-term engagement in smart city development.

Keywords: smart cities; smart governance; stakeholder participation; participation motivators; urban communication; urban development; citizen engagement

1. Introduction: Democratising the Technocratic Smart City

For centuries, people have chosen to live in cities, and the number of urban residents continues to grow. Recent data indicate that more than half of the world's population—over 4 billion people—currently live in urban areas. This trend is expected to continue, and by 2050 the global urban population is projected to more than double, with nearly seven out of ten people living in cities [1]. Cities play a central role in social life, and this role logically influences the actions taken to develop smart cities [2].

Within contemporary urban development, the smart city concept has become an essential element of modern city governance. Advances in digital technologies and widespread internet accessibility have enabled cities to test and introduce smart solutions that generate data to improve urban planning and administrative efficiency. In Europe, the smart city policy approach has been strongly advanced through the “Horizon 2020” framework. Initially, the concept of the smart city was predominantly examined through the lens of digital solutions and the use of modern internet technologies to collect data about urban life. Consequently, a large part of the current literature remains focused on technocentric analyses, emphasising infrastructure enhancements, digital platforms, and algorithmic optimisation [3,4].

This technologically centred focus—particularly on IoT sensor deployment, real-time analytics, and AI-driven decision-support tools—risks overlooking the sociopolitical dimensions of urban governance that are essential for deliberative democracy. These dimensions ensure public participation, transparency of political decisions, empowerment of residents, and procedural fairness. In 2020, the OECD articulated key principles of deliberative policy-making through an analysis of nearly 300 different public participation practices worldwide. These principles emphasise the engagement of residents in an organised decision-making process in which participants learn about the issue, consider alternative solutions, and deliberate collectively before expressing their views [5].

At the same time, the implementation of smart technologies in cities increases the risk that digitally disadvantaged groups may be excluded from the benefits of the digital transformation due to unequal access to the internet, insufficient digital skills, or inadequate technological infrastructure [3,6]. This poses challenges to ensuring equal civic participation across all population groups, regardless of their digital competencies.

Without such a multidimensional perspective, smart cities and smart governance risk becoming technocratic constructs detached from the lived experiences of urban residents, particularly marginalised groups whose needs may not align with dominant innovation narratives [7]. Public participation in urban development is a fundamental element of democracy, and alongside the evolution of smart cities and e-governance, digital technologies create new forms of civic engagement. However, smart cities and e-governance

alone cannot guarantee citizen participation; participation requires residents' willingness to engage in discussions and decision-making about urban planning, meaning that motivation is a prerequisite.

The current literature presents a critical gap: despite extensive research on smart technologies, little attention has been paid to the factors that motivate stakeholders to participate in urban development and how these motivators differ across stakeholder groups. Addressing this gap is essential for understanding the complex relationship between smart governance and the democratic evolution of cities, with a primary focus on resident engagement and respect for diverse stakeholder interests.

The aim of this article is to address both conceptual and practical gaps in smart governance research by examining the participation motivators of urban stakeholder groups and identifying differences in their perceived importance across diverse groups. To explore these questions in a contextually grounded governance environment, the study adopts a single-case design centred on Riga, a structurally representative Baltic metropolitan setting characterised by active urban development and diverse stakeholder participation dynamics. The study identifies the driving forces behind urban participation and provides insights that can strengthen civic engagement within smart city and e-governance frameworks. The resulting Urban Participation Motivator Model offers a valuable tool for policymakers and urban planners seeking to design inclusive e-governance strategies that enhance deliberative democratic practices and reduce the risk that smart city development becomes overly technology-oriented while overlooking residents' needs.

The methodological approach is based on a literature review, the development of a model of participation motivators for urban stakeholder groups, empirical testing of the model through quantitative surveys, and inferential statistical analysis.

This study contributes to the smart city literature in three ways. First, it develops an integrative Urban Participation Motivator Model that synthesises behavioural, communication and participation theories within a smart governance context. Second, it provides rare comparative empirical evidence on stakeholder participation motivators across four urban actor groups. Third, it advances a motivator-sensitive framework for urban communication and participation design, translating behavioural insights into applied governance practice.

This article is structured as follows. Section 2 presents a review of the smart governance literature. Section 3 outlines the methodology used to develop the "Urban Stakeholder Participation Motivator Model". Section 4 compares and analyses the quantitative survey data across stakeholder groups. Section 5 summarises the main findings and outlines several future research directions to further explore how participation motivators can foster the democratisation of smart cities and their governance.

2. Literature Review: The Smart City Perspective

2.1. Conceptual Development of Smart Cities

Early definitions of smart cities primarily focused on digital technologies and their applications. More recent scholarship, however, conceptualises smart cities more broadly, incorporating dimensions of high-quality governance and examining civic participation as a core component. Over the past decade, the smart city model has evolved from a technology-driven paradigm [8] to a holistic concept centred on urban demand, meaning the needs and expectations of residents, and integrating multiple dimensions of city life [9]. As Habermas [10] argues, urban smartness must never become more technocratic than democratic.

Recent literature highlights an increasingly technocratic orientation within European smart city policy frameworks [11,12]. This political agenda often takes the notion of "stakeholders" for granted, without analysing its substantive meaning or clarifying which

actors are actually addressed. Such superficial usage poses risks both to urban democracy and to the political decisions associated with smart city development [13–17].

Parallels can be drawn with the early stages of e-governance implementation, highlighting that the introduction of smart city solutions similarly entails social and civic concerns related to digital technology use. Consequently, smart cities should be defined not by the number of IT solutions deployed, but rather by how effectively these technologies optimise fundamental urban functions [2]. Smart cities inherently rely on large-scale data collection, processing, and analysis, which introduces various risks. The aggregated use of digital data to monitor, observe, and influence residents has fostered technocratically oriented smart city models [18,19], which may bypass the democratic participation to which urban stakeholders are entitled.

Despite these limitations, smart cities remain a central focus in urban policy discourses worldwide, serving as a broad framework for stakeholder engagement practices. These practices increasingly reflect technologically determined modes of governance that are less democratic and more strongly oriented towards platform-based urban environments [20–22]. Kitchin [23], for example, describes technocratic governance as a system in which “all aspects of the city can be measured and monitored and treated as technical problems that can be addressed through technical solutions.” Another concern relates to the quality and democratic legitimacy of decisions based on smart city data. Many authors argue that the growing use of autonomous and non-transparent algorithms in city administration complicates the assessment and verification of data objectivity, reinforcing technocratic governance structures [24,25].

One of the most widely accepted definitions describes the smart city as a city with smart governance, smart economy, smart mobility, smart environment, smart people, and smart living [26]. However, the benefits of smart technologies cannot be realised if residents lack the necessary digital skills. Smart city development is therefore closely linked to improving citizens’ digital competencies, education, and training. Information technologies already shape daily life in banking, healthcare, housing services, culture, and social services.

In 2007, a comprehensive assessment model for evaluating and comparing medium-sized European cities, the “Ranking of European Medium-sized Cities,” identified six core smart city dimensions: economy, human capital, governance, mobility, environment, and quality of life [27]. These dimensions have been adopted in the European Commission’s report “Mapping Smart Cities in the EU” and serve as the foundation for numerous conceptual models in academic literature.

2.2. *Technocratic Challenges of Smart Governance*

Traditional governance structures often resist change, and their entrenched interests and bureaucratic rigidity hinder innovation and reform [28]. Müller [29] and Yigitcanlar and Kamruzzaman [30] highlight that the implementation of smart governance requires not only digital transformation but also organisational and cultural changes within public institutions. Despite these bureaucratic constraints, smart governance has emerged as a transformative paradigm for addressing the growing complexity of urban management under conditions of rapid urbanisation, climate change, resource depletion, and increasing socioeconomic inequality [31–35].

Smart governance offers a forward-looking alternative to traditional governance by integrating digital technologies, real-time data, collaborative policy development, and civic participation to improve governance outcomes in urban contexts [7,36]. As such, it is increasingly recognised as a transformative approach for addressing urban complexities, including social inequality, resource scarcity, and environmental pressures [7]. Many

scholars emphasise that the transformative potential of smart governance lies not only in its technological capability but also in its ability to foster multi-stakeholder collaboration and systemic innovation across institutional boundaries [37–39].

Ideally, smart governance, one of the foundational pillars of the smart city paradigm, enhances decision-making, service delivery, transparency, and civic participation through data-driven tools, digital platforms, and emerging technologies such as artificial intelligence, the Internet of Things, and blockchain [7]. The United Nations E-Government Survey 2024 [1] provides a comprehensive global assessment of digital governance across 193 countries, identifying substantial progress in digital public administration and increasing investment in resilient infrastructure and advanced technologies. The survey illustrates that global mobile device ownership now exceeds the number of residents in many cities, signalling the importance of designing smart city applications primarily for mobile access [2].

Smart governance can be conceptualised in two primary ways. The techno-oriented approach emphasises the use of advanced technologies to streamline administrative processes, enhance inter-institutional communication, and deliver smart services supported by infrastructure, digital platforms, and data analytics [32]. The citizen-oriented approach focuses on resident engagement in decision-making through digital platforms, enabling co-creation of policy solutions and fostering transparency, inclusion, and responsiveness [40].

Smart governance holds a central place in urban sustainability discourse, particularly in relation to the United Nations Sustainable Development Goals (SDGs). SDG 11 highlights the need for inclusive, safe, resilient, and sustainable cities. Achieving these objectives requires innovative governance mechanisms capable of addressing the multidimensional challenges of urbanisation [7,41–43]. Smart governance based on adaptive, participatory, and technologically integrated systems is fundamental for meeting SDG 11 and related urban development targets.

A further challenge associated with smart cities and smart governance relates to the control and ownership of the vast quantities of data generated within urban environments. As public and private actors increasingly collect, process, and monetise urban data, concerns have grown regarding data ownership, transparency, and accountability [7]. The continued expansion of data controlled by AI-enabled tools and devices owned by multinational corporations may intensify existing social inequalities, marginalising the least represented and most vulnerable stakeholders in smart cities [44–46]. This dynamic has further deepened tensions surrounding the technocratic smart city model, raising questions about who controls data and whether urban residents—as key stakeholder groups—will be able to safeguard their participation rights and influence in urban development processes.

2.3. The Role of Stakeholder Participation in Smart Cities

The prevailing perspective in contemporary scientific literature emphasises the holistic nature of cities and highlights the importance of engaging urban stakeholders within the smart city context. Participatory governance models that promote active citizen involvement in urban planning, budgeting, and service provision are increasingly recognised as essential for the successful implementation of smart governance. These approaches ensure that smart governance innovations remain contextually relevant, socially legitimate, and democratically grounded. In this regard, smart governance must not only introduce technological solutions but also foster trust, inclusiveness, and civic engagement. As noted by Biermann et al. [47] and Clune and Zehnder [48], urban sustainability can be achieved only through governance models that are both technologically effective and socially equitable.

Direct involvement of key urban stakeholders is considered a critical component within the modelling of urban environments and strategic planning, requiring collaboration

between technology specialists, urban planners, and principal stakeholder groups to reflect the multidimensionality of cities [49]. Stakeholder engagement in smart city development should therefore occur across multiple levels and phases [50].

Community engagement emerges in the scientific literature as a foundational dimension of smart governance. This aligns with the arguments of Patterson et al. [51], who highlight the importance of citizen-centric governance for sustainable urban development. Barcelona's Decidim platform exemplifies this approach by enabling residents to directly participate in city planning and policymaking through a transparent and inclusive digital interface. Similarly, Medellín's "City for Life" initiative illustrates the significance of citizen participation in building social resilience, improving safety, and strengthening civic responsibility. These human-centred models reinforce the arguments of Rochet and Belemlih [52], who assert that involving community representatives in decision-making processes enhances social cohesion and builds trust in municipal governance.

Although the strategic role of stakeholders in shaping smart city priorities has rarely been questioned [53], an increasing number of authors emphasise the need to improve the quality of civic engagement and avoid formalistic or symbolic participation. For instance, the European Commission's H2020-SCC policy framework narrows democratic stakeholder representation to the notion of "citizen-focused smart cities," which is frequently operationalized through pragmatic, instrumental, and paternalistic practices rather than through social rights, civic participation, and the pursuit of the common good [54]. Castelnovo underscores stakeholder involvement and the quality of their relationships [55], identifying this dimension as central within urban models that shape urban development strategies, the creation of public value, financial and economic sustainability, and the governance of resources and knowledge. Levels of inclusion and participation grounded in people-centred governance foster civic engagement and ensure that decisions reflect societal needs and preferences [7].

Within the rapidly evolving landscape of urban governance, two distinct approaches have emerged. The first relies on advanced technologies such as artificial intelligence, the Internet of Things, and data analytics to optimise and streamline urban operations and decision-making. The technocentric governance model focuses on applying modern technologies to improve infrastructure and service delivery [7]. The second approach prioritises active citizen engagement, inclusive communities, and deliberative democracy, utilising participatory instruments through which technological innovations serve citizens' needs rather than autonomously directing governance processes [56]. Stakeholder engagement has become a central theme in recent critical reviews of smart city models, with scholars emphasising the need to treat urban stakeholders not as passive objects of observation but as active participants in urban transformation [57]. Ensuring effective stakeholder engagement in smart city projects requires the development of clear engagement plans that incorporate co-design and co-production strategies [58], aligning with the principles of deliberative democracy.

Stakeholder engagement has become a central theme in smart city research, where stakeholders are typically defined as actors who can influence or are influenced by urban development processes [57,59]. The European Commission's report "Mapping Smart Cities in the EU" even incorporates the term directly into its definition of a smart city, conceptualising it as a multi-stakeholder, municipality-based partnership and emphasising the involvement of citizens, representatives, and local businesses as a critical factor for the development and success of smart city initiatives [8,60]. Other authors highlight the importance of stakeholders by integrating them as an essential component of conceptual smart city models [49,55,61,62], often granting a central role to citizens [63,64]. Across these perspectives, scholars widely agree that smart city initiatives must adopt a combination

of top-down and bottom-up approaches [8,57], since participatory processes strengthen community ownership.

Smart city solutions should therefore prioritise higher-quality, more accessible, and multidimensional forms of stakeholder participation, ensuring that technological innovations are implemented with careful consideration of stakeholders' varying levels of digital literacy. Technologies alone cannot foster civic engagement; meaningful participation requires understanding the motivations that shape stakeholders' decisions to engage or abstain from involvement in urban development and planning. To address this gap, the authors examine the motivators that influence urban participation among different stakeholder groups.

3. Stakeholder Motivators for Urban Participation

This section selectively reviews behavioural frameworks that directly inform the proposed motivator model rather than providing a comprehensive overview of participation theory.

The involvement of diverse stakeholder groups in urban planning discussions is widely recognised as a prerequisite for sustainable urban development. Urban governance processes typically engage politicians, civil servants, developers, experts, residents, civil society organisations, and the wider public, whose participation is shaped by differentiated behavioural motivators [65–71]. Despite this recognition, participation remains complex and resource-intensive, requiring carefully designed communication approaches to sustain engagement. Existing studies indicate that participation rates often remain low and may not automatically translate into increased trust or social cohesion, highlighting the importance of understanding the motivational dynamics underlying stakeholder involvement [72–74]. In the context of smart governance, digital technologies further reshape participation environments, reinforcing the need to analyse participation motivators within evolving urban communication frameworks.

