Social Inclusion Indicators for Building Citizen-Centric Smart Cities: A Systematic Literature Review

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Abstract: Despite the rhetoric of “citizen-first,” which has been tokenized in recent years by the smart city administrations, what it means has long been unclear to many, including the public at large. Put simply, this rhetoric concerns the mindset of the members of a local community and places them at the heart of the smart city initiatives. In order to bring further clarity to this issue under the current neoliberal urbanism, this study aimed to identify the key indicators of citizen-centric smart cities from the perspective of participative governance practices and citizens’ responsibilities. To achieve this aim, this study involved a systematic literature review of the social inclusion indicators for building citizen-centric smart cities. The social inclusion indicators that were formed were verified by practitioners to suit the local contexts of an emerging and developing country, in this case, Malaysia. The findings of the review revealed that: (a) the acceptance of social inclusion indicators was mainly limited to the realm of democratic developed countries, leaders’ understanding of citizenship, the delegation of decision-making power in governance practices, the participative culture of societies, and individual citizens’ self-discipline; (b) the social inclusion indicators may not be welcomed in emerging and developing countries; (c) in the long term, these indicators would shed light on the rise of self-organizing cities that will gain popularity in potential city developments, be it in developed or developing countries.

Keywords: citizen centrisms; citizen-centric smart cities; neoliberal urbanism; public participation; participative governance; participatory planning; right to the city; smart city; smart citizenship; social inclusion indicator; sustainable urban development

1. Introduction

To date, considering citizens’ perceptions about and perspectives of smart city development is seen as a sound strategy for many political and administrative leaders. Particularly, this has taken the form of promoting eGov (citizen centricity in e-government) that has been upheld in Europe since the mid-2000s [1] and is rooted in the perspective of “citizens as customers” under the new public management [2]. Based on this influence, apart from technological needs or smart cities, in recent years, city administrators have shifted their focus to co-creating smart cities with their citizens [3–6].

The rhetorical smart city visions in emerging and developing countries [7,8], such as the slogans of the federal government of Malaysia and the state government of Selangor’s “Peduli Rakyat” (literally care for citizens) [9], have rightly inspired and motivated the general public, who are entirely depending on government resources or actions. Nevertheless, the targeted passive users, beneficiaries, or the public are unaware of their responsibilities, even though “citizen-centric smart city initiatives are rooted in stewardship, civic paternalism, and a neoliberal conception of citizenship” [10]. These neoliberal conceptions “prioritized choice of consumption and individual autonomy within a framework of state and corporate-defined constraints that focused on market-led solutions to urban issues,
rather than being grounded in civil, social, and political rights, and the common good” [10]. In other words, the market-led solutions put a high dependency on corporate technological sectors in most of the current forms of smart urban governance and tokenize the proactive response from users/citizens [11]. More so, [12] rightly pointed out that the citizen-centered idea is less compatible with neoliberalism because local governance needs to prioritize offering incentives to investors if it is to compete within the world system of cities.

Furthermore, in studies that investigated citizen centricity in smarter cities [13], the main interest was concentrated on measuring a citizen-centric approach by monitoring cities’ abilities to safeguard citizenship rights. However, in a more holistic view of the citizenship regime [14], citizenship should include rights, governance practices, and citizens’ responsibilities. Additionally, some recent studies [15,16] revealed that the current British Smart City Standards and the Malaysia Smart City Framework have an explicit citizenship rationale for guiding the standards and development of a smart city, although these guidelines displayed some substantial shortcomings and contradictions.

These shortcomings include superficial and unclear explanations of the citizenship regime in forming a citizen-centric smart city and contradictions in citizens’ priorities against the profit gained from technological markets and the legitimacy of paternity governance. Hence, the social inclusion indicators that can provide clarity to the public and administrators in measuring the shortcomings and contradictions of building a citizen-centric smart city need to be identified. As such, the research question that formed the study rationale was as follows: “What are the key social inclusion indicators supporting the emergence of a citizen-centric smart city?” With this question in mind and realizing the influence of neoliberal urbanism, this study aimed to identify the key indicators for citizen-centric smart cities from the perspective of participative governance practices and citizens’ responsibilities.

Regarding the methodological approach, this study adopted a systematic literature review technique. Sound constructs detailing the items for building a citizen-centric smart city were scarce in the literature in the Web of Science (WoS) and Scopus databases, other than from the citizen’s rights perspective, with some exceptions [13,17]. For scholars and practitioners sensitive to humanistic values in smart city construction, this article resembles a valuable starting point to quantify the popular yet vague and contested concept of citizen centricity in smart and future city development and governance. Thus, from the perspective of humanistic values, this review provided invaluable information to humanistic-conscious scholars and practitioners for realizing the importance of the participatory aspect of smart city development and governance [18–23].

