sustainability

MDPI

Article

The Global Whitewashing of Smart Cities: Citizens' Perspectives

Ibrahim Mutambik

Department of Information Science, College of Humanities and Social Sciences, King Saud University, Riyadh P.O. Box 11451, Saudi Arabia; imutambik@ksu.edu.sa

Abstract: Today, smart cities offer many significant benefits. As a result, the smart city is usually described in highly benign terms, and it is often uncritically assumed that its implementation must lead to widescale improvements, at all levels of society. Yet, while smart cities undoubtedly offer advantages, they also carry associated risks and dangers which could outweigh the benefits. This raises the important question of to which extent the ordinary citizen is aware of these risks and dangers. This study sets out to examine this question. While the 'downsides' of smart cities have been the subject of research over the past few years, there have been no studies which explore the perception of smart city disadvantages among citizen-stakeholders in the GCC countries. This study seeks to fill this gap in the literature, by examining the perspectives of a representative sample of citizens from the GCC. The results show that, despite the 'whitewashing' effect of public messaging, the study's participants have a range of significant concerns about smart cities which could affect their acceptance of such initiatives. The findings will inform smart city development bodies in the GCC and contribute to strategies for promoting smart cities and citizen engagement.

Keywords: smart city; smart government; urbanisation; urban design; privacy

Citation: Mutambik, I. The Global Whitewashing of Smart Cities: Citizens' Perspectives. *Sustainability* **2023**, *15*, 8100. https://doi.org/10.3390/su15108100

Academic Editor: Anna Visvizi

Received: 8 April 2023
Revised: 13 May 2023
Accepted: 15 May 2023
Published: 16 May 2023

1. Introduction

Today, global urbanisation is growing rapidly. In fact, almost 70% of the world's population is expected to live in urban areas by 2050 [1], and by 2100 the urban population is projected to be approximately 9 billion, up from 1 billion in 1950. This means that, by the end of the century, around 85% of the global population will live in cities [2]. This explosive growth in urbanisation has resulted in a wide range of societal and governmental challenges, related to issues such as living space, mobility, sustainability, health, and safety [3]—and they are challenges which are at their most extreme in large, global cities [4]. These problems, associated with centres of high population density, are driving the growth in the implementation of smart cities.

Although the fundamental concept of the smart city was first introduced some decades ago [5], the term itself (smart city) was coined in 2005 [6], since when the increasing sophistication of technologies such as machine learning, Artificial Intelligence, IoT (Internet of Things), and Big Data have driven a major increase in the application of smart technologies to urban design. The potential of the smart city is to deliver the advanced infrastructures and services required by the urban centres of today and tomorrow [6]. The smart city is also at the heart of the concept of Society 5.0, which has become widely accepted as a new paradigm for the development of social infrastructures across the world [7–9].

The model of the smart city is hard to define precisely, though there have been a number of attempts to reach a consensus [10,11]. Most sources agree, however, that smart cities are not merely about streamlining governmental operations or city infrastructures by replacing traditional elements with digital technology. Instead, they are about using technology and Big Data to facilitate better decisions at all levels and about providing citizens with a higher QoL (quality of life) [12,13], and there is increasing evidence that these aims are realistic. A 2018 report from McKinsey, for example, found that the use of smart technologies can improve some key QoL metrics by between 10% and 30%—increases

that mean "more lives saved, fewer crime incidents, shorter commutes, a reduced health burden, and carbon emissions averted" [12]. Essentially, the aim of smart city designers should be to improve city services and promote economic growth while also improving governmental efficiency, social conditions, and sustainability [14].

Given the many benefits of smart cities, it is perhaps understandable that much of the media presence and government messaging is focused on the power and potential benefits of the underlying technology [15,16]. In large part, this is because the majority of smart city initiatives are driven by 'top-down' strategies, in which state-level bodies seek to enact changes and programmes that embed ICT in the urban infrastructure [17]. This engenders a need for positive messaging. The result is a relatively low awareness of the 'downsides' and dangers of smart cities, a situation that can be exaggerated by the common assumption that technological change is a goal in itself, and inherently a 'force for good'. Yet several significant dangers exist, mainly concerning issues such as information security, personal privacy, social control, and cost. These issues, and others, have been identified and discussed by several researchers and organisations [18–21], while others have criticised the concept of smart cities for embodying a set of neoliberal principles that, ultimately, benefit government and private industries, as opposed to private citizens [17,18,22].

In most contexts, issues such as information security and privacy, while important to citizens, have not proved a major barrier to mass technology adoption. This is mainly a result of generally pragmatic attitudes. For example, there are a number of studies which show that, while the average consumer is concerned about data leakage and abuse, most are prepared to share their data, provided the data are used to benefit the consumer in some way [18,22]. This is evidenced by the continued and growing use of social media, which saw a 10.1% growth between 2021 and 2022 [23], and the rapid rise in use of social commerce, which is expected to exceed US $1 trillion globally in 2023 [23], both of which carry significant risk of private information abuse.

The smart city scenario, however, is a different matter. In this context, an increasing amount of personal information is collected without consent, and many citizens feel deprived of the ability to 'opt-out', or express concern over the use of their information and who has access to it. This emerging awareness of, and concern about, the negative aspects of smart cities should be of increasing interest to development bodies and authorities. This is because, to deliver on their full potential, an effective collaboration between government, citizens, and other stakeholders must be formed [24]. However, achieving such a collaboration will be dependent on an understanding of the views of all parties. Essentially, smart cities must be inclusive and participatory [25]; they must reflect the needs, and cater for the concerns, of all citizens. To realise these aims, development bodies and authorities need to shift away from top-down strategies and engage with citizens at an early stage of design. As the OECD phrased it, "Citizens are not only recipients, but also actors of smart city policies . . . [this] means co-constructing policies with citizens throughout the policy cycle" [26].

Despite this, the perspectives of people living in urban areas that are likely to transition to smart cities are not, as yet, well understood [27]. Although one study found that participants did not want to live in a smart city [28], the researchers involved in the study did not report on the reasons for this decision. Another study [29], of citizens in Hong Kong, has shown that there is less concern about the effect of smart city status on public services than about issues of governance, such as transparency and fairness. The issue of compromised fairness is supported by research [30] that found that the views (on smart cities) of citizens in Indonesia are effectively suppressed, as the implementing authorities only serve the interests of dominant groups. More research would be valuable on this point.

This lack of understanding of citizen concerns is particularly pertinent in the GCC countries (these are: Saudi Arabia, Kuwait, the United Arab Emirates, Qatar, Bahrain, and Oman), which (as one of the most urbanised regions in the world) have committed to embracing the smart city framework to address their urban challenges [31]. This study,

therefore, seeks to contribute to the existing literature by better understanding the perceptions of citizens in GCC countries, with particular emphasis on discovering, through inductive (no preconceptions) methods, their concerns. In particular, the paper seeks to provide insights on two research questions:

RQ1. *Are citizen-stakeholders aware of the disadvantages of smart cities?*

RQ2. *What are the main areas of concern?*

Although we have focused on stakeholders in the form of citizens, we have explored a diverse cross-section of views by including a range of key stakeholder sectors from each GCC country: business, academia, government, activists, and members of civil society [28]. One participant is included from each stakeholder category from each country, giving a total sample of 60. The paper thus contributes to our understanding of stakeholders' concerns about the implications of smart cities within the GCC countries, which can help to inform more effective smart city strategy, design, and implementation.