In this article, “motivators” are defined as observable external or internal drivers influencing participation decisions.

3.1. Motivators Influencing Individual Behaviour

To understand what motivates individuals to participate in public consultations on urban development processes, it is necessary to consider established behavioural motivation frameworks. Several studies have examined participation drivers in governance and urban planning contexts [65,70,71,73], yet behavioural intention formation remains comparatively underexplored. The Theory of Planned Behaviour (TPB) provides one of the most widely applied frameworks for explaining behavioural intention and participation decisions [75,76]. According to TPB, behaviour is shaped by intention, which in turn is influenced by three key components: attitude toward the behaviour, subjective norms, and perceived behavioural control.

- **Attitude** refers to an individual's evaluation of the expected outcomes of participation, reflecting whether engagement is perceived as beneficial or worthwhile. In urban development contexts, more positive evaluations of participation outcomes increase the likelihood of involvement.
- **Subjective norms** capture perceived social expectations and pressures from significant others or institutions that influence participation decisions. Stronger perceptions that important others expect engagement are associated with greater willingness to participate.
- **Perceived behavioural control** reflects an individual's assessment of their ability to engage, including perceived resources, constraints, and prior experience [77]. Closely

related to the concept of perceived self-efficacy [78,79], this dimension influences whether participation is perceived as feasible within specific governance situations.

The Theory of Planned Behaviour is illustrated in Figure 1.

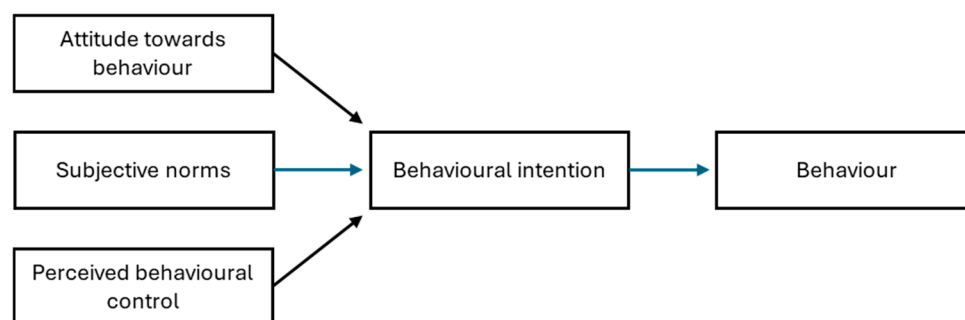


Figure 1. Illustrative model of the theory of planned behaviour. Source: Authors’ construction, based on TPB [76].

The TPB framework has been widely applied across diverse research domains, including environmental behaviour, waste management, and sustainable tourism [80–82]. In urban participation research, extended applications of TPB incorporate additional constructs, such as perceived benefit and perceived risk, to better capture context-specific participation dynamics [70].

Perceived benefit refers to individuals’ beliefs about the advantages that a particular action or outcome may provide [83]. Empirical research demonstrates that perceived benefits correlate positively with behavioural intention, influencing attitudes and decision-making processes [84]. In the context of urban development, residents may evaluate participation in public consultations in a manner analogous to consumer decision-making, assessing whether engagement will generate tangible or intangible value. When perceived benefits align with expectations and contextual realities, the likelihood of participation increases. From an urban communication perspective, perceived benefit therefore represents an important motivational dimension to be incorporated into the Urban Participation Motivators model.

Perceived risk has similarly been identified as a key determinant of public behaviour [85–87]. When urban development projects are perceived as threatening individual interests—such as environmental quality, health, property value, or financial stability—stakeholders are more likely to engage in monitoring, consultation, or opposition activities. Risk perception is particularly salient in urban contexts because potential impacts are closely linked to everyday living conditions. When perceived risks are high, behavioural intention to participate tends to intensify. Accordingly, perceived risk constitutes a critical motivational dimension within extended TPB-based participation models. The theoretical extension of TPB incorporating perceived benefit and perceived risk is illustrated in Figure 2.

In smart city contexts, implementing participatory urban planning strategies requires balancing short-term mobilisation with sustained long-term engagement [71]. Urban participation often emerges spontaneously through conflict-driven actions, such as community responses to perceived environmental or development threats [88,89]. However, such engagement is frequently temporary and may decline once immediate concerns are resolved. Sustained participation, by contrast, depends on longer-term motivational mechanisms requiring continuous investment of time and resources. Similar dynamics are observed in volunteer-based initiatives, where maintaining engagement over extended periods represents a key challenge [90–93]. These parallels suggest that volunteer motivation frameworks provide useful conceptual insights for designing urban participation processes that extend

beyond reactive mobilisation toward durable stakeholder engagement. The distinction between short-term mobilisation and sustained engagement informs the structure of the proposed participation motivator model.

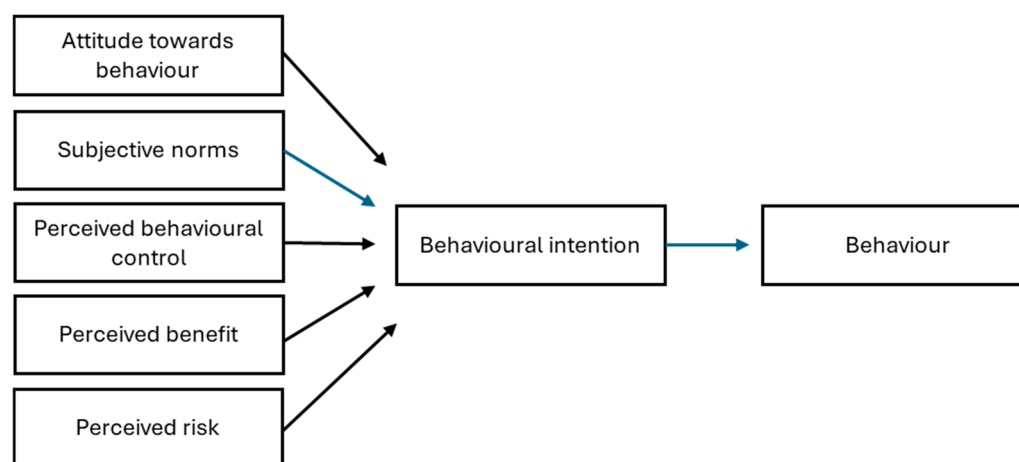


Figure 2. Perceived risk and planned behaviour theory model. Source: Authors’ construction adapted from the extended TPB framework [70].

Building on volunteer engagement research, three behavioural frameworks are particularly relevant for understanding how participation can be initiated and maintained over time: Fogg’s Persuasive Design Model [94–96], Eyal’s Hook Model [97], and Yamakami’s Social Experience Design framework [98].

Fogg’s behavioural model explains that three elements must converge for behaviour to occur: motivation, trigger, and ability. Participants must (a) possess sufficient motivation, (b) receive an appropriate prompt to act, and (c) perceive participation as feasible. While motivation and triggers frequently drive initial engagement, ability is shaped by participation design: the simpler and more accessible the process, the broader the potential involvement [99]. The model predicts that following a trigger, people with a sufficiently high level of motivation and ability will engage in the corresponding behaviour. Originally developed within persuasive technology research, this framework has since been applied in digital engagement and behavioural change contexts [100,101].

Eyal’s Hook Model conceptualises sustained engagement as a cyclical process composed of four stages: trigger, action, variable reward, and investment. Internal or external stimuli prompt an action, which generates benefits that reinforce continued engagement and encourage individuals to invest time, effort, or knowledge. Through repeated cycles, behaviours gradually stabilise into habits, reducing reliance on continuous external prompting.

Yamakami’s Social Experience Design perspective further emphasises the layered formation of long-term relationships between individuals and participation platforms. The process progresses from social cognition and goal-oriented interaction to short-term relational satisfaction and emotional reinforcement. Over time, trust formation and role identification contribute to durable engagement. This layered progression illustrates how emotional connection and social gratification can transform episodic participation into long-term commitment.

Research on volunteer involvement highlights that effective participation strategies must explicitly address both immediate mobilisation and sustained engagement. Durable participation depends on generating initial impulses, strengthening motivation, lowering participation barriers, and reinforcing engagement through reward mechanisms [71]. Figure 3 illustrates this engagement logic by structuring participation motivators into

four interconnected dimensions: impulse generation, motivation reinforcement, barrier reduction, and reward provision.

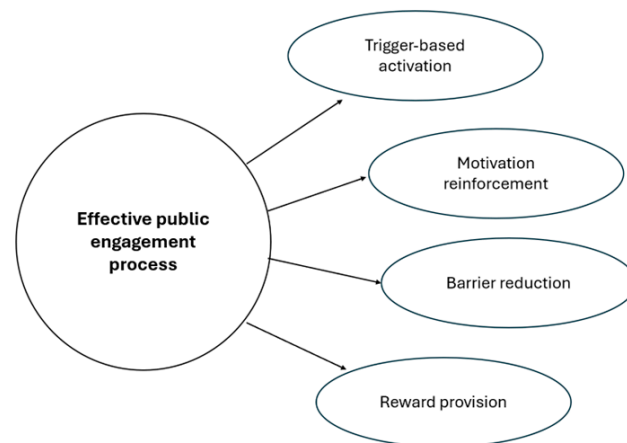


Figure 3. Four engagement dimensions supporting short-term and long-term participation in science projects. Source: Adapted by the authors based on Liñán et al. [71].

In urban development processes, stakeholder groups differ in their motivational structures. Municipal employees responsible for planning and consultation operate within long-term institutional frameworks; sustaining their engagement requires stable, structurally embedded motivators. In contrast, residents and businesses often participate reactively in response to concrete changes affecting property, environment, or economic interests. For political decision-makers, responsiveness to public demand and reputational considerations intensifies the role of social pressure.

These differences imply that no single motivator can ensure balanced participation across all stakeholder groups. Effective urban participation design therefore requires differentiated motivational strategies aligned with the structural roles and behavioural dynamics of each actor group.

3.2. Motivators for Stakeholder Participation in Urban Development

Looking at the urban development and consultation process, which is dominated by four main interest groups: national or local government policymakers, local government employees whose duties include urban development issues, residents and real estate developers or industry, Minskere (2025) has created the “Conceptual model of stakeholder participation motivators in urban development”. The aim of urban planning and consultation is to ensure the equal involvement of all stakeholder groups in the urban development and planning process. Minskere’s model is therefore based on: Ajzen’s Theory of Planned Behaviour [75], Luo’s [70] expanded Model of Planned Behaviour [76] with two motivators—perceived benefits and perceived risks, which are also important factors in the urban development participation process, Fogg’s [95] Persuasive Design Model, Eyal’s [97] “Hook Model”, Yamakami’s [98] “Layered View Model of Social Experience Design” and Liñán et al.’s [71] “Voluntary Engagement Model” in scientific projects.

When studying the participation of urban development interest groups, the following should be highlighted as the most important motivators for involvement: *motivation*, *trigger*, *social pressure* and *reward for participation* in the process (Figure 4).

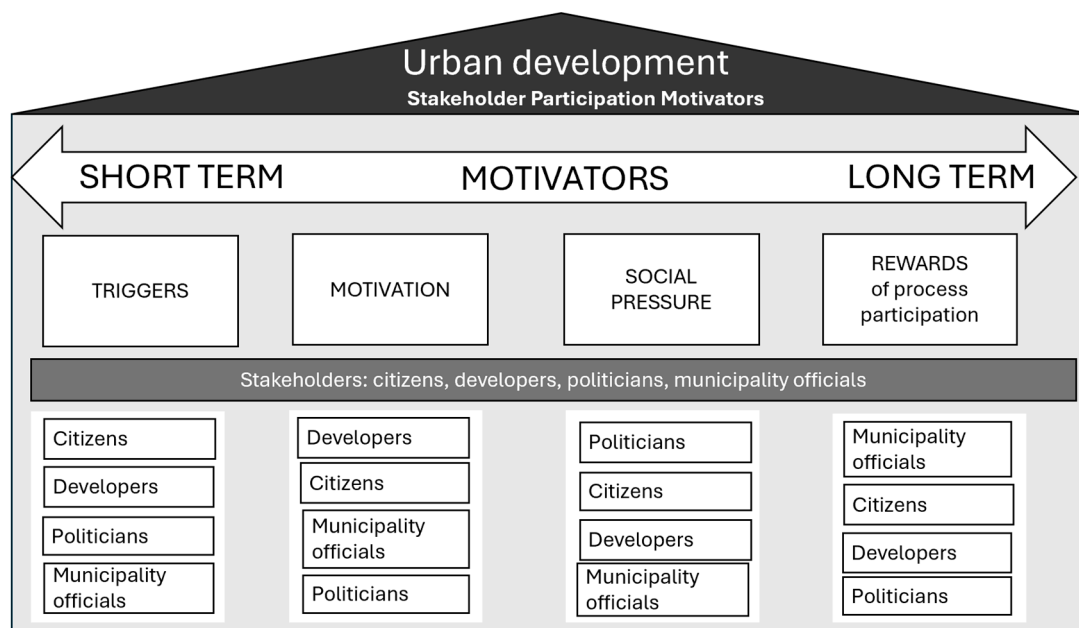


Figure 4. Conceptual model of stakeholder participation motivators in urban development, illustrating short-term and long-term motivational dimensions across stakeholder groups. Source: L. Minskere’s conceptualisation, 2025.

The “Conceptual Model of Stakeholder Participation Motivators in Urban Development” does not aim to replicate any single theoretical framework in its original structure. While the Theory of Planned Behaviour provides an important conceptual foundation for understanding attitudes, social influence, and behavioural intention, the model developed in this study adopts an integrative perspective that combines behavioural psychology, urban communication, and participation design approaches. The four motivators—social pressure, emotional trigger, rational motivation, and reward—should therefore be understood as context-specific operationalisations that draw on multiple theoretical traditions rather than as direct proxies for individual TPB constructs. These motivators were identified through a structured integrative synthesis of behavioural, communication, and participation literature reviewed in Section 3, where recurring motivational dimensions were comparatively analysed across theoretical frameworks. The selection process focused on dimensions that repeatedly emerged as directly actionable within urban participation contexts: emotional activation (trigger-based models), social influence and normative expectations, perceived gains and losses, and participation reinforcement through reward mechanisms. Other constructs frequently discussed in participation research, such as self-efficacy, institutional trust, or habitual engagement, were considered conceptually but were not included as independent motivators because they function primarily as contextual or mediating conditions rather than as direct participation drivers observable within urban development discussions. The aim of the model was to retain a clear analytical focus on participation motivators that can be directly observed and interpreted within urban development contexts while still reflecting the multidimensional nature of stakeholder engagement in smart governance. This integrative positioning enables the model to capture the complexity of urban participation dynamics, where behavioural decisions are shaped simultaneously by perceived risks and benefits, emotional impulses, social norms, and participation incentives.

3.2.1. Emotional Triggers as Behavioural Motivators in Urban Participation

Research on urban participation suggests that triggers represent one of the key mechanisms activating stakeholder engagement. Unlike relatively stable motivational structures, triggers are activated by specific events, situations, signals or perceived threats.

