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Smart cities but unequal realities: perceived inclusiveness in Amsterdam's digital urban governance

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Master Thesis

Urban Governance

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Abstract

As cities worldwide increasingly adopt smart technologies to address urban challenges, questions arise about the inclusiveness of these developments, especially in cities with strong neoliberal influences. This thesis investigates how Amsterdam's smart governance instruments, such as its agendas, action plans, programmes, budgets, and strategies, appear to affect perceived social, spatial and economic inclusion among its citizens, and what types of people are experiencing a higher or lower sense of inclusiveness as perceived by themselves. While the city positions itself as a leading example of (responsible) digital innovation, concerns remain about whether all groups benefit equally from its smart city agenda.

To explore this, the research employed a mixed-method case study design. It combined document analysis, semi-structured interviews, and a citizen survey (n=332). A conceptual framework was developed from existing inclusiveness frameworks, some related to smart cities as well (World Bank; Tekin & Dikmen; Waghmare & Singhal), adapted for the Amsterdam context. This framework was used to both analyse official documents and formulate relevant survey questions. The framework is structured around three dimensions of inclusion: social, spatial, and economic inclusion, and within those dimensions, relevant aspects.

Findings reveal that while Amsterdam's smart city intentions often mention aspects of inclusiveness, operationalisation remains vague and uneven across policy documents and inclusion dimensions. Survey results show that some aspects of social, spatial, and economic inclusion are perceived as positive (equal rights, digital skills, smart services), while others are perceived as negative (participation, smart infrastructure, inclusive economic growth). Regression results also show that age, income, education, and physical disability significantly shape inclusiveness perspectives, with elderly, lower-income, lower educated, and physically disabled individuals reporting lower levels of perceived inclusion in the smart city landscape of Amsterdam.

This thesis contributes a grounded, citizen-centred perspective on urban digitisation and smartening the city and introduces a practical assessment tool for measuring (perceived) inclusion. It also offers policy recommendations to improve inclusiveness through more specified operationalisation, targeted strategies, and more robust citizen engagement.

As smart technologies become more embedded in the urban fabric, making sure they benefit all residents, not only tech-literate and affluent individuals, is key to sustainable urban governance.

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Chapter 1: Introduction

Since the beginning of human civilization, cities have played a central role in technological development. For the course of human history, cities have grown in numbers and volume. Global city population share has doubled from 25 percent in 1950, to approximately 50 percent in 2020 (UN Habitat, 2022). In 2023, this number was 56 percent of the global population (World bank, 2023). The World Bank (n.d.) projects with this trend, that nearly 70 percent of the global population will live in cities in 2050. In the Netherlands, these numbers are even greater. 74 percent of the Dutch population lives in urban regions in 2024 (PBL, 2022). Furthermore, research estimates there are around 10.000 cities in the world. In 2017, 600 of those cities produced about 60 percent of the global GDP (Antonelli & Cappiello, 2017).

Along these trends, urban challenges arise on inequality and social access. In 2020, in EU cities, about 25 percent of the population was at risk of poverty and social exclusion, terms that are often intertwined. Patterns of inequality are commonplace in all urban areas in the world. Burdett (2015) observed that social inequality in the urban sphere has become increasingly spatialised over the last fifty years. Inequality in cities encompasses economic, spatial, and social dimensions, hence why social exclusion and inequality are heavily linked (United nations, n.d.). In the Netherlands, and more specifically in Amsterdam, the issue of inequality is present as well, and even growing. Income inequality in Amsterdam is higher than the national average. Furthermore, in Amsterdam this gap keeps increasing, while in the Netherlands in its entirety, the income inequality number remains relatively stable (Gemeente Amsterdam, 2023).

A more recent urban hype that lots of the most prominent cities chase is the Smart City. Defined by IBM (2023), it is an urban area defined by its use IT and the internet to tackle urban challenges, improve services, and help with urban planning through data collecting. While the volume of cities and percentage of urban dwellers have increased in recent times, the smart city trend grew as well. The number of smart cities grew from 118 in 2021 to 141 in 2023, meaning the movement, and ideology has grown worldwide (Statista, 2024; IMD business school, 2024). Also, Amsterdam has taken on the smart city label since 2009 (Amsterdam Smart City, 2017).

As cities across the world attempt to integrate innovative technologies to become 'smart', guaranteeing inclusivity in the city becomes critical. This is why the smart city concept has

seen some criticism, by scholars. In an ideal scenario, the input, and responsibilities of delivering successful smart city projects are shared by public, private, and educational institutions. But oftentimes, in practice, advanced technology used in smart city projects is owned by large corporations, meaning they often hold the capital and have the dominant share of say in the operation of such projects (Engelbert, 2019). Their aim is to gain and hold societal strength through ‘neoliberal urbanisation’. Neoliberal values, such as individualism and focus on talent, have seen tendencies of public policies to exclude certain groups or individuals who struggle to attain those values (Hollands, 2014)

Amsterdam as a leading smart city, has embraced digital transformation to further improve services and infrastructure within the city. Amsterdam Smart City is committed to utilizing smart technologies and projects in a responsible way to tackle urban problems. The city collaborates with private partners, educational institutions, and other organisations to tackle issues on the topic of energy, mobility, circularity (circular economy), and digitisation (Amsterdam Smart City, n.d.). But as is the concern with other smart city ambitions across the globe, the same can be said about Smart City Amsterdam. The promise is improved quality of life and improved services and infrastructure. The question arises if the benefits of smart development are felt across all citizens and communities. If in practice, private companies tend to hold the capital to realise smart projects and these companies get more power in the execution of these projects, concerns fall to whether vulnerable groups, such as the elderly and low-income people, are sufficiently considered in the policy making and urban development. If not, this can lead to increasing the existing social, economic, and spatial inequalities and divides. These “dimensions” of inclusiveness were introduced by the World Bank (2023) to encompass the broad scope of inclusiveness. These dimensions were adopted in further research as accepted dimensions of inclusiveness.

Prior to this thesis, researchers have spent time researching the Amsterdam Smart City. But when discussing this case, they mostly delved into the processes Amsterdam underwent towards the smart city that it is today (Fitzgerald, 2016; Mora & Bolici, 2016; Voorwinden, 2022). Research shows the history of the Amsterdam Smart City, the phases it went through, and the governance structure it has today and what implications this has for the city. But until now less emphasis has been placed on the smart governance of Amsterdam on what should be achieved with smart city initiatives, especially regarding inclusiveness, which is one major issue raised by the city’s municipality (Gemeente Amsterdam, 2023). Furthermore, the examining of inclusiveness through the dimensions provided by the World Bank among others

(social, spatial, and economic inclusion), will provide a broad sense of understanding of inclusiveness in the context of Amsterdam as a smart city, with a focus on equitable access citizen participation, and opportunities for marginalized groups. Also interesting, the point that Noori et al. (2020) raise, compared to some other smart city implementations, Amsterdam takes a more business-minded approach, focused on innovation. This could have implications on inclusiveness in the city, as discussed above.

The objective of this study is to explain how smart city governance in Amsterdam deals with inclusiveness and how this is reflected on reality as perceived by citizens, linking policy intention and perceived outcomes. While smart technology primarily aims to deliver sustainable solutions and innovation, policy websites emphasize cooperation and inclusion as well (Amsterdam Smart City, n.d). To offer a comprehensive perspective, the research examines the perceptions of inclusiveness among citizens; the intentions, depth, and presence of inclusiveness in relevant governance instruments, and opinions and experiences of experts to supplement the findings. This study aims to identify strengths and limitations of Amsterdam's smart city strategies in fostering an inclusive urban environment and to contribute insights that may inform more inclusive approaches to smart city development with the central research question:

How are the three dimensions of (social, spatial and economic) inclusiveness perceived by the citizens of the smart city of Amsterdam and how well do these perceptions align with intentions embedded in smart governance instruments of the city?

Sub-questions:

- 1. How do the citizens of Amsterdam experience social spatial, and economic inclusion in relation to Amsterdam's smart city developments?*
- 2. Which personal and socio-economic factors influence citizens' perceptions of inclusiveness in smart city developments*
- 3. To what extent do Amsterdam's smart city and digitization policies and strategies deal with the three dimensions of inclusiveness?*

1.1 Relevance

This thesis addresses a gap in the urban studies field by exploring the intersection of smart city policy and inclusiveness in Amsterdam. Although the concept of the smart city has been discussed in detail, there is still room for scrutiny and discussion on the topic, Chib et al.

(2022) noted that there is a juxtaposition between the ambitions for smart cities, where both improved efficiency and wellbeing are end goals. The nature of smart city ideology and the possible outcome in exclusive practices in the urban sphere need extra attention. By examining the concepts of smart cities and inclusiveness in each other's context, through the lens of Amsterdam's smart city strategy, the thesis will add to the academic discourse on urban equity and governance. In the area of Amsterdam both the smart city and inclusiveness or exclusion have been studied, but not in the context of each other. For example, as stated before, Amsterdam Smart City research tackled mostly the governance structure and strategies of the city (Voorwinden, 2022). Nio (2024) also studied the topic of inclusiveness in Amsterdam, but they studied the effect of inclusiveness policies on deprived neighbourhoods, not in the context of smart city policies. So, while the topics both have seen significant research, never in relation to one another.

Furthermore, the findings of this study hold implications for policymakers, urban planners, and citizens of Amsterdam. As cities keep adopting smart technologies to address urban problems, it's important to consider how inclusiveness is integrated into these frameworks to prevent increasing existing inequalities. If not, this can lead to increasing the existing social, spatial, and economic inequalities and divides. By looking at how Amsterdam's smart city policies affect inclusiveness, this thesis highlights the dimensions of inclusion and areas of smart innovation where improvements are needed to ensure a just urban society. If results show that some aspects and dimensions of inclusion are inadequate, which leads to lesser perceived inclusion, it has big implications for how the implementation of digital innovations and smart developments should be done. Consequently, insights gathered from the perspectives of professionals and citizens will lead to concrete recommendations for enhancing inclusiveness in smart city strategies, especially in Amsterdam.

1.2 Structure and limitations

This study is structured into six chapters. Chapter 1 introduces the research topic. Chapter 2 reviews literature on smart cities and inclusiveness and provides a conceptual framework. Chapter 3 outlines the methodology. Chapter 4 presents the findings from the document analysis and survey. Chapter 5 discusses these results. Chapter 6 synthesizes everything into a concise conclusion and recommendations. Limitations of this study are the fact that the survey sample is not as representative as it could be, and especially the fact that the independent and dependent variable outcomes are not causally related, but more so demonstrate a trend of

patterns and alignment or misalignment between the intentions of governmental instruments and the reality of perceptions of citizens.

Chapter 2: Theoretical Framework

2.1 Conceptualizing the smart city

A simplistic way to conceptualize smart cities is to refer to technological innovations, the Internet of Things (IoT), and ICT in general to improve life physically and socially (Engelbert et al., 2019). This aligns with early corporate visions from IBM and CISCO, who heavily invested in smart city research in the mid-2000s, coining the term (Verdict, 2022).

Since then, the *smart city* concept has become central in urban governance discourse. Considering it as just tech deployment for urban development is too simple and ignores diverse local contexts. This reductionist view resembles earlier models like the “information city” or “digital city” (Chib et al., 2022). For smart city, there is an agreement among scholars that there is no common definition at this moment (Grossi & Pianezzi, 2017). The smart city is an ambiguous concept, with lots of different perspectives and narratives. In general, the IT sphere is central here as well, but there is also an emphasis on the role of IT in addressing socioeconomic issues like urban fragmentation, social exclusion, and lack of citizen participation, and that SC rhetoric focusses on the benefits of technological adoption to tackle these issues (Grossi & Pianezzi, 2017; Chib et al., 2022).

In practice, SC ideology manifests itself in a multitude of different urban spaces: city-wide initiatives, smart neighbourhoods, science parks, urban platforms, and more. Though public-private-citizen partnerships are often cited, large corporations, real estate firms, and financial institutions typically drive projects due to their resources and influence (De Jong et al., 2024). A larger ‘player’ like IBM has vaguely described a smart city as a city that is “interconnected, instrumented and intelligent” (Grossi & Pianezzi, 2017). Smartness, in this case, seems related to the city’s capability to provide infrastructure and services to its citizens (technology and big-data), thus using technology as a tool in this case to increase this capability in one way or another.

Since the mid-2000s, the smart city discourse has evolved from a technology-centric approach, where technological innovations and information infrastructure are used to improve the urban environment, to a more human-centric approach, where the first and foremost goal of implementing technology in the urban environment is to improve the quality of life of all citizens (Hu et al., 2023). This shift can be seen in figure 1, where the technology-centric

approach is visualised as technology being the primary determinant and goal, with the hope that positive societal outcomes would follow. This shift towards people and their well-being at the centre, and technology merely a tool to achieve that.

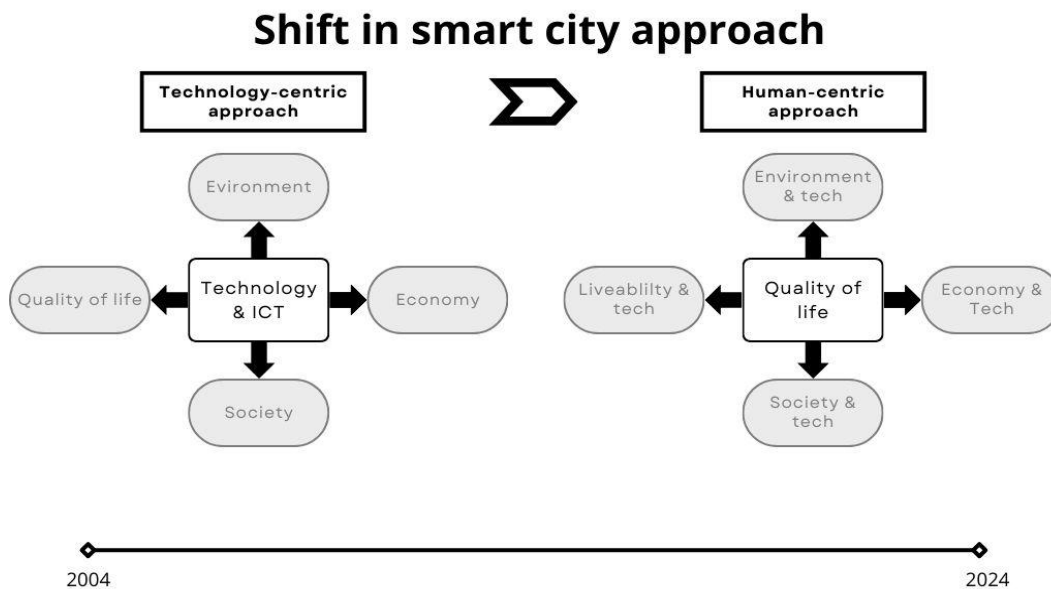


Figure 1: Shift in smart city approach

In practice technology-centric smart city policy and strategy, dominantly consists of key words like ‘big data’ and ‘AI’, and human-centric policy has key words like ‘lifelong learning’, ‘smart education’, and ‘smart healthcare’. But the evolution of the definition is not necessarily chronologically linear. Neirotti et al. (2014) claim that developing countries adopt a more technology-driven definition and developed countries a more human-centric style of smart city building. They claim the reason is different needs per city and their location in the globalised world. For example, cities in developing countries’ priority are improving the economy and those in developed countries are further along in the stages of growth, which means perceived urban challenges lean more towards sustainability and equality. The geographical difference in focus is also why there is no real one concise definition of the smart city, according to Neirotti et al. (2014). According to Hu et al. (2023) though, whether cities lean more how the technology or human side differs per city within countries, is often

context specific. In China, as opposed to the work of Neirotti et al. (2014), the most developed cities tend to use more technology-driven definitions in policy making. Also, more urban dense Chinese cities tend to be more technology driven. This shows that the generalisation by Neirotti et al. (2014) about what type of strategy is used cannot be attached to a state-level. Context matters in every smart city. The context of the city in the country, of the city in the global north/south, of the city in the globalised position. It all matters towards what the focus of the smart city strategy is, and in extension, what the definition of the smart city is.

This paragraph demonstrates the vagueness of the definition of the smart city. Nuances differ in different cities that adopt the smart city “slogan”, and it has evolved over time. But in most cases, both technology and human quality of life are touched upon in defining the smart city. The definition used in this thesis comes from Gracias et al. (2023, p.1724) who did a literature review:

“Smart cities use digital technologies, communication technologies, and data analytics, to create an efficient and effective service environment that improves urban quality of life and promotes sustainability.”

The definition by Gracias et al. (2023) was chosen because it perfectly represents the vagueness and all-encompassing nature of the smart city, but it also shows that the term attempts to fix everything that falters in the city. It shows both the technology-centric and human-centric approach, every type of technology that can be used, and the (idealistic) pursuit to increased efficiency and effectiveness (neoliberal), quality of life, and sustainability, which are factors of inclusiveness, but it doesn’t state it out right and it is missing components of inclusiveness like accessibility and affordability. Alas, one can wonder what exactly is innovative about the “smart city” as a concept as all these things have been pursued for a long time. The definition also stays neutral about the complex interactions between those pursuits, and one can wonder what the use is of the term smart city if the definition tackles every challenge possible in urban life. But it is still a definition that includes the main themes that the smart city is all about. Hence, the usefulness for this thesis and why it is used.

2.1.1 Smart governance instruments

To become a smart city, city organizations often deploy governance instruments within institutional documents. These smart governance instruments refer to the tools that enable

governments to attain the goal of becoming smarter (Docherty, 2020). They can be action plans, strategies, programmes, agendas, and budgets, projects. They are actionable sentences within institutional (policy) documents to attain certain ideals/goals. This term is used further in the thesis to assess official relevant documents.

2.2 Critiques of the Smart City

The concept of the smart city has faced growing criticism for offering overly optimistic, tech-driven solutions to complex societal issues (Chib et al., 2022; Gracias et al., 2023). Tech giants like IBM and CISCO played key roles in promoting smart city models, often through technologies that increase corporate influence over urban governance (Roy, 2016; Engelbert, 2019). This corporate-led approach reflects broader neoliberal principles like market efficiency, privatization, and minimal government intervention and expenditure (Holborrow, 2007; Foster, 2017; Christiaens, 2018; Foster, 2017). Critics argue that this model stimulates exclusion by shifting responsibility towards individuals and lessening public accountability (Card & Hepburn, 2022; Littler, 2013).

Researchers described the smart city as a product of neoliberal urbanism, prioritizing efficiency and profitability over social inclusion and equity (Molchanov & Molchanova, 2022). As Hollands (2015) states, the corporate smart city has emerged, where urban entrepreneurialism is modelled after businesses and private sector interests. This fact tends to marginalize public needs and democratic participation (Grossi & Pianezzi, 2017). Considering this, smart cities are not seen as inclusive humanistic models but as market-driven transformations of the urban sphere, promoting corporate interest at the cost of the common interest.

2.3 Toward an Inclusive Smart City

The tech-centric ambitions of large firms, alongside a growing trend of urban entrepreneurialism in governance, fixated on attracting talent and climbing the global competition rankings, has left little room for ordinary and marginalised people to partake in the smart city the way it unfolds in the real world (Hollands, 2014). Inclusiveness, or the lack thereof, is a major theme in academia over the last years. According to Chib et al., (2022) for example, there is a duality in the ambitions for smart cities, where both greater efficiency and improved wellbeing are end goals. They are not necessarily mutually exclusive, but the dichotomy needs extra attention to avoid exclusion and unsustainable societies. Critical

perspectives reflect on the fact that the ‘well-being’ ambition has been ignored in the past in smart cities and by smart projects, noticed through the worsening of existing societal inequalities in relation to smartness, which has led to rethinking how technology should be incorporated in urban planning (Chib et al., 2022). An increasing number of actors in smart cities acknowledge the fact that successful smart projects, which include well-being through inclusion and sustainability, in synergy with smartness, is obtained through citizen engagement, transparency, and awareness (Valdez et al., 2021).

inclusiveness is the outcome of the process of inclusion – Talmage & Knopf (2017)

The term inclusion can be best explained through the meaning of its antonym, exclusion. The way we think about social exclusion these days as a political and academic mechanism, finds its origin in the views on poverty (Estivill, 2003). The active acknowledgement of poverty and social exclusion being different things started in the 1970s. At this time, social exclusion was seen as a process where people who were below a certain level of income, could not participate in normal life anymore (Anttiroiko & de Jong, 2020). Hereupon, the meaning of exclusion and what falls under the umbrella moved past poverty, as scholars noted a lot of marginalized groups experienced disadvantages in everyday life (Room, 1996; Atkinson, 1998; Sen, 2004). Social exclusion due to disabilities does not necessarily involve poverty. At this point, extensive research on the topic of inclusiveness has been conducted, especially in cities, which are centres for business, capital exchange, and homogeneity. This brings an inherent tendency to inequalities that are often spatially concentrated (UNICEF). Thus, to tackle the issue of exclusion and inequality, multiple frameworks have been developed to analyse and scrutinise the degree of inclusiveness in cities. This has both been done in the context of smart cities and cities in general.

The World Bank (2023) addressed the need for inclusion in cities. They acknowledge both the opportunities and perils of rapid urbanization and development. Cities can contain both opportunities as engines of economic growth, and risk of inequalities and exclusion. The World Bank states that inclusive cities need to understand the interactive web of social, spatial, and economic factors that leads to inclusiveness:

- Social inclusion: and inclusive city must guarantee equal rights and participation for everyone, especially the most marginalized.

- **Spatial inclusion:** achieving urban inclusiveness requires ensuring access to affordable essentials, such as housing, water, infrastructure, and services. Disadvantaged households face challenges every day to access this.
- **Economic inclusion:** creating employment opportunities and enabling all urban dwellers the chance to benefit from economic growth are essential of urban inclusiveness.

In the context of smart cities, many researchers also believe smart innovations and strategies can help improve inclusiveness in cities. Rashid et al. (2016) proposed an interactive application for wheelchair users that uses augmented reality. The studies outcome revealed encouraging aspects, suggesting the system has potential to enhance the independence of wheelchair users. Furthermore, Gilbert and Grey (2023) argued that smart city initiatives have potential to improve inclusiveness and through accessibility for people with reduced mobility. They propose a system with traffic lights that recognize these individuals, and digital apps that provide real-time updates on potential obstacles on their journey, like elevators that don't work. While this shows the potential of smart city initiatives if implemented thoroughly, ultimately the point still stands that smart cities, at this point, tend to prioritize the interest of the more powerful in society. To arrive at a smart city that is as inclusive for all its citizens as is can be, major attention needs to be brought to it in a holistic manner while pursuing the smart and digital urban landscape.

2.4 Conceptual Framework: Inclusion in the Smart City

To analyse whether smart cities are inclusive enough and where they fail to meet the needs of its citizens, researchers have developed broad frameworks specifically focused on the smart aspects of urban development. These frameworks echo the dimensions provided by the World bank (2023), meaning they incorporate social, spatial, and economic inclusion also. This paragraph compares the relevant frameworks to ultimately develop a context-specific framework to assess the inclusiveness of Amsterdam's smart governance instruments and outcomes of those instruments, as perceived by citizens.

2.4.1 Framework design

The resulting framework is structured around:

- **Three main dimensions** found in all frameworks: social, spatial and economic inclusion.

- **Four aspects** per dimension and related to those dimensions (e.g. equal rights to social inclusion). Often taken as an overarching theme from the framework.
- **Indicators**, divided into two types:
 1. **Policy indicators**: assessing how smart governance instruments address inclusiveness through presence, depth, and specificity.
 2. **Citizen indicators**: seeing how inclusive the (smart) city is perceived to be by its citizens.

The framework is supplemented by a multitude of demographic characteristics that are associated with groups who are typically more vulnerable and at risk of being excluded from urban development processes. Anttiroiko and de jong (2020) illustrated these criteria in a matrix, and they can relate to any characteristic of a person or group's identity, which is viewed as a valid reason or denying them access to one or more forms of prosperity. Examples include ageism, disability, religion & ideology, racism, gender & sexuality discrimination, income level or wealth discrimination.

In the table below, the three frameworks (World Bank, 2015 & 2023; Waghmare & Singhal, 2022; Tekin & Dikmen, 2024) are put side by side and compared. Table 1 displays some similar and some different aspects from the existing frameworks. In the comparison the most similar and relevant aspects are chosen and adapted to fit the Amsterdam context.