This paper is structured as follows. The following sections include the introduction, the literary background on citizenship and citizen centricity practices in smart cities, governance practices and citizens’ responsibilities, the introduction of theoretical and conceptual frameworks, the methodology of the systematic literature review and indicators’ verification through interviews, the study findings, discussions, and conclusions.

2. Literature Review

2.1. Citizenship and Citizen Centricity Practices in Smart Cities

Citizenship is a term that generally refers to the legal right to belong to a country as a citizen and accepting citizenship responsibilities [24]. In the current dynamic world of smart cities, the meaning of citizenship has expanded. This article follows the framework of citizenship by [14,25], whereby the changes in citizenship regimes consist of three intersecting dimensions, namely the citizens’ rights, responsibilities, and participatory governance practices. To date, topics on citizens’ rights (mainly linked to the seminal work of Henri Lefebvre’s right to the city) has been widely researched, but little is known on the citizens’ responsibilities and participatory governance practices.

With regard to the citizens’ rights in smart cities, this aspect has been thoroughly studied by [13,17] through fundamental texts, namely the European and Global Charter—Agenda for the Safe-guarding of the Human Rights in the city, in comparison to other
European and international smart cities in terms of standardizations, such as the National Standardization Association in Spain or the International Standardization Organization (ISO). Based on relevant literature reviews, the inclusive social standard safeguarding citizens’ rights was summarized and deemed comprehensive in measuring the citizens’ rights in smart cities.

Furthermore, in a study of the smart citizenship regime in the British Smart City Standard, [15] confirmed: “an explicit citizenship rationale guiding the smart city (standard), although this displays some substantive shortcomings.” These shortcomings, also identified by [13], include the lack of research on the roles (responsibilities) of citizens and the need for citizens’ direct participation to be incorporated into designing the standards for citizen-centric individuals, as is the case with smart city standardizations.

Against these research gaps, authors have additionally reviewed contemporary literature, mainly on the importance of having citizen centricity guidelines in smart city development (Appendix ??). The majority of scholars assumed the definition of citizen centricity to be “fulfilling the citizens’ needs and viewed citizens as passive end users/beneficiaries” and emphasized the designs or services of the digital technology platform to users. These scholars exemplified the “technology-driven method” thinkers who dominated the current smart cities literature that is pro-technology, with little consideration on human capabilities [26]. This disposition could be due to the irrefutable strength of digital technology inventions or products in tracking engagement patterns or human behaviors and encourages consumerism, with little interest in turning citizens into potential beneficiaries’ or decision-makers.

In the long term, according to [26], citizens would be the “potential losers” under such a method. The term “citizens as losers” was hypothetically possible. Following the neoliberal logic of citizen-focused smart cities, the proponents of neoliberalism believed that the market should provide well-being for all, set a high public responsibility in city governance, and avoid public affairs [14,27], with a focus on personal lives and personal values. Nonetheless, the fact that capitalists would take the opportunity, tokenize the public, and indirectly switch the costs of city development were forgotten and would burden the majority of taxpayers and citizens [11].

To date, smart cities are enacting a blueprint of neoliberal urbanism and encouraging a form of neoliberal citizenship [27]. Although the initial concept of “citizen-centric” has been put forward, there remains a lack of discussions from the more inclusive angle of citizenship [15,27–29]. These works of literature mostly overemphasized technological and big data elements in urban governance to meet the needs of human experiences or enabling human behavior [30,31]. On the other hand, “human-driven method” thinkers, such as [10,32–39], perceived technology as a catalyst to human capital improvement, with the primary concern of encouraging the genuine involvement of the people in smart cities, particularly in decision-making, co-creating ideas, or co-producing projects.

2.2. Governance Practices and Citizen Responsibilities

The “citizen-centric, people-centered, or citizen-oriented” approach, which was viewed as an “inclusive” approach to sustainable development [40], has a long history in the national urban sustainable development policy of developed and developing countries, such as France, the Netherlands, Singapore, China, India, Pakistan, and Malaysia, along with cities, such as New York, London, Barcelona, and Bilbao [41–44]. Nonetheless, the policy was frequently regarded as the “ends” of governance strategy and was used as a rhetoric term referring to the ideal state of citizens’ needs fulfillment, but the policy was not utilized in the dialectical thinking of citizens’ responsibilities or roles in contributing to the nation or the city.

In considering how citizens could contribute to smart governance, a participatory type of governance is necessary [45–49]. In other words, the decisions in government projects would have to be made with the full involvement of the beneficiaries, keeping in mind that any delays occurring as a result of the consultation process should be minimized [50,51].
Nevertheless, even the citizens’ involvement in the consultation process is considered an act of tokenism [52], where the power of decision-making would not be truly delegated to the people [53].