2. Literature Review

There have been a number of studies which have explored the views and perspectives of citizens with respect to smart cities. However, most of these studies have been framed in terms of the benefits of the concept, and, therefore, tend to deliver (valuable) conclusions focused on the positive attributes and advantages that citizens associate with smart cities. One study, for example, found that professional urban developers in India associated the smart city with sustainability and improved (smart) communities [32], while another study of Australian citizens produced similar results [33]. This reported that smart cities were most commonly associated with innovation and sustainability.

Other research has usefully focused on preferences rather than expectations—in other words, what citizens want smart cities to deliver, as opposed to what they expect. Many of these studies show that people want improved QoL, irrespective of the technologies that are implemented. One study, for example, found that citizens wanted smart cities to deliver an environment that enriched opportunities for creativity, collaboration, and learning [34], while another showed that the top priority for people in Taiwan is a safer and more stable social environment [35]. Other studies have reflected this finding by showing that people expect smart cities to be safe and useful, and to improve their health and wellbeing [36]. Conversely, concerns about ICT privacy, security, and trust deter them from accepting smart city services [19].

All of these studies make valuable additions to the literature. As has been noted, however, while they may make occasional reference to the concerns of citizens, the main focus of their conclusions is on positive attributes and associations. Mostly, this is intentional, and is inherent to the research aim of the studies concerned. However, it can also be the case that the research is structured in such a way as to produce results which are affected by the 'framing' effect, which can lead to an emphasis on specific aspects of a topic [37,38]. The current study takes measures to avoid such framing in either the interview structure or questions. The interviews were designed to be fully open in structure, giving participants equal scope to identify disadvantages and concerns, as well as benefits and hopes, without (intentional or unintentional) prompting to introduce bias.

It is true, of course, that studies exist which examine the 'negative' aspects of smart cities. Most of these, however, are either discussion-led, and based on theoretical analysis, such as [39], or are meta studies. They do not use data derived directly from stakeholders. One very recent (2023) meta study [40], for example, set out to better understand the level of citizen discontent with the concept of the smart city, and concluded that not all individuals were convinced that the 'technological utopian vision', which underpins the drive behind smart city implementation, was desirable. Other recent research (e.g., [41,42]) has reported a similar pattern of discontent concerning smart cities but does not categorise this discontent or identify its causes. Some researchers have suggested that, while citizen

concerns about smart cities exist in growing numbers, some governments only consider the views of dominant groups, thus effectively marginalising those with concerns [30].

There are also several studies which shine an indirect light on the issue of citizen concerns over smart cities. Such studies typically focus on the strengths and weaknesses of smart city strategies, and occasionally highlight the existence of citizen concerns. An example of this is the literature review by Mora et al. [43] which, in a study of smart city literature embracing 43 countries, and 146 cities and regions, found that the discussion of how to introduce cultural changes, in order to encourage a more innovative and positive mindset, was a common subtheme in relatively recent research. However, while this clearly implies a recognition that concerns about smart cities exist, the 'mindset' referred to is the organisational mindset, rather than the individual one.

In another recent literature review, by Al Sharif and Pokharel [44], the authors explore the 'risks' of implementing a smart city strategy, finding that these risks can be categorised as 'technical risks' and 'non-technical risks' (such as social, economic, and governance issues). One of the study's conclusions was that, while few researchers focus specifically on the non-technical risks, these are still significant, and smart city implementation and operation would benefit from greater attention to this category of risk, which includes the traditional mindset and concerns of stakeholders. This point is echoed by Ahad et al. [45] who argue that "non-technical risks have a noticeable effect on the implementation of smart cities", and Vidiasova and Cronemberger [46], whose research explored the risks associated with the "ignorance" of citizens' and other stakeholders in a smart city context.

However, although these studies are relevant and important, few are based on in-depth qualitative primary data obtained directly from stakeholders [40]. Although one very recent (2023) study in Hong Kong [29] does adopt a primary research approach to evaluating public concerns about smart cities, it uses a quantitative technique (surveys) to measure probit regressions (binary responses) on two aspects of smart cities (QoL and governance). On the whole, however, there is little research which seeks to provide insights into citizens' concerns about smart cities, using a primary qualitative approach.

There is, perhaps, one notable exception to this observation: i.e., research on the issue of privacy and security. These issues have been shown by a significant number of studies to have an impact on citizens' acceptance of the smart city concept [34,42,47–49]. Tang et al. [21], for example, found that many individuals have concerns about placing personal information on a government-run app [21], while Cabalquinto and Hutchins [50] showed that there is a high level of anxiety concerning the security of personal data on public Wi-Fi systems [50]. Much of this concern results from distrust of governments, who are suspected by some of intending to implement mass surveillance and control strategies [15,42,50]. Some studies also show that many citizens suspect that their data will be (ab)used by governments and companies in order to pursue commercial interests, or to implement discriminatory practices [34,41,50,51].

In an attempt to examine the legitimate concerns of citizens in the context of smart cities, this study not only uses an in-depth (open) interview technique, but it also includes a cross-section of citizens to represent all major categories of stakeholder (business, academia, government, activists, and members of civil society). These categories have been identified as key agents in the 'multi-stakeholder' model of smart city design and implementation, which recognises that an effective design strategy should combine top-down and bottom-up approaches [52].

3. Research Method

3.1. Data Collection

This study set out to explore the perspectives of stakeholders in GCC countries on the issue of smart cities. In particular, we aim to gain insights into the concerns of stakeholders, as opposed to their understanding of the benefits of a smart urban infrastructure. In order to achieve this, we employed in-depth interviews with participants from a range of key stakeholder categories. This resulted in a sample (n = 60) which included ten participants

(two from each category) from each of the six countries in the region. All interviews were interactive and generative, according to accepted guidelines [9,53], and designed to avoid the framing effect [38], which could bias responses towards negative or positive perceptions of smart cities. The results were analysed using thematic analysis.

The interviews were conducted in two stages:

- Format/structure. As a first step, primary open-ended questions were designed to act as a basis for follow-up [54,55]. All questions were fully open and designed to avoid 'framing', which can lead to bias.
- The interviews. Each interview took between 45 min and one hour, and field notes were used to ensure consistency and validity. All interviews were carried out in Arabic and recorded (with the participant's consent). Each transcript was translated into English for the purpose of this report.

3.2. Sampling

Participants were initially identified through the social networking platform, LinkedIn. Potential participants were:

- Educated to at least graduate level.
- Likely to have heard of the term 'smart city'.
- Likely to have considered the societal and individual impact of smart cities.
- Likely to be willing to offer their views.

After an extensive search and review of profiles, 120 people (four per category per GCC country) were initially invited to participate by email. The invitations explained the purpose of the research and reassured the invitee that it conformed to all relevant ethical standards. No incentives, financial or otherwise, were offered, and the invitations were fully agnostic concerning the merits/drawbacks of smart cities. This process resulted in 103 responses, of whom 81 agreed to participate. However, as two countries were not fully represented in all categories, a further 12 invites were sent. This provided the full category representation required, and the final sample size was 60.