Table 1: Comparison table of existing frameworks

Aspect	World Bank (2023); World Bank (2015)	Tekin & Dikmen (2024, UK)	Waghmare & Singhal (2022, India)	Similarities/Differences
Equal Rights	✔ Addresses the need for programs to tackle the wishes of marginalized people.	✔ Focuses on promoting diversity in technology to address inequality for gender equality and disabled people specifically.	✔ Matter of fact. focuses on the share of budget dedicated to urban poor, and level of educational equality (female literacy vs average literacy)	While the India case focuses more on objective numbers of budgeting and equality, the London and World Bank frameworks address the need for equality more qualitatively. This is more apt for this research as well
Participation	✔ Talks about what participation	✔ Addresses the role of	✔ Talking more about the	Again, the India case's framework is about objective

	is: ability to represent needs and ideas, and what it comprises of: open communication, public visibility, mechanisms to participate in city governance.	institutions in engaging citizens in the digital (smart) world, and about citizen views on the use of their data in public services.	percentage of people participating in elections, integrating community leaders in smart projects, extent of civil society participation as indicators.	percentages of people participating in public/political life, and the World Bank talks about participation in its general form in public life. The London frame addresses the role of institutions in bringing citizens along in a digitizing world. This is about both that and awareness of their data and its usage in public services.
Safety	☑ Addresses public and private safety in the city and increasing perceived safety for all.	☑ Using smart development to make the public feel safe while travelling.	☒ Isn't mentioned in the framework.	While the India framework doesn't mention it, safety is addressed in the others: perceived safety and using smart development to make the city safer are both important for the inclusive smart city.
Social networks	☑ Talking about the need to invest in local networks of the poor and marginalized and need for urban poor organizations and community-based organizations.	☒ Isn't mentioned in the framework.	☑ Talking about strong local networks and networks of social institutions.	Tekin & Dikmen don't include local networking as an aspect of social inclusion, but the other two do as they see the importance. And because the smart city aims to be inclusive, this needs to be an outcome of an inclusive smart city, where people feel well connected to their peers, both offline and online.
Smart housing	☑ Not about smart housing but about needing programs for housing for urban poor and helping them settle and helping with ownership statuses of housing.	☑ Talking about access to housing for LGBT inhabitants and migrants.	☑ Indicators about percentage of households in congested houses or slum area or percentage of homeless population.	While none of these frameworks specifically address the inclusive incorporation of smartness in people's housing. It will be addressed in the new framework as it is a goal for the municipality of Amsterdam, and a goal with smart development in Amsterdam is less about preventing slum settlement and ownership of housing.
Smart infrastructure	☑ Talks about the importance of good access to public spaces and	☑ Talks about using smart development to improve existing	☑ Waghmare & Singhal briefly mention the implementation of	While some of them don't (seem to) cater to the smart city context, the point is that smart development such as smart

	priority to marginalised groups in provision of infrastructure.	infrastructure, such as green spaces, but mainly transportation. This must be as inclusive, efficient, cheap, and safe as possible.	inclusive design guidelines in urban spaces.	mobility, promises infrastructure that is smarter, meaning more accessible, efficient, cheap, and inclusive, the frameworks here agree with this goal.
Smart services	☒ Talks about the need to be inclusive with access to basic services such as water, healthcare, government accessibility, and the budget for this.	☒ Moreso focuses on new approaches to digital inclusion in public services, engaging the citizens digitally. Making sure there are no barriers to participate in smart services.	☒ Briefly mentions the need to implement ICT based projects that directly connects the citizens.	While all three frameworks talk about the need to be inclusive regarding providing services, the India case and mainly the London case are relevant because they are talking about the increasing number of digital services by municipalities and organizations and the need to actively engage citizens to make them effective.
Cleanliness	☐ Isn't mentioned in the framework.	☒ Talks about the presence of good air monitoring devices and measuring the overheating areas.	☒ Briefly mentions the level of cleanliness as an indicator, and quality of air pollution.	While cleanliness isn't as thoroughly outlined here, the London and India frames do mention them, mainly on-air quality levels, but cleanliness and waste services are explicitly mentioned in smart governance documents in the Amsterdam context, which is why it is modified to fit in the new framework.
Employment	☒ Briefly mentions the need to provide jobs and opportunities for all, and sustained efforts to create jobs.	☒ Mentions the access to jobs must improve in the smart city, and to promote best practices to create an inclusive, diverse and smart workforce.	☐ Isn't mentioned in the framework.	The outcome of an increasing digitizing and "smartening" world and cities need to be that the employment of its citizens is inclusive, this is what is reflected in the Tekin & Dikmen framework

Inclusive economic growth	☒ Talks about government support in the sense of pro-poor programmes and access to credit and finance programmes for the poor.	☒ Talks about the (digital and smart) economy and the need to grow, but this growth must be economically inclusive, and the industry must become more inclusive, reflecting the population.	☒ Talks about the diversity of economic opportunities and access to financial services for the poor.	While the India and World Bank frameworks are less catered to the smart city context on the surface, it is a goal in smart development to provide opportunities for economic growth for everyone. This is also reflected in the London frame. The digital economy in the city and outcome of digitization need to be as inclusive as possible.
Economic vitality	☒ Mentions economic vitality the need to identify targets for local economic development strategies.	☒ Isn't mentioned in the framework.	☒ While Waghmare & Singhal do mention economic vitality, indicators they use is about the poverty rate and average income.	Two of the three frameworks mention economic vitality, but World Bank comes closest to an appropriate explanation/indicator. It is about policy and development, shaping a strong economic local area, on neighbourhood level. Smart development should see neighbourhoods and communities strengthened.
Inclusive skill building	☒ Talks about the importance to focus on skill building for the population, for skills that link to the market.	☒ Addresses the need to provide the population with digital skills, especially the marginalized part.	☒ Isn't mentioned in the framework.	(Digital) skills, while not mentioned by all three, is important in a smart city as seen in the World Bank and London frameworks. Both talk about specifically targeting relevant groups and Tekin & Dikmen talk about it specifically with digital skills

Regarding the social inclusion dimension, strong overlaps were found in the existing frameworks. One major aspect selected for the new inclusiveness framework is **equal rights**, as all three frameworks emphasize the fact that attention must be paid to the needs of the marginalized population. This includes policy focus on diversity and resources for marginalized groups. Indicators reflect if smart governance instruments address these concerns and whether citizens feel that smart city efforts consider the needs of vulnerable people.

Participation stood out as well across the frameworks. It is a key aspect of inclusion and is directly translated to the smart city context by evaluating whether people have been involved in smart city efforts. Indicators include whether smart governance instruments promote participation, and if citizens are aware of and engaged with smart city developments.

Safety was another aspect of inclusion that showed up in the frameworks. While the frameworks often measure safety to crime rates (Waghmare & Singhal, 2022), this framework aligns more with Tekin & Dikmen (2024) on whether people feel safe while being themselves and in Amsterdam, where social safety and inclusion are paramount to urban life.

Finally for social inclusion, the presence of **social networks** was chosen. Even though it was not present in Tekin & Dikmen's (2024) framework, being part of local networks and community initiatives fosters cohesion and inclusion in urban life. The new framework assesses whether smart governance instruments foster social networks, and whether citizens are engaged in local networks related to recreation, planning, etc.

In terms of **spatial inclusion**, four aspects were adapted from the frameworks: **housing, infrastructure, services, and cleanliness**, adjusted for the Amsterdam smart city focus. For **housing**, rather than focusing on the slum-forming and overcrowding, as seen in the India framework, the focus here is on access to smart technologies in homes and whether the government or other organisations help with this, especially for the elderly or lower-income households.

Inclusive smart infrastructure is also key in obtaining inclusion. Bike lanes and green infrastructure are important, but for the Amsterdam context, the accessibility, affordability, and quality of public transport and general infrastructure are chosen as these are key objectives in the Smart Mobility Programme (Gemeente Amsterdam, 2019).

Smart Services also needs adjustments. Basic services like water and sewage are not as relevant here. Rather, the framework builds on the Tekin & Dikmen (2024) focus on digital access to public services. Indicators reveal whether citizens face barriers to online municipal services and if sufficient support is provided.

Cleanliness is the last one. It isn't as emphasized as the original framework, only some indicators in India's and London's frameworks, but is seen as key in this context as Amsterdam highlights this as one of the aspects to tackle using smart technology (Gemeente Amsterdam, 2020)

The **economic inclusion** dimension includes **employment, inclusive economic growth, economic vitality**, and **skill building**. **Employment** is widely recognized in the frameworks, but here it's focused on accessibility. The emphasis is on whether smart city instruments foster equal access to jobs and education, and whether citizens feel they can reach these opportunities easily and equally, linking this to spatial inclusion as well.

Inclusive economic growth is prevalent but reframed to fit the Amsterdam context. While poverty rates and average income are important in general inclusiveness frameworks, to cater to the smart city, the focus is explicitly on support for startups and financially vulnerable citizens.

Economic vitality isn't as prevalent in the frameworks but kept because of its connection to neighbourhood strength. Indicators assess whether smart city policy supports local economic ecosystems and whether their communities are strengthened by (smart) initiatives.

Skill building, particularly digital skills, is a key addition. While only briefly mentioned in the original frameworks, it is vital in the increasing smartening city and to create "smart citizens". At least citizens that are capable enough to traverse a city that increasingly excludes purely manual services and infrastructure. The framework examines whether the municipality offers sufficient resources to build these skills and whether citizens experience this support in practice.

There is overlap across all three dimensions as shown below in figure 2. Aspects like transport, social networks, and digital skills cut across the three dimensions. For example, accessible transport not only improves mobility but also job and social opportunities, reinforcing inclusion across the board. Interconnectedness like this emphasises the need for understanding inclusiveness as a systemic and multidimensional process.

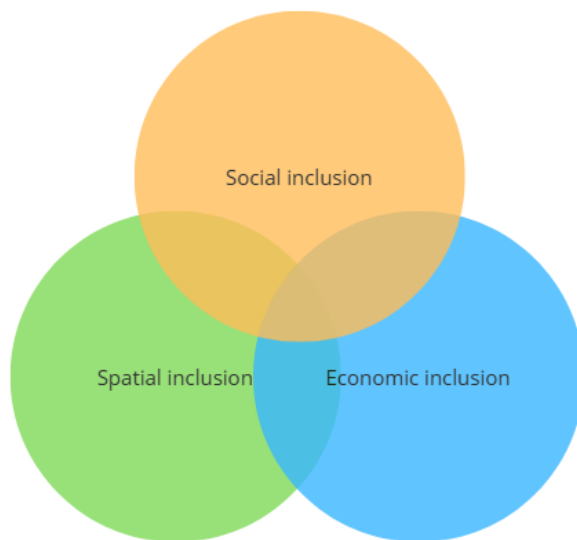


Figure 2: *Overlap of three inclusiveness dimensions*

In short, the adapted inclusive smart city assessment framework below in table 2 combines the most frequent aspects in other (smart) inclusive measurement frameworks, modifies it to be relevant to the context of Amsterdam and provides quantifiable and qualifiable indicators to measure each factor thoroughly. Each aspect is subsequently divided into an indicator suitable for analysing policy and strategy documents, and indicators suitable for measuring experiences and opinions from people. The survey questions that are derived from the indicators can be found in chapter 4.

Table 2: *The new inclusive smart city assessment framework*

Dimension	Aspect	Indicators (instruments and perceptions):
<i>Social inclusion</i>	<i>Equal rights</i>	▪ The extent to which smart city policy deals with implementation of technology to address inequality.
		▪ The extent to which citizens are aware of what their data is used for. ▪ The extent to which citizens feel the city promotes diversity and inclusion.
	<i>Participation</i>	▪ The extent to which smart city policy deals with incorporating citizens in smart city development.
		▪ The extent to which citizens are aware and participating Amsterdam Smart City. ▪ The acceptance of citizens in the use of their data to improve urban life.
	<i>Safety</i>	▪ The extent to which smart city policy deals with increasing public safety through technology.
		▪ The perceived safety of Amsterdam citizens.
	<i>Social networks</i>	▪ The extent to which smart city policy deals with fostering and improving social networks for its citizens through smart projects.
		▪ The extent to which citizens are engaging in social networks such as events, seminars, or organizations. ▪ The level of social cohesion citizens feel to their local community.
<i>Spatial inclusion</i>	<i>Smart housing</i>	▪ The extent to which smart city policy deals with implementing smart devices in houses for all groups of people, especially the marginalized.
		▪ The extent to which government-subsidized smart appliances gets adopted by citizens. ▪ The perceived availability of inclusive support programs for smart home technology installation.

	<i>Smart infrastructure</i>	▪ The extent to which smart city policy deals with providing safe, affordable, clean, and inclusive smart infrastructure in the city.
		▪ The extent to which citizens feel public transport is affordable. ▪ The extent to which citizens feel public transport is accessible for elderly/disabled. ▪ The extent to which citizens feel infrastructure is accessible for everyone.
	<i>Smart services</i>	▪ The extent to which smart city policy deals with providing smart services for its citizens (online platforms/portals)
		▪ The extent of use and the perceived difficulty of using the municipality's online environment (Mijn Amsterdam). ▪ The perceived quality of high-speed internet in Amsterdam.
	<i>Cleanliness</i>	▪ The extent to which smart city policy deals with creating a clean urban environment for the citizens.
		▪ Public satisfaction with cleanliness in their neighbourhood and city in general.
<i>Economic inclusion</i>	<i>Employment</i>	▪ The extent to which smart city policy deals with providing good access to employment for the citizens and promoting a diverse and inclusive workspace.
		▪ Perceived quality of roads and transportation. ▪ Perceived difficulties with digital tasks at work. ▪ Perceived equality in the labor market in Amsterdam.
	<i>Inclusive economic growth</i>	▪ The extent to which smart city policy deals with economic growth through smart city development and ways to inclusively spread wealth.
		▪ Perceived fairness in economic policy implementation.
	<i>Economic vitality</i>	▪ The extent to which smart city policy deals with creating economically stable and resilient

		communities that reinforce the local environment.
		▪ Perceived fairness in attention to localized urban development.
	<i>Digital skill building</i>	▪ The extent to which smart city policy deals with providing citizens with programs to improve digital skills.
		▪ Digital literacy among citizens in Amsterdam. ▪ Perceived accessibility to lifelong learning programs related to technology. ▪ Level of willingness among citizens to lifelong learning.

2.5 Conclusion and Conceptual Framework

This chapter has outlined the complex interrelationship between the concepts of smart cities, neoliberalism, and inclusiveness. By examining these elements together, we can see how the smart city, often conceptualized as a technologically advanced, efficient urban environment, tends to lean heavily on neoliberal principles, driven by market forces and private sector involvement. While this model fosters rapid innovation and urban development, it also raises significant concerns about inclusiveness, particularly as power in urban governance shifts increasingly toward corporate actors. Neoliberal urban policies often emphasize economic efficiency over social equity, leaving marginalized populations at risk of exclusion.

Furthermore, the critique of the smart city highlights the limitations of purely technology-centric approaches to addressing urban challenges. True inclusiveness within smart city initiatives demands an intentional focus on social, spatial, and economic inclusion, moving beyond a technology-first approach to prioritize citizen well-being and equitable access to resources. The inclusive smart city model thus emerges as one that integrates both technological innovation and a commitment to social justice, requiring active engagement from all community members, especially the marginalized. The framework developed in this chapter will be applied in subsequent analyses to assess and measure inclusiveness within smart city strategies, experts, and citizens, offering a critical lens for examining how well these urban models meet the needs of all citizens. The conceptual model in figure 3 below shows the expected relationship between the institutional intent of inclusiveness and the perceived inclusiveness of citizens in the city of Amsterdam.

As long as the status quo of the global economy remains the same, the challenge will always be to create a truly citizen-centric smart city where the role of citizens must be re-imagined in the input, process, and output, to make sure smart cities are actually inclusive and sustainable in reality, not only in rhetoric (Engelbert et al., 2019).

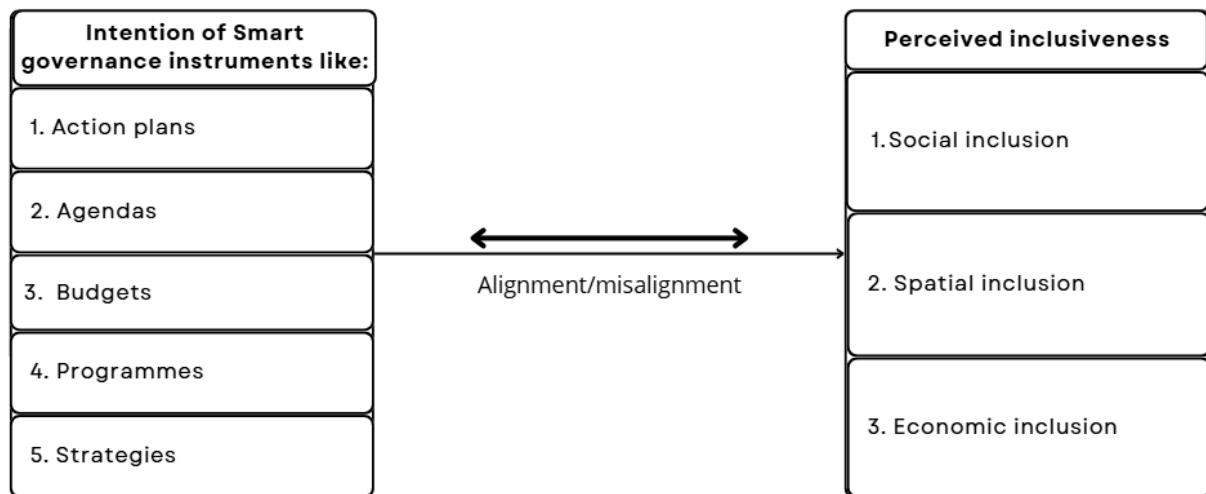


Figure 3: *Conceptual model*

Chapter 3: Methodology

3.1 Introduction

This study aims to explore how the intentions behind smart governance instruments relate to inclusiveness and how this is reflected in citizens' perceptions. To answer it, an explanatory, single-case study design is used. A mixture of data collection methods and data analysis methods will be used in the process of this thesis. The methodology in the next chapter is structured around the research strategy, data collection methods, data analysis procedures, and validity, reliability, and limitations. Everything combined will provide a strong foundation for the thesis.

3.2 Research strategy

A mixed-methods approach was adopted to capture the complexity of the topic (Cresswell & Cresswell, 2022). Combining qualitative and quantitative methods ensures a comprehensive understanding of the Amsterdam case. Qualitative methods include secondary literature, document analysis. On the other hand, a quantitative approach, via a survey, will give more insight into how the intention of the governance instruments align with the broader perceptions of citizens on inclusiveness in the smart city. Through the survey, broader trends in perceptions on, knowledge of, and opinions about smart initiatives from the citizens of Amsterdam will be gathered. This is supplemented by expert interviews to gain deeper context. The mixed-use of methods strengthens the depth of analysis and enhances the validity of findings. But more on that later.

This research is a case study focusing on Amsterdam as a smart city, as a single, in-depth case study. Case studies are particularly effective for examining phenomena that are complex and contemporary (George & Bennett, 2005; Cresswell & Cresswell, 2018). It allows for an in-depth, context-rich examination of how smart city instruments influence perceived inclusiveness. The smart city is a phenomenon that has emerged and grown over the past twenty years, which makes it relevant and contemporary. It is also complex, existing in a global connected capitalist society, where competition leads to cities being interconnected with each other; to scales above them (national and supranational); and below them (companies and individuals). This means cause and effect is not as easy with researching smart cities and its effects. Examining a single case study such as here, makes it context dependent, adding to a broader discourse on smart cities, but the outcomes will not be

universally generalizable. As Creswell & Creswell (2018) put it, generalizability is limited due to focus and context, and the potential for researcher bias is there, but if executed correctly, the in-depth analysis based on rich data collection and preparation provides valuable new insights, especially in topics lacking prior exploration. This is also why the research question is exploratory. The end goal is not to explain cause and effect, but to gain a deeper understanding of the smart governance intentions of Amsterdam and its reflection in real life (Creswell & Creswell, 2018).

One method to improve the depth of research and reduce possible bias is through triangulation. The integration of multiple sources of evidence to enhance reliability and validity. But in this research, there was a clear sequence of methods: the primary was the survey as it was the main source of empirical data, secondary was the document analysis providing the institutional and governance context, and tertiary was the interviews providing extra nuance in the discussion.

3.3 Data collection methods

To explore how intentions of smart governance instruments reflect the perceived inclusiveness among citizens, this thesis employed a mixture of data collection methods, document analysis, expert interviews, and a survey. This approach is triangulation and allows for a broad and robust understanding of both institutional goals and citizen perceptions.

The analysis of (smart) public governance focused on a selection of key smart city and digitalization related publications, whether they are policy documents, programmes, action plans, agendas, or visions, as discussed in chapter 2. These are all issued by the municipality, province of Noord-Holland, the national government (Rijksoverheid), or other related organizations. The documents were chosen based on recency (between 2018 and 2024), relevancy (smart city or digitization related), and source credibility. Inductive coding was used to scan the documents for actionable sentences related to the framework inclusiveness dimensions and aspects (Ch2).

A series of expert interviews were conducted to supplement the gathered data gathered from documents and the survey. They were held with individuals directly involved, currently or previously, with the theme of the smart city in Amsterdam. They are active with the municipality, a research institute, or innovation platform “Amsterdam InChange” (formerly Amsterdam Smart City). A total of three semi-structured interviews were carried out, allowing for deeper information on the topic of inclusiveness in the smart city, while enabling the

interviewees to elaborate on their experiences and opinions. Experts were selected based on their function in the public sector or firsthand research on relevant topics. The interviews helped contextualising both policy goals and citizen perspectives.

To link the institutional perspective to the practical one, a citizen survey was created and conducted to capture perceptions and awareness of inclusiveness in the smart city context. The survey consisted of two parts: demographic questions (age, gender, income, education level, ethnicity, religion, physical disability derived from the Anttiroiko & de Jong (2020) framework), and 36 Likert-scale questions covering aspects within the dimensions of inclusiveness (social, spatial, and economic inclusion). The survey was distributed on the street to capture a representative as possible sample, and online on social media and a neighbourhood app to supplement the number of respondents as close to a representative sample size as possible. In a population of 864.000 (Gemeente Amsterdam, 2025) the sample size needed to be 384. After cleaning the data 332 legitimate respondents were collected, fit for analysing.

The collection methods were chosen to capture both broadness and depth of inclusiveness in the Amsterdam smart city context. The survey allowed for structured broad assessment, documents analysis provided insight into policy intent and priorities behind governance strategies, and expert interviews added a certain qualitative contextual understanding and additional depth. Together, these methods offer a comprehensive view of smart governance and inclusiveness in Amsterdam, linking institutional intentions and strategies to citizen realities.

3.4 Data Analysis

The data that was collected from different types of governance instruments, expert interviews, and the survey, were analysed using different methods that are unique, but complementary in nature. The governmental documents analysis was conducted with inductive coding, as previously stated. This was done with the help of Atlas.ti, which allowed for systematic comparison across documents and made clear how well embedded aspects of inclusiveness dimensions were in the planning of a smarter Amsterdam. For the expert interviews, thematic analysis was used to extract insights regarding inclusiveness in the Amsterdam smart city context. Interviews were conducted online with Microsoft Teams and were subsequently transcribed online. The transcriptions were cleaned up to not have repeats, stutters, or mis-

transcriptions. Inductive coding was used to gather insights, supporting, or adding depth to gained knowledge from the other data.

The survey data was analysed using SPSS. The first form of analysis was the basic descriptive statistics to profile the demographic characteristics of respondents to, for example, compare them to demographic distribution of the population. The 36 Likert questions were grouped into subcategories reflecting social, spatial, and economic inclusion, and composite scores were created to indicate a general outcome of feeling of inclusiveness. So, a higher score on the social inclusion composite means a higher feeling of social inclusion. Some Likert questions were asked inversely, meaning a higher score indicated a lower feeling of inclusion. These were inverted to fit the composite score. To explore how personal characteristics influence perceptions of inclusion, linear regression analyses were performed. Some independent variables such as neighbourhood of residence and religion were transformed into dummy variables if deemed necessary. Models were interpreted based on significance, beta, and standardised b scores. This allowed for a deep understanding of which demographic characteristics were related to a higher or lower feeling of inclusion in the smart city of Amsterdam.

This multitude of methods enabled a deep understanding of the relationship between and interplay of smart cities, its governance, and the outlook of citizens on these developments.

3.5 Validity, Reliability, and Limitations

The standard for good case study research is focus on validity, reliability and manners to improve it during the entirety of the process, and acknowledging the limitations of the research, showing full transparency. Validity ensures that research truly measures what it intends to. Internal validity refers to the accuracy of relationships between variables, and external addresser whether findings can be generalized beyond the research. Together, credibility is increased (McDermott, 2011). The mixed-method approach, previously discussed, strengthens the overall validity of a thesis through triangulation. Triangulation means using multiple sources of data and methods to cross-verify findings. It reduces bias and provides a better picture of the phenomenon (Cresswell & Cresswell, 2022). This is done across governance instruments, interviews, and a survey. Of course, each method comes with certain limitations. The choice of documents, interpretation of them, and the critical lens inherent to the researcher leads to bias, even if the guidelines used are clear. Interviews with experts contain deep knowledge but are limited in sample size. Regarding the survey, the

sampling was constrained by factors like over- and underrepresentation. Some demographic groups were harder to reach by virtue of “respondent fatigue” or not being as present in public spaces. Also, some Likert-scale inclusiveness questions had to be reverse-coded as mentioned before, this may have caused more confusion among respondents leading to lower reliability. But to ensure reliability is as high as it can be the entire process is described to be as transparent as possible. This means data collection, choices, limitations, findings are all provided honestly in order for the research to be evaluable (Andersson et al., 2024). Finally, case studies are time-consuming, and there is a limit to access to capital and time, which limits the potential of a study. Despite these difficulties, the triangulation of mixed-methods gives the thesis a robustness that helps confidence in and reliability of the findings regarding smart governance instruments in relation to perceived inclusiveness in Amsterdam. Being aware of all these aspects and incorporating this in the research is detrimental to a sound outcome and output.

Chapter 4: Results

4.1 Introduction

This chapter presents empirical findings of the study to address the central research question. It is structured around three sub-questions and three main data sources: a survey, expert interviews, and governance documents analysis. Section 4.2 examines how Amsterdam residents perceive inclusion through survey statistics, through survey statistics. Section 4.3 uses regression analysis to assess how at-risk demographic characteristics relate to perceived inclusion. Section 4.4 explores the strengths and weaknesses of smart governance instruments used by the smart city of Amsterdam, in pursuit of smartness and digitalisation. How often and how concise do these aspects of inclusiveness emerge in governance instruments? Section 4.5 compares the institutional results with the public perception, highlighting areas where policy and outcome are one, and areas where they fail to match.

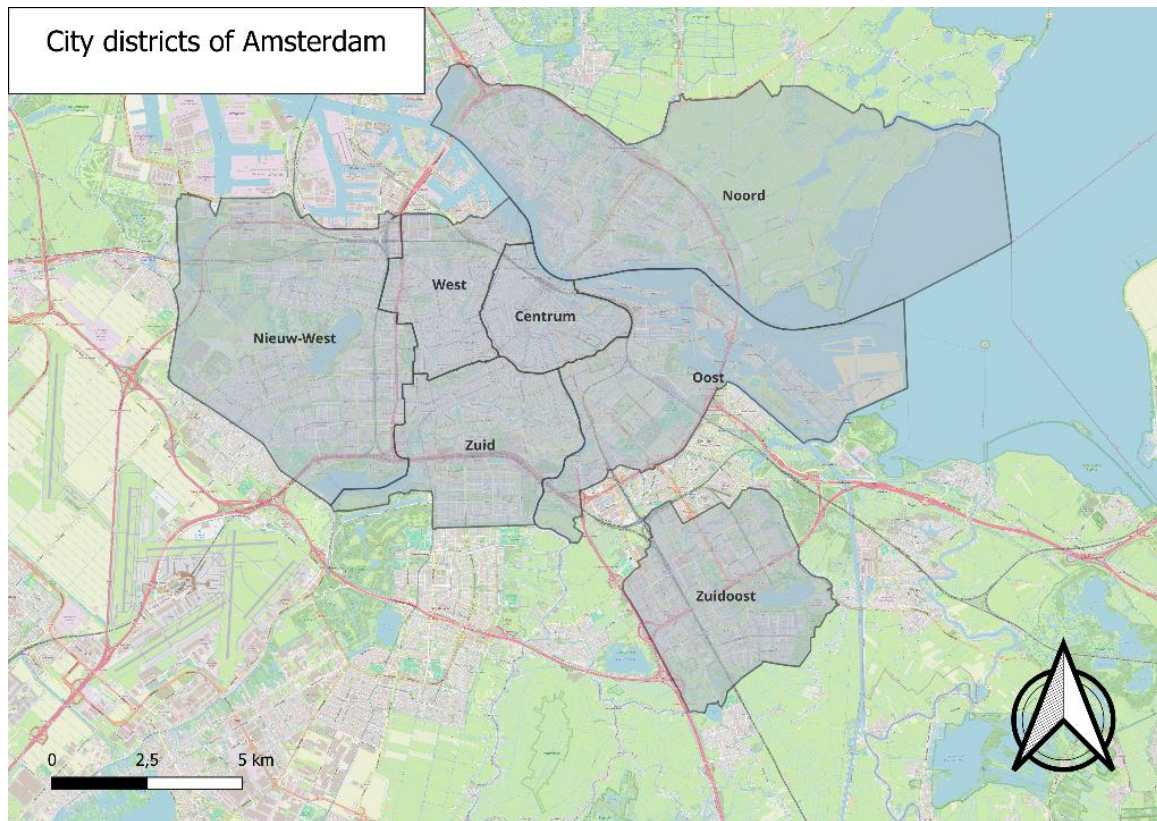
4.2 Perceived Inclusion in Smart Urban Development

Table 3: Descriptive characteristics of the sample (n=332)

Neighbourhood of residence	Frequency	Percent	Ethnicity	Frequency	Percent
Nieuw-West	124	37.3	Dutch	258	77.7
Noord	1	0.3	Non-Western background	61	18.4
Oost	14	4.2	Western background	13	3.9
West	35	10.5	Religion	Frequency	Percent
Zuid	54	16.3	Christianity	48	14.5
Zuidoost	95	28.6	Islam	46	13.9
Centrum	9	2.7	No religion	214	64.5
Age	Frequency	Percent	Other	24	7.2
18-25	10	3	Highest form of education	Frequency	Percent
26-40	70	21.1	Primary school	7	2.1
41-64	132	39.8	Secondary school	41	12.3
65+	120	36.1	Higher education	235	70.8
Gender	Frequency	Percent	University Master or PhD	49	14.8
Man	88	26.5	Physical Disability	Frequency	Percent
Woman	234	70.5	Yes	85	25.6

Non-Binary	7	2.1	No	247	74.4
Prefer not to say	3	0.9			
Yearly Income	Frequency	Percent			
Less than €10,000	7	2.1			
€10,000-€30,000	107	32.2			
€30,000-€50,000	112	33.7			
€50,000-€100,000	36	10.8			
€100,000+	8	2.4			
Prefer not to say	62	18.7			

Table 3 shows the demographic distribution of the sample. The seven districts each house diverse people and have a unique profile as a local area (Gemeente Amsterdam, n.d.-a; Savini et al., 2015.) and can be seen in map 1 below. Nieuw-West is a suburban post-war neighbourhood with lots of green spaces. It is one of the more multicultural areas, with high percentage of people with migrant backgrounds. It also has more younger families and lower income households. Noord is a former industrial area across the IJ river. Now housing many young creatives and newcomers attracted by lower housing prices. Oost used to be for the working class, now increasingly gentrified, Still houses a mix of cultures: Surinamese, Turkish, Moroccan, white Dutch, but also young families and students. West is also a mixed-use neighbourhood that is increasingly gentrified. A mix of young professionals, expats, families, and Dutch-born residents. Zuid is an affluent district with the Zuidas business area. Houses wealthier residents, businesspeople, expats, and elderly Dutch. Zuidoost was built in the 60s and has a lot of high-rise and green. Houses an ethnically diverse community, with Surinamese, Ghanaian, Antillean, and expats and students. Used to be stigmatized but is now improving in image. Centrum is historic, touristic, and dense. The people living here are a mix of long-time residents, students, expats, and wealthier residents.