Within behavioural design theory, a trigger functions as a prompt that activates behaviour when motivation and perceived ability are sufficiently high [95]. Similarly, the Hook Model distinguishes between external triggers—such as announcements, notifications, or public messages—and internal triggers rooted in emotional states, including fear, dissatisfaction, or anticipation [97]. In urban contexts, an external trigger may take the form of a public announcement regarding a development project, while internal triggers may arise from concerns about property value, environmental degradation, or loss of neighbourhood identity.

In participation research, such situational impulses are frequently associated with perceived risk. When urban changes are interpreted as threatening individual interests or rights, they function as catalysts for action [70]. Studies on consumer and public behaviour similarly demonstrate that individuals are particularly sensitive to potential losses and uncertainty [52,85,87].

Perceived threats often generate rapid, time-sensitive reactions rather than slow, deliberative engagement. Prospect Theory demonstrates that individuals respond more strongly to potential losses than to equivalent gains—a phenomenon known as loss aversion [102]. Risk perception research further indicates that risk evaluation is not purely cognitive but also affective, shaped by emotions such as fear, anger, or anxiety [103,104]. These emotional responses may operate as immediate behavioural impulses, prompting participation in protests, submission of objections, or involvement in public consultations. Within Protection Motivation Theory, such reactions are conceptualised as protective responses activated when perceived threats are severe and action is considered effective [105].

Urban development processes provide numerous contexts in which such triggers emerge. New construction projects, land-use changes, traffic intensification, or environmental transformation directly affect residents and businesses. When these changes generate perceived risks to quality of life, economic stability, or place identity, they activate participation behaviours—including attending hearings, organising initiatives, or publicly opposing proposals. However, triggers grounded in perceived risk are typically short-lived: once the immediate issue is resolved or a compromise is reached, mobilisation often declines unless reinforced by more stable motivational structures.

Beyond individual risk perception, civic participation literature highlights moral shock and perceived injustice as additional trigger mechanisms. Sudden events that violate moral expectations may provoke rapid mobilisation, even among previously inactive individuals [106]. Collective action becomes more likely when perceived injustice is accompanied by belief in the effectiveness of action [107]. The Social Identity Model of Collective Action further suggests that emotions such as anger, combined with group identification and perceived collective efficacy, can transform grievances into coordinated participation [108]. In urban contexts, therefore, both personal risk and collective identity may function as powerful triggers.

At the societal level, media and communication dynamics can also activate triggers. Agenda-setting research demonstrates that media attention can elevate specific issues to central public concern, functioning as signals for action [109]. Public attention often intensifies following striking events, although such mobilisation may be temporary [110]. Unexpected or symbolically powerful events may further catalyse broader civic engagement beyond immediate policy effects [111,112].

Within the proposed urban participation model, emotional trigger is conceptualised as a dynamic and situational motivator that activates engagement when individuals or communities perceive real or symbolic threats, injustice, or salient events. Although such triggers are typically short-term in nature, they are essential for understanding when and why different stakeholder groups enter participation processes.

3.2.2. Rational Motivation as a Driver of Urban Participation

In urban participation, motivations are often formed through an individual cost–benefit evaluation—an assessment of whether engagement, understood as the investment of time, cognitive effort, emotional resources, and exposure to conflict, will “pay off” in terms of expected benefits. These benefits may include improvements in living environment, preservation of property value, fairer outcomes, or affirmation of competence and reputation. Importantly, this rational layer cannot be reduced to narrow economic profit; it encompasses subjectively perceived value, including place quality, identity, and neighbourhood ties [69]. Consequently, participation motivation is grounded not only in anticipated gains but also in the avoidance of losses, reflecting a logic of cost minimisation and self-interest [113,114].

Urban policy research provides further insight into this dynamic. The Homevoter hypothesis suggests that homeowners are more likely to engage politically because local decisions directly affect their primary asset, making property value protection a rational driver of participation [115]. In such cases, the perceived risk of financial loss becomes a key motivator for civic involvement.

From a behavioural economics perspective, Prospect Theory highlights the asymmetry between gains and losses: individuals tend to respond more strongly to potential losses than to equivalent gains [102]. Accordingly, participation may intensify when urban changes are framed as threats—such as the reduction in green spaces, increased traffic, erosion of neighbourhood identity, or declining property value—even when potential benefits objectively exist. Empirical participation research frequently operationalises this dynamic through perceived benefits and perceived risks as determinants of behavioural intention [70].

In real-world planning contexts, however, gains and losses are rarely certain. Behaviour is shaped not by objective guarantees but by perceived probability and perceived severity of consequences. Risk perception research demonstrates that such evaluations are not purely cognitive but are influenced by affective responses that shape how immediate and consequential a threat appears [103,104]. Participation motivation therefore strengthens when potential losses are perceived as likely, personally significant, and connected to everyday quality of life or place identity.

This “rational logic of loss” is further reflected in the concept of place-protective action. When development projects are perceived as threatening place meanings or identity, individuals are more likely to mobilise collectively in defence of the status quo [116]. In this interpretation, participation is not merely emotional protest but a rational defence of valued spatial and social arrangements.

Contemporary participation research also emphasises status quo bias. Individuals tend to prefer existing conditions and perceive change itself as a risk, which increases the weight assigned to potential losses [117]. Even when anticipated benefits are plausible, uncertainty and risk perception may tilt motivation toward avoiding deterioration rather than pursuing improvement.

Overall, rational motivation in urban participation is frequently structured around evaluations of gains and losses, with loss avoidance, protection of existing conditions, and affectively shaped risk perception playing central roles [102,104,117]. For urban gov-

ernance practice, this implies that participation is strengthened when processes clearly communicate potential consequences, reduce participation costs, and demonstrate tangible influence—thereby ensuring that engagement is perceived as meaningful rather than symbolic [118].

3.2.3. Social Pressure as a Behavioural Motivator in Urban Participation

Social pressure, often conceptualised as subjective norms, represents a central component influencing individuals' decisions to engage in urban development processes. Within behavioural theory, subjective norms refer to perceived expectations of significant others or relevant social groups regarding whether a particular action should be undertaken [76]. In urban participation contexts, individuals assess their potential involvement in relation to the perceived attitudes of neighbours, colleagues, community members, professional associations, and public institutions. Participation therefore becomes embedded in social expectations rather than solely individual preference.

Social Identity Theory further explains that individuals tend to adopt behaviours consistent with the norms of groups to which they belong or with which they identify [119]. When neighbourhoods, communities, or professional networks maintain a participation norm, individuals are more likely to engage in consultations, protests, or civic initiatives. Participation in such cases reinforces collective identity and supports the maintenance of a positive social self-concept. Trust developed through prior institutional or community experience further strengthens this mechanism.

The role of trust and network embeddedness is emphasised in social capital theory, which highlights shared norms, civic networks, and mutual expectations as foundations for coordinated action [120,121]. Communities characterised by higher levels of social capital are more likely to perceive participation as meaningful and effective, whereas low trust environments often produce passivity and disengagement. In urban governance settings, where decision-making processes may be lengthy and complex, accumulated experience of responsiveness and fairness significantly shapes willingness to participate [72].

Classic models of social influence distinguish between normative influence—the desire to gain social approval or avoid disapproval—and informational influence, which involves relying on others as sources of valid judgement under uncertainty [122]. Both mechanisms are relevant in urban participation, particularly when individuals face technical complexity or ambiguous outcomes and look to others for cues regarding appropriate action.

Norm activation research further suggests that social norms influence behaviour when they are made salient within specific contexts. Emphasising that “many residents are participating” activates descriptive norms, whereas highlighting civic duties or shared values activates injunctive norms [123]. In urban communication strategies, such framing can significantly amplify participation by aligning behaviour with perceived community standards.

Social Impact Theory adds that the strength of social influence depends on the status, proximity, and number of sources expressing a norm [124]. Endorsement by respected community leaders, professional associations, or high-legitimacy institutions therefore increases the intensity of social pressure within urban governance processes.

Taken together, social pressure in urban participation operates as a multi-level construct shaped by subjective norms, group identity, social capital, and situational norm activation. When social expectations are clear, trust is established, and group belonging is strong, participation intensifies. Conversely, ambiguous norms and low trust environments weaken engagement. Within smart governance frameworks, social pressure should not be understood merely as coercion, but as a structuring motivational force that shapes participation patterns and enables more community-oriented engagement strategies.

3.2.4. Reward as a Behavioural Motivator in Urban Participation

Reward for participation represents a central condition for sustaining long-term engagement in urban development processes. Across stakeholder groups, reward is often understood primarily as financial compensation for invested time and resources—such as attending consultations, preparing documents, or covering travel costs. However, rewards are not limited to monetary incentives. They also include non-financial elements such as recognition, feedback, perceived influence, enhancement of social status, procedural fairness, and a strengthened sense of belonging. Together, these dimensions offset participation costs and enhance the perceived meaningfulness of engagement [71,97].

The role of reward becomes particularly salient in maintaining sustained participation. While initial engagement may be driven by emotional triggers or ideological commitment, continued involvement requires reinforcement mechanisms that compensate for accumulated time and effort. Without such reinforcement, participation fatigue may emerge and engagement may gradually decline. Insights from volunteer engagement research similarly demonstrate that long-term involvement depends on mechanisms that maintain perceived value and recognition of contribution [71].

From a behavioural perspective, reinforcement theory explains that behaviour is strengthened when followed by positive reinforcement and weakened when reinforcement is absent [125]. Contemporary habit-formation models further illustrate how reward stabilises repeated behaviour, especially when combined with feedback and visible outcomes [97]. Social recognition and affirmation also function as reinforcers by reinforcing identity and belonging within participatory contexts [98].

At the same time, reward mechanisms operate differently depending on how they are perceived. Self-determination theory suggests that external rewards may either support or undermine intrinsic motivation: when perceived as controlling, they can reduce autonomy and weaken engagement; when perceived as fair recognition or competence affirmation, they may reinforce sustained participation [126,127]. Related research on motivational crowding similarly argues that external incentives can either “crowd out” or “crowd in” intrinsic motivation depending on perceived fairness and autonomy [128]. Accordingly, financial compensation in urban participation is most effective when framed as reimbursement for costs rather than as a mechanism of behavioural control.

In contemporary urban planning practice, participation design increasingly incorporates both incentives and cost-reduction strategies. Direct financial compensation—including honoraria or reimbursement of expenses—is often used to enhance inclusiveness and reduce socio-economic barriers [118,129]. Reducing participation burdens through flexible formats, childcare provision, accessible materials, or hybrid participation options functions as an indirect reward by lowering engagement costs. In addition, visible feedback and evidence of influence—such as transparent reporting on how proposals were considered—reinforce perceptions of fairness and strengthen institutional trust [130]. Conversely, overly complex procedures, lack of feedback, or symbolic consultation processes tend to discourage sustained participation [131].

Overall, reward in urban participation operates as a mechanism that mitigates participation fatigue and supports long-term engagement. While this study conceptualises reward primarily in terms of financial compensation, sustainable participation design benefits from a multidimensional approach that combines cost reimbursement, feedback, recognition, and procedural fairness to reinforce perceived meaningfulness and durability of engagement.

The next section of this article will present the results of studies analysing the importance of motivators in urban stakeholder groups.

4. Materials and Methods

This study adopts a structured, multi-phase research design to examine the motivators influencing stakeholder participation in urban development processes within a smart city context. The methodological approach integrates a systematic review of the scientific literature, conceptual model development, and empirical testing using quantitative survey data. The research was conducted in sequential phases, ensuring consistency between theoretical foundations, data collection, and analytical procedures. An overview of the research design and its main phases is presented in Figure 5, which visualises the methodological framework applied in this study.

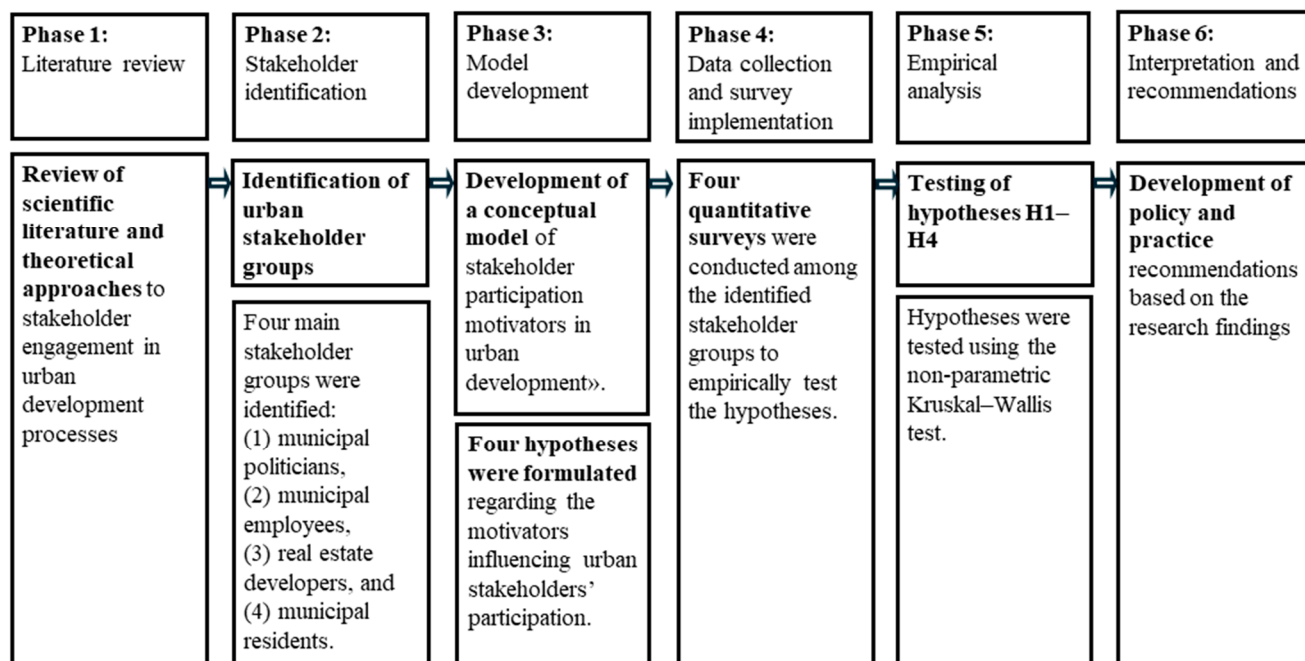


Figure 5. Sequential research design and methodological framework. Authors' own construction.

Riga was selected as the empirical case due to its structural relevance as the largest urban centre in Latvia and one of the major metropolitan areas in the Baltic region, where diverse stakeholder groups regularly interact within complex urban development processes. The study follows a case-oriented design aimed at analytical rather than statistical generalisation. Governance structures, planning practices, and participation challenges observed in Riga are broadly comparable to those found in other medium-sized European cities undergoing smart governance transitions. The authors' professional experience in urban communication within this context supported the identification of relevant stakeholder groups and the development of contextually grounded survey instruments, without influencing the interpretation of empirical results.