Although a saturation sampling technique was not explicitly employed in the study, there is a significant amount of evidence that suggests a sample size of 60 (10 from each GCC country) is sufficient to provide de facto saturation. Some sources argue that a sample of 25–30 will provide meaningful results [56–58], while others have found that, in some fields of research, as few as three in-depth interviews can provide the required results [57,59,60]. It should be noted, however, that this was a cross-sectional study across a single region: if the results are to be fully generalisable to other regions/cultures, further research, with a larger, more culturally representative, sample would be valuable. A summary of the participant profiles is shown in Table 1.

Table 1. Participant summary.

Variable		Participants
Gender	Male	33
	Female	27
Category	Academic	12
	Business	12
	Government	6
	Activist	10
	Civil Soc	10
Age	18–35	25
	35+	35

3.3. The Interviews

As noted, 60 interviews were conducted in total. These were conducted using online platforms such as MS Teams and Zoom, due to the practical issues presented by the location

of participants. Each interview consisted of nine primary questions, plus follow-ups. The primary questions covered the following areas:

- Understanding the concept of a 'smart city'.
- Understanding of purpose of smart cities.
- The impact of smart cities on the state/city/community.
- Their impact on you (the participant).
- The future: what will smart cities bring to society?

As it was important to ensure that the primary questions prompted responses which could be used for follow-up, two pilot interviews were carried out [54,55,61–63]. These showed that the interview structure was fit-for-purpose.

3.4. Study Ethics

Standard ethical guidelines were followed at all times while conducting the research. Before every interview, participants were given written assurance of confidentiality, as well as a full explanation of how their responses would be analysed and used. No recordings were made without consent from the participant, and it was made clear to each participant that they could withdraw from the study at any time. All participation was completely voluntary, and no financial (or other) incentive was offered to any participant.

3.5. Data Analysis

Thematic analysis is a powerful and flexible technique for analysing qualitative data to understand experiences, thoughts, or behaviours across a data set [64,65]. In this study, we employed a combination of deductive and inductive approaches, as our starting point was the participants' perception of smart cities, but we wanted to avoid the introduction of preconceptions through the use of an existing coding frame [64,65]. A full description of thematic analysis is beyond the scope of this paper, but the basic steps followed were:

- Initial coding. The transcriptions of each interview were read several times, and segment-by-segment coding was carried out to identify similarities in content.
- Focused coding. Patterns were identified and formed by grouping codes considered to be of particular significance [65–67].
- Search for themes. Groups of focused codes that had a commonality of meaning were identified. These were recorded as 'sub-themes'. These were then also analysed for commonalities to form 'main themes'.

In order to complete this process, we used the NVivo data analysis tool, and the coding set was revised a number of times [68]. To ensure reliability of the coding process, two researchers separately coded all the data, and the results were checked for inconsistencies. The coding process was considered complete only when all researchers agreed on the codification.

4. Results

As discussed above, all interviews were structured and conducted in such a way as to avoid the framing effect—i.e., producing responses which are influenced by the way the questions were presented [54,55,66,69,70]. The intention was to identify a unified view of concerns about smart cities, unbiased by the research context. While all participants acknowledged a variety of positive aspects of smart cities, several major themes related to negative aspects emerged from our interview data, and we list these themes below.

4.1. Human Belief in Technology

While all of the participants were 'digitally aware', and relatively well informed on the subject of smart cities, it was clear that there was a wide divergence of views concerning the definition of the concept. Although many buzzwords, such as 'big data', 'innovation', 'information technology', and 'social improvement' occurred frequently, there was no clear agreement on how these words translated to reality. This was particularly true in terms

of the positive deliverables of smart city implementation, and most interviewees, while agreeing that smart cities were superficially a good idea, expressed significant caveats. One participant, for example, considered a smart city to be a conurbation in which services and processes are efficient and effective, independent of the technological source of this efficiency. This is based on the belief that resilient, efficient cities demand effective structural planning from the ground up—if basic infrastructures are poor, the introduction of technology may be a bad, or short-term, fix—essentially a mere 'sticking plaster'. Other participants also recognised that smart cities have genuine positive potential, but also felt that technology was too often a 'knee-jerk' reaction and is implemented because technological advance is generally believed to be 'a good thing'. These interviewees felt that due consideration was not always given to the true complexity of the economic, social, and political issues involved.

> *I think, in general terms, that smart cities sound good at one level, offering more efficient governing and better quality of life for people. But I worry that it's too often technology for the sake of it, rather than the result of a coherent long-term strategy, and that can end up being counterproductive.*

Several participants echoed this view by arguing that technological solutions are thought by many to be apolitical, yet the strategists and technicians that develop these solutions can (either consciously or unconsciously) build in assumptions and values that reflect a political orientation. This reflects the view of Kitchin et al. [71] who argued that technical systems do not exist independently of the ideas, techniques, and people that conceive and produce them. One participant said:

> *It's easy to fall into the trap of thinking that any technology that's good for one is good for all. But that's not necessarily the case. In fact, I'd say it's rarely the case. Often, technical solutions are promoted as being in everyone's interests when, really, they only serve the interests of a few.*

The uncritical vision of technology as a universal and unquestioned good, and its use 'just because it's there' was felt by many participants to be, in one way or another, a problem with the concept of smart cities. These participants felt that technology was in danger of being used in isolation, without full consideration of how it could and should work for the greater good of the community. The gap between the objectives of development bodies and needs of citizens was identified by many participants. As one interviewee put it:

> *The problem is, that concepts like smart cities are usually just imposed on people. It's taken for granted by the authorities that the general population will welcome whatever technologies and solutions are used. You really see rarely see consultative processes being used at design level.*

4.2. Prioritising Profit over Social Improvement

Although government bodies across the world have often claimed to prioritise 'citizen-centric' initiatives, the reality can be different. Often, the reality is a focus on the interests of corporations and private industry, without significant attention to social or citizen inclusion [72]. While some technology companies have developed apps to encourage civic engagement and community building, such as Granicus [73], the first citizen engagement platform for the public sector, and Neighborland, a collective online urban planning platform, these are all, in reality, limited to information sharing only, and do little to address fundamental issues of urbanisation. The recognition of this reality was expressed in various ways by several participants. For example:

> *We're often told that smart cities will improve aspects of our daily lives, such as better healthcare and public services, but I can't help thinking that the main reason behind them is to collect data and sell it to local businesses.*

This belief—that smart city technologies can be instruments to privatise services and protect corporate interests—was first proposed as early as 2008 [74]. Judging by

the responses of the participants in this study, this view has consolidated in the public consciousness. Several participants felt that there is a real danger that the smart city agenda can be used to prioritise the development of new market opportunities for private institutions over societal improvement.