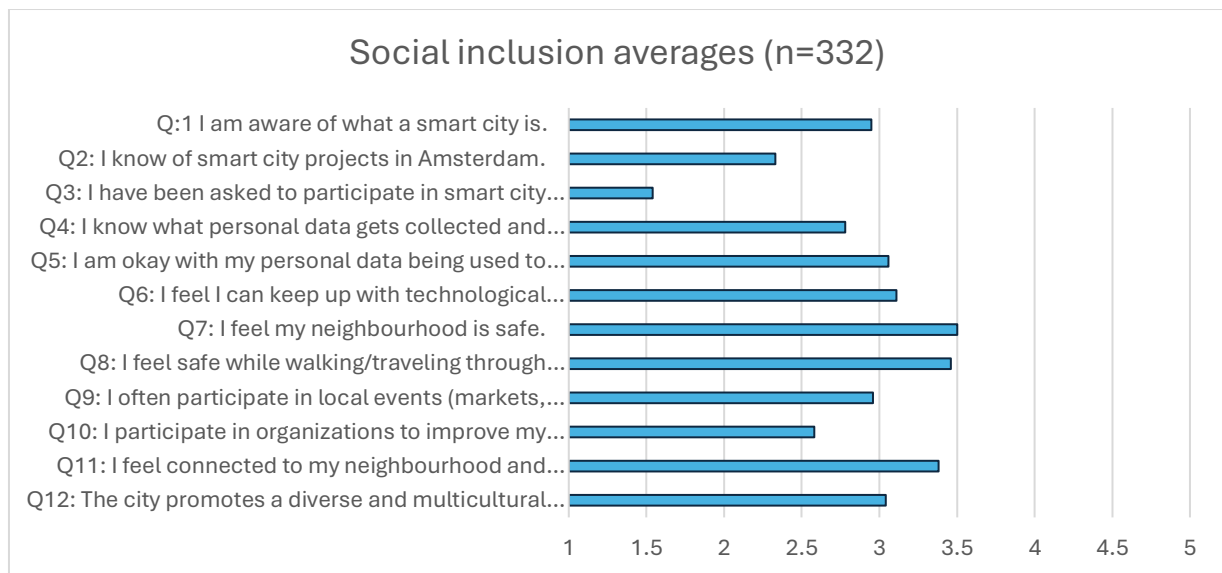
Map 1: city districts of Amsterdam (Gemeente Amsterdam, n.d.-b)

In total, the survey recorded 332 clean respondents. These respondents had a relatively large diversity in terms of demographic characteristics. The data covers inhabitants of all seven districts in Amsterdam, though overrepresentation of people from Zuidoost (28.6%) and Nieuw-West (37.3%), as most of the surveying was conducted there. Income, ethnicity, religion, and education seem to have a representative distribution. Most respondents had an income between €10.000,- and €50.000,- (65.9%), most people had a Dutch background (77.7%), which may also include individuals with mixed ethnic backgrounds or later-generation migrant. Most participants reported no religious affiliation (64.5%), and a large share had completed higher education (70.8%), defined as MBO, HBO, or a university bachelor's degree. There are, however some under- and overrepresentations. 70.5% of respondents were women, and most of the respondents were older. 75.9% of the people were 41 and above, with 36% being seniors. Finally, 25.6% of respondents had a physical disability. Which is above the national average (8%) (HandicapNL, n.d.). These 332 respondents answered 36 Likert-style questions with a scale of 1-5 from *strongly disagree* to *strongly agree*. This provides a broad overview of perceptions on inclusiveness, though it may limit the depth of individual experiences. The questions are listed below in table 4.

Table 4: Survey questions

Social inclusion
Q1: I am aware of what a smart city is.
Q2: I know of smart city projects in Amsterdam.
Q3: I have been asked to participate in smart city projects.
Q4: I know what personal data gets collected and what it is used for.
Q5: I am okay with my personal data being used to improve public services like public transport and safety.
Q6: I feel I can keep up with technological developments in everyday life.
Q7: I feel my neighbourhood is safe.
Q8: I feel safe while walking/traveling through Amsterdam.
Q9: I often participate in local events (markets, seminars, gatherings)
Q10: I participate in organizations to improve my neighbourhood.
Q11: I feel connected to my neighbourhood and neighbours.
Q12: The city promotes a diverse and multicultural society.
Spatial inclusion
Q13: I have used government programmes to obtain used laptops or other technology.
Q14: I make use of smart technology at home
Q15: The government or an organization has approached me to help install smart technology (thermometer, solar panels)
Q16: I always have access to high-speed internet if I'm in Amsterdam.
Q17: I use the online environment of the municipality (Mijn Amsterdam) often.
Q18: I find it easy to use Mijn Amsterdam.
Q19: I feel public transport is affordable.
Q20: I feel public transport in Amsterdam is of good quality.
Q21: I feel public transport is accessible for disabled/elderly.
Q22: I feel it is easy enough for everyone to move around Amsterdam.
Q23: The city of Amsterdam is clean enough.
Q24: Garbage and waste service is good enough in Amsterdam.
Economic inclusion
Q25: It is easy to travel to my job/school/education.
Q26: Job opportunities are equal for everyone.
Q27: I experience difficulties with digital aspects at work/school/education.
Q28: I feel it is easy to get financial support from the government if needed.
Q29: Digital innovation is a risk for working people.
Q30: The government gives enough attention to tackling poverty.
Q31: My neighbourhood receives enough investment in infrastructure to improve it.
Q32: My neighbourhood has enough jobs/businesses/companies.
Q33: My digital skills are at a good level.
Q34: The municipality offers enough help with improving digital skills.
Q35: I have used training/education purely to improve my digital skills.
Q36: I feel forced to keep improving my digital skills to keep up with technological developments.

4.2.1 Social inclusion perceptions

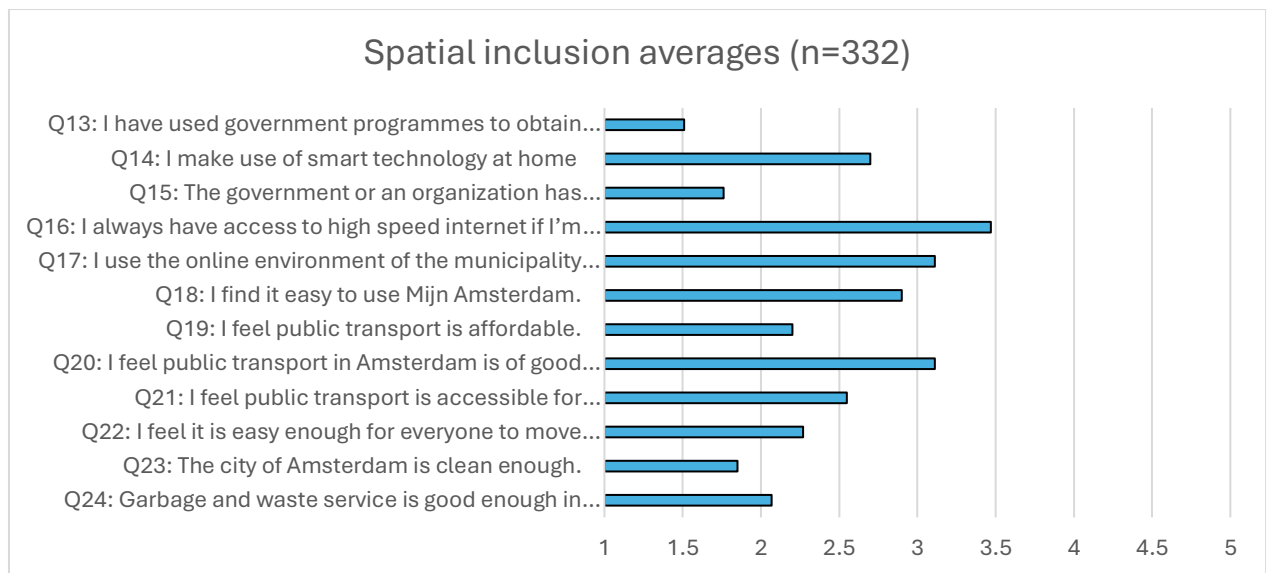


Graph 1: Social inclusion question averages

As seen in the graph 1, while some questions were responded to relatively positively, others were not as much. Awareness towards what a smart city is, was neutral, with an average score near 3. The awareness of smart city projects in the city was less, and people who have (been asked) to participate in one almost non-existent. About 42% of people didn't know what a smart city was, 56% of people didn't know of smart city projects in Amsterdam, with about 30% answering neutral on that question, which could indicate a non-interest in the topic, and 90% of people haven't participated in one. Furthermore, awareness of what kind of digital data gets used is relatively low. On the other hand, overall feeling of safety in neighbourhoods and in Amsterdam in general is high, meaning that feeling of safety scores well in this case. Also, people feel connected to their local surroundings.

This suggests that equal rights, safety, and social networks in Amsterdam are relatively strong, while participation in smart cities, and digitalisation processes are low, and awareness of digital governance remains limited.

4.2.2 Spatial inclusion perceptions

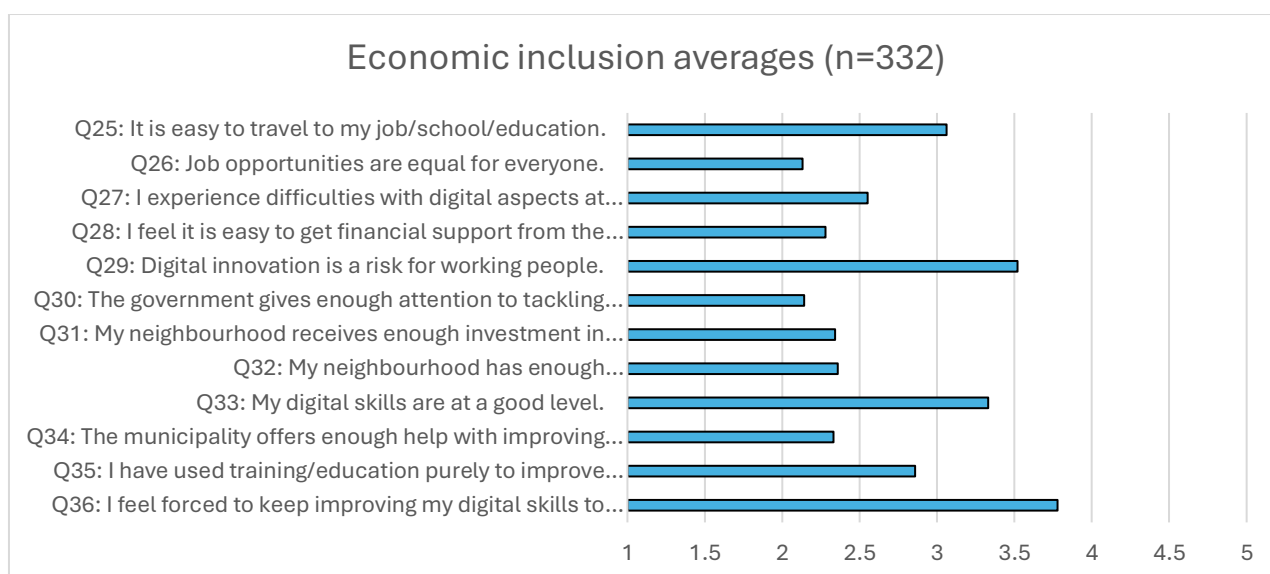


Graph 2: *Spatial inclusion questions averages*

Spatial inclusion in the context of Amsterdam's smart city processes relates to how accessible and equitable urban infrastructure, services, and housing are perceived to be by residents. The survey results reveal mixed perceptions (graph 2). The people do seem to respond positively to the online smart services provided. People do have relatively good access to high-speed internet, and use the online environment of the municipality, even if the perceived usability of that environment is a bit lower. But the other aspects, infrastructure, housing, and cleanliness are responded more negatively to. For housing, people do have (smart) technologies in their home (Q14), but the municipality or other organisations haven't helped them with this (Q13 and Q15). For infrastructure, people do like the quality of public transport, the price and accessibility were rated lower. Accessibility in the entire city was noted as not accessible (Q22). Finally, the questions regarding cleanliness were especially responded to negatively. Almost 80% of the people found the city not clean enough.

Overall, the perceived spatial inclusion was responded to as lower than social inclusion. Infrastructure, and especially housing and cleanliness were not seen as up to par.

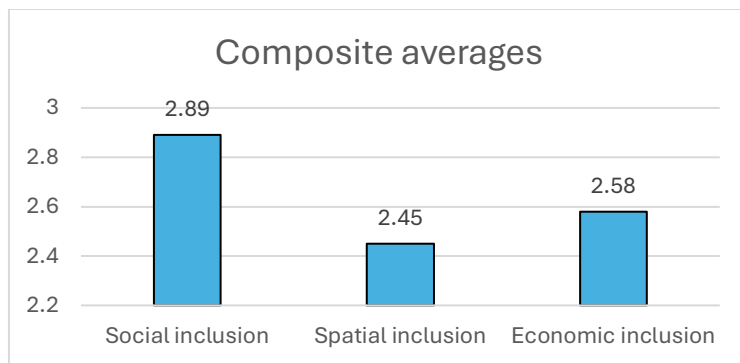
4.2.3 Economic inclusion perceptions



Graph 3: *Economic inclusion questions averages*

Economic inclusion relates to inclusive economic growth, economic vitality (neighbourhood resilience), digital skills, and inclusive employment. This dimension yielded mixed results as well (graph 3). People do feel their digital capabilities are at a good enough level these days and respond relatively well to having done training to improve digital skills, even if the municipality doesn't really offer help to them, they feel (Q34). In general, the responses were relatively negative towards the help the municipality provides. They feel their neighbourhood doesn't get supported well enough (Q31 and Q32) and they feel that there is no real economic inclusion in Amsterdam (Q28 and Q30). So, while people rate their own capabilities relatively high (digital skills) they score the help from government and relevant organisations low (Inclusive economic growth, economic vitality). Lastly, the question whether digital innovation is a risk for working people (Q29), the people responded that they feel that it is a risk.

4.2.4 Composite scores



Graph 4: *Composite averages of inclusion dimensions*

In general, as seen in graph 4, the perception towards social inclusion seems to be higher among residents of Amsterdam, so their feelings towards equal rights, safety, and social networks especially, while economic inclusion and especially spatial inclusion tend to be seen as low by the Amsterdam citizens. But overall, the results of the survey are overwhelmingly negative, this is likely due to both a large negative feeling towards government (gathered from comments), and the results mostly averaging towards 3 (neutral) with some extreme negative outliers (cleanliness, participation, transport costs).

4.3 Socio-Economic Predictors of Perceived Inclusion

To explore how demographic characteristics shape the perceptions and opinions of citizens of Amsterdam on inclusiveness in the smart city, multiple linear regression analyses were done across the three dimensions of inclusiveness. Each regression analysis used the same set of demographic characteristics: neighbourhood of residence, age, gender, highest form of education, yearly income, ethnicity, religion, and physical disability. They were put into a composite inclusion score for each dimension, and all Likert-style question was regressed and tested individually for interesting results. Each table shows how strongly each characteristic the inclusion scores or questions influences. For each variable the table includes the most relevant data:

- B: indicates the expected change in the perceived inclusion score if the demographic characteristic goes one unit up.
- Beta: Shows strength and direction of relationships.
- Sig.: shows whether the result is significant. A value below 0.05 suggests a meaningful relationship not likely due to chance.

A positive Beta coefficient for age in relation to the inclusion score indicates that perceived inclusion increases with age.

4.3.1 Social inclusion, regression results

Table 5: Social inclusion regression

Social inclusion average					
Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	3.00	0.31		9.82	0.001
Age	-0.14	0.04	-0.23	-3.84	0.001
Gender	-0.10	0.05	-0.11	-1.92	0.06
Education	0.17	0.05	0.21	3.23	0.001
Income	0.09	0.04	0.15	2.28	0.02
Ethnicity	0.03	0.05	0.04	0.61	0.54
Physical Disability	-0.10	0.07	-0.09	-1.47	0.14

Social inclusion average		Neighbourhoods			
Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant (Nieuw-West))	2.84	0.04		65.61	0.001
Noord	-0.42	0.48	-0.05	-0.87	0.38
Oost	0.24	0.14	0.10	1.76	0.08
West	0.18	0.09	0.11	1.90	0.06
Zuid	0.22	0.08	0.17	2.86	0.001
Zuidoost	-0.04	0.07	-0.04	-0.66	0.51
Centrum	-0.01	0.17	0.00	-0.09	0.93

Social inclusion average	Religion
Coefficients	

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant (no religion))	2.94	0.03		87.98	0.001
Christianity	-0.12	0.08	-0.09	-1.57	0.12
Islam	-0.12	0.08	-0.09	-1.57	0.12
Other	-0.16	0.11	-0.09	-1.54	0.12

The social inclusion Likert-style questions were put together into one social inclusion composite score providing each respondent with a level of perceived social inclusion. The regression model for this dimension showed that multiple characteristics influence perceived social inclusion (table 5). First and foremost, age had a significant negative effect on social inclusion ($B = -0.14$, $p < 0.001$), meaning that older respondents reported lower levels of perceived social inclusion. As seen in individual regressions, the main cause for this negative relationship are questions related to technological developments (Q6), lack of connection to their surroundings (Q9, Q11) and not feeling as safe as their fellow citizens (Q7, Q8). Furthermore, people with a higher level of education reported a higher level of perceived social inclusion, mainly because of awareness and participation (Q1, Q2, Q4). Income also had a significant positive impact on social inclusion ($B = 0.09$, $p = 0.02$). This means that people with a higher income reportedly feel more socially included. This wasn't as prevalent in single-question regressions, but the overall social inclusion average showed it as a significant signifier. Furthermore, in the dummy regression for neighbourhood, it is shown that people in Zuid feel more socially included than in the constant, which is Nieuw-West ($B = 0.22$, $p < 0.001$). They feel more connected to their neighbours and safer. This could obviously also relate back to people with a higher level of education and income feeling more socially included. For religion, while people with all religions reported lower levels of social inclusion than the constant (no religion), none of them were statistically significant. Other characteristics (Gender, Ethnicity, and Physical Disability) were not statistical signifiers of smart social inclusion.

4.3.2 Spatial inclusion, regression results

Table 6: *Spatial inclusion regression*

Spatial inclusion average					
Coefficients	Standardized				
	Unstandardized Coefficients		Coefficients		
Model	B	Std. Error	Beta	t	Sig.
(Constant)	2.73	0.24		11.21	0.001
Age	-0.15	0.03	-0.31	-5.28	0.001
Gender	-0.06	0.04	-0.08	-1.38	0.17
Education	0.03	0.04	0.04	0.59	0.56
Income	0.05	0.03	0.11	1.70	0.09
Ethnicity	-0.05	0.04	-0.06	-1.10	0.27
Physical Disability	0.16	0.05	0.18	3.09	0.001

Spatial inclusion average	Neighbourhoods				
Coefficients			Standardized		
	Unstandardized Coefficients		Coefficients		
Model	B	Std. Error	Beta	t	Sig.
(Constant)	2.42	0.04		67.52	0.00
Noord	-0.33	0.40	-0.04	-0.81	0.42
Oost	0.23	0.11	0.12	2.07	0.04
West	0.09	0.08	0.07	1.12	0.26
Zuid	0.11	0.06	0.10	1.66	0.10
Zuidoost	0.02	0.05	0.02	0.32	0.75
Centrum	0.07	0.14	0.03	0.54	0.59

Spatial inclusion average	Religion				
Coefficients			Standardized		
	Unstandardized Coefficients		Coefficients		
Model	B	Std. Error	Beta	t	Sig.
(Constant)	2.49	0.03		91.55	0.00
Christianity	-0.12	0.06	-0.10	-1.84	0.07
Islam	-0.07	0.06	-0.06	-1.13	0.26
Other	-0.10	0.09	-0.07	-1.22	0.22

For perceived spatial inclusion, like social inclusion, age had a significant negative impact ($B = -0.15, p < 0.001$) meaning that older people felt less spatially included than the average (table 6). This is mainly because of smart services and infrastructure/accessibility. Elderly people reported to have less access to high-speed internet, and find the online services provided by the municipality to be less easy to navigate (Q16, Q18). Also, the quality and accessibility of public transport is deemed lower, and accessibility of the city as a whole (Q20, Q21, Q22). They found the cleanliness of the city as not sufficient, but pretty much everyone reported the same, so no significance on that front. Physical disability was another predictor in this dimension for spatial inclusion, as expected, accessibility aspects were reported as significantly lower (Q21, Q22) than other groups. Furthermore, religion showed to be no real significant factor related to perceived spatial inclusion. Christianity is almost significant in a negative way, but it is not <0.05 . Finally, for neighbourhood of residence, Oost seems to have a positive significant effect on spatial inclusion but note that there are only 14 respondents from Oost, which could have skewed the results.

4.3.3 Economic inclusion, regression results

Table 7: *Economic inclusion regression*

Economic inclusion average					
Coefficients			Standardized		
	Unstandardized				
	Coefficients		Coefficients		
Model	B	Std. Error	Beta	t	Sig.
(Constant)	1.69	0.29		5.81	0.00
Age	-0.02	0.03	-0.03	-0.58	0.56
Gender	-0.03	0.05	-0.03	-0.60	0.55
Education	0.09	0.05	0.11	1.74	0.08
Income	0.19	0.04	0.33	5.09	0.001
Ethnicity	-0.02	0.05	-0.02	-0.31	0.76
Physical Disability	0.16	0.06	0.14	2.48	0.01

Economic inclusion average	Neighbourhoods	
Coefficients	Standardized	

Unstandardized Coefficients			Coefficients		
Model	B	Std. Error	Beta	t	Sig.
(Constant)	2.55	0.04		65.34	0.00
Noord	-0.47	0.44	-0.06	-1.07	0.29
Oost	0.46	0.12	0.20	3.78	0.001
West	0.22	0.08	0.15	2.67	0.01
Zuid	0.20	0.07	0.16	2.84	0.001
Zuidoost	-0.16	0.06	-0.16	-2.69	0.01
Centrum	0.21	0.15	0.07	1.40	0.16

Economic inclusion average			Religion		
Coefficients			Standardized		
Unstandardized Coefficients			Coefficients		
Model	B	Std. Error	Beta	t	Sig.
(Constant)	2.62	0.03		83.00	0.00
Christianity	-0.11	0.07	-0.09	-1.52	0.13
Islam	-0.13	0.08	-0.10	-1.76	0.08
Other	-0.02	0.10	-0.01	-0.19	0.85

The results for economic inclusion are slightly different (table 7). The largest predictor is income, which has very significant positive effect on economic inclusion, meaning that people with a higher income reported a higher level of economic inclusion, and people with a lower income reporting lower economic inclusion ($B = 0.19$, $p < 0.001$). This is likely due to better access to jobs, feeling the economic system to be fairer, and access to digital tools and education. Highest form of education was almost a significant factor in economic inclusion, this could be because education and income are somewhat related to one another, and because higher educated people tend to report higher digital skills and having had education on digital skills (Q33, Q35). Furthermore, people with a physical disability reported a lower economic inclusion, this is mainly due to a feeling of lack of access to jobs or digital skills. Interestingly, in this dimension, age isn't a signifier. Perhaps because they don't typically seek good access to jobs or education. Also, people associated with Islam report a lower perception on economic inclusion, but not significantly so, mainly because of feeling that the

municipality doesn't offer enough help for equitable economic growth (appendix I). Finally, neighbourhood seems a big signifier of economic inclusion. Inhabitants of Oost, West, and Zuid report higher levels of inclusion than Nieuw-West, while inhabitants of Zuidoost reports a lower level of economic inclusion, perhaps related to the feeling of not having enough investments in their respective neighbourhoods, but only some were significant (Oost, West, Zuid, Zuidoost).

4.3.4 Summary of key trends

Overall, some characteristics were not at all significant to perceived level of inclusion and some were very significant across the board. The only constant demographic characteristics that influenced level of inclusiveness were age and income, and to a lesser extent highest form of education and physical disability. What is interesting about this result is that one can link the latter two to the prior two, where you can associate people with a physical disability to older people, and a higher level of education to yearly income. It is interesting to note in smart public development, that elderly people and lower income people seem to feel left out more in this development in Amsterdam. On the other hand, gender, religion, and ethnicity didn't play much of a significant role in the prediction of perceived inclusion. This is surprising as the expectation was that all characteristics influenced perceived inclusiveness. But when zooming in on individual questions (appendix I) these characteristics do play a role on a smaller scale. But at large, either the distribution of sample sizes was not representative enough, or in a progressive city as Amsterdam, where inclusion factors regarding smart city and digitization are less sensitive to identity factors, and more responsive to socioeconomic and spatial factors.