4.1. Methodological Positioning of the Study

This study adopts an exploratory, case-oriented quantitative design to examine perceived participation motivators across heterogeneous stakeholder groups in an urban governance context. Rather than constructing latent psychometric scales or testing structural causal models, the research focuses on identifying differentiated motivational patterns in a real-world smart city participation environment.

The survey instrument operationalises concrete manifestations of four theoretically grounded motivators—social pressure, emotional triggers, rational motivation, and reward for participation—as independent items derived from behavioural and participa-

tion theories. The analytical strategy therefore emphasises comparative assessment of item-level importance using descriptive statistics and non-parametric inferential analysis (Kruskal–Wallis test). The objective is to identify cross-group differences in perceived importance rather than to validate a unified measurement scale or estimate structural relationships.

The four motivational dimensions are treated as perceptual evaluations rather than causal determinants. The study does not model behavioural outcomes or estimate directional relationships between variables; instead, it compares perceived importance across stakeholder groups. Accordingly, the analytical framework is comparative and non-causal in nature.

Given the non-latent design and the planned group-specific administration of certain items, confirmatory factor analysis (CFA) and structural equation modelling (SEM) are not applicable. Global fit indices (e.g., RMSEA, CFI, TLI, SRMR) are therefore outside the scope of the study. Measurement quality is assessed through internal consistency indicators—Cronbach’s alpha and corrected item–total correlations—calculated within the respondent subsets to whom the relevant items were administered (see Appendix B).

Composite reliability measures (e.g., omega) presuppose a latent variable framework and a common indicator matrix. As the present research employs a non-latent, item-level comparative design with planned group-specific item administration, such reliability estimators are not included.

4.2. Phase 1: Review of Scientific Literature and Theoretical Approaches

The first phase of the study consisted of an extensive review of the scientific literature in order to identify the dominant theoretical approaches related to stakeholder engagement in urban development processes. The novelty of this study lies in the premise that effective urban communication requires more than simple information dissemination and should incorporate motivators that encourage distinct stakeholder groups to participate. In this context, motivators are defined as internal or external factors that stimulate a willingness to act, specifically with regard to participation in urban development activities.

4.3. Phase 2: Stakeholder Identification

Based on the theoretical analysis, four principal stakeholder groups relevant to urban development were identified:

1. Municipal politicians responsible for political decision-making related to urban development;
2. Municipal employees whose professional duties include tasks connected with planning and managing urban development;
3. Real estate developers;
4. Municipal residents.

These groups constitute the core actors whose engagement and motivation were explored in this study.

4.4. Phase 3: Model Development

Drawing on the literature review and development of the “Conceptual model of stakeholder participation motivators in urban development”. The model outlines the main motivators that may influence participation across different stakeholder groups. Four key motivators were identified:

1. Social pressure;
2. Rational motivation (e.g., financial gain or loss, changes in property value);
3. Emotional trigger (e.g., perceived improvement or deterioration of landscape or environmental quality);

4. Reward for participation (e.g., financial or non-financial incentives for involvement in public consultations).

This model served as the basis for the subsequent empirical inquiry.

4.5. Phase 4: Data Collection and Survey Implementation

Empirical data were gathered through an online survey distributed to representatives of each stakeholder group. In total, 620 valid responses were obtained, consisting of the following:

- 510 residents of Riga;
- 83 municipal employees involved in urban development;
- 14 current or former municipal politicians responsible for urban development decisions;
- 13 real estate developers, identified through the membership list of the Real Estate Developers Alliance.

The questionnaire items were derived from the behavioural and participation frameworks discussed in Section 3, including the Theory of Planned Behaviour, perceived benefit and perceived risk perspectives, and theoretical approaches addressing social influence, emotional triggers, and participation rewards. The instrument operationalises distinct manifestations of participation motivators within an urban development context, allowing respondents to evaluate the perceived importance of specific factors influencing engagement. For municipal residents, participation was framed broadly in relation to urban development discussions and planning processes, including consultation meetings, public debates, and reactions to proposed construction or redevelopment initiatives. Respondents evaluated motivators based on their understanding of potential involvement rather than requiring prior participation experience. The use of non-parametric statistical analysis further supports robust comparison across heterogeneous stakeholder groups. Care was taken to use balanced item wording and heterogeneous stakeholder sampling to support consistent interpretation of responses across groups.

The survey items (Table 1) represent context-specific operationalisations of participation motivators derived from the behavioural and participation frameworks discussed in Section 3. Respondents evaluated each item using a 10-point Likert-type scale measuring perceived importance.

Table 1. Operationalization of participation motivators and their theoretical grounding.

Participation Motivator	Example Survey Items	Theoretical Grounding
Social pressure	Attention from social networks and mass media; encouragement from significant individuals; community expectations; civic duty considerations	Social influence and participation pressure perspectives; normative influence within urban participation research
Emotional trigger	Concerns about environmental deterioration; fear of negative project impacts; emotional reactions to perceived risks or conflicts in urban development	Emotional mobilisation and trigger-based participation frameworks; behavioural engagement literature
Rational motivation	Expected financial benefits or losses; anticipated increase or decrease in property value; expected positive or negative impact on urban environment quality	Theory of Planned Behaviour extensions; perceived benefit–risk evaluation in decision-making and urban participation
Reward for participation	Feedback from organisers; participation as part of job responsibilities; recognition or compensation mechanisms	Participation incentive and engagement sustainability literature

Source: Authors' own construction.

The survey was conducted from 9 February to 31 August 2025. A structured questionnaire was developed for this research, comprising approximately 40 items (with minor variations across stakeholder groups), designed to assess the perceived importance of each motivator. All items measured the perceived importance of participation motivators using a 10-point Likert-scale, where 1 indicated “not important at all” and 10 indicated “very important.”

4.6. Phase 5: Empirical Analysis

The empirical analysis combines descriptive and inferential statistical methods.

Descriptive statistics include frequency distributions (relative and percentage frequencies), measures of central tendency (mean and median), and measures of dispersion (interquartile range and standard deviation). These indicators provide an overview of distributional patterns and central tendencies within and across stakeholder groups. Inferential analysis was conducted using the non-parametric Kruskal–Wallis test to assess differences between stakeholder groups. Statistical significance was defined as $p < 0.05$. The statistical analysis was complemented by theory-informed interpretation linking empirical findings to behavioural and smart governance literature.

4.7. Measurement Instrument: Operationalisation, Forms, and Item Sources

The survey instrument applies a planned missingness-by-design approach: certain items were administered only to stakeholder groups for whom they were logically relevant (e.g., politicians, municipal officials). Consequently, the dataset consists of group-specific item forms rather than a single unified item matrix.

The four motivational constructs—social pressure, emotional trigger, rational motivation, and reward for participation—were operationalised as perceived-importance item blocks on a 10-point scale (1 = not important at all, 10 = very important). Full item wording, operational definitions, and source attribution (conceptually adapted vs. newly developed) are presented in Appendix A.

Content and face validity were ensured through theory-driven item development grounded in established behavioural and participation frameworks, including normative influence, trigger-based engagement, perceived risk–benefit perspectives, and planned behaviour approaches. As the study does not estimate latent reflective constructs, construct validation through confirmatory factor analysis (CFA) is not part of the research design.

Given the group-specific item administration, exploratory or confirmatory factor analysis based on a pooled indicator matrix would not be methodologically aligned with the structure of the dataset. Measurement quality is therefore assessed through internal consistency indicators—Cronbach’s alpha and corrected item–total correlations—calculated within the respondent subsets that received the respective items. Where constructs include both shared item cores and group-specific extensions, reliability coefficients are reported separately for the shared core and for subgroup-specific item sets. Summary statistics are presented in Section 5, with detailed results in Appendix B.

4.8. Phase 6: Interpretation and Recommendations

The empirical findings highlight significant variation in the perceived importance of motivators across stakeholder groups, contributing to a deeper understanding of the drivers influencing urban development participation. The results offer practical implications for policymakers, municipal planners, developers, and civic organisations, suggesting that engagement mechanisms should be tailored to the distinct motivations and expectations of each stakeholder group.

5. Results, Discussion, and Analysis: A Comparative Assessment of Four Motivators in Public Participation Among Urban Development Stakeholder Groups

Public participation represents a central component of democratic urban governance. Decisions taken within urban development processes have long-term implications for residents, spatial environments, and future generations. However, stakeholder perspectives frequently diverge: some groups actively support development initiatives, while others express concerns or opposition. In this context, meaningful public consultation requires balanced engagement across stakeholder categories.

In practice, participation intensity varies considerably. Certain groups—such as residents—may be more visibly engaged, while others—including developers, elected officials, or administrative representatives—may participate less actively. Uneven engagement can limit the inclusiveness and deliberative quality of consultation processes. Identifying the motivators that shape stakeholders' decisions to participate is therefore essential for understanding participation dynamics in urban governance.

Participation in public consultations entails the allocation of individual resources, particularly time, attention, and knowledge. The authors developed a conceptual model capturing four central motivators that may influence stakeholders' decisions to engage in or abstain from consultation processes: social pressure, reward for participation, emotional trigger, and rational motivation. These motivators reflect distinct behavioural mechanisms and provide an analytical framework for comparative assessment.

Based on this framework, four hypotheses were formulated. First, the study examines whether social pressure influences stakeholders' participation decisions. Second, it assesses the role of reward for participation. Third, it analyses the influence of emotional triggers. Fourth, it evaluates whether rational motivation contributes to participation decisions. The conceptual model guiding the empirical analysis is presented in Figure 6.

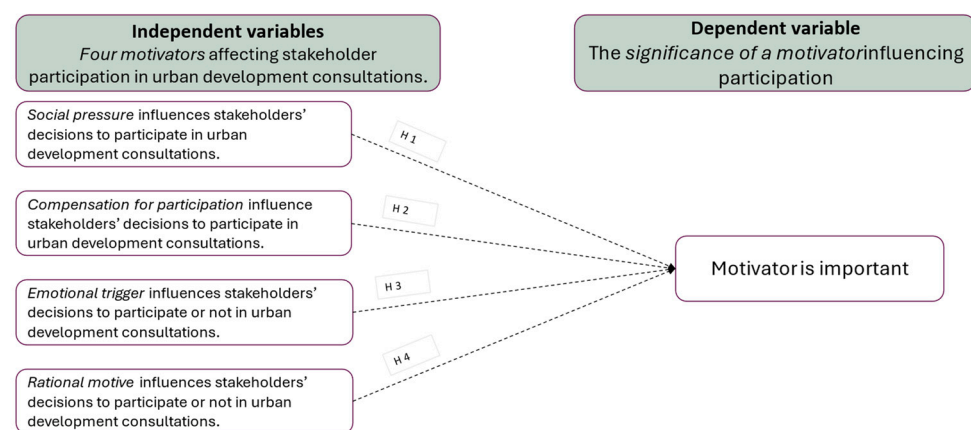


Figure 6. Analytical framework for comparative assessment of four motivators in urban public participation. Source: Authors' construction.

H1. *Social pressure influences stakeholders' decisions to participate in urban development consultations.*

H2. *Reward for participation influence stakeholders' decisions to participate in urban development consultations.*

H3. *Emotional triggers influence stakeholders' decisions to participate or not in urban development consultations.*

H4. *Rational motivation influences stakeholders' decisions to participate or not in urban development consultations.*

5.1. Analytical Framework and Reliability Assessment

This section integrates empirical findings with the theoretical perspectives introduced in Section 3, including behavioural motivation models, emotional mobilisation, risk perception, and social influence frameworks. The interpretation of Kruskal–Wallis test results is therefore theory-informed, situating observed stakeholder differences within broader debates on smart governance and participatory urban development. This integrated analytical approach enables a structured interpretation of motivational patterns across groups.

All motivator blocks demonstrated satisfactory internal consistency for comparative purposes. Block-level Cronbach's alpha coefficients, calculated for the respondent subsets that received the respective items, were as follows: social pressure ($\alpha = 0.766$), emotional trigger ($\alpha = 0.646$), rational motivation ($\alpha = 0.904$), and reward for participation ($\alpha = 0.901$). Corrected item–total correlations are reported in Appendix B.

Where constructs include group-specific item sets, reliability coefficients are reported at the subgroup level. In cases where a construct comprises both a shared item core and group-specific extensions, reliability estimates for the shared core are provided to support cross-group comparability. These indicators confirm the adequacy of the item blocks for known-groups comparison using the Kruskal–Wallis test.

For transparency and replicability, Appendix A presents the full item wording, operational definitions, and source attribution, while Appendix B reports internal consistency metrics and item–total correlations. An Appendix B document provides detailed item-level reliability tables.

5.2. General Results Showing the Importance of Motivators in the Urban Development Participation Process Across Different Stakeholder Groups: Riga Residents, Politicians, Responsible Municipal Officials, and Developers

The study data reveal substantial differences in the perceived importance of various motivators in the urban participation process. It should be noted that the reported mean values reflect the perceived importance of participation motivators rather than actual levels of civic engagement or participation intensity. Notable variations were identified across stakeholder groups regarding the extent to which each motivator influences decisions to engage in urban participatory processes. Figure 7 presents the aggregated results illustrating the relative importance of the analysed motivators across stakeholder groups.

Overall, emotional trigger (subjective opinion) emerges as the most influential motivator, with an aggregated mean importance score of 7.43 across all respondent groups on a 10-point Likert scale (1 = “Not important at all”, 10 = “Very important”). Social pressure ranks second, with a mean score of 6.99, followed by rational motivation (rational argumentation), with a mean value of 6.66. Compensation or reward for participation is comparatively the least influential motivator, exhibiting the lowest overall mean score of 5.66.

Applying the non-parametric Kruskal–Wallis test, statistically significant differences among stakeholder groups were identified for three out of the four analysed motivators: reward for participation ($H(3) = 21.702, p < 0.001$), emotional trigger ($H(3) = 11.178, p = 0.011$), and rational motivation ($H(3) = 41.466, p < 0.001$). The ranking of motivator importance differs across stakeholder groups. For Riga's residents and developers, emotional trigger and rational motivation are the most salient factors. In contrast, for politicians and responsible municipal officials, social pressure and emotional trigger emerge as the dominant motivators influencing participation decisions.