> *I like the idea of using technology to improve public services and promote equality, but I can't help thinking that this is just a front for more self-serving aims. I can't prove it, of course, but I suspect the ultimate objective of a [smart city] is profit-driven—using social improvement as way of making money.*

This point was emphasised by several participants, who felt that the top-down nature of smart city policy and implementation relegated citizens to a secondary role, at best. In a smart city context, citizens would be valued only as data points—as indicators and metrics that can help fulfil the objectives of private interests. They are not seen, as is often claimed, as contributors to society and decision-makers. One participant was particularly sceptical:

> *Personally, I suspect that much of the thinking behind smart cities is driven by government and corporate interests who are using it to consolidate power and create new market opportunities. I think that's a realistic view, rather than cynical. After all, public services are known to be a way for corporations to enhance profit, and most countries operate on the basis of looking after a small wealthy elite, rather than pursuing the greater good. I think it's a little naïve to expect things to be different with smart city policy.*

The suspicion that the citizen-participation aspect of smart cities is overplayed by governing bodies, and even false, has been expressed by a number of researchers, such as Cardullo et al. [75], who expressed the view that citizen-focused language is often used to conceal the implementation of a specific, and usually neoliberal, political agenda. While successful smart city initiatives do exist, such as Smart Cities for All [18], they are often seen as reinforcing social divides and increasing socioeconomic differences, rather than producing societies that are more equal and inclusive [76]. This suspicion was reflected in the comments of several participants. For example:

> *It all sounds good, I admit, but is it just marketing hype? I don't know, but it feels like one of those empty labels that hide a manipulative purpose, such as gaining more control or protecting elitist interests. Ordinary citizens don't have much of a say in how these things work.*

4.3. Urban Surveillance

Perhaps one of the most obvious, and ultimately damaging, concerns about smart cities, is the use of surveillance technologies. These are not an 'optional extra'; rather, they are fundamental to the concept of a smart city, which rely on data gathered by technologies such as automatic data mining, facial recognition, and other forms of artificial intelligence. Together, these technologies provide possibilities for new forms of social regulation, predictive profiling, and ways of influencing individual citizen behaviour. The power of urban surveillance has been demonstrated in over 50 countries [77], including the US and China, which is home to 18 of the top 20 most monitored cities in the world [77]. The result is ever-growing concerns about privacy and data protection. These concerns were very evident in the responses from many participants in the current study. For example:

> *When you hear talk of smart cities, it is usually in terms of how much they will improve things, you know, like a greener environment, safer streets and better public services. But I can't help worrying that the technologies involved, like CCTV and data collection, will lead to greater state control and less individual freedom.*

Another participant made a similar point, even more strongly:

> *In some ways, you could be forgiven for thinking that the word 'smart' is just another word for 'surveillance', as just about everything that makes a smart city work is about collecting and using data on citizens.*

One of the attributes of smart cities is that it enables anticipatory governance techniques such as predictive policing [25,35]. This allows to use collected data to make decisions on where to deploy patrols, or to identify individuals more likely to commit crimes. While the benefits of this may seem clear, the algorithms used can introduce factors such as racial bias and the suppression of racial, ethnic, and religious minorities [25,35]. Several participants identified this, and related possibilities that arise from smart city implementation, as a serious concern. One said:

> *I heard someone say that today's smart technology could transform law enforcement, and give us all a safer environment. Well, maybe, but as far as I can see, it leads to more problems than it solves. If that's what we get with smart cities, then some re-thinking has to be done, in my view.*

Although many significant concerns about surveillance in smart cities were expressed, some participants took a pragmatic and balanced view of the risks. For example:

> *I can see the problems with using surveillance technology everywhere, but there are also some clear advantages, too. Everything in life is about the risk–reward equation, and the price of greater control might be worth paying for reducing crime and getting a greater sense of security. I'm not sure. But it's probably going to happen, whatever the individual might think about it.*

4.4. Privacy and Data Security

A related, but different, issue to surveillance is privacy. This also emerged as a significant concern among participants in this study.

Smart cities are designed to collect immense volumes of data which can be used in ways that individuals have little or no control over. It may be under the control of the government, or it could fall into the hands of a private company or cybercriminal. This makes the potential for abuse high [78], and the situation is exacerbated by the fact that smart cities often collect and treat data in such a way that they are exposed for anyone to find and modify [18,78].

> *As I understand it, smart cities by their nature involve the collection of huge amounts of data produced by me or any devices I own. I find that very worrying. If it falls into the wrong hands, it could be used for many criminal purposes, such as robbing my home while I'm away, as I travel quite a lot. The havoc that this kind of abuse could cause is unthinkable.*

A variation on this theme was expressed by a participant who pointed out that, unless systems were proven to be robust and secure, data abuse could result in a failure of trust in government.

> *Even without smart cities, data breaches are becoming ever more common as criminals get more sophisticated. The use of even more digital technology and data collection in a smart environment could cause citizens to lose trust in the government's ability to protect their data.*

This theme was emphasised by another participant, who noted that the collection of data on individuals may not be necessary.

> *Even if authorities prioritise data security in their systems, there is always the risk of mismanagement, or accidental leakage. Personally, I think the best way forward is not to collect data on individuals, but on collective activity, so there wouldn't be a privacy risk to citizens. I'm not completely sure, but I believe some smart cities operate on that principle.*

Another participant expressed a worry that smart cities may require not only individuals to be 'connected' to the data collection infrastructure, but also homes. These are increasingly becoming popular, as they allow users to remotely monitor their home de-

vices, ranging from security systems to refrigerators, via mobile applications. According to the participant:

> *I love the fact that my home is reasonably smart, which makes it easy to do things like regulate the temperature in the summer, and help make the place more secure. I'm not so keen on the idea that these devices could be constantly monitored, in order to collect data—I would worry about how that data could be used.*

4.5. Dehumanisation

One theme which is relatively unusual in discussions concerning smart cities, but which was recurrent in this study, was the theme of dehumanisation. The way, in other words, that the large-scale digitisation required by the smart city concept begins to detract from the 'human-ness' of individuals. Contrary to the much-vaunted intention of the smart city, which is to create urban spaces where individuals can enhance their humanity, by connecting better with others and live fuller, safer lives, several of the participants in the current study voiced concerns over the emergence of a dystopian, dehumanised future. While such a future may be some years away, these interviewees clearly felt that, if smart cities evolve without restraint, they would result in urban centres where people were treated as mere numbers rather than individuals. One participant said:

> *Whenever they're talked about, smart cities always seem to be described with a lot of fine words, about how they allow people to interact with their environment, but the effect of digital technology, as far as I can see, is to isolate people, rather than bring them together—to cut them off from their environment, by reducing the need for physical interaction. In the long term that can only end up with people being less, rather than more, human.*

Other participants reflected the view of Green [79], who claims that smart city initiatives tend to oversimplify the complexities of urban living and see technology as a panacea; a 'fix-all' solution, resulting in the view of smart cities as rational, steerable machines rather than a place of complexity and humanity [18]. However, without a well-defined agenda which is truly human-centred, this approach, according to several interviewees in this study, will be counterproductive. One commented, for example:

> *We're already seeing the early signs of how technology can cause division and inequality, by cutting people off from certain services if they don't have the right technological resources. Social media makes things worse, by discouraging people from engaging with the real world. All this could become a hundred times worse in a smart city, where everything is about using technology—far from being liberated, people will become trapped in a digital prison.*

Other participants made similar observations, by pointing out the dangers of assuming that the mass implementation of technology automatically translates into an environment which delivers increased wellbeing, equality, liveability, and health. Unless there is proper consideration of the philosophical and ethical questions raised by the concept of a smart city, and regard for intrinsic human needs, the AI algorithms that underpin smart urbanisation will reduce people to automatons, rather than enhance our humanity. One interviewee said:

> *The dehumanising power of technology is clear from many present-day examples, and it's hard to see how that power will be contained and controlled in a living environment which is totally built around digital processes. My worry is that the smart city idea, while offering some short-term benefits, will ultimately produce cities which are more like machines, with people treated as the cogs that make it work.*

Another participant cited the recent advances in AI as a possible indicator of where the smart city agenda could lead the human race.