4.4 Inclusiveness of Smart City Instruments

To analyse how Amsterdam's smart city and digitalisation methods address inclusiveness, a selection of relevant and key documents was chosen and analysed. They came from the municipality, Amsterdam InChange (formerly Amsterdam Smart City (ASC)), and national government. The document sample is shown in table 8.

Table 8: Documents used in analysis

Documents:
<i>Digital city agenda (2023)</i>
<i>NL smart city strategie (2017)</i>

<i>Programma smart mobility (2019)</i>
<i>Agenda digital city (2019)</i>
<i>Grip op technologie actieplan (2021)</i>
<i>Actieprogramma Amsterdam plastic smart city (2020)</i>
<i>Programma periode ASC (2022)</i>
<i>Omgevinsgvisie (2021)</i>
<i>Tada Manifest (2024)</i>
And relevant sections of:
<i>Uitvoeringprogramma afval en grondstoffen (2020)</i>
<i>Amsterdam circulair 2020-2025 strategie (2020)</i>

These documents were selected based on direct relevance to urban digitalization, their role in shaping smart initiatives, recency (recent but also documents old enough to have seen effect in the built environment), and written by the municipality or relevant organisations.

4.4.1 Findings by dimension

Although, there is awareness towards inclusiveness, there are notable gaps in policy. Some aspects of inclusiveness are well incorporated in the overall smart governance. Each dimension has a certain aspect that is represented well, but also aspects that are mostly absent. The document indicators from chapter 2 are used here. “The extent to which” in the indicators relates to the frequency and conciseness of the quotes. The indicators are shown in table 9.

Table 9: document analysis indicators

Dimension	Aspect	Indicators:
<i>Social inclusion</i>	<i>Equal rights</i>	▪ The extent to which smart city policy deals with implementation of technology to address inequality.
	<i>Participation</i>	▪ The extent to which smart city policy deals with incorporating citizens in smart city development.
	<i>Safety</i>	▪ The extent to which smart city policy deals with increasing public safety through technology.
	<i>Social networks</i>	▪ The extent to which smart city policy deals with fostering and improving social networks for its citizens through smart projects.

<i>Spatial inclusion</i>	<i>Smart housing</i>	▪ The extent to which smart city policy deals with implementing smart devices in houses for all groups of people, especially the marginalized.
	<i>Smart infrastructure</i>	▪ The extent to which smart city policy deals with providing safe, affordable, clean, and inclusive smart infrastructure in the city.
	<i>Smart services</i>	▪ The extent to which smart city policy deals with providing smart services for its citizens (online platforms/portals)
	<i>Cleanliness</i>	▪ The extent to which smart city policy deals with creating a clean urban environment for the citizens.
<i>Economic inclusion</i>	<i>Employment</i>	▪ The extent to which smart city policy deals with providing good access to employment for the citizens and promoting a diverse and inclusive workspace.
	<i>Inclusive economic growth</i>	▪ The extent to which smart city policy deals with economic growth through smart city development and ways to inclusively spread wealth.
	<i>Economic vitality</i>	▪ The extent to which smart city policy deals with creating economically stable and resilient communities that reinforce the local environment.
	<i>Digital skill building</i>	▪ The extent to which smart city policy deals with providing citizens with programs to improve digital skills.

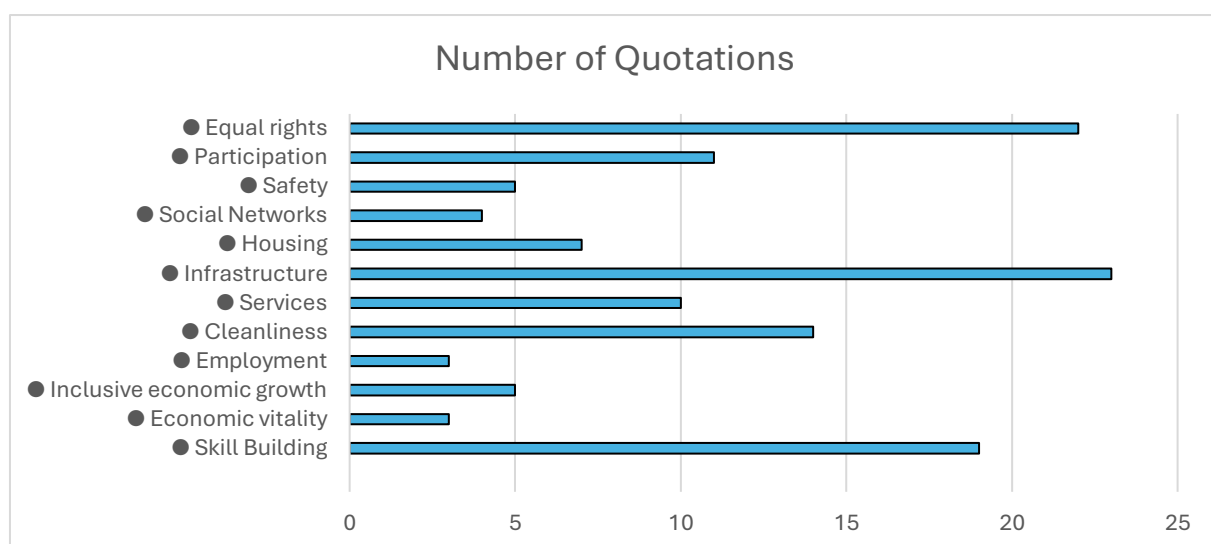
Table 10 and graph 5 below show how often the aspects emerge among all documents analysed; and the conciseness of those quotations, meaning how actionable they are or how vague they are (non-concise).

Table 10: frequency and conciseness of aspects

Aspect	Frequency	Conciseness
<i>Equal rights</i>	22	A mix of concise and less concise quotes. The first city to formulate aim to protect digital rights for all citizens, co-founder of urban coalition for digital rights. Also, they state that vulnerable citizens need to use government services more to derive greater benefit. Also, some not so concise quotes like “making tools and

		technology accessible for everyone”. But overall, actual concise intentions.
<i>Participation</i>	11	“Digitaal meedoen” “OpenStad” and public monitoring of digitization show concise measures the municipality takes to increase participation in smartening and digital innovation of the city.
<i>Safety</i>	5	The quotes gathered are not concise at all. Rhetoric like “focus on themes of safety” and “safety in the neighbourhood” are vague and not actionable.
<i>Social networks</i>	4	Again, the quotes are not concise. The quotes state the intention to help on the ground organisations and initiatives, but also a vague need to improve social cohesion through smart initiatives.
<i>Smart housing</i>	7	Though relatively few quotes, they are concise in actions to increase equality regarding smart housing, such as provision of laptops, computers, and internet at home for people who need it; and promise to implement solar panels on social housing
<i>Smart infrastructure</i>	23	A mixture of concise and less concise. Concise quotes like using technology to gain clear understanding and real-time impression of accessibility and focus on reusability and sharing. Also, non-concise quotes like “mobility that is affordable” and “we need transport for all Amsterdammers”.
<i>Smart services</i>	10	Concise quotes: Upscaling of Publicroam; building towards high-speed internet for everyone; and accessible and safe connection to online governmental services.
<i>Cleanliness</i>	14	The Aspect of cleanliness has concise, actionable quotes. They are about implementing feedback services for citizens regarding disposal systems and congestions; and systems to report waste.

<i>Employment</i>	3	Not concise. Some quotes on improving mobility (thus accessibility to jobs) and having education more focused on jobs of the future.
<i>Inclusive economic growth</i>	5	Not concise quotes. Show some intention to have economic growth within the boundaries of the planet; fostering startups; and upscaling initiatives with focus on economy and inclusiveness.
<i>Economic vitality</i>	3	A bit more concise regarding specific projects that focus on regional economic vitality such as Voedselbos and Tuinen van West.
<i>Skill building</i>	19	Mixture of both concise and less-concise quotes. A lot of emphasis on providing the citizens with the knowledge tools and capabilities to traverse the increasing digital urban landscape with training and access to a cyberbank.



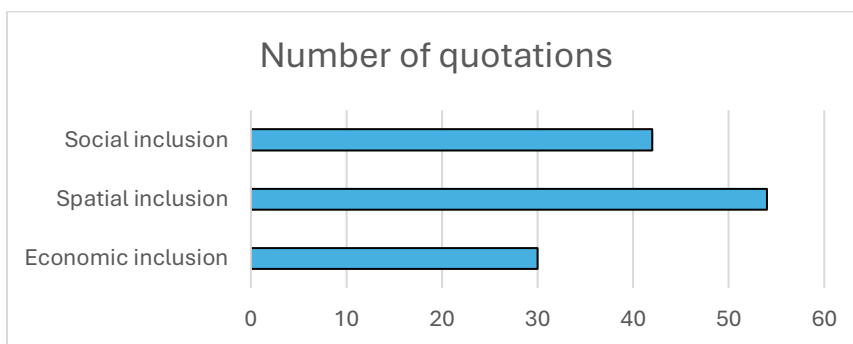
Graph 5: Number of quotations per inclusion aspect

The analysis reveals that **spatial inclusion** is the most well represented dimension in Amsterdam's smart city documents (graph 6). This is especially evident in the high number of references to smart *infrastructure* (23) and *cleanliness* (14), both supported by dedicated policy documents: Programma Smart Mobility (2019) and Amsterdam Plastic Smart City (2020). They include concise and actionable goals such as improving transport through real-time data, and citizen feedback tools for waste systems. *Smart housing* and *smart services* are

addressed to a lesser extent but do include concrete measures like distributing digital devices and expanding internet access.

Social inclusion follows, with *equal rights* (22) and *participation* (11) receiving most attention. Policies refer to Amsterdam's leadership in digital rights and initiatives like OpenStad and Digitaal Meedoen to increase participation. However, *safety* (5) and *social networks* (4) are underdeveloped and often discussed vaguely. This is surprising for safety as that seems a big topic in smart cities normally.

Economic inclusion is the least well integrated in Amsterdam's smart governance instruments. While *digital skill-building* (19) is emphasized, concisely creating "smart citizens" through training and policy, the other aspects *employment* (3), *inclusive economic growth* (5), and *economic vitality* (3) appear infrequently and lack conciseness. This suggests needing to strengthen economic inclusion in the embeddedness and intention.



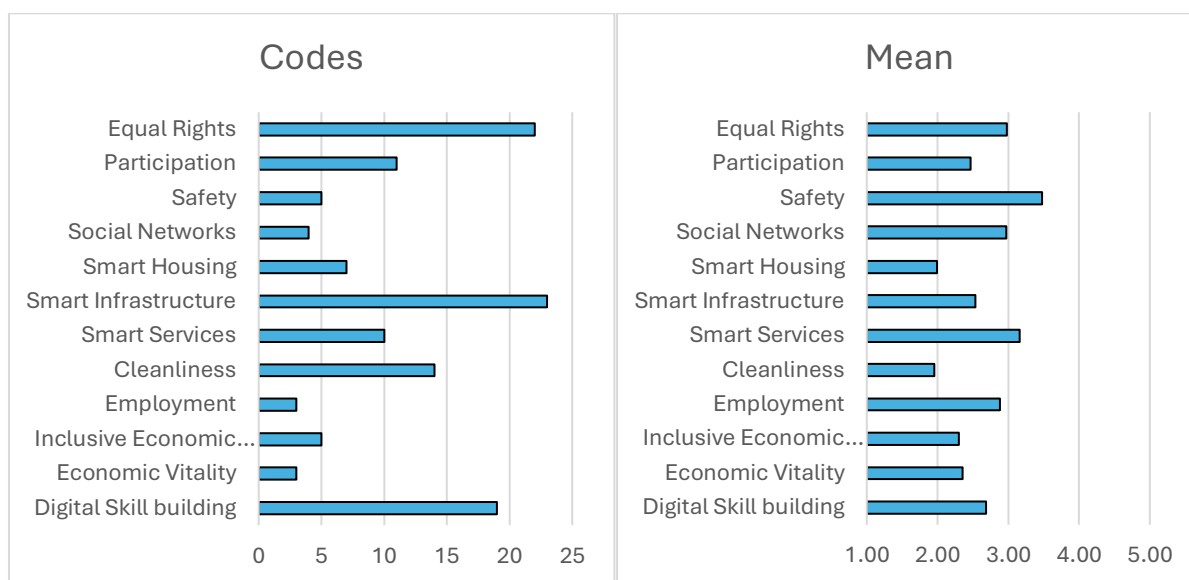
Graph 6: Number of quotations per dimension

Overall, these findings demonstrate that while the intention is there to improve inclusiveness when implementing smart innovation, especially in spatial inclusion, certain aspects remain largely underdeveloped, lacking, and vague. A more balanced and comprehensive approach is needed to ensure that the good intentions and actionable plans go to the right aspects of inclusiveness.

4.5 Comparing policy intentions with citizen perceptions

In this paragraph the bridge will be gapped between the independent variables (intention of smart governance instruments) and dependent variables (perceived inclusion in the smart city of Amsterdam). This will be done by comparing the robustness of the documents to the outcomes of perceived inclusion by the citizens of Amsterdam. The aspects, from the framework, are compared to each other. Of course, these findings will not be causal as the

document analysis reveals intent, but not the actual link between instruments and outcomes. Still, the patterns of alignment or misalignment between governance instruments and citizen experiences are valuable and suggest certain implications. Graphs 7 and 8, and Table 11 show the comparison of number of codes, the content of them, and the perceived inclusion of relevant aspects. These aspects link back to the framework and document analysis.



Graph 7: Number of codes per aspect

Graph 8: Likert score average per aspect

Table II: Content of the actionable instruments and perceived outcome of inclusion per aspect

Aspect	Instruments/actionable quotations	Perceived outcome of inclusion
<i>Equal rights</i>	- Amsterdam is among the parties working on a Digitaal Meedoen ('get involved online') pilot being organised by the central government. - The municipality is paying more attention to the diversity within Amsterdam's society in its digitization efforts. There is increased focus on minority groups and differences between groups in the use of data, algorithms, and technology by the municipality. - Amsterdam was one of the first cities to formulate its aim of protecting the digital rights of its citizens and is the co-founder of the urban coalition for digital rights.	2.98

<i>Participation</i>	• To reduce digital inequality by creating the conditions under which people can participate, such as access to the internet and pooling resources for offering online help where it is needed. • Involving stakeholders and incorporating diverse perspectives: citizens, experts, and other stakeholders can directly participate in discussions about the municipality's digitization. Attention is given to the diversity of Amsterdam's society in this process.	2.47
<i>Safety</i>	• We want to be a city with a high level of road safety, with more space for pedestrians and bicycles.	3.48
<i>Social Networks</i>	• ...The extent to which specific areas of a playground promote bullying or foster cooperative play is an important factor in determining social cohesion within a neighbourhood.	2.97
<i>Smart housing</i>	• ... through the donation of City Council laptops to be reused, and a financial contribution... • This will enable Amsterdam's residents to access laptops and support on a structural basis. You could compare the Cyberbank with a food bank, except that it has refurbished laptops and support for digital queries. • National policy is needed to ensure that technology and tools are made accessible to everyone, regardless of education or social class.	1.99
<i>Smart infrastructure</i>	• By using new technology, we wish to ensure that the city is more accessible and easier to navigate, for everyone. • We are using new technology to gain a clearer understanding and, ultimately, a (nearly) real-time impression of accessibility in the city • ... mobility that is affordable • ...and areas with poor accessibility or where public transport and traffic are under pressure	2.54
<i>Smart services</i>	• Publicroam is being further upscaled in the city, and will be available at swimming pools, sports clubs, city and town halls, libraries, local community centres, schools and elsewhere. • Access to high-speed internet for everyone in Amsterdam through the creation of optic fibre networks. • The municipality and public services are accessible, understandable, and usable for everyone, regardless of a person's level of digital activity, both online and offline.	3.16
<i>Cleanliness</i>	• Various services to allow residents to report (bulk) waste for collection and to inform them about drop-off options.	1.96

	• Digital access systems that give residents and businesses access to containers for diapers, textiles, and organic waste (GFT), to prevent contamination of these waste streams, for example. • We support initiatives aimed at cleaning up plastic litter. This covers a wide spectrum.	
<i>Employment</i>	• Improved supply of mobility that is affordable, reliable and accessible to all. • Bridging the gap between education and the jobs of the future.	2.88
<i>Inclusive economic growth</i>	• ... and how we can improve the system of preventive warning signals relating to poverty and debt. • ... Large-scale application, with an economic perspective and inclusivity	2.30
<i>Economic vitality</i>	• ... Focus on regional economy. • In addition, the initiative promotes social cohesion between generations and different population groups, increases biodiversity in the forest, and makes the neighbourhood more climate-resilient.	2.35
<i>Digital skill building</i>	• Investing in after-school education programme with a focus on creativity and technology • we and our partners will help the people of Amsterdam develop the skills they need to continue participating, or indeed to access a computer or the internet in the first place. • Civil servants participating in digitization projects have the appropriate knowledge and skills to recognize ethical issues and contribute to moral judgment in cases of conflicting public values • Increasing the digital self-reliance of Amsterdam residents, including the knowledge and skills to use technology and the abilities to find, interpret, and use information.	2.68

The graphs and table show some patterns of alignment and misalignment. Positive alignment being where both instruments and outcome are high, Negative alignment is when both are low, Positive misalignment is when content of instruments is low, but perceived inclusion high, and negative misalignment is when instruments is high, but perceived inclusion low, indicating either that the instruments haven't had effect on the outcome of perceived inclusion, or the instruments aren't sufficient. The alignment/misalignment can be seen in table 12 with explanation.

Table 12: *Alignment/misalignment table instruments vs. perceived inclusion*

Aspect	Alignment	Explanation
<i>Equal rights</i>	● Positive alignment	For the aspect equal rights, the municipality and other relevant organizations have put a lot of emphasis in their policy and intent. They have specific programmes like “Digitaal Meedoen” and specific actions like founding “the urban coalition for digital rights”. This is also reflected in the composite score for perceived inclusion among citizens, which scored relatively high with a 2.88.
<i>Participation</i>	● Negative misalignment	Even though the municipality puts a lot of emphasis on the topic of participation as well, the user/citizen score on perceived inclusion was considerably lower. The intent is to get citizens involved in digitization strategies and developments (table 11), but the citizens don’t experience this in practice.
<i>Safety</i>	● Positive misalignment	The misalignment here is “positive” as the smart documents and instruments don’t emphasize safety much at all. Mainly helping with road safety, but not security like surveillance, but the citizens do feel overwhelmingly relatively safe, compared to other scores.
<i>Social Networks</i>	● Positive misalignment	Again, this isn’t emphasized much with smart governance instruments, as the actionable quotations are scarce and not specific (table 11), citizens do feel relatively connected to their local peers.
<i>Smart housing</i>	● Negative alignment	The actionable instruments are relatively specific in the documents (donation of laptops and smart devices), but there are not a lot of instruments. Respectively, the citizens experience a lack of smart housing inclusion, as very few people have received these types of help, lower income people included. This aspect needs more attention in policy and strategy.
<i>Smart infrastructure</i>	● Negative misalignment	Actionable instruments for this aspect are high. There is a dedicated policy document, and it has the highest number of quotations. Still, people experience (smart) infrastructure as inaccessible and expensive, even though these are concrete intents of smart infrastructure instruments (table 11: “mobility that is affordable”; “...accessible and easier to navigate for everyone”). This shows that the strategy has not taken effect, or it isn’t good enough. The actionable quotes aren’t specific programmes or actionable plans, so this could be improved.

<i>Smart services</i>	● Positive alignment	The alignment here is positive. There are very specific plans like Publicroam, provision of high-speed internet for everyone, and accessibility of digital services and easiness to use. On the perceived outcome, the public also responded relatively positive with a composite score of 3.16. This shows a positive pattern of intent and outcome.
<i>Cleanliness</i>	● Negative misalignment	The misalignment here is big in a negative way. The aspect of cleanliness of the city has one of the most actionable quotations, which are also specific. Stuff like smart services to detect or report waste are implemented, but the people experience an unclean city, as this aspect has one of the lowest composite scores. Either the instruments haven't taken effect, or they aren't sufficient. Either way, something to keep in mind for the municipality.
<i>Employment</i>	● Positive misalignment	Actionable quotations are few, and related to good connection to jobs, and alignment of education and jobs of the future, and they are also not specific, but this aspect is responded to relatively well by the citizens.
<i>Inclusive economic growth</i>	● Negative alignment	Inclusive economic growth has a large negative alignment. Both smart governance instruments are deemed low (few actionable quotations and not specific: e.g. sentences on "preventing poverty and debt with smart systems") and it is also negatively experienced by the citizens. In the future the municipality and organizations need to put focus here to create a more inclusive smart city.
<i>Economic vitality</i>	● Negative alignment	Again, this is not focused on in the documents via smart governance instruments. All though there are more specific actions and plans (table 11: project about greening that increases social cohesion in a specific neighbourhood) the number of instruments is low. This is also reflected in the perceived score of the citizens as they feel a lack of inclusive neighbourhood practices are taking place.
<i>Digital skill building</i>	● Positive alignment	The municipality and other organizations put a lot of emphasis on digital skill building with specific and less specific instruments: after-school programmes focused on technology, help the people of Amsterdam develop the skills they need, and increasing digital self-reliance of residents. This is also reflected in the scores of the

		citizens as they feel their digital skills are at a good level overall, and some have had education or training specific to digital skills.
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Overall, as seen in the graphs and table, the comparison between smart governance instruments and perceived level of inclusion reveals patterns of both alignment and misalignment across social, spatial, and economic inclusion. Where smart strategies are plentiful, specific, and actionable, such as in equal rights, smart services, and digital skill building, citizens tend to report higher levels of inclusion. This would suggest that well-implemented governance instruments indeed (partially) translate to practical experiences. Conversely, negative misalignments, such as in participation, smart infrastructure, and cleanliness highlight a disconnect between intent and perceived reality. This can be the case because intent was not translated into concise measures, overall dissatisfaction by the citizens creates a negative perception, or the problem is larger than smart innovation only is able to tackle (the problem is also elsewhere in public administration). Meanwhile, aspects such as safety, social networks, and employment show higher perceived inclusion even when they aren't tackled as much in smart governance documents, possibly due to factors outside of those documents. Most noticeably, the consistent low scores of economic aspects such as inclusive economic growth and economic vitality (and parts of smart housing and smart infrastructure) in both smart governance presence and perceived level of inclusion underline that there are areas of inclusiveness where the government needs to do something actively. Even though the links between intent and perception aren't causal, results indicate that, while Amsterdam's smart city efforts address certain inclusion goals, others remain underdeveloped or operationalized unsuccessfully, especially on the economic inclusion front.

4.6 General conclusion

This study reveals that inclusion within Amsterdam's smart city is unevenly experienced across dimensions and across demographic groups. These findings show a complex picture of how inclusiveness is perceived in the smart city of Amsterdam and how well these perceptions align with intentions embedded in smart governance instruments. While smart governance instruments show rhetorical commitment to inclusiveness, their impact isn't always reflected in the lived experiences of citizens, especially when it comes to spatial and economic inclusion. Social inclusion scores were relatively higher, mainly when governance instruments were specific and actionable. However, gaps emerge in areas like participation,

smart infrastructure, and cleanliness, where the formal strategies are there, but citizen responses were negative. The most glaring gap in both governance instruments and lived experiences is in economic inclusion, where instruments were largely absent or general/vague and perceived inclusion was low. This is strengthened by regression results that show that a lower level of income has a negative effect on perceived inclusion, especially economic inclusion. Furthermore, age was shown to be a significant predictor. As age goes up, perceived inclusion goes down. Vulnerable groups need to be taken into account when designing specific smart governance instruments.

Overall, this chapter highlights that, while Amsterdam has made steps in certain areas of inclusive smart urban development, some areas remain inconsistently implemented or insufficiently addressed. These findings indicate a need for more targeted, inclusive, and actionable smart governance instruments moving forward.

Chapter 5: Discussion

This chapter interprets and contextualizes the empirical findings presented in the previous section. Furthermore, it will go back into the framework of the thesis, the strengths and shortcomings of it. Finally, the larger implications of this study will be discussed.

The fact that the two major predictors of perceived inclusion were age and income, and to a lesser extent some other predictors were physical disability and highest level of education shows some interesting patterns. There seemed to be ‘groups’ of characteristics that showed more similarities between them than others (age & physical disability; income & education; age & Christianity). This demonstrates that these demographics are not homogenous. Some characteristics are more closely associated, some people have multiple characteristics that are associated with a lower perceived level of inclusiveness, some only one. This shows that social and personal identities are unique in every being and the combination of them in one person creates their own experiences of inclusion or exclusion. This intersectionality like has been researched extensively (Fischer et al., 2020; Thomas & Macnab, 2019). This research doesn’t negate this aspect of discrimination or exclusion, but the statistical data can represent a simplified version of people’s own reality and experiences. To add to this, gender overall didn’t play much of a significant role in predicting perceived level of inclusion, but weaker trends (such as safety for women) suggest that they still influence individual experiences in more nuanced ways.

Furthermore, the finding that lower-income people reported lower levels of inclusion, combined with consistently low scores for economic inclusion, reflects theoretical critique that neoliberal principles in smart city development, such as corporate dominance in urban innovation, tend to produce unequal benefits (Engelbert, 2019). This pattern appears to hold true in the case of Amsterdam. This is further enforced by what Noori et al. (2020) stated that, compared to other smart cities, Amsterdam takes a more business minded approach, focused on innovation. Or as Hollands (2015) typified it, a corporate smart city.

The findings from this study largely support the existing conceptual frameworks developed by the World Bank (2015), Waghmare & Singhal (2022), and Tekin & Dikmen (2024), which emphasize the need to analyse the social, spatial, and economic dimensions of inclusion as key to evaluate smart city outcomes. Especially akin to results by Tekin & Dikmen (2024), both London in their research and Amsterdam in this study put the most emphasis in their governance instruments on spatial inclusion. While their study further goes into what the role

of the smart city should be regarding inclusiveness, this study aimed to find out who in the city feels left out by smart development. The answers, that socio-economic characteristics have significant effect on the feeling of inclusiveness, tends to match existing literature on the topic of inclusiveness in the smart city at large. As Chib et al. (2022) state, in the smart city, both increased efficiency and improved wellbeing are end goals. They aren't mutually exclusive, but we must pay extra attention to the wellbeing of all its citizens to actually meet the latter end goal. The question that Tekin & Dikmen (2024) raise about the role of the smart city on inclusiveness is an interesting one.