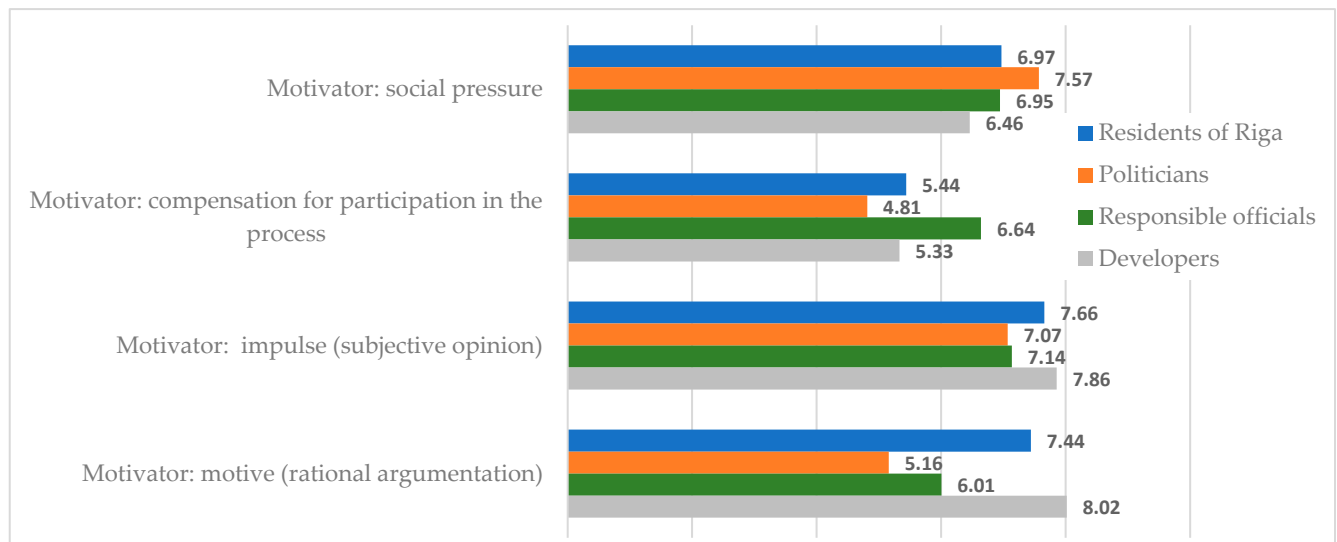


Figure 7. Overall results on the importance of motivators in the urban development participation process among various stakeholder groups: Riga residents, politicians, responsible municipal employees, developers. Source: Authors' survey conducted between 9 February and 31 August 2025.

These findings resonate with research emphasising affective engagement and social norm dynamics in civic participation within smart city environments. Similar to studies highlighting emotional attachment and perceived risk as drivers of urban mobilisation, emotional triggers appear as the strongest motivator across stakeholder groups. The prominence of social pressure among political actors reflects prior research on reputational dynamics and media visibility in governance contexts, while the stronger role of rational motivation among professional stakeholders corresponds with literature describing outcome-oriented participation among developers and institutional actors. Compared to technology-driven smart city models, the results reinforce human-centred perspectives that emphasise socio-psychological dimensions of participation. The Riga case therefore illustrates how motivational dynamics observed internationally may manifest differently depending on stakeholder roles and governance context.

5.3. Analysis of Four Urban Participation Motivators: Reward, Emotional Trigger, Rational Motivation, and Social Pressure

The following subsections present a detailed analysis of the four urban participation motivators across different stakeholder groups involved in the urban development process.

5.3.1. Reward as Motivator for Participation

Reward or compensation for participation is identified as one of the key motivators influencing stakeholder participation in urban development processes. This motivator encompasses both financial rewards, such as bonuses or premiums, and non-monetary forms of reward, including public recognition or feedback from organisers, provided in return for the time and resources invested in public consultations and discussions related to urban planning and development.

The results in Figure 8 indicate that the importance of reward as a motivator varies substantially across stakeholder groups. Analysing measures of central tendency reveals that this motivator is most important among responsible municipal officials, slightly less important for developers, followed by Riga's residents, and least important among politicians. Considering the wide dispersion of data and the relatively small number of respondents in certain groups, statistically significant differences in opinions exist between responsible municipal officials and all other groups, as confirmed by the Kruskal–Wallis test. Meanwhile,

differences among *residents of Riga*, *politicians*, and *developers* are not statistically significant ($p > 0.05$). Given the exploratory nature of the study and unequal group sizes, no post hoc pairwise tests were conducted.

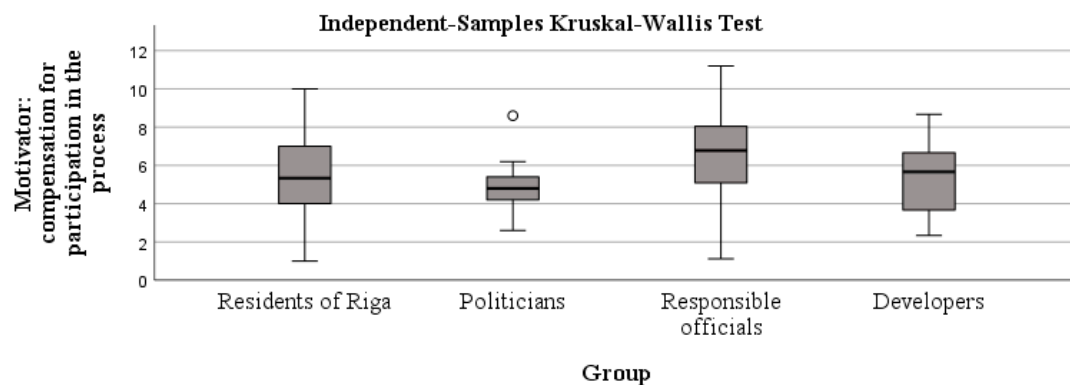


Figure 8. Motivator: The importance of compensation in urban development process. Source: Authors' construction.

The results indicate that within the group of responsible municipal officials, the data are not homogeneous, as a wide dispersion of responses is observed across the entire scale (from 1 to 10), indicating a high degree of heterogeneity in opinions within this group. In contrast, the group of politicians appears to be the most homogeneous in its assessments, assigning comparatively low importance to compensation as a motivator.

In summary, the findings indicate that reward as a motivator is most important among responsible municipal officials. Thus, the practical implementers of the urban development process—whose professional responsibilities directly involve urban development issues—evaluate reward as a motivator significantly more highly than political decision-makers or residents.

H2. *Reward for participation influences stakeholders' decisions to participate or not participate in the urban development process.*

H2 is supported. Kruskal–Wallis test: $H(3) = 21.702, p < 0.001$.

5.3.2. Emotional Trigger as a Motivator for Participation

Emotional trigger as a motivator encompasses spontaneous reactions rooted in subjective experience and affective responses that stimulate individuals' willingness to engage in decision-making processes related to the urban development. Such triggers may manifest as indignation, enthusiasm, or a sense of belonging to a particular neighbourhood.

The results shown in Figure 9 of the non-parametric Kruskal–Wallis test indicate that emotional trigger is most pronounced among Riga's residents in the urban participation process. Although the mean value is higher within the developer group, these differences are not statistically significant due to the relatively small number of respondents in this group. This suggests the presence of potential trends that would require further investigation using a larger sample.

These findings allow the conclusion that emotional trigger is particularly important for residents, who often lack formal influence over decision-making processes. Residents tend to base their participation decisions on personal convictions and are frequently guided by subjective perceptions of fairness or injustice within the proposed process. The results therefore highlight that, within urban participation processes, the role of emotional trigger as a motivator must be given special consideration for the resident stakeholder group.

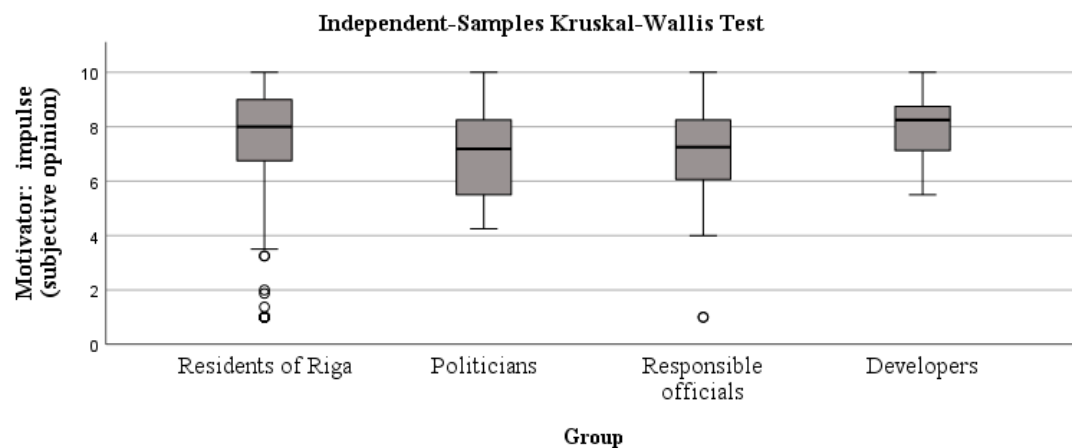


Figure 9. Motivator: The importance of emotional trigger in urban development participation process. Source: Authors' construction.

H3. *Emotional triggers influence stakeholders' decisions to participate or not participate in the urban development process.*

H3 is supported. Kruskal–Wallis test: $H(3) = 11.178, p = 0.011$.

5.3.3. Rational Motivation as a Motivator for Participation

Rational motivation refers to logical, evidence-based arguments and factual considerations that are oriented toward the achievement of specific, consciously defined objectives. Rational motivation tends to dominate among stakeholder groups that recognise the strategic value of participation in public consultation processes related to urban development.

This motivator is particularly important for developers, among whom the evaluations are both the highest and the most homogeneous across all stakeholder groups (see Figure 10). Residents also assign a relatively high importance to rational motivation as a motivator.

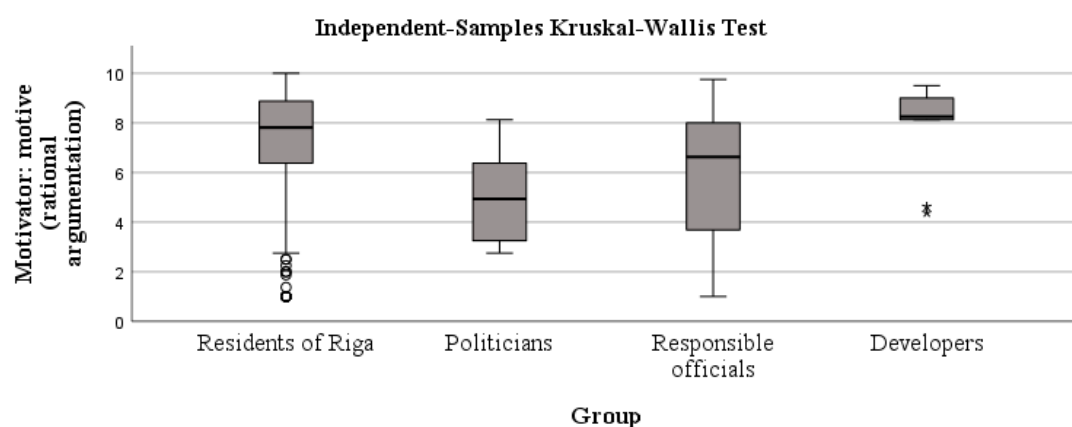


Figure 10. Motivator: The importance of rational motivation in urban development participation process. (Mild outliers are marked with circles, while asterisks denote extreme outliers, operationalized as values exceeding three times the interquartile range ($3 \times \text{IQR}$) from the nearest quartile). Source: Authors' construction.

The results reveal statistically significant differences between the resident and politician groups, as well as between residents and responsible municipal officials. These differences are interpreted descriptively on the basis of group-level distributions; no post hoc pairwise tests were applied due to unequal group sizes. For politicians, rational motivation is of moderate importance and represents the lowest mean value among all stakeholder

groups. Although the dispersion of opinions within the politician group is not especially large, it is nevertheless substantially greater than that observed among developers.

It is important to note that within the developer group, responses are highly homogeneous, with only a few exceptions, whereas in the resident and responsible municipal official groups, the dispersion of opinions is considerably wider.

Overall, the analysis indicates that rational motivation is particularly salient for professional stakeholder groups, such as developers, whose participation decisions are typically grounded in assessments of expected outcomes and risk analysis. Among residents, this motivator is also rated relatively highly; however, the wide dispersion of responses suggests internal heterogeneity—while rational motivation is a key driver for some residents, it is of limited relevance for others. For part of the resident population, participation is based on reasoned conviction and logical analysis, whereas others attribute greater importance to emotional trigger. Consequently, the role of rational motivation in society is not uniform: for some individuals it constitutes a primary driver of participation, while for others it is secondary or marginal. Within the politician group, rational motivation is the least influential, possibly reflecting a different understanding of participation and distinct engagement objectives.

H4. *Rational motivation influences stakeholders' decisions to participate or not participate in the urban development process.*

H4 is supported. Kruskal–Wallis test: $H(3) = 41.466, p < 0.001$.

5.3.4. Social Pressure as Motivator for Participation

Social pressure was analysed based on six dimensions representing both the external informational environment (social media and mass media) and the influence of the immediate social environment (family members, neighbours, friends, and colleagues), as well as subjective feelings of obligation and professional competition. Respondents were asked to evaluate the following questions.

Please rate how important each of these factors is to you in deciding whether to participate in public discussion about a construction project or changes to the territorial plan:

- (1) Social networks and mass media are paying increased attention to the development plan.
- (2) Local residents or other civic activists express dissatisfaction or organise protests against the planned development project.
- (3) My friends, neighbours, work colleagues or relatives express dissatisfaction with the development project and call on me to take action together.
- (4) Someone important to me personally asks me to get involved in discussions about the development plan.
- (5) It is my civic duty to get involved in the discussion of the development project.
- (6) Competitors are actively involved in discussions about the development project (this question was included only in politician and developer groups; for other groups, the question is not relevant).

The study results in Figure 11 indicate that pressure generated by social media and mass media constitutes one of the most influential drivers of participation, with an overall mean score of 7.57 across all stakeholder groups. Encouragement to participate from a personally significant individual is also highly important (mean score 7.22), underscoring the role of emotionally close social ties as a key motivator in urban participation. In contrast, local community activity, the opinions of close social contacts, and a sense of civic duty are rated slightly lower yet remain substantial influencing factors.

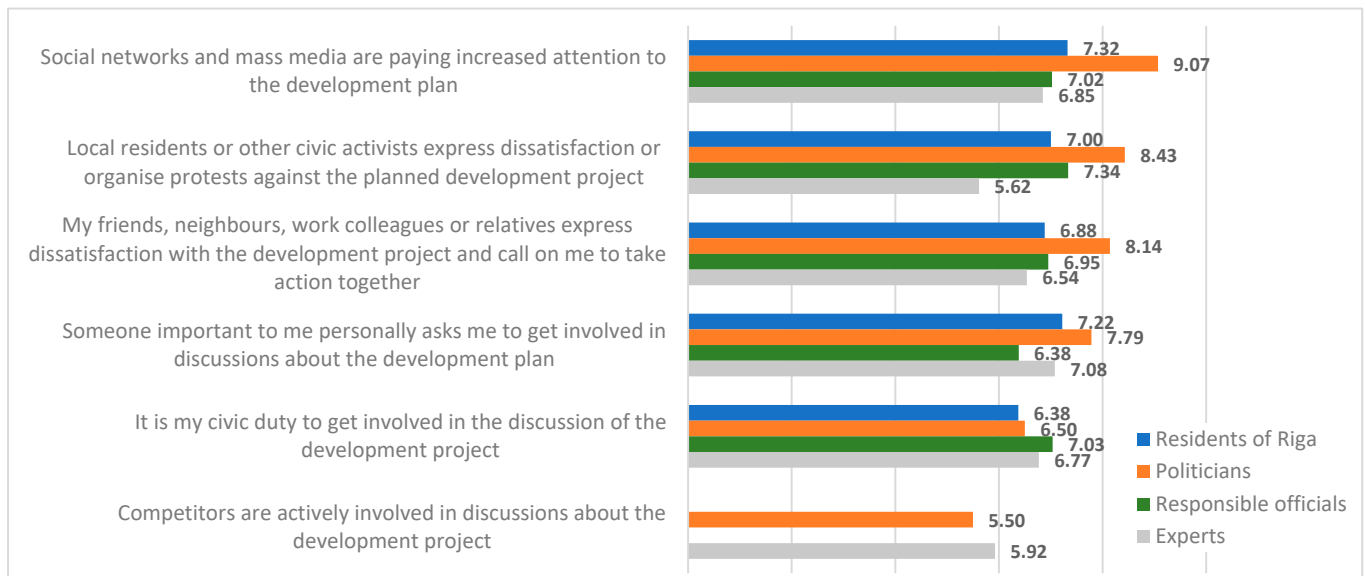


Figure 11. The importance of social pressure factors among different stakeholder groups. Source: Authors' construction.