> *You only need to look at the controversy and concerns surrounding AI at the moment to imagine where we could be in a couple of decades' time. The use of AI and deep-fake*

technology to spread misinformation and cause disruption is already threatening not just individual lives but social structures, and it seems to be getting out of control. Yet these technologies will be the basis of smart cities. I find it very concerning.

5. Discussion

In this study, we examine the perceptions of citizen-stakeholders within GCC countries, concerning smart cities. In particular, we explore their concerns about the potential for smart cities to make a negative impact at both an individual and state level. While the negative aspects of smart cities have been the subject of discussion and research for some while [80–82], there are few studies which explore these concerns from the perspective of the individual, and none, as far as the current researchers are aware, that focus on the GCC group of countries. Further, the study has sought to avoid biasing the results through the framing effect—that is, leading participants in a particular direction by the structure of the questions. Instead, a completely open approach was taken, and concerns were identified through the use of thematic analysis. The results are expected to be of interest to smart city development bodies within the GCC, as smart cities are an important part of the national development strategy of each GCC country [83] and addressing citizen concerns are important part of successful strategy implementation.

While all participants were familiar with the concept of a smart city, and some held IT-related posts, none were directly involved in the design or development of smart city projects. As could be reasonably expected from such a sample, a wide divergence of views was found, and analysis of the data identified a number of themes concerning positive aspects of smart cities. However, several (five) major themes concerning negative attributes also emerged. In fact, overall, the negative views were more widely shared by participants then the positive views.

One of the themes which emerged in this study regarding the 'negative' aspects of smart cities reflected a general concern that human faith in technology is overrated, and that it (technology) is seen as a solution that is in some way 'magic' and is a panacea able to fix all societal problems. The danger of this belief in technology, according to the interviewees in the current study, is that, while smart cities might be intended to address issues of social inclusion, public health, improved equity, and sustainability [84], they will, ultimately, be developed to fulfil the specific ideological or political agenda of the governing and developing bodies [85]. This finding confirms the general consensus of contemporary research, such as the meta studies described in the literature review, though the findings of this study are derived from primary data, and, thus, adds to the existing literature.

Another significant 'negative' theme which emerged from the study was that smart cities are developed to a top-down agenda [17,86,87]. Such cities are designed and managed by a city council, usually government-backed, and often in conjunction with big private-sector companies. While this approach can deliver benefits, such as the improved service efficiencies gained from central management [18], it also carries the significant possibility, according to the participants of this study, that it will lead to the further embedding of capitalist processes led by coalitions of private corporations and state actors [17,86,87]. Previous research, such as that by Tang et al. [21] and Cabalquinto and Hutchins [50], has reported similar concerns among citizen-stakeholders. However, while previous research identified these concerns as resulting indirectly from privacy abuse and security issues, the participants of the current study felt that the consolidation and development of capitalist infrastructures was often an explicit and direct, though undeclared, ideological aim of governing bodies. Such development philosophies may mean that there is little meaningful consideration paid to community participation or citizen's needs. The result may lead to a reinforcement of social divides and socioeconomic differences.

A third theme which reflected concerns over smart cities was the threat represented by surveillance. As a key element in smart city design, surveillance and its societal implications has often been discussed in the context of smart cities, as well as in general

terms [88,89]. It also emerged as a one of the most significant concerns among participants in the current study. Once again, most interviewees recognised that there were advantages to be gained from surveillance, such as increased security, the potential to reduce crime, and the ability to make real-time decisions in a range of contexts [12,18]. However, the disadvantages were felt to outweigh the advantages. These disadvantages included the potential for higher social control, infringing on individual privacy [90], as well as the use of anticipatory governance techniques such as predictive policing [91]. Many participants quoted the way that big data technologies have been used by the Chinese state to increase control over public speech, law enforcement, the behaviour of individuals, and commercial activities [92,93], and several made reference to China's Social Credit System which involves the use of centralised data infrastructures for data collection, mining, and analysis [94]. Overall, there was clear concern among the participants that smart cities represented a path in that direction.

Although privacy and security are interrelated with surveillance, they are separate issues, and they appeared as another major concern about smart cities among this study's participants. In a smart city, huge volumes of data about individuals are collected and processed in real time [31,95], and this information is routinely used for a wide range of useful purposes, from improving public safety to improving traffic management and urban planning [31,95,96]. While, as with the other themes, most participants recognised the value of these purposes, this value was balanced—and, in the views of some, negated, by the fact that they had little or no control over how their data were used. It was also a serious concern of many that their data could be stolen and abused. These findings reflect the generally reported view of existing literature, which, as we have noted, comprehensively covers the issues of privacy and security in smart city contexts. It is interesting to note, however, that several interviewees in this study added an 'update' to existing findings in expressing the concern that they had exposed themselves to increased vulnerability to data abuse by deciding to live in a smart home. Due to various initiatives by GCC governments, including the promotion of energy efficiency and major investment in high-speed fibre-optic networks, the demand for innovative (smart) home systems is rapidly growing in the GCC region, and the market value is expected to reach almost USD 2 trillion by 2028 [97]. Addressing the concerns of smart homeowners should be a priority for governing bodies in the GCC countries.

The final major theme, related to participants' concerns, identified in this study was the potential for smart cities to dehumanize its citizens. The potential for this was recognised as long ago as the 1960s, when Marshall McLuhan observed that "The age of [technology] is also the age of the unconscious and of apathy" [98]. Since then, there have been a number of important studies that have found that the extensive use of technology can reduce the cognitive awareness of humans and desensitise us to our environment [99,100]. Such studies strongly suggest that, as people yield more of their cognitive independence to their devices, in an effort to make their lives easier and better, the need and ability to interact with the environment, including other people, declines, along with our perception of our surroundings. While some sources disagree with this conclusion [12,75,76], the results of this study suggest that it is a view commonly held by citizen-stakeholders of smart cities in the GCC region and should be taken account of in messaging strategies and policies.

6. Conclusions

Overall, this study has shown that, although citizen-stakeholders in GCC countries recognise that smart cities can deliver tangible benefits, they are also aware of the potential negatives of smart city implementation, at the state, community, and personal levels. Much of the value of this research lies in the fact that it set out to explore the views of participants in a completely neutral way, without prompting or leading responses in any particular direction. The results expose concerns which tend to be concealed, or overwritten, by the overwhelmingly positive messaging that usually accompanies smart city strategies.

Yet these concerns are very real, and the study suggests that they tend to outweigh the perceived advantages of smart cities.

The data analysis of the study identified five themes (major concerns) of participants: human faith in technology, prioritisation of corporate interests, surveillance, privacy, and dehumanisation. Although three of these concerns (faith in technology, corporate interests, and surveillance) are well-documented at the academic, or theoretical, level, the other two are less covered in the literature. None of them are evaluated by qualitative research that explores the perceptions of stakeholders in the GCC Countries.