People from the survey reported having trouble with the increased coercion of having to use digital products to participate in urban life. One respondent noted in extra comments that they find it horrible that everything must be digital in today's society. They don't own a laptop and don't participate in online pay, which makes everything more difficult. One interviewee from the AMS-institute echoed this opinion, that it poses a significant risk that pretty much everything in the public sphere requires some sort of connection to technology, whether it is buying a ticket for something or renting a bike. According to him, the implementation of smart technologies under time and budget constraints inevitably results in solutions that work for 95% of citizens, while leaving the remaining 5% unable to use them.

This form of "smartness" where everything needs to be digitized proposes a serious risk for the population. The question should be that smart city is a relic of the past, or that smartness needs to be redefined. There is a reason why the initiative by the Amsterdam Economic Board "Amsterdam Smart City", which aimed to provide a neutral platform for fostering smart initiatives and bring stakeholders together, rebranded to Amsterdam InChange. According to an old director of the platform, the term smart city is not as in style as it once was, and citizens tend to not react positively to a city that is "smart". She noted that partners were also not necessarily positive about the term "smart city" when asked who wants to live in a smart city. People want to live in a green city. A "nice" city. A walkable city. This is why for example Amsterdam has steered away a bit from the term. It also links back to the "muddiness" of the term smart city. As it evolved, from techno-centric to human-centric (Hu et al., 2023) it became a term that tried to be everything and, in the process, lost the specificity that it used to have (Gracias et al., 2023). And even though Amsterdam seems to steer away from the term smart city as a branding tool, the fact remains that technology and IT will play a role in urban governance for the foreseeable future.

Whether or not the term smart city is still as relevant as it once was, this study offers valuable insights into the dynamics of smart city initiatives, powered by smart governance documents and instruments, and the related perceived inclusiveness, as experienced by the population of Amsterdam. But it is not without its limitations. For one, the design of the research made the link between independent and dependent variable difficult as they were studied with two different types of data and analysis. Also, some survey questions might have been asked in a way that steered answers in a certain direction which could have influenced the outcome. The compositing of those questions into a social, spatial, and economic inclusion score may have oversimplified results and gone past some more nuanced findings, which may also have been reasons why certain outcomes were surprising (lack of gender or ethnicity).

Furthermore, due to time constraints, the general sample isn't as representative as it could be. Some neighbourhoods especially are under and overrepresented which limits the conclusions that can be made about spatial discrimination. But this is important to research as limited results in this aspect in this study show: place matters. Also, because the framework was as broad as it was to cover the entirety of inclusiveness, it wasn't as deeply operationalized as it could be, due to time. To cover the entirety of every aspect within all three dimensions, more indicators could be identified and operationalized. Furthermore, with more time, longitudinal data could be useful to assess how perceptions of inclusiveness have changed/will change over time. This would build on the work of this study. One could also zoom in to examine more neighbourhood level dynamics, and specific smart initiatives and their effect on (perceived) inclusiveness. But overall, these findings highlight the complex interplay between the intention of smart governance instruments and inclusiveness, offering critical insights and future research.

Chapter 6: Conclusion

This thesis aimed to explore how well the intention of inclusiveness was embedded in Amsterdam's smart governance instruments, and how this is reflected in the perceived inclusiveness of its citizens with the central research question: *How are the three dimensions of (social, spatial and economic) inclusiveness perceived by the citizens of the smart city of Amsterdam and how well do these perceptions align with intentions embedded in smart governance instruments of the city?*

By extrapolating, analysing, integrating, and synthesizing document, interview, and survey data the study aimed to provide a thorough answer for this question.

The study's findings reveal that inclusion within Amsterdam's smart city is addressed in documents and experienced among citizens unevenly. While certain aspects of social, spatial, and economic inclusion are well developed within smart governance instruments, such as transport, equal rights, and digital skill building, other aspects are largely absent, like social networks, smart services, and inclusive economic growth in the smart city. Additionally, there is some misalignment between what is addressed in documents and what is experienced among citizens. While smart infrastructure and cleanliness are addressed thoroughly, this is negatively experienced by Amsterdammers. Furthermore, there is a discrepancy between demographic groups and their perception of their own level of inclusiveness. Lower income people and elderly people reported lower levels of perceived inclusiveness mainly due to lack of digital skills, lack of perceived economic fairness in the smart city, and lower levels of accessibility in the public domain.

Theoretically, this thesis contributes to the ongoing discourse about inclusive urban governance in the digital age by adapting and applying a framework based on the frameworks created by the World Bank (2015), Waghmare & Singhal (2022), and Tekin & Dikmen (2024). The results reinforce benefit of analysing inclusiveness in the lens of smart cities through three dimensions, social, spatial, and economic inclusion. In practice, this thesis offers a valuable tool for analysing where gaps form in governance documents, and where perceived exclusion exists, and among whom perceived exclusion exists. Insights that are relevant for policy makers.

That being said, the study does have its limitations, such as time constraints leading to a less representative sample size and distribution of some demographic characteristics. Also, time

constraints restricted the operational depth a framework catered to inclusiveness might need or deserve.

Future governance developments should put emphasis on actively identifying and involving demographic groups at risk of being excluded, in decision making, improving participatory mechanisms in smart urban governance, and developing an in-depth and comprehensive inclusiveness framework for future initiatives and policies. Longitudinal research is also recommended to analyse how perceptions of inclusiveness change as inclusive governance possibly improves. More practical recommendations are displayed in table 13 below.

Table 13: Policy recommendations to ensure inclusiveness

Recommendation	Explanation	Target group/focus
<i>1. Operationalize inclusion in concrete multidimensional terms.</i>	Inclusion must be clearly defined and applied across social, spatial, and economic dimensions in policy.	Policy actors, institutional researchers, other officials
<i>2. Build a dedicated inclusion framework into smart governance tools</i>	A well developed and robust framework ensures good integration of inclusiveness practices in policy.	Policy actors, institutional researchers, other officials
<i>3. Explicitly identify, target, and address at risk demographic groups</i>	Policies should mention, focus, and target groups that are at risk of being excluded, specific to what it is trying to address (economic inclusion > lower income people; digital skills > elderly)	Marginalised and vulnerable residents, specifically targeted
<i>4. Involve target groups directly in co-creation of smart strategies</i>	True inclusion requires actual participation in shaping initiatives, beyond superficial consultation.	Elderly, low-income, disabled, lower educated, spatially excluded neighbourhoods
<i>5. Improve communication and</i>	Low connection between citizens and officials	Citizens, especially digitally less skilled people

<i>outreach about smart initiatives</i>	suggests the need for more accessible, multilingual, and inclusive channels.	
6. <i>Ensure citizen engagement is systemic, and not only in pilot projects/testing labs</i>	Find ways to scale-up smart projects that are inclusive and engaging for all citizens, like Mancebo (2019) noted.	Citizens across all neighbourhoods in the city
7. <i>Increase transparency and awareness efforts (Valdez et al., 2021)</i>	Again, greater transparency builds trust between citizens and officials, which seems a general contemporary issue	Citizens, especially digitally less skilled people

As cities like Amsterdam increasingly make use of digital infrastructure and services, inclusiveness must be at the core of decision making, to make sure it doesn't become impossible for people at the margins to participate in urban life, and corporate interest fully usurps urban development.

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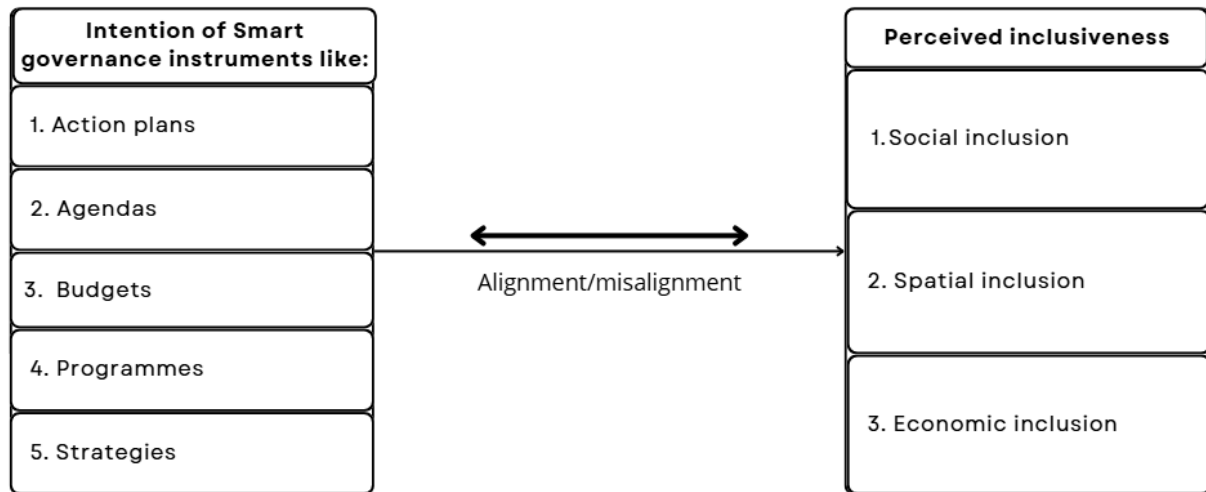
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Appendices

Appendix A: Conceptual model



Appendix B: Operationalization table

Concept/variable	Sub-variable	Definition	Indicator	Data Collection Method	Question	Unit of measure
Smart governance instruments	Strategy	A high-level plan designed to achieve the goals set out in a policy		Document analysis		Number of codes
Smart governance instruments	Action Plan	Breaks down a strategy or policy into concrete tasks and activities		Document analysis		Number of codes
Smart governance instruments	Programme	Coordinated set of projects or initiatives to achieve policy goals		Document analysis		Number of codes
Smart governance instruments	Vision	A long-term aspirational statement that describes what a government hopes to achieve in the future.		Document analysis		Number of codes

Social inclusion	Equal rights	Every individual, no matter who, has the same rights under the law.	• The extent to which citizens are aware of what their data is used for. • The extent to which citizens feel the city promotes diversity and inclusion.	Survey	• I know what personal data gets collected and what it is used for. Q4 • I feel I can keep up with technological developments in everyday life. Q6 • The city promotes a diverse and multicultural society. Q12	Likert scale
Social inclusion	Participation	The people taking part in public smart initiatives	• The extent to which citizens are aware and participating Amsterdam Smart City. • The acceptance of citizens in the use of their data to improve urban life.	Survey	• I am aware of what a smart city is. Q1 • I know of smart city projects in Amsterdam. Q2 • I have been asked to participate in smart city projects. Q3 • I am okay with my personal data being used to improve public services. Q5	Likert scale
Social inclusion	Safety	The feeling of being protected from danger, risk, or injury	• The perceived safety of Amsterdam citizens.	Survey	• I feel my neighbourhood is safe. Q7 • I feel safe while walking/traveling through Amsterdam. Q8	Likert scale
Social inclusion	Social networks	A set up web of social interactions and relationships	• The extent to which citizens are engaging in social networks such as events, seminars, or organizations. • The level of social cohesion citizens feel to their local community.	Survey	• I participate in organizations to improve my neighbourhood. Q9 • I often participate in local events (markets, seminars, gatherings) Q10 • I feel connected to my neighbourhood and neighbours. Q11	Likert scale

Spatial inclusion	Smart housing	The presence of smart appliances in people's homes	• The extent to which government-subsidized smart appliances gets adopted by citizens. • The perceived availability of inclusive support programs for smart home technology installation.	Survey	• I have used government programmes to obtain used laptops or other technology. Q12_1 • I make use of smart technology at home (doorbell, thermometer, solar panels, ev-charger) Q12_2 • The government or an organization has approached me to help install smart technology (thermometer, solar panels) Q12_3	Likert scale
Spatial inclusion	Smart inclusive infrastructure	The presence of smart roads, transport, parks for all	• The extent to which citizens feel public transport is affordable. • The extent to which citizens feel public transport is accessible for elderly/disabled. • The extent to which citizens feel infrastructure is accessible for everyone.	Survey	• I feel public transport is affordable. Q12_7 • I feel public transport in Amsterdam is of good quality. Q12_8 • I feel public transport is accessible for disabled/elderly. Q12_9 • I feel it is easy enough for everyone to move around Amsterdam. Q12_10	Likert scale
Spatial inclusion	Smart services	Physical and digital services based on data and easy to access for all	• The extent of use and the perceived difficulty of using the municipality's online environment (Mijn Amsterdam).	Survey	• I always have access to high speed internet if I'm in Amsterdam. Q12_4 • I use the online environment of the municipality (Mijn Amsterdam) often. Q12_5	Likert scale

			The perceived quality of high speed internet in Amsterdam.		I find it easy to use Mijn Amsterdam. Q12_6	
Spatial inclusion	Cleanliness	State of city being clean or kept clean	Public satisfaction with cleanliness in their neighbourhood and city in general.	Survey	- The city of Amsterdam is clean enough. Q12_11 - Garbage service is good enough. Q12_12	Likert scale
Economic inclusion	Employment	The state of easy to access and plenty jobs for everyone	- Perceived quality of roads and transportation. - Perceived difficulties with digital tasks at work. - Perceived equality in labor market in Amsterdam.	Survey	- It is easy to travel to my job/school/education. Q13_1 - Job opportunities are equal for everyone. Q13_2 - I experience difficulties with digital aspects at work/school/education. Q13_3_reverse	Likert scale
Economic inclusion	Inclusive economic growth	Sufficient sharing of economic gain across everyone	Perceived fairness in economic policy implementation.	Survey	- I feel it is easy to get financial support from the government if needed. Q13_4 - Digital innovation is a risk for working people. Q13_5_reverse - The government gives enough attention to tackling poverty. Q13_6	Likert scale
Economic inclusion	Economic vitality	A resilient and strong local economic status among neighbourhood	Perceived fairness in attention to localized urban development.	Survey	- My neighbourhood receives enough investment in infrastructure to improve it. Q13_7 - My neighbourhood has enough jobs/businesses/companies. Q13_8	Likert scale

Economic inclusion	Skill building	The help to acquire new skills for all citizens	• Digital literacy among citizens in Amsterdam. • Perceived accessibility to lifelong learning programs related to technology. • Level of willingness among citizens to lifelong learning.	Survey	• My digital skills are at a good level. Q13_9 • The municipality offers enough help with improving digital skills. Q13_10 • I have used training/education purely to improve my digital skills. Q13_11 • I feel compelled/forced to keep improving my digital skills to keep up with technological developments. Q13_12_reverse	Likert scale
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Appendix D: Interview guide

Introductie (5 min)

1. Introductie & Doel:

- Bedankt dat u de tijd neemt om met mij te spreken vandaag. Dit interview maakt deel uit van mijn onderzoek naar hoe de smart city strategieën van Amsterdam inclusiviteit beïnvloeden.
- Ik ben vooral geïnteresseerd in uw inzichten als “ “ evenals uw ervaringen in dit veld.
- Het interview zal ongeveer 30 a 40 minuten duren. Gaat u akkoord met het opnemen van dit gesprek?

2. Achtergrond van de geïnterviewde:

- Kunt u uzelf kort introduceren en uw ervaring met Smart City in Amsterdam toelichten?
- Wat waren uw belangrijkste verantwoordelijkheden in deze functie?
- Hoe speelde inclusiviteit een rol in uw werk?

Hoofdgesprek (30-40 min)

1. Algemene Visie op Inclusiviteit in Smart Cities

- Ik las was over het programma 2022-26 op de website. Is er een soort programma document, beleid vanuit Inchange/ASC dat in het begin gecreëerd is en waaraan gehouden wordt? Of hoe werkt dat precies?
- Aan welke beleids- of strategiedocumenten houdt Amsterdam Smart City zich bij het vormgeven van het smart city-programma?
- Hoe zou u “inclusiviteit” definiëren in de context van smart city-initiatieven?
- In hoeverre is inclusiviteit volgens u een prioriteit geweest in de smart city strategieën van Amsterdam?
- Wat ziet u als de grootste obstakels voor het bereiken van inclusiviteit in het smart city-beleid van Amsterdam?

Sociale Inclusie

- Hoe beïnvloeden smart city-initiatieven verschillende sociale groepen (bijv. gemarginaliseerde gemeenschappen, ouderen, mensen met een laag inkomen)?
- Zijn er voorbeelden van smart city-projecten in Amsterdam die met succes sociale inclusie hebben bevorderd?
- Heeft u gevallen waargenomen waarin bepaalde gemeenschappen onbedoeld werden uitgesloten? Zo ja, waarom denkt u dat dit gebeurde?

3. Ruimtelijke Inclusie

- Denkt u dat de voordelen van smart city-initiatieven ongelijk verdeeld zijn over verschillende wijken?
- Hoe denkt u dat smart city infrastructuur ... inclusiviteit beïnvloeden
- Hoe kunnen smart city-initiatieven ervoor zorgen dat alle delen van Amsterdam gelijk profiteren?

4. Economische Inclusie

- Creëren smart city-projecten nieuwe economische kansen voor alle burgers, of profiteren vooral bepaalde groepen?
- Hoe beïnvloedt de betrokkenheid van private bedrijven bij smart city-initiatieven de inclusiviteit?
- Wordt er veel aandacht besteed aan het trainen of informeren van gemarginaliseerde groepen zoals ouderen over innovatieve technologie?

5. Beleid en Bestuur

- Hoe inclusief is volgens u het beleidsvormingsproces voor smart city-initiatieven in Amsterdam?
- Wat zou u veranderen aan de manier waarop smart city-beleid wordt ontworpen om inclusiviteit te verbeteren?

Conclusie (5-10 min)

- Op basis van uw ervaring, denkt u dat Amsterdam de juiste richting op gaat met betrekking tot inclusiviteit in smart city-initiatieven?
- Welke adviezen zou u geven aan beleidsmakers of om inclusiviteit te waarborgen?
- Kent u andere mensen die interessant zouden zijn om te interviewen over dit onderwerp?
- Is er iets dat we nog niet hebben besproken, maar dat u belangrijk vindt om te benoemen?

Afsluiting:

- Nogmaals bedankt voor uw tijd en inzichten. Als u na dit gesprek nog aanvullende gedachten heeft, kunt u mij gerust benaderen.

Appendix E: Questions

Social inclusion
Q1: I am aware of what a smart city is.
Q2: I know of smart city projects in Amsterdam.
Q3: I have been asked to participate in smart city projects.
Q4: I know what personal data gets collected and what it is used for.
Q5: I am okay with my personal data being used to improve public services like public transport and safety.
Q6: I feel I can keep up with technological developments in everyday life.
Q7: I feel my neighbourhood is safe.
Q8: I feel safe while walking/traveling through Amsterdam.
Q9: I often participate in local events (markets, seminars, gatherings)
Q10: I participate in organizations to improve my neighbourhood.
Q11: I feel connected to my neighbourhood and neighbours.
Q12: The city promotes a diverse and multicultural society.
Spatial inclusion
Q13: I have used government programmes to obtain used laptops or other technology.
Q14: I make use of smart technology at home
Q15: The government or an organization has approached me to help install smart technology (thermometer, solar panels)
Q16: I always have access to high speed internet if I'm in Amsterdam.
Q17: I use the online environment of the municipality (Mijn Amsterdam) often.
Q18: I find it easy to use Mijn Amsterdam.
Q19: I feel public transport is affordable.
Q20: I feel public transport in Amsterdam is of good quality.
Q21: I feel public transport is accessible for disabled/elderly.
Q22: I feel it is easy enough for everyone to move around Amsterdam.
Q23: The city of Amsterdam is clean enough.
Q24: Garbage and waste service is good enough in Amsterdam.
Economic inclusion
Q25: It is easy to travel to my job/school/education.
Q26: Job opportunities are equal for everyone.
Q27: I experience difficulties with digital aspects at work/school/education.
Q28: I feel it is easy to get financial support from the government if needed.
Q29: Digital innovation is a risk for working people.
Q30: The government gives enough attention to tackling poverty.
Q31: My neighbourhood receives enough investment in infrastructure to improve it.
Q32: My neighbourhood has enough jobs/businesses/companies.
Q33: My digital skills are at a good level.
Q34: The municipality offers enough help with improving digital skills.
Q35: I have used training/education purely to improve my digital skills.
Q36: I feel forced to keep improving my digital skills to keep up with technological developments.

Appendix F: Surveys

Survey Amsterdam

Personal information

NEIGHBOURHOOD OF RESIDENCE

AGE

HIGHEST LEVEL OF EDUCATION

GENDER: ☐ Male ☐ Female ☐ Other ☐ Prefer not to answer

MIGRATION-BACKGROUND

☐ Dutch background ☐ Non-western migrationbackground ☐ Western migrationbackground

COUNTRY OF ORIGIN

FIRST LANGUAGE

RELIGION

☐ Christianity ☐ No religion ☐ Islam ☐ Other

PHYSICAL DISABILITY

☐ Yes ☐ No

YEARLY INCOME ☐ Less than €10.000 ☐ Between €10.000 and €30.000 ☐ Between €30.000 and €50.000 ☐ Between €50.000 and €100.000 ☐ More than €100.000

INTRODUCTORY QUESTIONS:

How would you rate your digital skills?

Bad Mediocre Average Good Excellent

☐ ☐ ☐ ☐ ☐

What kind of devices do you have in your home?

WiFi-router Computer /laptop Smart energy meter Smart thermostat Smart lighting Smart doorbell Charger for electric vehicles Virtual assistant

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

OPINIONQUESTIONS:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
-I am aware of what a smart city is.	☐	☐	☐	☐	☐
-I know of smart city projects in Amsterdam.	☐	☐	☐	☐	☐
The use of my data in order to improve public services is fine by me	☐	☐	☐	☐	☐
-I have been asked to participate in smart city projects.	☐	☐	☐	☐	☐
I am okay with my personal data being used to improve public services.	☐	☐	☐	☐	☐
-I know what personal online data gets collected and what it is used for.	☐	☐	☐	☐	☐
-I feel I can keep up with technological developments in everyday life.	☐	☐	☐	☐	☐
The city promotes a diverse and multicultural society.	☐	☐	☐	☐	☐
-I feel my neighbourhood is safe.	☐	☐	☐	☐	☐
I feel safe while walking/traveling through Amsterdam.	☐	☐	☐	☐	☐
-I participate in organizations to improve my neighbourhood.	☐	☐	☐	☐	☐
-I often participate in local events (markets, seminars, gatherings)	☐	☐	☐	☐	☐
I feel connected to my neighbourhood and neighbours.	☐	☐	☐	☐	☐

OPINIONQUESTIONS:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
-I have used government programmes to obtain used laptops or other technology.	☐	☐	☐	☐	☐
-I make use of smart technology at home (doorbell, thermometer, solar panels, ev-charger)	☐	☐	☐	☐	☐
The government or an organization has approached me to help install smart technology (thermometer, solar panels)	☐	☐	☐	☐	☐
-I feel public transport is affordable.	☐	☐	☐	☐	☐
-I feel public transport in Amsterdam is of good quality.	☐	☐	☐	☐	☐
-I feel public transport is accessible for diasabled/elderly.	☐	☐	☐	☐	☐
I feel it is easy enough for everyone to move around Amsterdam.	☐	☐	☐	☐	☐
-I always have access to high speed internet if I'm in Amsterdam.	☐	☐	☐	☐	☐
-I use the online environment of the municipality (Mijn Amsterdam) often.	☐	☐	☐	☐	☐
I find it easy to use "Mijn Amsterdam".	☐	☐	☐	☐	☐
-The city of Amsterdam is clean enough.	☐	☐	☐	☐	☐
Garbage service is good enough.	☐	☐	☐	☐	☐
-It is easy to travel to my job/school/education.	☐	☐	☐	☐	☐
-Job opportunities are equal for everyone.	☐	☐	☐	☐	☐
I experience difficulties with digital aspects at work/school/education.	☐	☐	☐	☐	☐
-I feel it is easy to get financial support from the government if needed.	☐	☐	☐	☐	☐
Digital innovation is a risk for the working class of the city	☐	☐	☐	☐	☐
The government gives enough attention to tackling poverty.	☐	☐	☐	☐	☐
-My neighbourhood receives enough investment in infrastructure to improve it.	☐	☐	☐	☐	☐
My neighbourhood has enough jobs/businesses/companies.	☐	☐	☐	☐	☐
-My digital skills are at a good level.	☐	☐	☐	☐	☐
-The municipality offers enough help with improving digital skills.	☐	☐	☐	☐	☐
-I have used training/education purely to improve my digital skills.	☐	☐	☐	☐	☐
I feel compelled/forced to keep improving my digital skills to keep up with technological developments.	☐	☐	☐	☐	☐

Final remarks: (optional)

Enquête Amsterdam

Persoonlijke informatie

WIJK OF BUURT WAAR IK WOON	LEEFTIJD	HOOGSTE VORM VAN EDUCATIE
	/	

GESLACHT:

MIGRATIE- ACHTERGROND:	☐ Nederlandse achtergrond ☐ Niet-westerse migratieachtergrond ☐ Westerse migratieachtergrond	LAND VAN HERKOMST
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MOEDERTAAL	RELIGIE	LICHAMELIJKE BEPERKING
	☐ Christelijk ☐ Geen religie ☐ Islam ☐ Anders	☐ Ja ☐ Nee

JAAR- INKOMEN:	☐ Minder dan €10.000 ☐ Tussen €10.000 en €30.000 ☐ Tussen €30.000 en €50.000 ☐ Tussen €50.000 en €100.000 ☐ Meer dan €100.000
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INTRODUCTIEVRAGEN:

Hoe goed kunt u overweg met technologie?

Slecht	Matig	Gemiddeld	Goed	Uitstekend
☐	☐	☐	☐	☐

Wat voor apparaten heeft u in huis?