H1. *Social pressure influences stakeholders' decisions to participate or not participate in the urban development process.*

H1 is partially supported. Social pressure driven by social media and mass media ranks among the highest-rated factors across all stakeholder groups, with a mean = 7.57, and the Kruskal–Wallis test confirms statistically significant differences: $H(3) = 13.086$, $p = 0.004$.

5.4. Differences Between Stakeholders

The results of the Kruskal–Wallis test indicate statistically significant differences between stakeholder groups in only one dimension—namely, in relation to the statement “Social networks and mass media are paying increased attention to the development”, $H(3) = 13.086$, $p = 0.004$.

The data show that social pressure as a motivator is substantially more important for politicians than for the other stakeholder groups (developers, residents, and municipal officials). Moreover, the politician group exhibits a high level of internal consistency: on a 10-point scale (where 1 denotes “Not important at all” and 10 denotes “Very important”), all responses fall within the range of 7 to 10. This pattern indicates a heightened sensitivity among politicians to the informational environment and reputational considerations in the public sphere, where media visibility generates social pressure.

The remaining analysed factors—influence of friends, relatives, colleagues, and neighbours, neighbourhood activity, encouragement from a personally significant individual, and a sense of civic duty—do not display statistically significant differences between stakeholders. This suggests a relatively uniform perception across stakeholder groups regarding the role of the immediate social environment in these categories.

Overall, the analysis confirms that social pressure as a motivator for participation in urban development processes operates with varying intensity depending on its specific manifestation. Among all analysed dimensions, attention from mass media and social networks and encouragement from a personally significant individual received the highest evaluations. Other factors—such as community activity, opinions of friends and acquaintances, and civic duty—were rated considerably lower.

Furthermore, statistically significant differences between stakeholder groups were identified in only one of the six analysed dimensions: politicians rated the influence of mass media and social networks significantly higher than other groups. This finding suggests that politicians, as public figures, are particularly responsive to signals from the information environment that may affect their reputation and political capital.

The results imply that, in order to effectively promote public participation, urban communication strategies should prioritise visibility within the media environment and leverage the influence of social media, including the involvement of socially prominent individuals in communication campaigns. Formal participation appeals based solely on civic duty or traditional justifications for participation may be insufficient to activate broader public engagement.

5.4.1. Reward: Differences in Perceived Importance Across Stakeholder Groups

Reward as a motivator for participation was analysed based on five dimensions encompassing both material and symbolic factors. Respondents were asked to assess the importance of the following elements: public recognition, financial compensation, feedback from organisers, fulfilment of job responsibilities, and bonuses or premiums (the latter two were assessed only among public officials and politicians). To evaluate the role of reward as a motivator, respondents were asked the following questions.

Please rate the importance of each of these factors to you when deciding whether to participate in public discussion about a construction project or changes to the territorial plan:

- (1) Public recognition or gratitude from discussion participants or organisers for my participation in discussing the development plan.
- (2) Financial compensation for my time spent discussing the development proposal.
- (3) Feedback from the discussion organisers on my comments or suggestions regarding the development project.
- (4) It is part of my job responsibilities (this question is only included in the questionnaires for civil servants and politicians).
- (5) Bonus or premium from the local government for organising and participating in discussions on development plans (this question is only included in the questionnaires for civil servants and politicians).

The importance of compensation or reward as a motivator was examined at two analytical levels (see Figure 12).

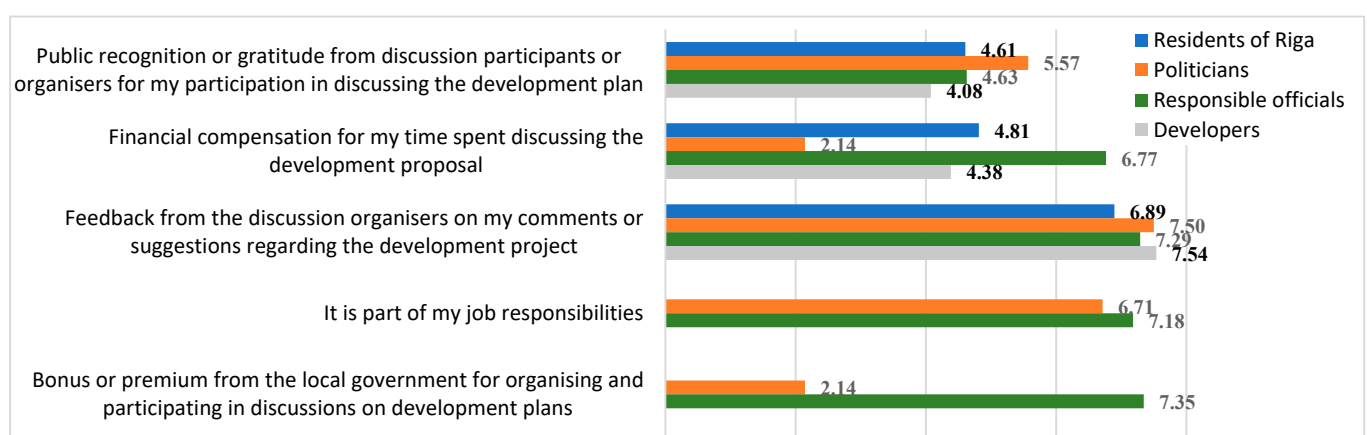


Figure 12. The importance of rewards factors among different stakeholder groups. Source: Authors' construction.

- (1) All respondent groups were asked to evaluate general compensation-related factors, including public recognition, financial compensation for time invested, and feedback from organisers.
- (2) In contrast, only two groups—municipal officials and politicians—were asked to assess the relevance of institutional compensation mechanisms, namely, “*this is part of my job responsibilities*” and “*a bonus or premium from the local government*”, in order to capture the role of formal organisational incentives.

Overall, the most important factor within the group of compensation-related motivators is “Feedback from the discussion organisers on my comments or suggestions regarding the development project,” with a mean score of 7.31 on a 10-point scale across all stakeholder groups. In three out of the four analysed stakeholder groups, this factor ranks as the highest priority. This finding indicates that respondents consider it important to recognise or perceive that their opinions are taken into account and have a tangible influence on decision-making processes. The only exception is observed among public administration representatives, who rate “bonus or premium from the local government for organising and participating in discussions on development plans” as slightly more important.

The opinions of Riga’s residents regarding the significance of the factor “*Feedback from the discussion organisers on my comments or suggestions regarding the development project*” are not homogeneous. Although the measure of central tendency (6.9 points on a 10-point scale) indicates that this factor is generally considered important by the majority of permanent residents, there is a substantial proportion of respondents who hold a divergent view and perceive such feedback as an insignificant component of the overall compensation framework. Such a wide dispersion of opinions is not observed among the other stakeholder groups.

Conversely, for the parameter “*Public recognition or gratitude from discussion participants or organisers for my participation in discussing the development plan*,” three out of four stakeholder groups (residents, politicians, and responsible officials) exhibit a heterogeneous attitude toward the importance of this factor—the values reported by respondents range from 1 (the lowest possible) to 10 (the highest possible).

The widest dispersion of opinions regarding the importance of “*Financial compensation for my time spent discussing the development proposal*” is observed within the group of responsible officials, where responses on a 10-point scale range from 1 to 10. A moderate level of variability is found among Riga’s residents and developers, whereas the most homogeneous responses were provided by politicians, who consistently evaluated this factor as distinctly insignificant.

Among the two factors within this compensation category assessed exclusively by politicians and responsible officials, the one rated higher by both groups is “*It is part of my job responsibilities*.” While the majority of respondents in these stakeholder groups regard this factor as highly significant, there are also individuals who hold an opposing view. Notably, in relation to the parameter “*Bonus or premium from the local government for organising and participating in discussions on development plans*,” politicians’ opinions are largely consistent—with only one exception, all other respondents in this group considered such bonuses or premiums to be of minimal importance.

Statistically significant differences between stakeholder groups were identified for two compensation-related factors associated with material remuneration.

First, statistically significant differences were observed regarding financial compensation for time invested in discussing the development proposal (Kruskal–Wallis test: $H(3) = 35.246$, $p < 0.001$). The results indicate that this motivator was rated significantly lower by politicians than by residents and municipal officials. This suggests that material incentives are not perceived by politicians as a relevant factor in participation-related decision-

making. In contrast, municipal officials and residents tend to view financial compensation as an appropriate acknowledgment of the time and effort devoted to participation.

Second, among municipal officials and politicians, the perceived importance of bonuses or premiums granted by the local government for participation in urban development discussions was also examined (Kruskal–Wallis test: $H(3) = 22.258, p < 0.001$). The findings show that a statistically significantly larger share of municipal officials assign higher importance to this form of compensation, whereas politicians consider it a less relevant motivator. This divergence can be explained by the functional roles of the two groups: for municipal officials, organising and participating in discussions is more often a direct professional responsibility, for which financial recognition may serve as an additional motivating factor. For politicians, by contrast, such activities are more frequently interpreted as a civic or public duty rather than remunerated work.

Overall, these results confirm that perceptions of compensation as a motivator differ substantially depending on the stakeholder group's role in the urban development process. Across all groups, feedback from discussion organisers emerges as a key factor, highlighting the importance of creating a sense that each participant's input is heard and respected. The importance of financial motivation, however, varies markedly between groups: it is considered significant by municipal officials and residents, but of limited relevance for politicians. Similarly, institutional compensation, such as bonuses or premiums, is more salient for municipal officials, while remaining marginal for politicians.

Consequently, when designing participatory mechanisms, compensation should not be reduced solely to material incentives. Communication practices that acknowledge participants' contributions and provide meaningful feedback can function as effective drivers of participation, complementing material forms of compensation that are relevant for certain stakeholder groups in urban development processes.

5.4.2. Emotional Trigger: Differences in Perceived Importance Across Stakeholder Groups

Emotional trigger as a motivator was examined by surveying respondents about their subjective experiences and attitudes toward potential changes in their surrounding environment (Figure 13). The analysis incorporated both perceived personal gains and losses, such as potential changes in property value or improvements/deterioration in quality of life, as well as the influence of close social ties (friends and relatives) and emotional attachment to specific places within the urban environment. To assess the role of emotional triggers as a motivator, respondents were asked the following questions.

Please rate the importance of each of these factors to you when deciding whether to participate in public discussion about a construction project or changes to the territorial plan:

- (1) The construction site is located near my place of residence and gives me the feeling that the value of my property may increase.
- (2) The construction site is located next to my place of residence and gives me the feeling that the value of my property may decrease.
- (3) The planned changes may reduce noise, improve the view and landscape, improve traffic flow, reduce odours, or reduce building density or height, etc.
- (4) The planned changes may increase noise, block the view, spoil the landscape, complicate traffic flow, cause odours, or increase building density or height, etc.
- (5) The building site is located next to the place of residence of my friends or relatives and creates a feeling of a possible increase in the value of real estate.
- (6) The building site is located next to the place of residence of my friends or relatives and creates a feeling of a possible decrease in the value of real estate.

- (7) The planned changes may have a positive impact on places that are important to residents: monuments, historic buildings, green areas, cemeteries, public walking trails, etc.
- (8) The planned changes may have a negative impact on places that are important to residents: monuments, historic buildings, green areas, cemeteries, public walking trails, etc.

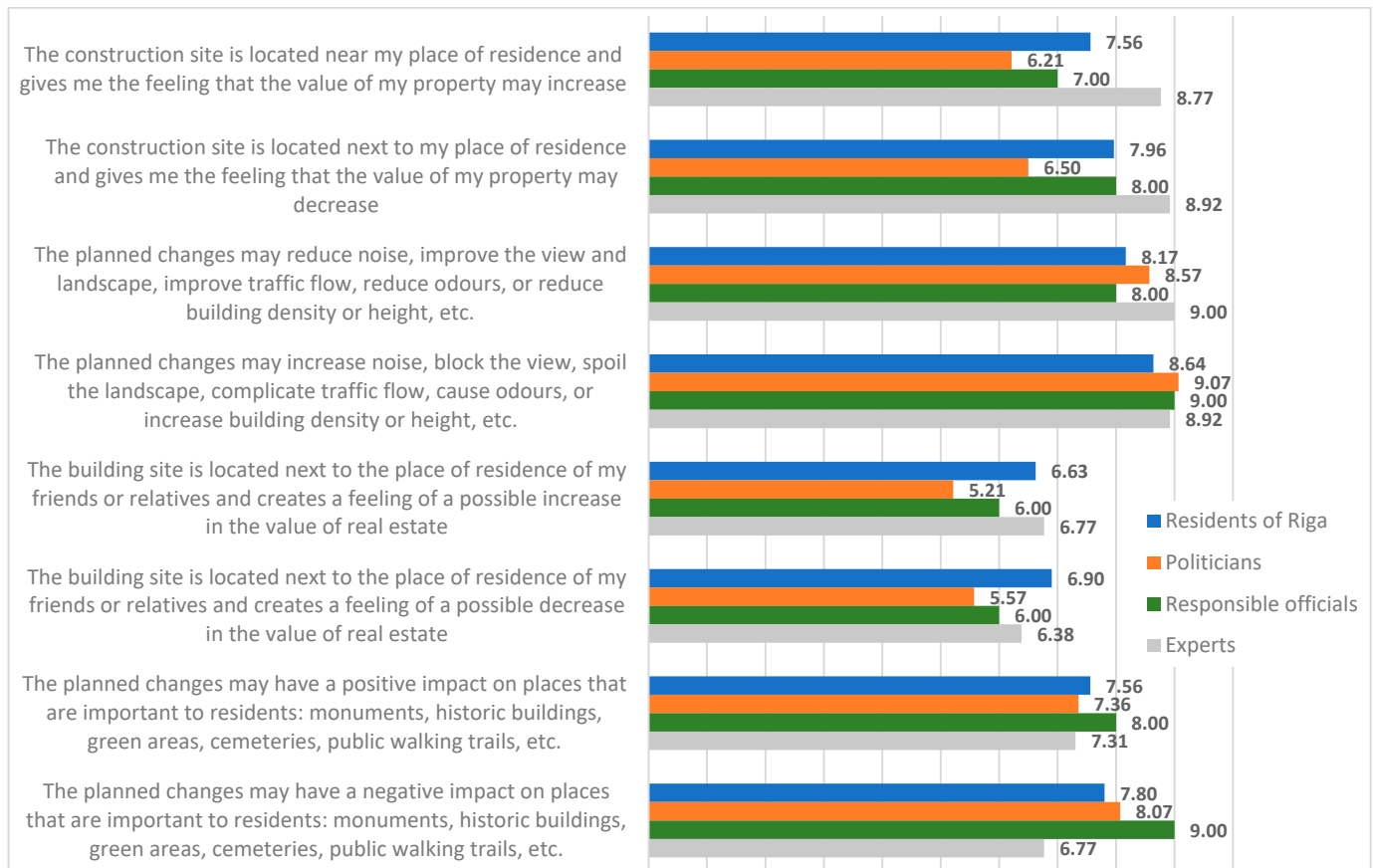


Figure 13. The importance of emotional triggers among different stakeholder groups. Source: Authors' construction.