The study, however, has some limitations, which serve as a basis for future research. The principal limitation is that although this sample size was considered to be sufficient to provide meaningful answers, the methodology did not explicitly employ techniques such as data saturation to ensure the validity and reliability of results. Further research, using a larger sample size, and involving other regions, would, therefore, be valuable to provide higher generalisability. Further, while all participants were residents of GCC countries, they were selected as professionals qualified to at least graduate level, and, therefore, were not necessarily fully representative of the populations of these countries. Again, further research using a sample which includes participants from different socioeconomic backgrounds could prove valuable.

Funding: This research was funded by the Researchers Supporting Project number (RSP2023R233), King Saud University, Riyadh, Saudi Arabia.

Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Institutional Review Board (Human and Social Researches) of King Saud University.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data available on request due to restrictions of privacy.

Acknowledgments: The author would like to extend his sincere appreciation to the Researchers Supporting Project (RSP2023R233), King Saud University, Riyadh, Saudi Arabia.

Conflicts of Interest: The author declares no conflict of interest.

References

1. United Nations. *68% of the World Population Projected to Live in Urban Areas by 2050*; United Nations: New York, NY, USA, 2018.
2. European Commission. *Urbanisation Worldwide*; European Commission: Brussels, Belgium, 2020.
3. Xu, Z.; Xu, J.; Yin, H.; Jin, W.; Li, H.; He, Z. Urban River Pollution Control in Developing Countries. *Nat. Sustain.* **2019**, *2*, 158–160. [CrossRef]
4. Sassen, S. *The Global City: New York, London, Tokyo*, 2nd ed.; Princeton University Press: Princeton, NJ, USA, 2001.
5. Bollier, D. *How Smart Growth Can Stop Sprawl: A Fledgling Citizen Movement Expands*; Essential Books: Washington, DC, USA, 1998.
6. Anthopoulos, L.G. *Understanding Smart Cities: A Tool for Smart Government or an Industrial Trick?* Springer International Publishing: Cham, Switzerland, 2017; Volume 22. [CrossRef]
7. Deguchi, A. From Smart City to Society 5.0. In *Society 5.0*; Springer: Singapore, 2020; pp. 43–65. [CrossRef]
8. Deguchi, A.; Hirai, C. Correction to: Society 5.0. In *Society 5.0*; Springer: Singapore, 2020; p. C1. [CrossRef]
9. Reis, J.; Marques, P.A.; Marques, P.C. Where Are Smart Cities Heading? A Meta-Review and Guidelines for Future Research. *Appl. Sci.* **2022**, *12*, 8328. [CrossRef]
10. Yin, C.; Xiong, Z.; Chen, H.; Wang, J.; Cooper, D.; David, B. A Literature Survey on Smart Cities. *Sci. China Inf. Sci.* **2015**, *58*, 100102:1–100102:18. [CrossRef]
11. Nam, T.; Pardo, T.A. Conceptualizing Smart City with Dimensions of Technology, People, and Institutions. In Proceedings of the 12th Annual International Digital Government Research Conference: Digital Government Innovation in Challenging Times, College Park, MD, USA, 12–15 June 2011; ACM: New York, NY, USA, 2011; pp. 282–291. [CrossRef]
12. Woetzel, J.; Remes, J.; Boland, B.; Lv, K.; Sinha, S.; Strube, G.; Means, J.; Law, J.; Cadena, A.; von der Tann, V. *Smart Cities: Digital Solutions for A More Livable Future*; Mckinsey: Atlanta, GA, USA, 2018.
13. Osman, A.M.S.; Elragal, A.A.; Ståhlbröst, A. Data-Driven Decisions in Smart Cities: A Digital Transformation Case Study. *Appl. Sci.* **2022**, *12*, 1732. [CrossRef]
14. Belanche, D.; Casaló, L.V.; Orús, C. City Attachment and Use of Urban Services: Benefits for Smart Cities. *Cities* **2016**, *50*, 75–81. [CrossRef]