Wifi-router	Computer /laptop	Slimme energie regelaar	Slimme thermostaat	Slimme verlichting	Slimme deurbel	Laadpaal voor elektrische auto	Virtuele assistent
☐	☐	☐	☐	☐	☐	☐	☐

MENINGSVRAGEN:

	Heel erg oneens	Oneens	Neutraal	Eens	Heel erg eens
Ik ben me ervan bewust wat een smart city is.	☐	☐	☐	☐	☐
Ik weet van smart city-projecten in Amsterdam.	☐	☐	☐	☐	☐
Ik ben gevraagd om deel te nemen aan smart city-projecten.	☐	☐	☐	☐	☐
Ik vind het goed dat mijn persoonlijke gegevens worden gebruikt om openbare diensten te verbeteren.	☐	☐	☐	☐	☐
Ik weet welke persoonlijke online gegevens worden verzameld en waarvoor ze worden gebruikt.	☐	☐	☐	☐	☐
Ik heb het gevoel dat ik technologische ontwikkelingen in het dagelijks leven kan bijhouden.	☐	☐	☐	☐	☐
De stad bevordert een diverse en multiculturele samenleving.	☐	☐	☐	☐	☐
Ik voel me veilig in mijn buurt of wijk.	☐	☐	☐	☐	☐
Ik voel me veilig tijdens het lopen/reizen door Amsterdam.	☐	☐	☐	☐	☐
Ik doe mee aan organisaties die mijn buurt of wijk verbeteren.	☐	☐	☐	☐	☐
Ik neem vaak deel aan lokale evenementen (markten, seminars, bijeenkomsten).	☐	☐	☐	☐	☐
Ik voel me verbonden met mijn buurt en bureu.	☐	☐	☐	☐	☐
Ik heb gebruikgemaakt van overheidsprogramma's om gebruikte laptops of andere technologie te verkrijgen.	☐	☐	☐	☐	☐

MENINGSVRAGEN:	Heel erg oneens	Oneens	Neutraal	Eens	Heel erg eens
Ik maak thuis gebruik van slimme technologie (deurbel, thermometer, zonnepanelen, laadpaal).	☐	☐	☐	☐	☐
De overheid of een organisatie heeft mij benaderd om te helpen met de installatie van slimme technologie	☐	☐	☐	☐	☐
Ik vind het openbaar vervoer betaalbaar.	☐	☐	☐	☐	☐
Ik vind het openbaar vervoer in Amsterdam van goede kwaliteit.	☐	☐	☐	☐	☐
Ik vind het openbaar vervoer toegankelijk voor mensen met een beperking/ouderen.	☐	☐	☐	☐	☐
Ik heb het gevoel dat het eenvoudig genoeg is voor iedereen om zich door Amsterdam te verplaatsen.	☐	☐	☐	☐	☐
Ik heb altijd toegang tot snel internet als ik in Amsterdam ben.	☐	☐	☐	☐	☐
Ik gebruik de online omgeving van de gemeente (Mijn Amsterdam) vaak.	☐	☐	☐	☐	☐
Ik vind "Mijn Amsterdam" makkelijk te gebruiken.	☐	☐	☐	☐	☐
De stad Amsterdam is schoon genoeg.	☐	☐	☐	☐	☐
De afvalinzameling is goed genoeg in Amsterdam.	☐	☐	☐	☐	☐
Het is makkelijk om naar mijn werk/school/opleiding te reizen.	☐	☐	☐	☐	☐
Banenkansen zijn voor iedereen gelijk.	☐	☐	☐	☐	☐
Ik ervaar moeilijkheden met digitale aspecten op werk/school/opleiding.	☐	☐	☐	☐	☐
Ik heb het gevoel dat het makkelijk is om financiële steun van de overheid te krijgen als dat nodig is.	☐	☐	☐	☐	☐
Digitale innovatie is een risico voor de arbeiders van de stad	☐	☐	☐	☐	☐
De overheid besteedt genoeg aandacht aan het aanpakken van armoede.	☐	☐	☐	☐	☐
Mijn buurt of wijk krijgt voldoende investeringen in infrastructuur om deze te verbeteren.	☐	☐	☐	☐	☐
Mijn buurt of wijk heeft genoeg banen/bedrijven/ondernemingen.	☐	☐	☐	☐	☐
Mijn digitale vaardigheden zijn op een goed niveau.	☐	☐	☐	☐	☐
De gemeente biedt voldoende hulp bij het verbeteren van digitale vaardigheden.	☐	☐	☐	☐	☐
Ik heb trainingen/opleidingen gevolgd puur om mijn digitale vaardigheden te verbeteren.	☐	☐	☐	☐	☐
Ik voel me gedwongen om mijn digitale vaardigheden te blijven verbeteren om technologische ontwikkelingen bij te houden.	☐	☐	☐	☐	☐

Extra opmerkingen:

Appendix H: Regression syntaxes

* Run 36 regressions with Buurt dummy variables as independent variables.

REGRESSION /DEPENDENT=Q11_1 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q11_2 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q11_3 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q11_4 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q11_5 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q11_6 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q11_7 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q11_8 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q11_9 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q11_10 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q11_11 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q11_12 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q12_1 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q12_2 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q12_3 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q12_4 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q12_5 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q12_6 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q12_7 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q12_8 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q12_9 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q12_10 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q12_11 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q12_12 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q13_1 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

REGRESSION /DEPENDENT=Q13_2 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.
 REGRESSION /DEPENDENT=Q13_3 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.
 REGRESSION /DEPENDENT=Q13_4 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.
 REGRESSION /DEPENDENT=Q13_5 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.
 REGRESSION /DEPENDENT=Q13_6 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.
 REGRESSION /DEPENDENT=Q13_7 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.
 REGRESSION /DEPENDENT=Q13_8 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.
 REGRESSION /DEPENDENT=Q13_9 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.
 REGRESSION /DEPENDENT=Q13_10 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.
 REGRESSION /DEPENDENT=Q13_11 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.
 REGRESSION /DEPENDENT=Q13_12 /METHOD=ENTER Buurt_2 Buurt_3 Buurt_4 Buurt_5 Buurt_6 Buurt_7.

* Run 36 linear regressions with Religie dummies as predictors.

REGRESSION /DEPENDENT=Q11_1 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
 REGRESSION /DEPENDENT=Q11_2 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
 REGRESSION /DEPENDENT=Q11_3 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
 REGRESSION /DEPENDENT=Q11_4 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
 REGRESSION /DEPENDENT=Q11_5 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
 REGRESSION /DEPENDENT=Q11_6 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
 REGRESSION /DEPENDENT=Q11_7 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
 REGRESSION /DEPENDENT=Q11_8 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
 REGRESSION /DEPENDENT=Q11_9 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
 REGRESSION /DEPENDENT=Q11_10 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
 REGRESSION /DEPENDENT=Q11_11 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
 REGRESSION /DEPENDENT=Q11_12 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
 REGRESSION /DEPENDENT=Q12_1 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
 REGRESSION /DEPENDENT=Q12_2 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
 REGRESSION /DEPENDENT=Q12_3 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
 REGRESSION /DEPENDENT=Q12_4 /METHOD=ENTER Religie_1 Religie_2 Religie_4.

REGRESSION /DEPENDENT=Q12_5 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q12_6 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q12_7 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q12_8 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q12_9 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q12_10 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q12_11 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q12_12 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q13_1 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q13_2 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q13_3 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q13_4 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q13_5 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q13_6 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q13_7 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q13_8 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q13_9 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q13_10 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q13_11 /METHOD=ENTER Religie_1 Religie_2 Religie_4.
REGRESSION /DEPENDENT=Q13_12 /METHOD=ENTER Religie_1 Religie_2 Religie_4.

Appendix I: Regression tables

All 37*3=111 linear regressions of inclusion averages and likert-style questions of all characteristics and neighbourhoods and religion.

Social inclusion average						Social inclusion average	Neighbourhoods						Social inclusion average	Religion			
Coefficients						Coefficients							Coefficients				
									Standardized							Standardized	
Model	Unstandardized Coefficients		Coefficients			Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients	
	B	Std. Error	Beta	t	Sig.		B	Std. Error	Beta	t	Sig.		B	Std. Error	Beta	t	Sig.
(Constant)	3.00	0.31		9.82	0.00	(Constant)	2.84	0.04		65.61	0.00		(Constant)	2.94	0.03		87.98
Age	-0.14	0.04	-0.23	-3.84	0.00	Noord	-0.42	0.48	-0.05	-0.87	0.38		Christia nity	-0.12	0.08	-0.09	-1.57
Gender	-0.10	0.05	-0.11	-1.92	0.06	Oost	0.24	0.14	0.10	1.76	0.08		Islam	-0.12	0.08	-0.09	-1.57
Education	0.17	0.05	0.21	3.23	0.00	West	0.18	0.09	0.11	1.90	0.06		Other	-0.16	0.11	-0.09	-1.54
Income	0.09	0.04	0.15	2.28	0.02	Zuid	0.22	0.08	0.17	2.86	0.00						
Ethnicity	0.03	0.05	0.04	0.61	0.54	Zuidoost	-0.04	0.07	-0.04	-0.66	0.51						
Physical Disability	-0.10	0.07	-0.09	-1.47	0.14	Centrum	-0.01	0.17	0.00	-0.09	0.93						
Spatial inclusion average						Spatial inclusion	Neighbourhoods						Spatial inclusion	Religion			

						n average							n average					
Coefficients			Standardi zed			Coeffici ents			Standar dized				Coeffici ents			Standar dized		
	Unstandardized Coefficients		Coefficie nts				Unstandardized Coefficients		Coeffic ients					Unstandardized Coefficients		Coeffic ients		
Model	B	Std. Error	Beta	t	Sig.	Model	B	Std. Error	Beta	t	Sig.		Model	B	Std. Error	Beta	t	Sig.
(Constant)	2.73	0.24		11.21	0.00	(Constan t)	2.42	0.04		67.52	0.00		(Consta nt)	2.49	0.03		91.5 5	0.00
Age	-0.15	0.03	-0.31	-5.28	0.00	Noord	-0.33	0.40	-0.04	-0.81	0.42		Christia nity	-0.12	0.06	-0.10	-1.84	0.07
Gender	-0.06	0.04	-0.08	-1.38	0.17	Oost	0.23	0.11	0.12	2.07	0.04		Islam	-0.07	0.06	-0.06	-1.13	0.26
Education	0.03	0.04	0.04	0.59	0.56	West	0.09	0.08	0.07	1.12	0.26		Other	-0.10	0.09	-0.07	-1.22	0.22
Income	0.05	0.03	0.11	1.70	0.09	Zuid	0.11	0.06	0.10	1.66	0.10							
Ethnicity	-0.05	0.04	-0.06	-1.10	0.27	Zuidoost	0.02	0.05	0.02	0.32	0.75							
Physical Disability	0.16	0.05	0.18	3.09	0.00	Centrum	0.07	0.14	0.03	0.54	0.59							
Economic inclusion average						Econom ic inclusio n average	Neighbourhoo ds						Econom ic inclusio n average	Reli gion				
Coefficients			Standardi zed			Coeffici ents			Standar dized				Coeffici ents			Standar dized		
	Unstandardized Coefficients		Coefficie nts				Unstandardized Coefficients		Coeffic ients					Unstandardized Coefficients		Coeffic ients		
Model	B	Std. Error	Beta	t	Sig.	Model	B	Std. Error	Beta	t	Sig.		Model	B	Std. Error	Beta	t	Sig.
(Constant)	1.69	0.29		5.81	0.00	(Constan t)	2.55	0.04		65.34	0.00		(Consta nt)	2.62	0.03		83.0 0	0.00

Age	-0.02	0.03	-0.03	-0.58	0.56		Noord	-0.47	0.44	-0.06	-1.07	0.29		Christia nity	-0.11	0.07	-0.09	-1.52	0.13
Gender	-0.03	0.05	-0.03	-0.60	0.55		Oost	0.46	0.12	0.20	3.78	0.00		Islam	-0.13	0.08	-0.10	-1.76	0.08
Education	0.09	0.05	0.11	1.74	0.08		West	0.22	0.08	0.15	2.67	0.01		Other	-0.02	0.10	-0.01	-0.19	0.85
Income	0.19	0.04	0.33	5.09	0.00		Zuid	0.20	0.07	0.16	2.84	0.00							
Ethnicity	-0.02	0.05	-0.02	-0.31	0.76		Zuidoost	-0.16	0.06	-0.16	-2.69	0.01							
Physical Disability	0.16	0.06	0.14	2.48	0.01		Centrum	0.21	0.15	0.07	1.40	0.16							
Social inclusion																			
I am aware of what a smart city is																			
Coefficients							Coeffici ents							Coeffici ents					
Model	Unstandardized Coefficients		Standardized Coefficients							Standar dized							Standar dized		
	B	Std. Error	Beta	t	Sig.		Model	Unstandardized Coefficients		Coeffic ients				Model	Unstandardized Coefficients		Coeffic ients		
(Constant)	1.84	0.91		2.01	0.05			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
LeeftCat	-0.06	0.11	-0.03	-0.52	0.60		(Constan t)	2.92	0.12		23.60	0.00		(Consta nt)	3.06	0.09		32.4 0	0.00
Geslacht	-0.03	0.16	-0.01	-0.19	0.85		Noord	-1.92	1.38	-0.08	-1.39	0.17		Christia nity	-0.23	0.22	-0.06	-1.03	0.30
Hoogste vorm van educatie	0.30	0.16	0.13	1.84	0.07		Oost	0.29	0.39	0.04	0.76	0.45		Islam	-0.41	0.22	-0.10	-1.82	0.07
Cleanincome	0.26	0.12	0.16	2.20	0.03		West	0.17	0.26	0.04	0.63	0.53		Other	-0.35	0.30	-0.07	-1.18	0.24

Ethniciteit/Mi gratieachtergr ond	0.03	0.16	0.01	0.20	0.84		Zuid	0.34	0.22	0.09	1.51	0.13						
Ik heb een lichamelijke beperking	-0.13	0.20	-0.04	-0.68	0.50		Zuidoost	-0.22	0.19	-0.07	-1.20	0.23						
							Centrum	0.41	0.48	0.05	0.87	0.38						
I know of smart city projects in Amsterdam																		
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coeffic ients				Model	Unstandardized Coefficients		Coeffic ients	
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t
(Constant)	2.36	0.72		3.30	0.00		(Constan t)	2.24	0.10		22.89	0.00		(Consta nt)	2.43	0.07		33.1 4
LeefCat	-0.12	0.08	-0.09	-1.47	0.14		Noord	-1.24	1.10	-0.06	-1.13	0.26		Christia nity	-0.02	0.17	-0.01	-0.10
Geslacht	-0.11	0.13	-0.06	-0.90	0.37		Oost	0.19	0.31	0.03	0.61	0.54		Islam	-0.61	0.17	-0.19	-3.48
Hoogste vorm van educatie	0.38	0.13	0.20	3.01	0.00		West	-0.04	0.21	-0.01	-0.20	0.84		Other	-0.23	0.23	-0.05	-0.98
Cleanincome	0.12	0.09	0.09	1.36	0.18		Zuid	0.22	0.18	0.07	1.24	0.21						
Ethniciteit/Mi gratieachtergr ond	-0.09	0.13	-0.04	-0.68	0.49		Zuidoost	0.21	0.15	0.09	1.42	0.16						
Ik heb een lichamelijke beperking	-0.38	0.15	-0.15	-2.43	0.02		Centrum	-0.24	0.38	-0.04	-0.64	0.52						
I have been asked to participate in smart city projects																		
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coeffic ients				Model	Unstandardized Coefficients		Coeffic ients	

	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	1.84	0.59		3.13	0.00		(Constant)	1.58	0.08		20.36	0.00		(Constant)	1.57	0.06		26.73	0.00
LeeftCat	0.04	0.07	0.03	0.53	0.60		Noord	-0.58	0.87	-0.04	-0.67	0.50		Christia nity	-0.07	0.14	-0.03	-0.54	0.59
Geslacht	0.01	0.10	0.01	0.10	0.92		Oost	-0.08	0.24	-0.02	-0.33	0.74		Islam	-0.07	0.14	-0.03	-0.53	0.59
Hoogste vorm van educatie	-0.05	0.10	-0.03	-0.44	0.66		West	-0.09	0.17	-0.03	-0.57	0.57		Other	-0.16	0.19	-0.05	-0.85	0.39
Cleanincome	0.09	0.07	0.09	1.19	0.23		Zuid	-0.15	0.14	-0.07	-1.10	0.27							
Ethniciteit/Mi gratieachtergr ond	0.03	0.11	0.02	0.28	0.78		Zuidoost	0.00	0.12	0.00	-0.01	0.99							
Ik heb een lichamelijke beperking	-0.33	0.13	-0.17	-2.59	0.01		Centrum	0.09	0.30	0.02	0.29	0.77							
I know what online personal data gets collected and what it is used for																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coeffic ients				Model	Unstandardized Coefficients		Coeffic ients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	2.03	0.89		2.28	0.02		(Constant)	2.71	0.12		22.24	0.00		(Constant)	2.84	0.09		30.12	0.00
LeeftCat	-0.16	0.10	-0.09	-1.50	0.14		Noord	-1.71	1.36	-0.07	-1.26	0.21		Christia nity	-0.02	0.22	-0.01	-0.11	0.91
Geslacht	-0.20	0.16	-0.08	-1.24	0.22		Oost	-0.21	0.38	-0.03	-0.55	0.58		Islam	-0.36	0.22	-0.09	-1.60	0.11
Hoogste vorm van educatie	0.60	0.16	0.26	3.80	0.00		West	0.72	0.26	0.16	2.77	0.01		Other	-0.09	0.30	-0.02	-0.29	0.77
Cleanincome	0.03	0.11	0.02	0.22	0.83		Zuid	0.33	0.22	0.09	1.48	0.14							

Ethniciteit/Mi gratieachtergr ond	0.13	0.16	0.05	0.83	0.41		Zuidoost	-0.18	0.18	-0.06	-0.99	0.32							
Ik heb een lichamelijke beperking	-0.18	0.19	-0.06	-0.93	0.35		Centrum	0.18	0.47	0.02	0.38	0.70							
I am okay with my personal data being used to improve services like public transport and safety																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	3.18	1.03		3.09	0.00		(Constan t)	2.99	0.13		22.27	0.00		(Consta nt)	3.14	0.10		30.8 6	0.00
LeefCat	-0.03	0.12	-0.02	-0.29	0.78		Noord	0.01	1.50	0.00	0.01	1.00		Christia nity	-0.10	0.24	-0.02	-0.43	0.67
Geslacht	0.03	0.18	0.01	0.16	0.87		Oost	-0.21	0.42	-0.03	-0.49	0.63		Islam	-0.34	0.24	-0.08	-1.41	0.16
Hoogste vorm van educatie	0.14	0.18	0.06	0.79	0.43		West	0.04	0.29	0.01	0.13	0.90		Other	-0.31	0.32	-0.05	-0.97	0.33
Cleanincome	-0.04	0.13	-0.02	-0.32	0.75		Zuid	0.32	0.24	0.08	1.32	0.19							
Ethniciteit/Mi gratieachtergr ond	-0.03	0.18	-0.01	-0.15	0.88		Zuidoost	0.11	0.20	0.03	0.56	0.58							
Ik heb een lichamelijke beperking	-0.19	0.22	-0.06	-0.85	0.39		Centrum	-0.44	0.52	-0.05	-0.85	0.40							
I feel i can keep up with technological developments these days																			

	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	3.99	0.76		5.26	0.00		(Constant)	2.98	0.11		28.32	0.00		(Constant)	3.26	0.08		40.98	0.00
LeeftCat	-0.43	0.09	-0.30	-4.89	0.00		Noord	-1.98	1.17	-0.09	-1.68	0.09		Christianity	-0.43	0.19	-0.13	-2.30	0.02
Geslacht	-0.01	0.14	-0.01	-0.09	0.93		Oost	0.60	0.33	0.10	1.81	0.07		Islam	-0.20	0.19	-0.06	-1.04	0.30
Hoogste vorm van educatie	0.25	0.13	0.12	1.83	0.07		West	0.51	0.22	0.13	2.28	0.02		Other	-0.85	0.25	-0.18	-3.37	0.00
Cleanincome	-0.02	0.10	-0.01	-0.18	0.85		Zuid	0.38	0.19	0.12	1.97	0.05							
Ethniciteit/Migratieachtergrond	-0.02	0.14	-0.01	-0.18	0.86		Zuidoost	0.02	0.16	0.01	0.15	0.88							
Ik heb een lichamelijke beperking	0.13	0.16	0.05	0.77	0.44		Centrum	-0.20	0.40	-0.03	-0.49	0.62							
I feel my neighbourhood is safe																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	6.09	0.69		8.88	0.00		(Constant)	3.41	0.10		34.01	0.00		(Constant)	3.53	0.08		46.21	0.00
LeeftCat	-0.17	0.08	-0.13	-2.17	0.03		Noord	0.59	1.12	0.03	0.53	0.60		Christianity	-0.42	0.18	-0.13	-2.38	0.02
Geslacht	-0.98	0.12	-0.45	-7.99	0.00		Oost	0.66	0.31	0.12	2.10	0.04		Islam	0.17	0.18	0.05	0.92	0.36
Hoogste vorm van educatie	-0.17	0.12	-0.09	-1.39	0.17		West	0.13	0.21	0.04	0.62	0.54		Other	0.10	0.24	0.02	0.40	0.69

Cleanincome	0.05	0.09	0.03	0.54	0.59		Zuid	0.35	0.18	0.11	1.91	0.06							
Ethniciteit/Migratieachtergrond	0.23	0.12	0.10	1.88	0.06		Zuidoost	0.00	0.15	0.00	-0.01	1.00							
Ik heb een lichamelijke beperking	-0.04	0.15	-0.02	-0.27	0.78		Centrum	-0.52	0.39	-0.08	-1.35	0.18							
I feel safe while walking/traveling through Amsterdam																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	5.53	0.68		8.17	0.00		(Constant)	3.37	0.10		33.30	0.00		(Constant)	3.52	0.08		45.96	0.00
LeefCat	-0.15	0.08	-0.11	-1.90	0.06		Noord	0.63	1.13	0.03	0.56	0.58		Christianity	-0.48	0.18	-0.15	-2.69	0.01
Geslacht	-1.03	0.12	-0.47	-8.51	0.00		Oost	0.56	0.32	0.10	1.75	0.08		Islam	0.04	0.18	0.01	0.23	0.82
Hoogste vorm van educatie	-0.02	0.12	-0.01	-0.17	0.86		West	0.06	0.22	0.02	0.27	0.79		Other	0.02	0.24	0.00	0.08	0.94
Cleanincome	0.06	0.09	0.04	0.65	0.51		Zuid	0.37	0.18	0.12	2.01	0.05							
Ethniciteit/Migratieachtergrond	0.23	0.12	0.10	1.89	0.06		Zuidoost	-0.01	0.15	-0.01	-0.09	0.93							
Ik heb een lichamelijke beperking	-0.01	0.15	0.00	-0.04	0.96		Centrum	0.07	0.39	0.01	0.19	0.85							
I often participate in local activities (markets, events, festivals)																			

	Unstandardized Coefficients		Standardized Coefficients			Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.		B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	2.29	0.76		3.03	0.00	(Constant)	2.90	0.10		28.39	0.00		(Constant)	2.83	0.08		37.25	0.00
LeeftCat	-0.21	0.09	-0.15	-2.38	0.02	Noord	-0.90	1.14	-0.04	-0.79	0.43		Christianity	0.06	0.18	0.02	0.36	0.72
Geslacht	0.16	0.13	0.08	1.23	0.22	Oost	0.10	0.32	0.02	0.33	0.74		Islam	0.36	0.18	0.23	4.18	0.02
Hoogste vorm van educatie	0.20	0.13	0.10	1.51	0.13	West	0.19	0.22	0.05	0.88	0.38		Other	0.17	0.24	0.04	0.70	0.48
Cleanincome	0.06	0.10	0.04	0.63	0.53	Zuid	0.31	0.19	0.10	1.67	0.10							
Ethniciteit/Migratieachtergrond	0.31	0.14	0.14	2.29	0.02	Zuidoost	-0.07	0.15	-0.03	-0.48	0.63							
Ik heb een lichamelijke beperking	0.05	0.16	0.02	0.34	0.74	Centrum	0.44	0.39	0.06	1.12	0.26							
I participate in meetings to improve my neighbourhood																		
	Unstandardized Coefficients		Standardized Coefficients			Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.		B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	0.41	1.02		0.41	0.69	(Constant)	2.60	0.14		19.22	0.00		(Constant)	2.58	0.10		25.03	0.00
LeeftCat	-0.05	0.12	-0.03	-0.43	0.67	Noord	-0.60	1.52	-0.02	-0.40	0.69		Christianity	-0.08	0.24	-0.02	-0.33	0.74
Geslacht	0.25	0.18	0.09	1.38	0.17	Oost	0.40	0.43	0.05	0.93	0.35		Islam	0.20	0.24	0.05	0.83	0.41
Hoogste vorm van educatie	0.27	0.18	0.10	1.49	0.14	West	0.02	0.29	0.00	0.08	0.93		Other	-0.25	0.32	-0.04	-0.76	0.45

Cleanincome	0.13	0.13	0.07	1.01	0.31		Zuid	0.12	0.25	0.03	0.48	0.63							
Ethniciteit/Migratieachtergrond	0.32	0.18	0.11	1.74	0.08		Zuidoost	-0.24	0.21	-0.07	-1.15	0.25							
Ik heb een lichamelijke beperking	0.21	0.22	0.06	0.94	0.35		Centrum	0.17	0.52	0.02	0.33	0.74							
I feel connected to my neighbourhood and neighbours																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	3.48	0.71		4.93	0.00		(Constant)	3.44	0.10		35.29	0.00		(Constant)	3.35	0.07		44.85	0.00
LeefCat	-0.23	0.08	-0.18	-2.81	0.01		Noord	1.56	1.09	0.08	1.43	0.15		Christianity	-0.01	0.17	0.00	-0.07	0.94
Geslacht	0.31	0.13	0.15	2.45	0.01		Oost	0.06	0.31	0.01	0.18	0.85		Islam	0.15	0.18	0.05	0.87	0.39
Hoogste vorm van educatie	0.05	0.12	0.03	0.41	0.68		West	0.10	0.21	0.03	0.48	0.63		Other	0.15	0.23	0.04	0.66	0.51
Cleanincome	0.18	0.09	0.14	2.00	0.05		Zuid	-0.05	0.18	-0.02	-0.31	0.76							
Ethniciteit/Migratieachtergrond	-0.16	0.13	-0.08	-1.29	0.20		Zuidoost	-0.26	0.15	-0.11	-1.79	0.08							
Ik heb een lichamelijke beperking	-0.09	0.15	-0.04	-0.58	0.56		Centrum	0.00	0.38	0.00	0.00	1.00							
The government of Amsterdam fosters/promotes a diverse and inclusive city																			

	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	2.93	0.89		3.29	0.00		(Constant)	2.92	0.12		24.38	0.00		(Constant)	3.12	0.09		35.27	0.00
LeefCat	-0.06	0.10	-0.04	-0.60	0.55		Noord	1.08	1.34	0.04	0.81	0.42		Christianity	0.34	0.21	0.09	1.65	0.10
Geslacht	0.34	0.16	0.13	2.14	0.03		Oost	0.51	0.38	0.08	1.35	0.18		Islam	-0.83	0.21	-0.22	-3.97	0.00
Hoogste vorm van educatie	0.14	0.16	0.06	0.88	0.38		West	0.31	0.26	0.07	1.21	0.23		Other	-0.16	0.28	-0.03	-0.57	0.57
Cleanincome	0.15	0.11	0.09	1.34	0.18		Zuid	0.17	0.22	0.05	0.80	0.43							
Ethniciteit/Migratieachtergrond	-0.58	0.16	-0.22	-3.64	0.00		Zuidoost	0.13	0.18	0.05	0.73	0.46							
Ik heb een lichamelijke beperking	-0.21	0.19	-0.07	-1.09	0.28		Centrum	-0.14	0.46	-0.02	-0.31	0.76							
Spatial inclusion																			
I have used government programmes to obtain used laptops or other technology																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	1.13	0.53		2.11	0.04		(Constant)	1.56	0.07		22.83	0.00		(Constant)	1.47	0.05		28.26	0.00
LeefCat	0.08	0.06	0.09	1.37	0.17		Noord	0.44	0.77	0.03	0.57	0.57		Christianity	0.20	0.12	0.09	1.64	0.10
Geslacht	0.21	0.09	0.14	2.20	0.03		Oost	0.08	0.22	0.02	0.36	0.72		Islam	0.10	0.12	0.04	0.79	0.43