The urban participation motivator emotional trigger is closely associated with a perceived sense of personal gain or threat that emerges when a development project is located in close proximity to an individual's place of residence or other personally significant locations. The study examines both positive and negative affective responses, such as perceived opportunities to improve the environment, as well as concerns about landscape degradation, increased noise levels, or potential declines in property value.

Among the eight analysed factors, the highest-rated emotional triggers—based on mean values aggregated across all stakeholder groups—were as follows:

- “The planned changes may increase noise levels, obstruct views, or damage the landscape” (mean = 8.91).
- “The planned changes may reduce noise, improve views, or enhance the landscape” (mean = 8.43).
- “The planned changes may negatively affect significant places, such as monuments, historical buildings, or green spaces” (mean = 7.91).
- “The planned changes may positively affect significant places, such as monuments, historical buildings, or green spaces” (mean = 7.56).

The findings demonstrate that emotionally charged narratives of potential threats or benefits exert a substantial influence on individuals' decisions to engage in urban planning processes. Urban development issues that involve tangible changes to environmental quality, rather than abstract or distant benefits, are particularly effective in motivating public participation in discussions on urban development.

The data obtained in the study indicate substantial differences between stakeholder groups, with a particularly distinct position observed among municipal officials.

- The potential increase in real estate value as an emotional trigger was rated significantly lower by municipal officials compared to residents and developers (Kruskal–Wallis test: $H(3) = 19.141, p < 0.001$).
- The potential decrease in real estate value was similarly perceived as a weaker motivator among municipal officials and politicians (Kruskal–Wallis test: $H(3) = 16.952, p < 0.00$).
- The potential increase or decrease in the value of friends' or relatives' residences was significantly less likely to be identified as influencing participation intentions among municipal officials (Kruskal–Wallis test: $H(3) = 13.833, p = 0.003$ for both aspects).

These differences point to a distinct motivational structure across stakeholder groups. For municipal officials and politicians, who are professionally involved in planning and decision-making processes, emotional trigger alone is often insufficient to trigger personal engagement. This contrasts with residents, whose participation is more frequently driven by a direct connection to their living environment and by personal perceptions of potential benefits or harms associated with proposed urban development.

5.4.3. Rational Motivation: Differences in Perceived Importance Across Stakeholder Groups

Rational motivation is grounded in economic and utilitarian considerations that potentially shape individuals' willingness to participate in public consultations on development projects or changes in spatial planning. This motivator encompasses anticipated financial gains or losses affecting the individual or close others, as well as expectations regarding improvements or deterioration of the urban environment, which may influence participation decisions. To assess the role of rational motivation as a motivator, respondents were asked the following questions.

Please rate the importance of each of these factors to you when deciding whether to participate in public discussion about a construction project or changes to the territorial plan:

- (1) The implementation of the construction project is guaranteed to provide me with financial benefits, such as profit, bonuses, commission fees from the transaction, etc.
- (2) The implementation of the construction project is guaranteed to cause me financial losses: I will lose my planned profit, bonuses, commission fees, etc.
- (3) The construction project is guaranteed to increase the value of my real estate.
- (4) The construction project is guaranteed to decrease the value of my real estate.
- (5) The construction project is guaranteed to increase the value of my friends' or relatives' real estate.
- (6) The construction project will definitely decrease the value of my friends' or relatives' property.
- (7) The planned changes are guaranteed to improve the urban environment: improving mobility in the city, making it greener, cleaner, more visually appealing, etc.
- (8) The planned changes are guaranteed to have a negative impact on the urban environment: they will worsen mobility in the city, cause pollution (air, noise, odour), eliminate green areas, etc.

The lowest mean scores within this motivational category were reported by politicians and municipal officials (see Figure 14). The statement *"The implementation of the development*

project guarantees me a financial benefit, etc.”, received a mean value of 2.71 among politicians and 4.75 among municipal officials, whereas residents evaluated this factor at 6.64, and developers at 7.00. These differences are statistically significant (Kruskal–Wallis test: $H(3) = 38.276, p < 0.001$). Similar patterns are observed with respect to potential financial losses: the mean value among politicians is 3.29, among municipal officials 5.28, while residents and experts rate this factor substantially higher (7.84 and 8.62, respectively).

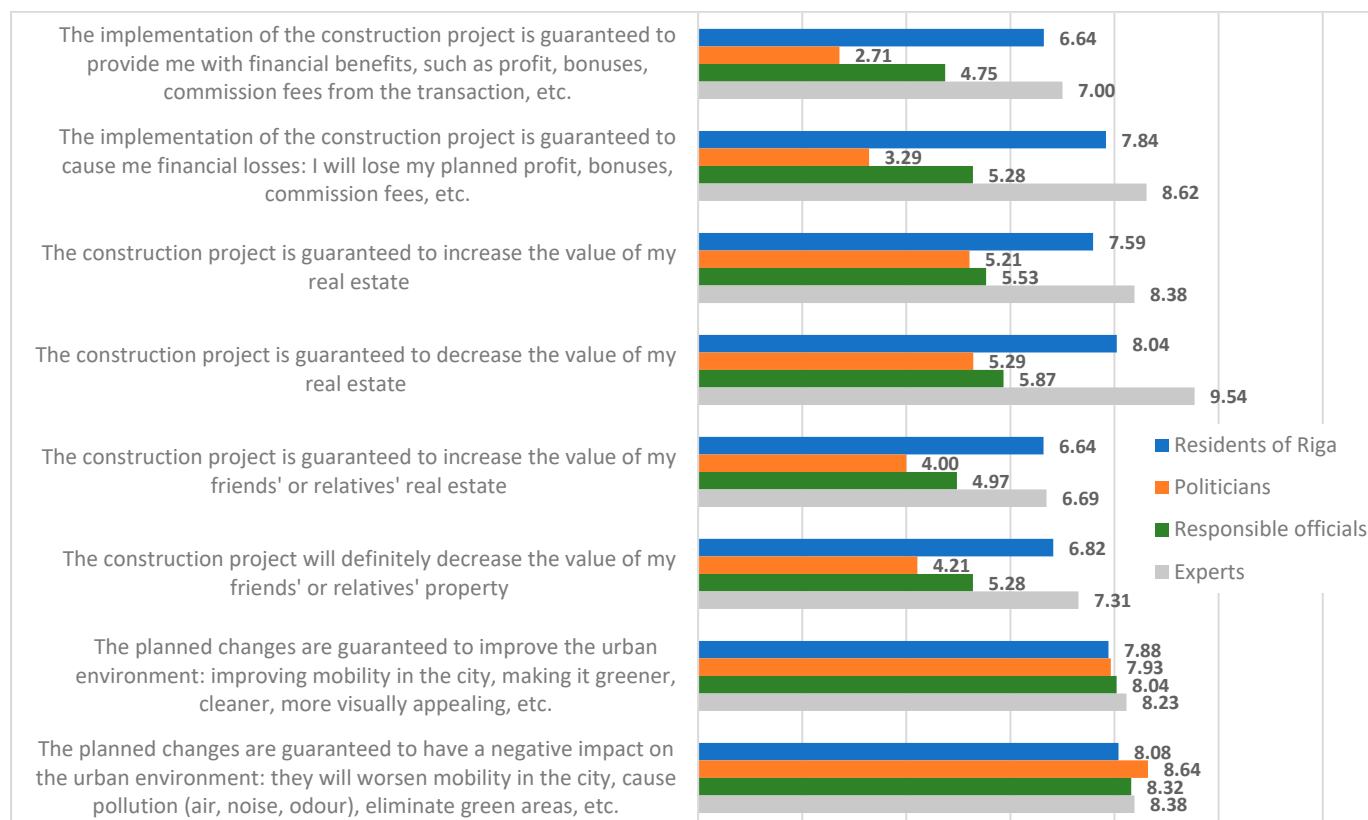


Figure 14. The importance of rational motivation among different stakeholder groups. Source: Authors' construction.

These results reflect fundamental differences in perception between actors holding positions of institutional power—politicians and municipal officials—and private individuals and industry representatives or developers. The findings suggest that individuals occupying institutional roles, particularly politicians, are less likely to associate their participation with direct personal gains or losses, possibly perceiving such motivations as inappropriate or ethically undesirable within their professional roles.

The statement “*The development project will guarantee an increase in the value of my property*” was rated highest by developers (8.38) and residents (7.59). In contrast, this aspect received significantly lower ratings among politicians (5.21) and municipal officials (5.53), again indicating a weaker emphasis on private-interest considerations. Identical tendencies are observed when potential threats to property value are considered: developers and residents perceive such threats as a strong motivator (9.54 and 8.04, respectively), whereas politicians and municipal officials report mean values below 6.00.

Notably, within the developer group, all statements related to real estate value received either the highest or second-highest ratings among all groups, underscoring their direct economic interest in this dimension.

Compared to personal financial benefits, motivations related to friends' or relatives' property values were rated lower across all groups. For instance, among politicians, this

factor received mean scores of 4.00 (increase) and 4.21 (decrease), representing the lowest values across all stakeholder groups. Among residents, the corresponding values were 6.64 and 6.82, while among developers they were 6.69 and 7.31. This indicates that direct personal financial interests remain a stronger motivator than indirect benefits accruing to close social contacts, although these factors still exert a measurable influence across groups.

Across all stakeholder groups, the highest-rated rational arguments were associated with anticipated changes in the urban environment. The statement *“The planned changes will improve the urban environment”* received mean values ranging from 7.88 to 8.23 with no substantial differences between stakeholders, suggesting a shared understanding of the importance of environmental quality improvements. The potential negative environmental impacts were rated even more highly—reaching 8.64 among politicians and 8.08 among residents—indicating that perceived environmental degradation functions as a powerful negative driver of participation, regardless of stakeholder group. This highlights the central role of environmental quality preservation or threat as a core element of rational motivation in urban participation.

In summary, the findings demonstrate that rational motivation linked to personal economic outcomes and changes in environmental quality significantly influence decisions to participate in public discussions on development projects. Politicians and municipal officials consistently assign lower importance to material gain-related considerations, possibly reflecting a perception of their roles as more neutral or detached. In contrast, residents and developers exhibit higher sensitivity to these factors, particularly to changes in property value. At the same time, environmental quality considerations—both positive and negative—emerge as a unifying and robust rational motivator across all stakeholder groups.

6. Comparative Theoretical Integration of Findings

To strengthen the theoretical positioning of the findings, this subsection situates the observed stakeholder-specific motivational patterns within established international scholarship on behavioural intention, public participation, and smart governance. For each hypothesis, similarities and divergences are explicitly identified and interpreted in light of contextual, cultural, and methodological considerations.

6.1. H1—Social Pressure

The analysis demonstrates that social pressure operates unevenly across stakeholder groups and is particularly pronounced among political actors, for whom media visibility constitutes the most influential participation driver.

6.1.1. Theoretical Alignment with Prior Research

This pattern is consistent with the Theory of Planned Behaviour, where subjective norms shape behavioural intention [76]. In line with this framework, perceived expectations from relevant audiences—voters, peers, and media—appear to influence engagement decisions.

The findings also converge with norm activation theory [123], which argues that behaviour intensifies when normative expectations become salient. Media attention functions as a visibility amplifier, transforming abstract expectations into observable public scrutiny.

Furthermore, the results align with agenda-setting theory [109], which demonstrates that increased media salience elevates issues within political prioritisation structures. The heightened responsiveness of politicians to media attention reflects this mechanism of reputational sensitivity.

6.1.2. Complementary Empirical Insights

The observed distribution of social pressure does not contradict citizen-centred smart city research [53] but rather clarifies how normative mobilisation operates across governance levels. Grassroots dissatisfaction expressed through social networks may escalate into broader media visibility, thereby increasing reputational stakes for political actors.

Thus, while normative activation originates within civic communities, its strongest behavioural effect in this study is observed among political elites. The findings suggest that social pressure functions as a multi-level process: community-driven at its source, but reputationally amplified at the institutional level.

6.1.3. Contextual Factors

Riga represents a relatively compact political environment where media ecosystems and political networks are closely interconnected. In smaller governance systems, media exposure may carry proportionally greater reputational consequences than in larger metropolitan contexts.

6.2. H3—Emotional Trigger

Emotional trigger emerged as the most influential motivator overall, particularly among residents. Perceived environmental deterioration and negative impacts on meaningful places received the highest importance ratings.

6.2.1. Theoretical Alignment with Prior Research

These findings are strongly aligned with affect-based risk perception theory [103], which demonstrates that behavioural responses are often shaped by affective evaluations rather than purely cognitive reasoning.

They also correspond with loss-aversion mechanisms identified in Prospect Theory [102]. Consistent with this framework, potential losses (e.g., increased noise, degraded landscape) were weighted more heavily than equivalent gains.

In addition, the results are compatible with place-protective action theory [116], which argues that perceived threats to valued places stimulate defensive mobilisation.

Urban conflict literature similarly indicates that participation often intensifies in response to perceived negative consequences [65]. The Riga findings closely mirror this pattern.

6.2.2. Complementary Empirical Insights

Rather than contradicting smart city scholarship that emphasises proactive co-creation and sustained engagement cultures [43], the present findings add behavioural nuance by demonstrating that participation may still be activated primarily through situational and risk-related triggers. While collaborative governance frameworks assume ongoing engagement supported by institutional design and rational deliberation, the empirical evidence from Riga suggests that affective and proximity-based concerns remain central entry points into participation processes.

6.2.3. Contextual and Socio-Spatial Factors

In contexts where deliberative participation traditions are still consolidating, engagement may remain episodic and conflict-oriented rather than institutionally embedded. Under such conditions, participation is more likely to be activated by concrete situational triggers than by routinised collaborative frameworks.

Moreover, the operationalisation of emotional trigger in this study emphasises direct environmental and spatial impacts (e.g., noise, landscape change, proximity effects). In a city such as Riga—characterised by a population of approximately one million residents and

active neighbourhood-based social networks, including local online groups—proximity-based concerns may be amplified more rapidly. Compared to larger metropolitan areas with more diffuse urban structures, smaller settings may enable faster information circulation and stronger local mobilisation, thereby increasing the salience of emotionally grounded participation triggers.