15. Dirsehan, T.; van Zoonen, L. Smart City Technologies from the Perspective of Technology Acceptance. *IET Smart Cities* **2022**, *4*, 197–210. [CrossRef]
16. Lee, D.; Lee, S. Investigating Media-User Interaction for Public Play Space in a Smart City. *Appl. Sci.* **2022**, *12*, 11882. [CrossRef]
17. Burns, R.; Welker, P. Interstitiality in the Smart City: More than Top-down and Bottom-up Smartness. *Urban. Stud.* **2023**, *60*, 308–324. [CrossRef]
18. Del-Real, C.; Ward, C.; Sartipi, M. What Do People Want in a Smart City? Exploring the Stakeholders' Opinions, Priorities and Perceived Barriers in a Medium-Sized City in the United States. *Int. J. Urban Sci.* **2023**, *27* (Suppl. 1), 50–74. [CrossRef]
19. Demertzi, V.; Demertzis, S.; Demertzis, K. An Overview of Cyber Threats, Attacks and Countermeasures on the Primary Domains of Smart Cities. *Appl. Sci.* **2023**, *13*, 790. [CrossRef]
20. Lytras, M.D.; Visvizi, A.; Chopdar, P.K.; Sarirete, A.; Alhalabi, W. Information Management in Smart Cities: Turning End Users' Views into Multi-Item Scale Development, Validation, and Policy-Making Recommendations. *Int. J. Inf. Manag.* **2021**, *56*, 102146. [CrossRef]
21. Tang, T.; Hou, J.; Fay, D.L.; Annis, C. Revisit the Drivers and Barriers to E-Governance in the Mobile Age: A Case Study on the Adoption of City Management Mobile Apps for Smart Urban Governance. *J. Urban. Aff.* **2021**, *43*, 563–585. [CrossRef]
22. Nikiforova, A. Smarter Open Government Data for Society 5.0: Are Your Open Data Smart Enough? *Sensors* **2021**, *21*, 5204. [CrossRef] [PubMed]
23. Chaffey, D. *Global Social Media Statistics Research Summary 2023*; Smart Insights: Leeds, UK, 2023.
24. Ben Yahia, N.; Eljaoued, W.; Bellamine Ben Saoud, N.; Colomo-Palacios, R. Towards Sustainable Collaborative Networks for Smart Cities Co-Governance. *Int. J. Inf. Manag.* **2021**, *56*, 102037. [CrossRef]
25. European Union. *A Citizen-Centred Approach to Smart Cities*; European Union: Brussels, Belgium, 2021.
26. OECD. *Smart Cities and Inclusive Growth*; OECD: Paris, France, 2020.
27. Cardullo, P.; Kitchin, R. Smart Urbanism and Smart Citizenship: The Neoliberal Logic of 'Citizen-Focused' Smart Cities in Europe. *Environ. Plan. C. Politics Space* **2019**, *37*, 813–830. [CrossRef]
28. Calzada, I. (Un)Plugging Smart Cities with Urban Transformations towards Multi-Stakeholder City-Regional Complex Urbanity? *RBS: Rev. De. Estud. Urbanos Y Cienc. Soc.* **2016**, *6*, 25–45.
29. Hartley, K. Public Perceptions About Smart Cities: Governance and Quality-of-Life in Hong Kong. *Soc. Indic. Res.* **2023**, *166*, 731–753. [CrossRef]
30. Aminah, S. The Public Rights to the Sidewalk in a Smart City Framework: The Case Study of Surabaya. *Masy. Kebud. Dan. Polit.* **2021**, *34*, 221. [CrossRef]
31. Techpolis. *Smart Cities in the Gcc Smart Transport & Smart Lighting*; Techpolis: Oulu, Finland, 2017.
32. Praharaj, S.; Han, H. Cutting through the Clutter of Smart City Definitions: A Reading into the Smart City Perceptions in India. *City Cult. Soc.* **2019**, *18*, 100289. [CrossRef]
33. Yigitcanlar, T.; Kankanamge, N.; Vella, K. How Are Smart City Concepts and Technologies Perceived and Utilized? A Systematic Geo-Twitter Analysis of Smart Cities in Australia. *J. Urban. Technol.* **2021**, *28*, 135–154. [CrossRef]
34. Lytras, M.; Visvizi, A.; Sarirete, A. Clustering Smart City Services: Perceptions, Expectations, Responses. *Sustainability* **2019**, *11*, 1669. [CrossRef]
35. Ji, T.; Chen, J.-H.; Wei, H.-H.; Su, Y.-C. Towards People-Centric Smart City Development: Investigating the Citizens' Preferences and Perceptions about Smart-City Services in Taiwan. *Sustain. Cities Soc.* **2021**, *67*, 102691. [CrossRef]
36. Lin, C.; Zhao, G.; Yu, C.; Wu, Y. Smart City Development and Residents' Well-Being. *Sustainability* **2019**, *11*, 676. [CrossRef]
37. Guyatt, G.H.; Cook, D.J.; King, D.; Norman, G.R.; Kane, S.L.; van Ineveld, C. Effect of the Framing of Questionnaire Items Regarding Satisfaction with Training on Residents' Responses. *Acad. Med.* **1999**, *74*, 192–194. [CrossRef] [PubMed]
38. De Martino, B.; Kumaran, D.; Seymour, B.; Dolan, R.J. Frames, Biases, and Rational Decision-Making in the Human Brain. *Science* **2006**, *313*, 684–687. [CrossRef]
39. Fabrègue, B.F.G.; Bogoni, A. Privacy and Security Concerns in the Smart City. *Smart Cities* **2023**, *6*, 586–613. [CrossRef]
40. van Twist, A.; Ruijer, E.; Meijer, A. Smart Cities & Citizen Discontent: A Systematic Review of the Literature. *Gov. Inf. Q.* **2023**, *40*, 101799. [CrossRef]
41. Lytras, M.; Visvizi, A. Who Uses Smart City Services and What to Make of It: Toward Interdisciplinary Smart Cities Research. *Sustainability* **2018**, *10*, 1998. [CrossRef]
42. Amsellem, A. The Noise of Silent Machines: A Case Study of LinkNYC. *Surveill. Soc.* **2021**, *19*, 168–186. [CrossRef]
43. Mora, L.; Gerli, P.; Ardito, L.; Messeni Petruzzelli, A. Smart City Governance from an Innovation Management Perspective: Theoretical Framing, Review of Current Practices, and Future Research Agenda. *Technovation* **2023**, *123*, 102717. [CrossRef]
44. Al Sharif, R.; Pokharel, S. Smart City Dimensions and Associated Risks: Review of Literature. *Sustain. Cities Soc.* **2022**, *77*, 103542. [CrossRef]
45. Ahad, M.A.; Paiva, S.; Tripathi, G.; Feroz, N. Enabling Technologies and Sustainable Smart Cities. *Sustain. Cities Soc.* **2020**, *61*, 102301. [CrossRef]
46. Vidiasova, L.; Cronemberger, F. Discrepancies in Perceptions of Smart City Initiatives in Saint Petersburg, Russia. *Sustain. Cities Soc.* **2020**, *59*, 102158. [CrossRef]
47. Julsrud, T.E.; Krogstad, J.R. Is There Enough Trust for the Smart City? Exploring Acceptance for Use of Mobile Phone Data in Oslo and Tallinn. *Technol. Forecast. Soc. Chang.* **2020**, *161*, 120314. [CrossRef]