Hoogste vorm van educatie	-0.13	0.09	-0.09	-1.35	0.18		West	-0.14	0.15	-0.06	-0.93	0.35		Other	0.03	0.16	0.01	0.20	0.84
Cleanincome	-0.12	0.07	-0.02	-0.24	0.11		Zuid	-0.08	0.12	-0.04	-0.67	0.51							
Ethniciteit/Migratieachtergrond	0.03	0.10	0.02	0.27	0.79		Zuidoost	-0.11	0.10	-0.07	-1.08	0.28							
Ik heb een lichamelijke beperking	0.03	0.12	0.02	0.29	0.77		Centrum	0.10	0.26	0.02	0.39	0.70							
I make use of smart technology at home (doorbell, thermometer, solar panels, ev-charger)																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	1.33	0.89		1.49	0.14		(Constant)	2.66	0.12		21.36	0.00		(Constant)	2.79	0.09		29.63	0.00
Leefstijl	-0.15	0.10	-0.09	-1.42	0.16		Noord	-1.66	1.39	-0.07	-1.19	0.23		Christiana	-0.07	0.22	-0.02	-0.30	0.77
Geslacht	0.19	0.16	0.07	1.21	0.23		Oost	0.48	0.39	0.07	1.23	0.22		Islam	-0.49	0.22	-0.12	-2.19	0.03
Hoogste vorm van educatie	-0.03	0.16	-0.01	-0.18	0.86		West	0.00	0.27	0.00	-0.02	0.99		Other	-0.25	0.30	-0.05	-0.85	0.40
Cleanincome	0.61	0.11	0.36	5.37	0.00		Zuid	0.06	0.23	0.02	0.27	0.79							
Ethniciteit/Migratieachtergrond	-0.11	0.16	-0.04	-0.66	0.51		Zuidoost	-0.01	0.19	0.00	-0.05	0.96							
Ik heb een lichamelijke beperking	0.09	0.19	0.03	0.47	0.64		Centrum	0.56	0.48	0.07	1.17	0.24							

The government or an organization has approached me to help install smart technology (thermometer, solar panels)																		
	Unstandardized Coefficients		Standardized Coefficients			Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.		B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	2.32	0.55		4.22	0.00	(Constant)	1.73	0.07		23.35	0.00		(Constant)	1.75	0.06		30.80	0.00
LeefCat	-0.05	0.06	-0.05	-0.75	0.45	Noord	0.12	0.23	0.03	0.53	0.60		Christianity	0.04	0.13	0.02	0.30	0.77
Geslacht	-0.06	0.10	-0.04	-0.58	0.56	Oost	-0.13	0.16	-0.05	-0.85	0.40		Islam	0.03	0.14	0.01	0.22	0.82
Hoogste vorm van educatie	0.04	0.10	0.03	0.43	0.67	West	-0.10	0.13	-0.05	-0.77	0.44		Other	-0.06	0.18	-0.02	-0.31	0.76
Cleanincome	-0.19	0.07	-0.19	-2.69	0.01	Zuid	0.14	0.11	0.08	1.24	0.22							
Ethniciteit/Migratieachtergrond	-0.05	0.10	-0.03	-0.46	0.65	Zuidoost	0.38	0.29	0.07	1.32	0.19							
Ik heb een lichamelijke beperking	0.12	0.12	0.06	0.97	0.33	Centrum	-0.01	0.17	0.00	-0.09	0.93							
I always have access to high speed internet if I'm in Amsterdam																		
	Unstandardized Coefficients		Standardized Coefficients			Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.		B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	4.82	0.66		7.31	0.00	(Constant)	3.48	0.10		35.84	0.00		(Constant)	3.56	0.07		48.63	0.00
LeefCat	-0.51	0.08	-0.39	-6.69	0.00	Noord	-0.48	1.09	-0.02	-0.45	0.66		Christianity	-0.41	0.17	-0.13	-2.43	0.02
Geslacht	-0.04	0.12	-0.02	-0.35	0.72	Oost	0.09	0.31	0.02	0.29	0.77		Islam	0.07	0.17	0.02	0.40	0.69

Hoogste vorm van educatie	0.21	0.12	0.11	1.76	0.08		West	0.32	0.21	0.09	1.53	0.13		Other	-0.52	0.23	-0.12	-2.25	0.03
Cleanincome	-0.09	0.08	-0.07	-1.10	0.27		Zuid	0.00	0.18	0.00	-0.01	0.99							
Ethniciteit/Migratieachtergrond	-0.14	0.12	-0.06	-1.15	0.25		Zuidoost	-0.10	0.15	-0.04	-0.71	0.48							
Ik heb een lichamelijke beperking	0.37	0.14	0.15	2.63	0.01		Centrum	-0.59	0.37	-0.09	-1.59	0.11							
I use the online environment of the municipality (Mijn Amsterdam) often																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	4.34	0.79		5.48	0.00		(Constant)	3.04	0.11		28.77	0.00		(Constant)	3.15	0.08		39.41	0.00
Leefstijl	-0.08	0.09	-0.06	-0.89	0.37		Noord	-1.04	1.18	-0.05	-0.88	0.38		Christianity	0.08	0.19	0.02	0.43	0.67
Geslacht	-0.02	0.14	-0.01	-0.13	0.90		Oost	0.82	0.33	0.14	2.46	0.01		Islam	-0.52	0.19	-0.15	-2.73	0.01
Hoogste vorm van educatie	0.05	0.14	0.02	0.36	0.72		West	0.19	0.23	0.05	0.84	0.40		Other	0.27	0.25	0.06	1.06	0.29
Cleanincome	0.00	0.10	0.00	-0.05	0.96		Zuid	-0.11	0.19	-0.04	-0.60	0.55							
Ethniciteit/Migratieachtergrond	-0.34	0.14	-0.15	-2.41	0.02		Zuidoost	0.12	0.16	0.05	0.73	0.46							
Ik heb een lichamelijke beperking	-0.33	0.17	-0.12	-1.90	0.06		Centrum	0.07	0.41	0.01	0.17	0.86							

I find it easy to use Mijn Amsterdam																		
	Unstandardized Coefficients		Standardized Coefficients			Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.		B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	4.59	0.84		5.46	0.00	(Constant)	2.91	0.11		25.46	0.00		(Constant)	2.85	0.09		32.84	0.00
LeeftCat	-0.38	0.10	-0.25	-3.93	0.00	Noord	-0.91	1.28	-0.04	-0.71	0.48		Christianity	-0.12	0.20	-0.03	-0.58	0.56
Geslacht	0.03	0.15	0.01	0.21	0.83	Oost	0.37	0.36	0.06	1.04	0.30		Islam	-0.37	0.21	0.15	2.75	0.01
Hoogste vorm van educatie	-0.10	0.15	-0.05	-0.70	0.48	West	-0.08	0.24	-0.02	-0.34	0.73		Other	-0.10	0.27	-0.02	-0.35	0.73
Cleanincome	-0.14	0.11	-0.09	-1.27	0.20	Zuid	0.00	0.21	0.00	-0.02	0.99							
Ethniciteit/Migratieachtergrond	0.22	0.15	0.09	1.46	0.14	Zuidoost	0.06	0.17	0.02	0.33	0.74							
Ik heb een lichamelijke beperking	0.12	0.18	0.04	0.66	0.51	Centrum	-1.13	0.44	-0.14	-2.58	0.01							
I feel public transport is affordable																		
	Unstandardized Coefficients		Standardized Coefficients			Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.		B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	0.00	0.68		-0.01	1.00	(Constant)	2.13	0.10		21.57	0.00		(Constant)	2.20	0.08		28.94	0.00
LeeftCat	0.10	0.08	0.08	1.26	0.21	Noord	1.87	1.10	0.09	1.70	0.09		Christianity	0.09	0.18	0.03	0.51	0.61
Geslacht	0.17	0.12	0.08	1.40	0.16	Oost	0.01	0.31	0.00	0.04	0.96		Islam	-0.14	0.18	-0.04	-0.75	0.45

Hoogste vorm van educatie	0.01	0.12	0.00	0.06	0.95		West	0.30	0.21	0.08	1.42	0.16		Other	0.09	0.24	0.02	0.38	0.71
Cleanincome	0.49	0.09	0.38	5.65	0.00		Zuid	0.39	0.18	0.13	2.17	0.03							
Ethniciteit/Migratieachtergrond	-0.13	0.12	-0.06	-1.06	0.29		Zuidoost	-0.12	0.15	-0.05	-0.79	0.43							
Ik heb een lichamelijke beperking	0.14	0.15	0.06	0.98	0.33		Centrum	0.20	0.38	0.03	0.54	0.59							
I feel public transport in Amsterdam is of good quality																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	4.45	0.87		5.08	0.00		(Constant)	3.00	0.12		25.95	0.00		(Constant)	3.08	0.09		34.97	0.00
LeefCat	-0.23	0.10	-0.15	-2.25	0.03		Noord	-1.00	1.29	-0.04	-0.77	0.44		Christianity	0.02	0.21	0.01	0.10	0.92
Geslacht	-0.10	0.16	-0.04	-0.65	0.52		Oost	0.00	0.36	0.00	0.00	1.00		Islam	0.16	0.21	0.04	0.74	0.46
Hoogste vorm van educatie	-0.13	0.15	-0.06	-0.82	0.41		West	0.26	0.25	0.06	1.04	0.30		Other	0.04	0.28	0.01	0.15	0.88
Cleanincome	0.05	0.11	0.03	0.46	0.65		Zuid	0.09	0.21	0.03	0.44	0.66							
Ethniciteit/Migratieachtergrond	0.07	0.16	0.03	0.44	0.66		Zuidoost	0.18	0.18	0.06	1.02	0.31							
Ik heb een lichamelijke beperking	-0.03	0.19	-0.01	-0.17	0.86		Centrum	0.78	0.44	0.10	1.75	0.08							

I feel public transport is accessible for disabled/elderly																		
	Unstandardized Coefficients		Standardized Coefficients			Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.		B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	3.27	0.59		5.52	0.00	(Constant)	2.48	0.09		26.95	0.00		(Constant)	2.64	0.07		37.83	0.00
LeefCat	-0.29	0.07	-0.23	-4.24	0.00	Noord	-1.48	1.03	-0.08	-1.44	0.15		Christianity	-0.43	0.16	-0.15	-2.62	0.01
Geslacht	-0.69	0.11	-0.35	-6.57	0.00	Oost	0.37	0.29	0.07	1.29	0.20		Islam	-0.14	0.17	-0.05	-0.82	0.41
Hoogste vorm van educatie	0.18	0.10	0.10	1.67	0.10	West	0.09	0.20	0.03	0.45	0.66		Other	-0.01	0.22	0.00	-0.05	0.96
Cleanincome	-0.03	0.08	-0.02	-0.37	0.71	Zuid	0.22	0.17	0.08	1.31	0.19							
Ethniciteit/Migratieachtergrond	0.14	0.11	0.07	1.31	0.19	Zuidoost	0.03	0.14	0.01	0.23	0.82							
Ik heb een lichamelijke beperking	0.62	0.13	0.26	4.82	0.00	Centrum	0.18	0.35	0.03	0.52	0.61							
I feel it is easy enough for everyone to travel in Amsterdam																		
	Unstandardized Coefficients		Standardized Coefficients			Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.		B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	1.45	0.60		2.41	0.02	(Constant)	2.24	0.09		25.91	0.00		(Constant)	2.36	0.07		35.88	0.00
LeefCat	-0.22	0.07	-0.18	-3.12	0.00	Noord	-1.24	0.97	-0.07	-1.28	0.20		Christianity	-0.30	0.15	-0.11	-1.96	0.05
Geslacht	-0.08	0.11	0.00	-0.02	0.49	Oost	0.26	0.27	0.05	0.95	0.34		Islam	-0.19	0.16	-0.07	-1.22	0.22

Hoogste vorm van educatie	0.09	0.11	0.05	0.86	0.39		West	0.27	0.18	0.09	1.48	0.14		Other	-0.28	0.21	-0.08	-1.35	0.18
Cleanincome	0.11	0.08	0.09	1.44	0.15		Zuid	0.15	0.16	0.06	0.94	0.35							
Ethniciteit/Migratieachtergrond	-0.04	0.11	-0.02	-0.33	0.74		Zuidoost	-0.13	0.13	-0.06	-0.96	0.34							
Ik heb een lichamelijke beperking	0.68	0.13	0.31	5.22	0.00		Centrum	0.31	0.33	0.05	0.94	0.35							
The city of Amsterdam is clean enough																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	2.08	0.68		3.07	0.00		(Constant)	1.77	0.09		20.37	0.00		(Constant)	1.94	0.07		29.15	0.00
Leefstijl	-0.09	0.08	-0.08	-1.18	0.24		Noord	0.23	0.97	0.01	0.24	0.81		Christianity	-0.27	0.16	-0.10	-1.75	0.08
Geslacht	-0.23	0.12	-0.12	-1.92	0.06		Oost	0.16	0.27	0.03	0.60	0.55		Islam	-0.16	0.16	-0.06	-0.99	0.32
Hoogste vorm van educatie	0.16	0.12	0.09	1.36	0.17		West	-0.08	0.18	-0.03	-0.44	0.66		Other	-0.40	0.21	-0.11	-1.90	0.06
Cleanincome	-0.05	0.09	-0.05	-0.63	0.53		Zuid	0.53	0.16	0.20	3.37	0.00							
Ethniciteit/Migratieachtergrond	-0.07	0.12	-0.04	-0.57	0.57		Zuidoost	0.00	0.13	0.00	0.02	0.99							
Ik heb een lichamelijke beperking	0.18	0.15	0.08	1.21	0.23		Centrum	-0.10	0.33	-0.02	-0.30	0.77							

The garbage and waste service is good enough in Amsterdam																		
	Unstandardized Coefficients		Standardized Coefficients			Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.		B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	2.97	0.89		3.33	0.00	(Constant)	1.98	0.12		16.80	0.00		(Constant)	2.13	0.09		23.82	0.00
LeefCat	0.03	0.10	0.02	0.30	0.77	Noord	1.02	1.32	0.04	0.77	0.44		Christianity	-0.24	0.21	-0.06	-1.12	0.26
Geslacht	-0.18	0.16	-0.07	-1.15	0.25	Oost	0.02	0.37	0.00	0.04	0.97		Islam	-0.17	0.21	-0.05	-0.82	0.41
Hoogste vorm van educatie	-0.05	0.16	-0.02	-0.29	0.77	West	0.04	0.25	0.01	0.18	0.86		Other	-0.09	0.28	-0.02	-0.32	0.75
Cleanincome	-0.11	0.11	-0.07	-0.96	0.34	Zuid	0.16	0.21	0.05	0.77	0.44							
Ethniciteit/Migratieachtergrond	-0.17	0.16	-0.07	-1.05	0.29	Zuidoost	0.15	0.18	0.05	0.85	0.39							
Ik heb een lichamelijke beperking	-0.04	0.19	-0.01	-0.21	0.84	Centrum	0.13	0.45	0.02	0.28	0.78							
Economic inclusion																		
It is easy to travel to my job/school/education	Unstandardized Coefficients		Standardized Coefficients			Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.		B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	1.45	1.04		1.40	0.16	(Constant)	3.21	0.14		23.39	0.00		(Constant)	3.06	0.10		29.18	0.00

LeeftCat	0.06	0.12	0.03	0.47	0.64		Noord	-1.21	1.53	-0.04	-0.79	0.43		Christia nity	-0.08	0.25	-0.02	-0.33	0.74
Geslacht	0.01	0.18	0.00	0.05	0.96		Oost	-0.07	0.43	-0.01	-0.16	0.88		Islam	0.07	0.25	0.02	0.28	0.78
Hoogste vorm van educatie	0.20	0.18	0.07	1.08	0.28		West	0.16	0.29	0.03	0.55	0.58		Other	0.02	0.33	0.00	0.07	0.95
Cleanincome	-0.14	0.13	-0.07	-1.02	0.31		Zuid	-0.25	0.25	-0.06	-0.99	0.32							
Ethniciteit/Mi gratieachtergr ond	0.13	0.19	0.04	0.69	0.49		Zuidoost	-0.40	0.21	-0.12	-1.92	0.06							
Ik heb een lichamelijke beperking	0.58	0.22	0.17	2.60	0.01		Centrum	-0.21	0.53	-0.02	-0.40	0.69							
I feel that job opportunities are equal for everyone																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coeffic ients				Model	Unstandardized Coefficients		Coeffic ients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	0.67	0.64		1.05	0.29		(Constan t)	2.05	0.10		20.80	0.00		(Consta nt)	2.20	0.08		29.0 6	0.00
LeeftCat	0.12	0.07	0.09	1.56	0.12		Noord	-1.05	1.10	-0.05	-0.95	0.34		Christia nity	-0.15	0.18	-0.05	-0.88	0.38
Geslacht	-0.17	0.11	-0.08	-1.46	0.15		Oost	0.38	0.31	0.07	1.23	0.22		Islam	-0.33	0.18	-0.10	-1.82	0.07
Hoogste vorm van educatie	-0.22	0.11	-0.12	-1.91	0.06		West	0.15	0.21	0.04	0.72	0.47		Other	0.01	0.24	0.00	0.05	0.96
Cleanincome	0.55	0.08	0.43	6.78	0.00		Zuid	0.47	0.18	0.16	2.63	0.01							
Ethniciteit/Mi gratieachtergr ond	-0.31	0.11	-0.15	-2.71	0.01		Zuidoost	-0.09	0.15	-0.04	-0.61	0.55							

Ik heb een lichamelijke beperking	0.44	0.14	0.18	3.18	0.00		Centrum	0.06	0.38	0.01	0.17	0.87							
I experience difficulties with digital aspects at work/school/education																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	1.92	0.72		2.65	0.01		(Constant)	2.43	0.10		25.25	0.00		(Constant)	2.47	0.07		33.25	0.00
LeefCat	0.30	0.08	0.22	3.52	0.00		Noord	2.57	1.07	0.13	2.39	0.02		Christiana	0.32	0.17	0.10	1.84	0.07
Geslacht	0.15	0.13	0.07	1.15	0.25		Oost	-0.14	0.30	-0.03	-0.47	0.64		Islam	0.14	0.18	0.04	0.77	0.44
Hoogste vorm van educatie	-0.01	0.13	0.00	-0.07	0.95		West	-0.06	0.20	-0.02	-0.27	0.78		Other	0.11	0.23	0.03	0.48	0.63
Cleanincome	-0.21	0.09	-0.16	-2.28	0.02		Zuid	-0.02	0.17	-0.01	-0.11	0.91							
Ethniciteit/Migratieachtergrond	0.08	0.13	0.04	0.64	0.52		Zuidoost	0.43	0.15	0.18	2.91	0.00							
Ik heb een lichamelijke beperking	-0.19	0.16	-0.08	-1.23	0.22		Centrum	0.13	0.37	0.02	0.35	0.73							
I feel it is easy to get financial support from the government if needed																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.

(Constant)	0.82	0.79		1.03	0.30	(Constant)	2.18	0.11		20.53	0.00	(Constant)	2.36	0.08		29.39	0.00
LeeftCat	0.00	0.09	0.00	-0.01	0.99	Noord	-0.18	1.19	-0.01	-0.15	0.88	Christianity	-0.28	0.19	-0.08	-1.50	0.14
Geslacht	0.05	0.14	0.02	0.33	0.74	Oost	0.39	0.33	0.07	1.18	0.24	Islam	-0.28	0.19	-0.08	-1.45	0.15
Hoogste vorm van educatie	0.14	0.14	0.07	0.98	0.33	West	0.19	0.23	0.05	0.86	0.39	Other	-0.03	0.25	-0.01	-0.12	0.90
Cleanincome	0.32	0.10	0.22	3.20	0.00	Zuid	0.23	0.19	0.07	1.19	0.23						
Ethniciteit/Migratieachtergrond	-0.04	0.14	-0.02	-0.31	0.76	Zuidoost	0.05	0.16	0.02	0.34	0.74						
Ik heb een lichamelijke beperking	0.10	0.17	0.04	0.57	0.57	Centrum	0.60	0.41	0.08	1.47	0.14						
Digital innovation is a risk for working people.																	
	Unstandardized Coefficients		Standardized Coefficients			Model	Unstandardized Coefficients		Coefficients			Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.		B	Std. Error	Beta	t	Sig.		B	Std. Error	Beta	t	Sig.
(Constant)	3.95	0.72		5.50	0.00	(Constant)	3.51	0.10		36.57	0.00	(Constant)	3.45	0.07		46.85	0.00
LeeftCat	0.00	0.08	0.00	0.02	0.98	Noord	-1.51	1.07	-0.08	-1.41	0.16	Christianity	0.21	0.17	0.07	1.24	0.22
Geslacht	0.05	0.13	0.02	0.37	0.71	Oost	-0.79	0.30	-0.15	-2.64	0.01	Islam	0.31	0.18	0.10	1.76	0.08
Hoogste vorm van educatie	0.07	0.13	0.04	0.55	0.58	West	-0.11	0.20	-0.03	-0.53	0.60	Other	-0.12	0.23	-0.03	-0.52	0.61
Cleanincome	-0.35	0.09	-0.27	-3.81	0.00	Zuid	-0.01	0.17	0.00	-0.05	0.96						
Ethniciteit/Migratieachtergrond	0.05	0.13	0.03	0.41	0.68	Zuidoost	0.22	0.15	0.09	1.50	0.13						

Ik heb een lichamelijke beperking	0.05	0.16	0.02	0.32	0.75		Centrum	-0.06	0.37	-0.01	-0.17	0.86							
The government pays sufficient attention to addressing poverty																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	-0.34	0.76		-0.46	0.65		(Constant)	2.12	0.11		20.06	0.00		(Constant)	2.12	0.08		26.51	0.00
LeefCat	0.25	0.09	0.17	2.80	0.01		Noord	0.88	1.18	0.04	0.74	0.46		Christianity	0.09	0.19	0.03	0.49	0.62
Geslacht	-0.02	0.13	-0.01	-0.12	0.91		Oost	0.31	0.33	0.05	0.93	0.35		Islam	-0.16	0.19	-0.05	-0.84	0.40
Hoogste vorm van educatie	0.11	0.13	0.06	0.83	0.41		West	0.11	0.23	0.03	0.48	0.63		Other	0.51	0.25	0.11	2.02	0.04
Cleanincome	0.32	0.10	0.23	3.29	0.00		Zuid	0.16	0.19	0.05	0.82	0.41							
Ethniciteit/Migratieachtergrond	-0.02	0.14	-0.01	-0.17	0.86		Zuidoost	-0.10	0.16	-0.04	-0.62	0.53							
Ik heb een lichamelijke beperking	0.19	0.16	0.07	1.16	0.25		Centrum	-0.01	0.41	0.00	-0.02	0.98							
My neighbourhood receives enough investment in infrastructure to improve it																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.

(Constant)	0.76	0.77		0.99	0.33		(Constant)	2.08	0.10		21.41	0.00		(Constant)	2.26	0.08		29.39	0.00
LeeftCat	0.10	0.09	0.07	1.14	0.26		Noord	0.92	1.09	0.04	0.85	0.40		Christianity	0.11	0.18	0.04	0.63	0.53
Geslacht	0.01	0.14	0.00	0.05	0.96		Oost	0.71	0.31	0.13	2.31	0.02		Islam	0.33	0.18	0.10	1.78	0.08
Hoogste vorm van educatie	0.13	0.14	0.07	0.96	0.34		West	0.29	0.21	0.08	1.40	0.16		Other	0.28	0.24	0.06	1.16	0.25
Cleanincome	0.06	0.10	0.04	0.57	0.57		Zuid	0.90	0.18	0.30	5.11	0.00							
Ethniciteit/Migratieachtergrond	0.15	0.14	0.07	1.11	0.27		Zuidoost	0.10	0.15	0.04	0.67	0.51							
Ik heb een lichamelijke beperking	0.22	0.17	0.08	1.29	0.20		Centrum	0.92	0.37	0.13	2.46	0.01							
My neighbourhood has enough jobs/businesses/companies																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	1.86	0.71		2.61	0.01		(Constant)	2.30	0.09		25.57	0.00		(Constant)	2.33	0.07		32.83	0.00
LeeftCat	0.13	0.08	0.10	1.56	0.12		Noord	0.70	1.00	0.04	0.70	0.49		Christianity	0.08	0.17	0.03	0.51	0.61
Geslacht	-0.10	0.13	-0.05	-0.80	0.43		Oost	0.56	0.28	0.21	3.75	0.01		Islam	-0.03	0.17	-0.01	-0.16	0.87
Hoogste vorm van educatie	-0.17	0.13	-0.09	-1.32	0.19		West	0.19	0.19	0.06	0.98	0.33		Other	0.33	0.22	0.08	1.50	0.14
Cleanincome	0.05	0.09	0.04	0.59	0.56		Zuid	0.28	0.16	0.10	1.69	0.09							
Ethniciteit/Migratieachtergrond	0.11	0.13	0.05	0.88	0.38		Zuidoost	-0.24	0.14	-0.10	-1.72	0.09							

Ik heb een lichamelijke beperking	0.23	0.15	0.10	1.52	0.13		Centrum	0.81	0.35	0.13	2.35	0.02							
My digital skills are at a good level																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	4.11	0.68		6.03	0.00		(Constant)	3.19	0.09		35.09	0.00		(Constant)	3.41	0.07		47.69	0.00
LeefCat	-0.30	0.08	-0.24	-3.80	0.00		Noord	-2.19	1.02	-0.11	-2.16	0.03		Christia nity	-0.32	0.17	-0.11	-1.94	0.05
Geslacht	0.00	0.12	0.00	0.02	0.99		Oost	1.09	0.29	0.21	3.82	0.00		Islam	-0.15	0.17	-0.05	-0.86	0.39
Hoogste vorm van educatie	0.23	0.12	0.13	1.88	0.06		West	0.58	0.19	0.17	2.98	0.00		Other	-0.20	0.22	-0.05	-0.88	0.38
Cleanincome	-0.04	0.09	-0.03	-0.48	0.63		Zuid	0.07	0.17	0.02	0.40	0.69							
Ethniciteit/Migratieachtergrond	-0.09	0.12	-0.04	-0.70	0.48		Zuidoost	0.04	0.14	0.02	0.28	0.78							
Ik heb een lichamelijke beperking	-0.01	0.15	-0.01	-0.09	0.93		Centrum	0.36	0.35	0.06	1.03	0.30							
The municipality offers enough help with improving digital skills																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.