6.3. H4—*Rational Motivation*

Rational motivation is most pronounced among developers and residents, while political actors assign comparatively lower importance to direct economic gain or loss considerations.

6.3.1. Theoretical Alignment with Prior Research

The strong economic orientation observed among developers aligns with collective action theory [113], which posits that actors are more likely to engage when expected benefits are concentrated and participation costs are justified. The findings also resonate with the Homevoter hypothesis [115], as residents demonstrate sensitivity to property value changes. Furthermore, the results are consistent with the Theory of Planned Behaviour [76] and with its subsequent extensions incorporating perceived benefit and perceived risk [70], which demonstrate that anticipated outcomes significantly shape behavioural intention in participation contexts.

6.3.2. Complementary Empirical Insights

The comparatively lower importance assigned by politicians to direct financial and property-related considerations should not be interpreted as an absence of rational reasoning. Rather, it reflects the specific operationalisation of rational motivation in this study, which focused on tangible economic gains and losses linked to real estate value. Traditional rational-choice public administration models often conceptualise actors as utility-maximising; however, the present findings suggest that for political actors, utility may be defined less in terms of personal financial outcomes and more in terms of reputational or institutional considerations. Thus, the observed pattern indicates role-specific interpretations of rationality rather than a departure from rational-choice assumptions.

6.3.3. Contextual, Socio-Cultural, and Role-Based Factors

The pattern may partly reflect normative and cultural context. In Latvia, public discourse—particularly among political actors and well-educated professionals—tends to emphasise civic responsibility and integrity over explicit financial self-interest. Even in anonymous settings, financial self-interest may be understated due to internalised normative expectations and identity-based self-presentation.

Role differentiation reinforces this dynamic: developers operate within market environments where economic outcomes are central and legitimate to articulate, whereas politicians function within legitimacy-based frameworks where reputation and public trust constitute primary forms of “utility.”

6.4. H2—*Reward*

Reward exhibits moderate importance overall but is significantly more relevant for municipal employees than for other groups.

6.4.1. Theoretical Alignment with Prior Research

The findings partially correspond with Self-Determination Theory [126], which distinguishes between intrinsic and extrinsic drivers of motivation. The relatively modest influence of material reward suggests that civic engagement in this context is not primarily

driven by financial incentives. The importance assigned to feedback as a reinforcement mechanism aligns with OECD participation frameworks [129,130,132], which emphasise procedural recognition rather than financial compensation as a key engagement factor.

Both Self-Determination Theory [126] and motivational crowding theory [128] further suggest that the impact of external incentives depends on how they are framed: rewards perceived as autonomy-supportive may reinforce motivation, whereas controlling incentives may undermine it. This interpretation is consistent with the finding that, among municipal employees, reward functions more strongly as an autonomy-supportive motivator embedded within their professional responsibilities.

6.4.2. Complementary Empirical Insights

The present findings do not challenge established participation and governance theories; rather, they complement them by introducing role-specific differentiation across stakeholder groups. Core behavioural frameworks—such as subjective norms, affect-based risk perception, and cost–benefit reasoning—remain theoretically robust. However, the Riga case demonstrates that their relative salience varies systematically across political, administrative, market, and resident actors. By highlighting this variation, the study extends smart governance scholarship beyond more homogeneous models of participation dynamics.

6.4.3. Contextual Considerations

For municipal employees, participation is embedded in formal job roles, making organisational incentives structurally relevant. In the Riga context, public officials operate within a regulated civil service framework characterised by employment stability, union protection, and limited opportunities for additional income. Under such conditions, participation in urban development processes may require sustained effort beyond routine administrative tasks, making recognition and structured incentives particularly salient. At the same time, civic engagement in urban governance retains normative and identity-based dimensions that do not easily translate into transactional exchanges. Overall, the findings suggest that while incentives matter under specific institutional conditions, participation remains more strongly shaped by affective and normative mechanisms across most stakeholder groups.

7. Conclusions

This study demonstrates that stakeholder participation in urban development processes is shaped by differentiated motivational structures. Emotional triggers and social pressure are dominant drivers overall, while rational motivation and reward vary across stakeholder roles.

Residents are primarily mobilised through perceived risks and affective responses. Politicians respond strongly to visibility-related social pressure. Developers engage through outcome-oriented reasoning. Municipal employees are influenced in part by organisational rewards and support.

These findings substantiate the central argument that effective smart governance requires alignment between participation design and stakeholder-specific motivational profiles.

7.1. Interpretation of Empirical Findings

This study examined the motivational foundations of stakeholder participation in urban development processes within a smart city context. The Model of Stakeholder Participation Motivators in Urban Development was empirically tested across four stakeholder groups in Riga: residents, municipal employees, municipal politicians, and developers.

The findings demonstrate that stakeholder participation is not driven by a uniform motivational logic. Instead, participation reflects heterogeneous and role-specific motivational structures.

Emotional triggers emerged as particularly salient among residents. Participation is often activated by perceived risks, threats to quality of life, or perceived injustice. This finding helps explain why civic engagement frequently intensifies reactively, in response to concrete development proposals, rather than through sustained involvement in long-term planning processes.

Social pressure showed strong differentiation across groups and proved especially influential among municipal politicians. The most significant driver within this dimension was attention from mass media and social networks, indicating that reputational considerations and public visibility play a central role in shaping political engagement in participatory processes.

Rational motivation was most prominent among developers and, to a lesser extent, residents. For professional stakeholders, participation is grounded in outcome-oriented reasoning related to anticipated gains, risks, and project consequences. Among residents, rational motivation displayed internal heterogeneity, suggesting coexistence of cost–benefit reasoning alongside emotional and normative drivers.

Reward was the least influential motivator overall but played a comparatively stronger and statistically meaningful role for municipal employees. This highlights the institutional dimension of participation: when participation facilitation is embedded within professional responsibilities, organisational support and recognition become important determinants of engagement quality.

Taken together, the results confirm that participation dynamics in smart governance contexts are structured by differentiated motivational mechanisms rather than by a single behavioural logic.

7.2. Theoretical Contribution to Smart Governance Research

This study contributes to smart governance research by providing a comparative empirical assessment of participation motivators across heterogeneous stakeholder groups within a single urban context. While participation literature often treats engagement drivers in aggregated form, the present analysis demonstrates that motivational structures vary systematically according to stakeholder roles.

The integrative Model of Stakeholder Participation Motivators in Urban Development operationalises four behavioural dimensions—emotional trigger, social pressure, rational motivation, and reward—drawing on behavioural, communication, and participation theory. Rather than replicating any single framework, the model synthesises recurring motivational constructs into a context-sensitive analytical structure applicable to urban governance settings.

The findings empirically support the argument that smart governance should not be conceptualised solely in terms of digital infrastructure or procedural design. Instead, behavioural alignment between participation mechanisms and stakeholder-specific motivators appears central to effective engagement. By linking behavioural theory with comparative stakeholder analysis, the study advances conceptual debates on participation diversity in smart cities.

7.3. Implications for Motivator-Sensitive Urban Governance

The empirical results suggest that participation strategies in smart cities should be designed around differentiated motivational drivers rather than uniform engagement models.

First, the strong influence of emotional triggers among residents indicates that reactive participation is a predictable response to perceived risk. Participation systems may therefore benefit from early-stage communication, transparent risk framing, and ac-

cessible consultation formats that allow concerns to be addressed constructively before conflicts escalate.

Second, the pronounced sensitivity of politicians to social pressure—particularly media and social-network visibility—suggests that public exposure and reputational dynamics influence political engagement with participation processes. Ensuring transparency and visible documentation of participation processes may therefore strengthen institutional responsiveness.

Third, the prominence of rational motivation among developers indicates that participation formats should clearly communicate anticipated project impacts, trade-offs, and decision consequences. Where the connection between stakeholder input and outcomes remains unclear, engagement risks being perceived as symbolic.

Fourth, although reward was not dominant overall, its relative importance for municipal employees highlights the need to ensure organisational support, time allocation, and recognition for actors responsible for participation facilitation. Without such support, the depth and inclusiveness of participation processes may be constrained.

Finally, the results underline the need to balance short-term mobilisation with long-term engagement. Emotional triggers are effective in activating participation but insufficient for sustaining it. Durable engagement requires reinforcement through social norms, outcome clarity, and institutional support mechanisms.

8. Limitations

While this study provides robust empirical insights into stakeholder participation motivators in urban development, its findings should be interpreted within a defined analytical scope. The research is based on a single-city case; however, the stakeholder groups examined—residents, municipal employees, politicians, and developers—are structurally comparable across municipalities, and the interaction patterns observed between them are characteristic of urban governance processes more broadly. Accordingly, the findings offer analytically transferable insights to similar contexts.

Unequal group sizes, particularly among politicians and developers, reflect real-world institutional constraints rather than sampling limitations, as these stakeholder groups are inherently limited in number within any municipality. Future research could extend this analytical framework to additional cities or governance contexts and complement the quantitative results with qualitative approaches to further explore stakeholder motivations. Moreover, examining the interaction between digital participation tools and motivational structures would provide additional insights into long-term engagement in smart city governance.

This study has several methodological limitations that should be acknowledged. First, the survey employed planned group-specific item administration, meaning that not all items were presented to all respondents. While this design increases contextual relevance, it prevents the use of pooled factor-analytic techniques (e.g., EFA/CFA), which require a common indicator matrix. As a result, our measurement assessment relies on block-level internal consistency and corrected item–total correlations, rather than latent-scale validation.

Second, because the study relies on a self-reported survey, it is susceptible to common-method bias and social-desirability effects. Several procedural remedies were implemented—such as anonymous participation, context-specific item wording, and heterogeneous stakeholder groups—but statistical CMB tests were not applicable due to the group-specific survey structure.

Third, the study is based on a comparative, non-latent design that does not aim to estimate causal relations or latent factors. Accordingly, the explanatory scope of the findings

is limited to group differences in perceived importance, rather than structural pathways among constructs.

9. Future Research Directions

Future studies should employ a common item matrix across all stakeholder groups, enabling full latent-variable validation, including exploratory and confirmatory factor analysis, convergent and discriminant validity, and measurement-invariance testing. A multi-city research design would allow for testing the generalisability of motivational patterns across different governance contexts. Furthermore, future work could integrate behavioural data, mixed-methods designs, or experimental approaches to reduce reliance on self-reported measures and to more directly assess underlying mechanisms driving civic engagement.

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Appendix A. Measurement Items, Operational Definitions, and Item Sources

Planned, group-specific item administration was used: not all measurement items were asked to all respondents because some questions were logically applicable only to specific stakeholder groups (e.g., politicians, municipal officials). Accordingly, the dataset contains group-specific item forms rather than a single common item matrix. The four motivational constructs—social pressure, emotional trigger, rational motivation, and reward for participation—were operationalised as perceived-importance item blocks on a 10-point scale (1 = not important at all, 10 = very important). Full item wording, operational definitions, and source attribution (conceptually adapted vs. newly developed) are provided below.

Appendix A.1. Overview of Planned Group-Specific Item Forms

Full overview of construct definitions and item structure as provided in main text.

Appendix A.2. Item Pools, Operational Definitions, and Sources

Table A1. A22—Social pressure.

Code	Item Wording	Source	Applicable Groups
A22_1	Increased attention from social networks or mass media	Adapted	All groups
A22_2	Expressions of dissatisfaction by local residents/activists	Newly developed	All groups

Table A1. *Cont.*

Code	Item Wording	Source	Applicable Groups
A22_3	Encouragement from peers	Adapted	All groups
A22_4	Request from an important person	Adapted	All groups
A22_5	Sense of civic duty	Adapted	All groups
A22_6	Competitors actively involved	Newly developed	Limited groups

Table A2. A23—Emotional trigger.

Code	Item Wording	Source	Applicable Groups
A23_1	Perceived negative impact on valued places	Adapted	All groups
A23_2	Perceived improvement of valued places	Adapted	All groups
A23_3	Negative change in environment (noise, view)	Newly developed	All groups
A23_4	Positive environmental change	Newly developed	All groups
A23_5	Effect on property value	Adapted	All groups

Table A3. A24—Rational motivation.

Code	Item Wording	Source	Applicable Groups
A24_1	Direct financial benefit	Newly developed	All groups
A24_2	Direct financial loss	Newly developed	All groups
A24_3	Improvement of environment	Adapted	All groups
A24_4	Worsening of environment	Adapted	All groups
A24_5	Increase in property value	New	All groups
A24_6	Decrease in property value	New	All groups
A24_7	Benefit to associated stakeholders	New	All groups
A24_8	Harm to associated stakeholders	New	All groups

Table A4. A25—Reward for participation.

Code	Item Wording	Source	Applicable Groups
A25_1	Feedback from organisers	New	All groups
A25_2	Public recognition	New	All groups
A25_3	Financial compensation	New	All groups
A25_4	Participation as job duty	Adapted	Officials/politicians
A25_5	Bonuses or premiums	New	Officials/politicians
A25_6	Time compensation mechanisms	New	Mixed groups
A25_7	Expectation from superiors	New	Officials/politicians
A25_8	Expectation from community	New	Residents

Appendix B. Reliability Statistics and Item–Total Correlations

This table provides block-level internal consistency statistics (Cronbach’s alpha) and summary item–total correlations as computed from the dataset.

Table A5. Block-level internal consistency.

Construct	Items	N	Cronbach α
A22—Social pressure	6	27	0.766
A23—Emotional trigger	5	97	0.646
A24—Rational motivation	8	616	0.904
A25—Reward for participation	8	612	0.901

Reliability Statistics and Subgroup-Specific Internal Consistency

This table extends the subgroup-specific reliability results by reporting Cronbach's alpha values computed from the items that were actually administered in each subgroup (see the column "Items used"). For interpretability across subgroups with different numbers of items (k), consider also reporting the mean inter-item correlation (MIC) in the manuscript text.

Groups:

1—Residents of Riga;

2—Current or former municipal politicians responsible for urban development decisions;

3—Municipal employees involved in urban development;

4—Real estate developers, identified through the membership list of the Real Estate Developers Alliance.

Table A6. Subgroup-Specific Reliability Statistics for Participation Motivator Constructs.

Construct	Group	Items Used	k	N	Cronbach α
A22	1	A22_1–A22_5	5	510	0.839
A22	2	A22_1–A22_6	6	14	0.536
A22	3	A22_1–A22_5	5	86	0.847
A22	4	A22_1–A22_6	6	13	0.839
A23	1	A23_1–A23_3	3	510	0.724
A23	2	A23_1–A23_5	5	14	0.592
A23	3	A23_1–A23_5	5	83	0.666
A23	4	A23_1–A23_3	3	13	0.442
A24	1	A24_1–A24_8	8	510	0.916
A24	2	A24_1–A24_8	8	14	0.745
A24	3	A24_1–A24_8	8	79	0.873
A24	4	A24_1–A24_8	8	13	0.725
A25	1	A25_1–A25_8	8	510	0.899
A25	2	A25_1–A25_8	8	14	0.809
A25	3	A25_1–A25_8	8	75	0.905
A25	4	A25_1–A25_8	8	13	0.879

Note. Alpha was computed using listwise deletion within each subgroup and item set; values may not be directly comparable across subgroups with different k.

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