48. El-Haddadeh, R.; Weerakkody, V.; Osmani, M.; Thakker, D.; Kapoor, K.K. Examining Citizens' Perceived Value of Internet of Things Technologies in Facilitating Public Sector Services Engagement. *Gov. Inf. Q.* **2019**, *36*, 310–320. [CrossRef]
49. Attour, A.; Baudino, M.; Krafft, J.; Lazaric, N. Determinants of Energy Tracking Application Use at the City Level: Evidence from France. *Energy Policy* **2020**, *147*, 111866. [CrossRef]
50. Cabalquinto, E.; Hutchins, B. "It Should Allow Me to Opt in or Opt out": Investigating Smartphone Use and the Contending Attitudes of Commuters towards Geolocation Data Collection. *Telemat. Inform.* **2020**, *51*, 101403. [CrossRef]
51. Butot, V.; Bayerl, P.S.; Jacobs, G.; de Haan, F. Citizen Repertoires of Smart Urban Safety: Perspectives from Rotterdam, the Netherlands. *Technol. Forecast. Soc. Chang.* **2020**, *158*, 120164. [CrossRef]
52. Sookhak, M.; Tang, H.; He, Y.; Yu, F.R. Security and Privacy of Smart Cities: A Survey, Research Issues and Challenges. *IEEE Commun. Surv. Tutor.* **2019**, *21*, 1718–1743. [CrossRef]
53. Campbell, J.L.; Quincy, C.; Osserman, J.; Pedersen, O.K. Coding In-Depth Semistructured Interviews. *Sociol. Methods Res.* **2013**, *42*, 294–320. [CrossRef]
54. Jamshed, S. Qualitative Research Method-Interviewing and Observation. *J. Basic. Clin. Pharm.* **2014**, *5*, 87. [CrossRef]
55. Patton, M.Q. *Qualitative Research and Evaluation Methods*; Sage: London, UK, 2002.
56. Dworkin, S.L. Sample Size Policy for Qualitative Studies Using In-Depth Interviews. *Arch. Sex. Behav.* **2012**, *41*, 1319–1320. [CrossRef]
57. Creswell, J.W. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*; Sage: Los Angeles, CA, USA, 2009.
58. Morse, J.M. Designing Funded Qualitative Research. In *Handbook of Qualitative Research*; Denzin, N.K., Lincoln, Y.S., Eds.; Sage Publications, Inc.: New York, NY, USA, 1994; pp. 220–235.
59. Hagaman, A.K.; Wutich, A. How Many Interviews Are Enough to Identify Metathemes in Multisited and Cross-Cultural Research? Another Perspective on Guest, Bunce, and Johnson's (2006) Landmark Study. *Field Methods* **2017**, *29*, 23–41. [CrossRef]
60. Guest, G.; Bunce, A.; Johnson, L. How Many Interviews Are Enough? *Field Methods* **2006**, *18*, 59–82. [CrossRef]
61. Creswell, J.W.; Clark, V.L.P. *Designing and Conducting Mixed Methods Research*; Sage: London, UK, 2011.
62. Polit-O'Hara, D.; Hungler, B.P. *Essentials of Nursing Research: Methods, Appraisal, and Utilization*; Lippincott: Philadelphia, PA, USA, 1997.
63. Mason, J.; Dale, A. *Understanding Social Research: Thinking Creatively About Method*; Sage Publications Ltd.: London, UK, 2011. [CrossRef]
64. Byrne, D. A Worked Example of Braun and Clarke's Approach to Reflexive Thematic Analysis. *Qual. Quant.* **2022**, *56*, 1391–1412. [CrossRef]
65. Kiger, M.E.; Varpio, L. Thematic Analysis of Qualitative Data: AMEE Guide No. 131. *Med. Teach.* **2020**, *42*, 846–854. [CrossRef] [PubMed]
66. Silverman, D. *Doing Qualitative Research*; Sage Publications Ltd.: London, UK, 2006.
67. Bell, J. *Doing Your Research Project*, 4th ed.; Open University Press: Berkshire, UK, 2005; Volume 3.
68. Charmaz, K. *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis*; Sage Publications Ltd: London, UK, 2006; Volume 10.
69. King, N.; Horrocks, C. *Interviews in Qualitative Research*; Sage: Los Angeles, CA, USA, 2010.
70. Hyde, K.F. Recognising Deductive Processes in Qualitative Research. *Qual. Mark. Res. Int. J.* **2000**, *3*, 82–90. [CrossRef]
71. Kitchin, R. Making Sense of Smart Cities: Addressing Present Shortcomings. *Camb. J. Reg. Econ. Soc.* **2015**, *8*, 131–136. [CrossRef]
72. Macgilchrist, F.; Böhmig, I. Blogs, Genes and Immigration: Online Media and Minimal Politics. *Media Cult. Soc.* **2012**, *34*, 83–100. [CrossRef]
73. Granicus. Empowering Modern Public. Services. Available online: https://granicus.uk/ (accessed on 7 April 2023).
74. Hollands, R.G. Will the Real Smart City Please Stand Up? *City* **2008**, *12*, 303–320. [CrossRef]
75. Cardullo, P.; Di Feliciantonio, C.; Kitchin, R. (Eds.) *The Right to the Smart City*; Emerald Publishing Limited: Bingley, UK, 2019. [CrossRef]
76. Engelbert, J. Reading the Neoliberal Smart City Narrative: The Political Potential of Everyday Meaning-Making. In *The Right to the Smart City*; Emerald Publishing Limited: Bingley, UK, 2019; pp. 43–55. [CrossRef]
77. Feldstein, S. *The Global Expansion of AI Surveillance*; Carnegie Endowment for International Peace: Washington, DC, USA, 2019.
78. Ismagilova, E.; Hughes, L.; Rana, N.P.; Dwivedi, Y.K. Security, Privacy and Risks within Smart Cities: Literature Review and Development of a Smart City Interaction Framework. *Inf. Syst. Front.* **2022**, *24*, 393–414. [CrossRef] [PubMed]
79. Green, B. *The Smart Enough City: Putting Technology in Its Place to Reclaim Our Urban Future*; MIT Press: Cambridge, MA, USA, 2019.
80. Shayan, S.; Kim, K.P.; Ma, T.; Nguyen, T.H.D. The First Two Decades of Smart City Research from a Risk Perspective. *Sustainability* **2020**, *12*, 9280. [CrossRef]
81. Colding, J.; Barthel, S.; Sörqvist, P. Wicked Problems of Smart Cities. *Smart Cities* **2019**, *2*, 512–521. [CrossRef]
82. Lam, P.T.I.; Ma, R. Potential Pitfalls in the Development of Smart Cities and Mitigation Measures: An Exploratory Study. *Cities* **2019**, *91*, 146–156. [CrossRef]
83. Asmyatullin, R.R.; Tyrkba, K.V.; Ruzina, E.I. Smart Cities in GCC: Comparative Study of Economic Dimension. *IOP Conf. Ser. Earth Environ. Sci.* **2020**, *459*, 062045. [CrossRef]
84. Kitchin, R. Toward a Genuinely Humanizing Smart Urbanism. In *The Right to the Smart City*; Emerald Publishing Limited: Bingley, UK, 2019; pp. 193–204. [CrossRef]

85. Lane, L. Preventing Long-Term Risks to Human Rights in Smart Cities: A Critical Review of Responsibilities for Private AI Developers. *Internet Policy Rev.* **2023**, *12*, 1697. [CrossRef]
86. Söderström, O.; Paasche, T.; Klauser, F. Smart Cities as Corporate Storytelling. *City* **2014**, *18*, 307–320. [CrossRef]
87. Hollands, R.G. Critical Interventions into the Corporate Smart City. *Camb. J. Reg. Econ. Soc.* **2015**, *8*, 61–77. [CrossRef]
88. Cohen, E.D. *Mass Surveillance and State Control*; Palgrave Macmillan US: New York, NY, USA, 2010. [CrossRef]
89. Qiang, X. President XI's Surveillance State. *J. Democr.* **2019**, *30*, 53–67. [CrossRef]
90. Sadowski, J.; Pasquale, F. The Spectrum of Control: A Social Theory of the Smart City. *First Monday* **2015**, *20*, 5903. [CrossRef]
91. Joh, E.E. Policing the Smart City. *Int. J. Law. Context.* **2019**, *15*, 177–182. [CrossRef]
92. Liu, Y.; He, J.; Guo, M.; Yang, Q.; Zhang, X. An Overview of Big Data Industry in China. *China Commun.* **2014**, *11*, 1–10. [CrossRef]
93. Creemers, R. Cyber China: Upgrading Propaganda, Public Opinion Work and Social Management for the Twenty-First Century. *J. Contemp. China* **2017**, *26*, 85–100. [CrossRef]
94. Liang, F.; Das, V.; Kostyuk, N.; Hussain, M.M. Constructing a Data-Driven Society: China's Social Credit System as a State Surveillance Infrastructure. *Policy Internet* **2018**, *10*, 415–453. [CrossRef]
95. Bolívar, M.P.R.; Pedro, M. *Smart Technologies for Smart Governments*; Rodríguez Bolívar, M.P., Ed.; Springer International Publishing: Cham, Switzerland, 2018; Volume 24. [CrossRef]
96. Prause, G. Smart Contracts for Smart Supply Chains. *IFAC-Pap.* **2019**, *52*, 2501–2506. [CrossRef]
97. ReportLinker. GCC Smart Home Market will Reach US$ 1881.16 Million in 2028. Available online: https://www.globenewswire.com/news-release/2023/03/28/2635696/0/en/GCC-Smart-Home-Market-will-reach-US-1-881-16-Million-in-2028.html (accessed on 7 April 2023).
98. McLuhan, M.; Lapham, L. *Understanding Media the Extensions of Man*; The MIT Press: New York, NY, USA, 1994.
99. Ward, A.F.; Duke, K.; Gneezy, A.; Bos, M.W. Brain Drain: The Mere Presence of One's Own Smartphone Reduces Available Cognitive Capacity. *J. Assoc. Consum. Res.* **2017**, *2*, 140–154. [CrossRef]
100. Lehtiö, A.; Hartikainen, M.; Ala-Luopa, S.; Olsson, T.; Väänänen, K. Understanding Citizen Perceptions of AI in the Smart City. *AI Soc.* **2022**. [CrossRef]