(Constant)	1.49	0.85		1.76	0.08		(Constant)	2.69	0.11		24.76	0.00		(Constant)	2.90	0.08		34.50	0.00
LeefCat	-0.01	0.10	-0.01	-0.13	0.90		Noord	0.31	1.22	0.01	0.25	0.80		Christianity	-0.07	0.20	-0.02	-0.35	0.73
Geslacht	-0.03	0.15	-0.01	-0.17	0.86		Oost	0.45	0.34	0.07	1.32	0.19		Islam	-0.29	0.20	-0.08	-1.47	0.14
Hoogste vorm van educatie	0.30	0.15	0.14	1.98	0.05		West	0.74	0.23	0.18	3.17	0.00		Other	-0.36	0.26	-0.08	-1.36	0.17
Cleanincome	0.18	0.11	0.12	1.63	0.10		Zuid	0.38	0.20	0.11	1.93	0.05							
Ethniciteit/Migratieachtergrond	-0.08	0.15	-0.03	-0.51	0.61		Zuidoost	-0.10	0.17	-0.04	-0.63	0.53							
Ik heb een lichamelijke beperking	0.10	0.18	0.04	0.55	0.58		Centrum	0.08	0.42	0.01	0.20	0.84							
I have used training/education purely to improve my digital skills																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	1.55	0.84		1.84	0.07		(Constant)	2.43	0.11		21.48	0.00		(Constant)	2.37	0.09		27.64	0.00
LeefCat	-0.08	0.10	-0.05	-0.82	0.41		Noord	-1.43	1.26	-0.06	-1.13	0.26		Christianity	0.33	0.20	0.09	1.67	0.10
Geslacht	0.01	0.15	0.00	0.04	0.97		Oost	0.43	0.35	0.07	1.21	0.23		Islam	-0.13	0.20	-0.04	-0.66	0.51
Hoogste vorm van educatie	0.33	0.15	0.15	2.22	0.03		West	0.00	0.24	0.00	0.00	1.00		Other	-0.54	0.27	-0.11	-2.00	0.05
Cleanincome	0.20	0.11	0.13	1.92	0.06		Zuid	0.13	0.21	0.04	0.62	0.53							
Ethniciteit/Migratieachtergrond	0.13	0.15	0.05	0.86	0.39		Zuidoost	-0.35	0.17	-0.13	-2.06	0.07							

Ik heb een lichamelijke beperking	-0.31	0.18	-0.11	-1.71	0.09		Centrum	0.13	0.43	0.02	0.29	0.77							
I feel compelled/forced to keep improving my digital skills to keep up with technological developments																			
	Unstandardized Coefficients		Standardized Coefficients				Model	Unstandardized Coefficients		Coefficients				Model	Unstandardized Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.			B	Std. Error	Beta	t	Sig.
(Constant)	4.18	0.69		6.01	0.00		(Constant)	3.73	0.09		40.39	0.00		(Constant)	3.66	0.07		52.90	0.00
LeefCat	0.19	0.08	0.15	2.37	0.02		Noord	1.27	1.03	0.07	1.24	0.22		Christianity	0.53	0.16	0.18	3.27	0.00
Geslacht	-0.06	0.12	-0.03	-0.50	0.62		Oost	0.13	0.29	0.03	0.45	0.65		Islam	0.17	0.16	0.06	1.02	0.31
Hoogste vorm van educatie	-0.09	0.12	-0.05	-0.70	0.48		West	-0.10	0.20	-0.03	-0.49	0.62		Other	0.26	0.22	0.07	1.18	0.24
Cleanincome	-0.20	0.09	-0.16	-2.31	0.02		Zuid	-0.02	0.17	-0.01	-0.13	0.90							
Ethniciteit/Migratieachtergrond	0.04	0.12	0.02	0.35	0.73		Zuidoost	0.18	0.14	0.08	1.28	0.20							
Ik heb een lichamelijke beperking	-0.20	0.15	-0.08	-1.31	0.19		Centrum	0.16	0.35	0.03	0.46	0.65							

Appendix H: Document analysis documents

<i>Documents:</i>
<i>Digital city agenda (2023)</i>
<i>NL smart city strategie (2017)</i>
<i>Programma smart mobility (2019)</i>
<i>Agenda digital city (2019)</i>
<i>Grip op technologie actieplan (2021)</i>
<i>Actieprogramma Amsterdam plastic smart city (2020)</i>
<i>Programma periode ASC (2022)</i>
<i>Omgevinsgvisie (2021)</i>
<i>Tada Manifest (2024)</i>
And relevant sections of:
<i>Uitvoeringprogramma afval en grondstoffen (2020)</i>
<i>Amsterdam circulair 2020-2025 strategie (2020)</i>

Appendix J: Codes Document Analysis

Project: Document analysis thesis

Report created by Bram Lier on 17-7-2025

Code Report

All (13) codes

● **Cleanliness**

14 Quotations:

7:5 p 19 in 3 programma smart mobility

Transport for all Amsterdammers, visitors and goods is cleaner and smarter

7:7 p 19 in 3 programma smart mobility

clean air

9:1 p 36 in 9 uitvoeringsprogramma_afval_en_grondstoffen_2020_-_2025

Verschillende services om bewoners (grof) afval te laten melden (t.b.v.

ophalen en te informeren over wegbreng mogelijkheden);

9:2 p 36 in 9 uitvoeringsprogramma_afval_en_grondstoffen_2020_-_2025

Feedbackservices waardoor bewoners en bedrijven eenvoudig feedback kunnen geven over het inzamelsysteem, zoals storingen, verstoppingen, graffiti of andere onregelmatigheden;

9:3 p 36 in 9 uitvoeringsprogramma_afval_en_grondstoffen_2020_-_2025

Informatieportalen waarmee bewoners en bedrijven actuele informatie verkrijgen over de resultaten van inzameling en verwerking;

9:4 p 36 in 9 uitvoeringsprogramma_afval_en_grondstoffen_2020_-_2025

Digitale toegangssystemen waardoor bewoners en bedrijven toegang krijgen tot containers voor luiers, textiel en GFT-afval om bijvoorbeeld vervuiling van deze stromen tegen te gaan;

9:5 p 36 in 9 uitvoeringsprogramma_afval_en_grondstoffen_2020_-_2025

Loyaliteitsprogramma's waarbij bewoners, bedrijven of buurten door middel van duurzaam gedrag kunnen sparen voor bepaalde zaken.

9:6 p 36 in 9 uitvoeringsprogramma_afval_en_grondstoffen_2020_-_2025

Er wordt geëxperimenteerd met objectdetectie van afval. Afbeeldingen gemaakt door de uitvoerende dienst van bijvoorbeeld vuilniszakken, stukken karton, matrassen, meubels en witgoed worden dan gecategoriseerd en beschikbaar gesteld voor het meldingsproces, opdat snel en effectief de vervolgpcedure kan worden gekozen.

14:11 p 37 in 1-NL smart city strategy

veilig en schoon

14:12 p 74 in 1-NL smart city strategy

Dat kan voor de één schonere lucht zijn

16:1 p 7 in actieprogramma_amsterdam_plastic_smart_city

We stimuleren initiatieven die gericht zijn op het voorkómen van plastic zwerfafval, en dan hebben we het zowel over zichtbaar zwerfafval als over onzichtbaar zwerfafval (de microplastics).

16:3 p 4 in actieprogramma_amsterdam_plastic_smart_city

Smart van het plastic (zwerf)afval afkomen.

16:4 p 8 in actieprogramma_amsterdam_plastic_smart_city

De gemeente Amsterdam biedt een lesprogramma over zwerfafval aan voor de leeftijdsgroep van 10 tot 14 jaar. Daarbij wordt gebruik gemaakt van eigen materiaal maar ook van lespakketten van de Plastic Soup Foundation. Wij stimuleren de uitrol hiervan over alle Amsterdamse scholen.

● Economic vitality

3 Quotations:

3:2 p 38 in 7 amsterdamcirculair2020-2025_strategie_wcag_5_

Tuinen van West is letterlijk een proeftuin. Het betreft een educatief laboratorium voor experimenten op het gebied van voedselproductie, biomassa, bodem, bemesting en biodiversiteit. Reststromen, zoals snoeihout en compost, worden lokaal afgevangen, zodat ze keer op keer benut kunnen worden. Tuinen van West is een plek waar iedereen naartoe kan om bij te dragen, te leren en te genieten.

3:3 p 42 in 7 amsterdamcirculair2020-2025_strategie_wcag_5_

Voedselbos Zuidoost is een initiatief van de bewoners van de K-buurt.

De 53 hectare bos wordt door de bewoners aangelegd en beheerd.

Daarnaast stimuleert het initiatief de sociale cohesie tussen generaties en verschillende bevolkingsgroepen, verhoogt het bos de biodiversiteit en maakt het de buurt klimaatbestendiger.

14:16 p 10 in 1-NL smart city strategy

Focus op regionale economie

● Employment

3 Quotations:

7:2 p 19 in 3 programma smart mobility

improved supply of mobility that is affordable, reliable and accessible to all

14:6 p 80 in 1-NL smart city strategy

Kloof dichtert tussen opleiding en banen van de toekomst

14:17 p 99 in 1-NL smart city strategy

Steden hebben nu geen invloed op het onderwijs

curriculum, maar willen daar wel samen met het ministerie van OCW

over meedenken en samen optrekken (om mensen digivaardig te maken en vacatures in te vullen).

● Equal rights

22 Quotations:

4:2 p 11 in 2 digital city agenda

To reduce digital inequality by creating the conditions under which people can participate, such as access to the internet and pooling resources for offering online help where it is needed

4:3 p 10 in 2 digital city agenda

Vulnerable citizens in particular need to use government services more than others and derive greater benefit from an effective provision of information

4:11 p 11 in 2 digital city agenda

Amsterdam is among the parties working on a Digitaal Meedoen ('get involved online') pilot being organised by the central government

4:13 p 12 in 2 digital city agenda

content concerning online inclusion

4:17 p 7 in 2 digital city agenda

Amsterdam was one of the first cities to formulate its aim of protecting the digital rights of its citizens and is the co-founder of the urban coalition for digital rights.

4:31 p 6 in 2 digital city agenda

People who live below the poverty line or who have healthrelated problems, people with limited language skills, people without the right network. It is precisely these people who have to rely heavily on the City Council's online services.

4:35 p 12 in 2 digital city agenda

By putting information and knowledge regarding the influence of technology (positive and negative) on the agenda, and by sharing and depicting it, we can ensure that the people of Amsterdam, young and old, are aware of the opportunities and threats of digitisation

6:2 p 62 in 4 omgevingsvisie

In de geest van de Omgevingswet gebruiken we nieuwe digitale middelen voor een gelijkwaardige informatievoorziening.

6:5 p 164 in 4 omgevingsvisie

hier staat voorop dat de digitale omgeving alle Amsterdammers helpt om zich te ontwikkelen.

7:11 p 19 in 3 programma smart mobility

We will translate this into Amsterdam requirements for commercial transport providers in public space: data will belong to the user, and relevant data needed to promote accessibility and liveability must be shared with the City of Amsterdam.

13:3 p 7 in 6 grip_op_technologie_actieplan-417543574

Burgers kunnen zien welke gegevens de gemeente Amsterdam over hen bewaart, welke technologieën de gemeente gebruikt

13:5 p 13 in 6 grip_op_technologie_actieplan-417543574

Burgers ervaren dat de gemeente hen ook bij digitaliseringstrajecten serieus neemt. De gemeente heeft oog voor hun problemen en belangen, oor voor hun inbreng en handelt daar ook naar.

13:6 p 13 in 6 grip_op_technologie_actieplan-417543574

De gemeente heeft bij digitalisering meer oog voor de diversiteit in de Amsterdamse samenleving. Er is meer aandacht voor minderheidsgroepen en verschillen tussen groepen bij de inzet van data, algoritmen en technologie door de gemeente.

14:5 p 79 in 1-NL smart city strategy

het toegankelijk maken van technologie en tools voor iedereen,

14:7 p 99 in 1-NL smart city strategy

Er is nationaal beleid nodig dat stuurt op het beschikbaar maken van technologie en tools voor iedereen, ongeacht opleiding of sociale klasse.

15:1 ¶ 15 – 16 in Tada Manifest

Van iedereen - voor iedereen

Data die overheden, bedrijven en andere organisaties uit de stad genereren en over de stad verzamelen zijn gemeenschappelijk bezit. Iedereen kan ze gebruiken. Iedereen kan er voordeel van hebben. Hier maken we gezamenlijk afspraken over.

15:2 ¶ 6 in Tada Manifest

We houden rekening met de verschillen tussen individuen en groepen, zonder gelijkwaardigheid uit het oog te verliezen

18:1 p 14 in 22 agenda_digitale_stad_versie_1_01_maart_2019

Digitale diensten van de gemeente Amsterdam zijn transparant. Want data mag niet discrimineren of gelijke kansen in de weg staan.

18:3 p 14 in 22 agenda_digitale_stad_versie_1_01_maart_2019

gemeente maakt haar data ‘open’ en/of deelbaar op een gemeentelijk platform, voor zover passend binnen wettelijke regels.

18:4 p 14 in 22 agenda_digitale_stad_versie_1_01_maart_2019

gemeente en publieksdiensten zijn toegankelijk, begrijpelijk en bruikbaar voor iedereen, ongeacht de digitale activiteit van de persoon. Zowel online als offline.

18:5 p 9 in 22 agenda_digitale_stad_versie_1_01_maart_2019

In Amsterdam zijn individuele vrijheid en vrijheid van meningsuiting een groot goed.

Technologie moet deze vrijheden koesteren.

18:6 p 14 in 22 agenda_digitale_stad_versie_1_01_maart_2019

Alle Amsterdammers hebben toegang tot het internet.

● Housing

7 Quotations:

4:6 p 11 in 2 digital city agenda

as access to the internet and pooling resources for offering online help where it is needed.

4:8 p 11 in 2 digital city agenda

through the donation of City Council laptops to be reused, and a financial contribution

4:30 p 4 in 2 digital city agenda

or indeed to access a computer or the internet in the first place.

4:32 p 11 in 2 digital city agenda

a pilot is being launched to investigate whether the lending of laptops is a service that will benefit those members of the population who are temporarily unable to possess a device of their own.

4:33 p 11 in 2 digital city agenda

This will enable Amsterdam's residents to access laptops and support on a structural basis. You could compare the Cyberbank with a food bank, except that it has refurbished laptops and support for digital queries.

6:6 p 228 in 4 omgevingsvisie

energietransitie, door het plaatsen van zonnepanelen;

14:7 p 99 in 1-NL smart city strategy

Er is nationaal beleid nodig dat stuurt op het beschikbaar maken van technologie en tools voor iedereen, ongeacht opleiding of sociale klasse.

● **Inclusive economic growth**

5 Quotations:

3:1 p 17 in 7 amsterdamcirculair2020-2025_strategie_wcag_5_

We willen een moderne, bloeiende en inclusieve stad zijn voor iedereen, met oog voor de grenzen die de planeet ons ople

4:27 p 29 in 2 digital city agenda

, and how we can improve the system of preventive warning signals relating to poverty and debt.

14:1 p 71 in 1-NL smart city strategy

We moeten voorkomen dat de concurrentie om start-ups te huisvesten een belemmering gaat vormen in samenwerking.

14:15 p 18 in 1-NL smart city strategy

Samen kunnen ze de oude economie ombuigen naar de nieuwe eco

nomie, met verbeterde kwaliteit van leven voor iedereen in de stad en met een internationaal sterkere concurrentiepositie

14:20 p 42 in 1-NL smart city strategy

Grootschalige toepassing, met economisch perspectief en inclusiviteit

● Infrastructure

23 Quotations:

3:4 p 57 in 7 amsterdamcirculair2020-2025_strategie_wcag_5_

De gemeente verbetert de stadsbrede infrastructuur voor lenen en hergebruik. Hiervoor verbinden we bestaande initiatieven met elkaar en voegen we waar nodig nieuwe elementen toe.

4:15 p 32 in 2 digital city agenda

By using new technology, we wish to ensure that the city is more accessible and easier to navigate, for everyone.

4:16 p 32 in 2 digital city agenda

New technology makes it possible to offer greater mobility options to people and it is important not to neglect its potential.

4:28 p 33 in 2 digital city agenda

We are using new technology to gain a clearer understanding and, ultimately, a (nearly) real-time impression of accessibility in the city

6:7 p 192 in 4 omgevingsvisie

Zojuist genoemde ontwikkelingen in de mobiliteitstransitie worden ondersteund door steeds meer technologische mogelijkheden, maar daarmee zijn dat nog geen wondermiddelen.

7:1 p 19 in 3 programma smart mobility

mobility that is affordable

7:3 p 19 in 3 programma smart mobility

We will work to realise inclusive, clean and healthy transport, with special attention for vulnerable groups

7:4 p 19 in 3 programma smart mobility

and areas with poor accessibility or where public transport and traffic are under pressure

7:8 p 34 in 3 programma smart mobility

We will monitor the effects and work to develop inclusive alternatives.

7:9 p 4 in 3 programma smart mobility

We will work to achieve inclusive, clean and healthy transport, with particular attention for vulnerable groups (for example through innovation in Target Group Transport) and areas that are very busy or where accessibility is poor.

7:10 p 4 in 3 programma smart mobility

Transport for all Amsterdammers, visitors and goods is cleaner and smarter

7:11 p 19 in 3 programma smart mobility

We will translate this into Amsterdam requirements for commercial transport providers in public space: data will belong to the user, and relevant data needed to promote accessibility and liveability must be shared with the City of Amsterdam.

7:12 p 19 in 3 programma smart mobility

Amsterdam will be an international frontrunner in smart mobility, because we will offer a platform for innovations that have societal impact and experiments that centre on the user and can be rapidly scaled.

7:13 p 13 in 3 programma smart mobility

More affordable and easily accessible mobility services for consumers: more options and more service.

7:14 p 18 in 3 programma smart mobility

Amsterdam is smart mobility city number one

7:15 p 18 in 3 programma smart mobility

Transport for all Amsterdammers, visitors and goods is cleaner and smarter

7:16 p 16 in 3 programma smart mobility

We want to be a city with a high level of road safety, with more space for pedestrians and bicycles.

7:17 p 16 in 3 programma smart mobility

We want mobility to be accessible

7:18 p 16 in 3 programma smart mobility

and affordable for everyone.

14:18 p 37 in 1-NL smart city strategy

bereikbaarheid

14:22 p 35 in 1-NL smart city strategy

Wordt gewerkt aan vraagstukken die raken aan de steden van de nabije

toekomst. Er vindt bijvoorbeeld onderzoek plaats naar zelfrij

dende voer- en vaartuigen, mobiliteitsmanagement (ook voor

voetgangers en fiets) en duurzame energie

17:1 p 8 in 33 programma periode asc

De case voor deze challenge is het stimuleren van circulaire business modellen in de keten van laadinfrastructuur voor elektrische voertuigen.

17:2 p 9 in 33 programma periode asc

Het delen van kennis, het in gang zetten van onderzoek, en het bundelen

van initiatieven omtrent het in kaart brengen en tegengaan van

Mobiliteitsarmoede

● Participation

11 Quotations:

4:2 p 11 in 2 digital city agenda

To reduce digital inequality by creating the conditions under which people can participate, such as access to the internet and pooling resources for offering online help where it is needed

4:14 p 12 in 2 digital city agenda

and online participation

6:8 p 246 in 4 omgevingsvisie

De online participatietools op OpenStad zijn daar een mooi voorbeeld van.

13:1 p 5 in 6 grip_op_technologie_actieplan-417543574

Openbare monitoring en toetsing: burgers hebben inzicht in de digitale transitie van de gemeente en de zorgvuldigheid.

13:2 p 5 in 6 grip_op_technologie_actieplan-417543574

Belanghebbenden betrekken en diverse perspectieven meenemen: burgers, experts en andere belanghebbenden kunnen direct meepraten over digitalisering van de gemeente. Hierbij is oog voor de diversiteit van de Amsterdamse samenleving.

13:3 p 7 in 6 grip_op_technologie_actieplan-417543574

Burgers kunnen zien welke gegevens de gemeente Amsterdam over hen bewaart, welke technologieën de gemeente gebruikt

13:4 p 13 in 6 grip_op_technologie_actieplan-417543574

Burgers, experts en andere belanghebbenden kunnen direct meepraten bij digitaliseringstrajecten met een grote impact op bewoners en zo bijdragen aan betere digitale toepassingen. Ook kunnen zij direct invloed uitoefenen bij de afweging van waarden bij ethische vraagstukken.

14:3 p 42 in 1-NL smart city strategy

Bewoners als city makers, samen diensten ontwikkelen

14:21 p 9 in 1-NL smart city strategy

Overheden hebben de verantwoordelijkheid om participatie van alle bewoners te stimuleren en een tweedeling in de samenleving te voorkomen

17:3 p 9 in 33 programma periode asc

Een toegankelijke en veilige manier van online inloggen bij de overheid en meer bewustzijn creëren over digitale identiteit en privacy risico's.

● Safety

4 Quotations:

4:23 p 36 in 2 digital city agenda

In the process, we will be focusing on the themes of health, education, sport and recreation, work and income, and safety.

7:16 p 16 in 3 programma smart mobility

We want to be a city with a high level of road safety, with more space for pedestrians and bicycles.

14:11 p 37 in 1-NL smart city strategy

veilig en schoon

14:13 p 79 in 1-NL smart city strategy

veiligheid in de wijk.

● **Services**

10 Quotations:

4:3 p 10 in 2 digital city agenda

Vulnerable citizens in particular need to use government services more than others and derive greater benefit from an effective provision of information

4:10 p 11 in 2 digital city agenda

ublicroam is being further upscaled in the city, and will be available at swimming pools, sports clubs, city and town halls, libraries, local community centres, schools and elsewhere

4:18 p 39 in 2 digital city agenda

Access to high-speed internet for everyone in Amsterdam through the creation of optic fibre networks

4:24 p 11 in 2 digital city agenda

To reduce digital inequality by creating the conditions under which people can participate, such as access to the internet and pooling resources for offering online help where it is needed.

4:25 p 11 in 2 digital city agenda

Publicroam is being further upscaled in the city, and will be available at swimming pools, sports clubs, city and town halls, libraries, local community centres, schools and elsewhere.

4:26 p 11 in 2 digital city agenda

The ‘Digitaal Meedoen’ package consists of 1) an internet subscription to those on minimum income levels for a reduced rate, 2) a device, if the participant does not have one available, 3) help and support with using the devices.

14:19 p 78 in 1-NL smart city strategy

het gebruik van informatietechnologie voor sterk verbeter

de stedelijke dienstverlening,

17:3 p 9 in 33 programma periode asc

Een toegankelijke en veilige manier van online inloggen bij de overheid en

meer bewustzijn creëren over digitale identiteit en privacy risico's.

18:1 p 14 in 22 agenda_digitale_stad_versie_1_01_maart_2019

Digitale diensten van de gemeente Amsterdam zijn transparant. Want data mag niet discrimineren of gelijke kansen in de weg staan.

18:4 p 14 in 22 agenda_digitale_stad_versie_1_01_maart_2019

gemeente en publieksdiensten zijn toegankelijk, begrijpelijk en bruikbaar voor iedereen, ongeacht de digitale activiteit van de persoon. Zowel online als offline.

● Skill Building

19 Quotations:

4:4 p 10 in 2 digital city agenda

it is becoming increasingly important to develop their digital skills

4:9 p 12 in 2 digital city agenda

Investing in after-school education programme with a focus on creativity and technology

4:20 p 4 in 2 digital city agenda

we and our partners will help the people of Amsterdam develop the skills they need in order to continue participating, or indeed to access a computer or the internet in the first place.

4:24 p 11 in 2 digital city agenda

To reduce digital inequality by creating the conditions under which people can participate, such as access to the internet and pooling resources for offering online help where it is needed.

4:26 p 11 in 2 digital city agenda

The ‘Digitaal Meedoen’ package consists of 1) an internet subscription to those on minimum income levels for a reduced rate, 2) a device, if the participant does not have one available, 3) help and support with using the devices.

4:29 p 4 in 2 digital city agenda

we and our partners will help the people of Amsterdam develop the skills they need in order to continue participating,

4:33 p 11 in 2 digital city agenda

This will enable Amsterdam’s residents to access laptops and support on a structural basis. You could compare the Cyberbank with a food bank, except that it has refurbished laptops and support for digital queries.

4:34 p 11 in 2 digital city agenda

Amsterdam’s citizens must have the knowledge and skills to negotiate the online world effectively and securely and be capable of using technologies – new or existing – without losing control.

4:35 p 12 in 2 digital city agenda

By putting information and knowledge regarding the influence of technology (positive and negative) on the agenda, and by sharing and depicting it, we can ensure that the people of Amsterdam, young and old, are aware of the opportunities and threats of digitisation

6:1 p 164 in 4 omgevingsvisie

Ten tweede de inclusieve digitale stad: hier staat voorop dat de digitale omgeving alle Amsterdammers helpt om zich te ontwikkelen.

Toegang tot informatie en educatie is hierbij cruciaal.

13:7 p 17 in 6 grip_op_technologie_actieplan-417543574

De gemeentelijke organisatie beschikt over voldoende kennis, expertise en vaardigheden om bij inzet van data, algoritmen en technologie de digitale rechten van burgers en bedrijven zeker te stellen.

13:8 p 17 in 6 grip_op_tecnologie_actieplan-417543574

Ambtenaren die meedoen aan digitaliseringstrajecten beschikken over de juiste kennis en vaardigheden om ethische vraagstukken te herkennen en een bijdrage te leveren aan morele oordeelsvorming bij botsende publieke waarden.

14:8 p 80 in 1-NL smart city strategy

Deze kloof is een kwestie van technische skills

14:9 p 7 in 1-NL smart city strategy

Ontwikkelen we de juiste vaardigheden?

14:10 p 36 in 1-NL smart city strategy

de vaardigheden en methodieken

die passen bij data-innovatie

14:17 p 99 in 1-NL smart city strategy

Steden hebben nu geen invloed op het onderwijs

curriculum, maar willen daar wel samen met het ministerie van OCW

over meedenken en samen optrekken (om mensen digivaardig te maken en vacatures in te vullen).

18:2 p 14 in 22 agenda_digitale_stad_versie_1_01_maart_2019

Vergroten van de digitale zelfredzaamheid van de Amsterdammer, waaronder kennis en vaardigheden om technologie te gebruiken en de vaardigheden om informatie te vinden, te duiden en te gebruiken.

18:7 p 13 in 22 agenda_digitale_stad_versie_1_01_maart_2019

Amsterdammers beschikken over voldoende digitale weerbaarheid en vaardigheden om goed mee te kunnen komen.

18:8 p 19 in 22 agenda_digitale_stad_versie_1_01_maart_2019

We stellen een strategie op voor digitale inclusie 2. Strategie samen met publieke partners en partners uit de stad, inclusief de nodige maatregelen in een actieplan langs de lijnen: 21ste eeuw vaardigheden, toegang en openheid van kennis.

● **Social Networks**

4 Quotations:

4:19 p 11 in 2 digital city agenda

That is why it is important for the City Council to play a part in connecting our networks and to create a structural approach and collaboration

4:21 p 11 in 2 digital city agenda

but also support to the civil society organisations on the ground, helping them professionalise and to scale up existing initiatives.

4:22 p 11 in 2 digital city agenda

That is why it is important for the City Council to play a part in connecting our networks and to create a structural approach and collaboration.

14:14 p 76 in 1-NL smart city strategy

Dit is medebepalend voor de sociale cohesie in een buurt.