Notwithstanding the aforementioned, the challenges in building participatory governance are mounting. First, only the emphasis on technological corporate factors in smart governance has been criticized for failing to solve the issues concerning smart cities [10,26]. Beyond this, the human factor involved in the smart city program needs serious consideration [38,54] and is seen as a “critical intervention” in a dominant type of corporate smart city [55]. Second, the fundamental role that can be played by people remains vague, as citizens are often regarded as passive users whose opinions are not taken seriously [49,56,57].

Third, global development agendas, such as the New Urban Agenda (NUA) pioneered by the United Nations (UN), has lauded the importance of citizen involvement and inclusion to all parties [58,59]. Nonetheless, the current situation has been criticized by many parties regarding the fact that corporate smart cities are against the current global agenda and have often manipulated the issue of people’s involvement and popularized social polarization [60–63]; furthermore, parties have also criticized the NUA framework and emphasized that smart cities would fail if the community refused to get involved [64]. Communities’ refusal to participate is most likely due to a lack of understanding in terms of the involvement, type, or process contained in authentic engagement matters [65]. As such, [64] also suggested “dissensus” as a living indicator. This proposal is against the current practice of “building consensus,” where the different opinions of the people should be considered, even if the consultation process is “painstaking.”

In Malaysia, the planned development of smart cities, such as Cyberjaya, which is located within the Multimedia Super Corridor (MSC), is often criticized by scholars due to a lack of participatory governance [66–68]. On the other hand, existing planned development, such as Petaling Jaya City, is now integrated into the Smart Selangor Blueprint and faces challenges in terms of coordinating the people’s role in the new smart city and Local Agenda 21 projects that were launched two decades ago [9]. The main challenge faced by both types of smart city governances in Malaysia is the lack of local context indicators for implementing the element of involvement and the people’s role if there is an intention to develop toward citizen-centric city development.

2.3. Theoretical Framework

Two schools of thought influenced the development of smart city scholarship, namely, the technology-driven method and the human-driven method [26]. For the smart city concept, two elements were highlighted by the seminal work of [35], which are related to this study’s problems, namely, smart people and smart governance. Furthermore, the three main parties supporting the success of smart cities are the authorities, technological corporations, and citizens, as outlined by [48].

On another note, two citizen-centric ideologies were formulated by [1,36] as follows: (a) “to the people,” such as authorities using technology to meet the needs of the people, and (b) “with the people,” in terms of the collective thinking of the authorities, technological corporations, and the people when resolving urban issues. By combining both concepts of smart and citizen-centric cities, a basic understanding of the citizen-centric concept in smart cities could be developed.

Furthermore, to develop the concept of “citizen centricity,” it was found that the understanding, types, and processes of involvement were essential aspects worthy of being studied. In addition to involvement, the literature on citizenship, other than salvaging citizens’ rights as studied by [13,17], were not included in this study, as the people’s responsibilities are important in building a smart city [14,56]. This issue of responsibility can be divided into the roles and characters of the people. Based on these literature findings, a theoretical framework (Figure 1) was formed. In the context of this study, a “citizen-
centric smart city” is a concept based on humanism with a focus on the participation and responsibilities of the people.

2.4. Conceptual Framework

Based on the conceptualization of items through literature reviews and the verification of items by practitioners, the study’s conceptual framework was formed (Figure 2). This conceptual framework consisted of a construct of a dependent variable—(DV 1) understanding of participation, (IV 2) type of participation, (IV 3) process of participation, (IV 4) role of citizens, and (IV 5) attitude of citizens. This conceptual framework and the questionnaire items were recommended for testing with a five-point Likert scale (refer to [73]), with further quantitative analysis, such as a regression analysis to be conducted.
The authors argued that in constructing a citizen-centric smart city framework, the involvement of urban stakeholders is especially important from the people’s perspective, as the citizens require an understanding of the meanings, types, and processes of participation, and the people’s role and attitude in accordance to the type of citizen-centric development.

3. Methodology

In expanding the theoretical framework to measurable indicators and answering the research question, this study utilized a systematic literature review method, which practitioners verified at the second stage.

3.1. Systematic Literature Review

A complete literature search should not be limited to a single knowledge channel, methodology, journal, or geographical region, but the search should cover all the aspects related to the research topic [74]. Therefore, a systematic literature review method was selected due to the numerous unique procedures in this study. The unique procedures emphasized transparency, a pre-defined research question and protocol, pre-defined search strings, and standard inclusion and exclusion criteria, and justified the data analysis [75]. This study aimed to answer the research question: “What are the key social inclusion indicators supporting the emergence of a citizen-centric smart city?”, as elaborated through the research protocols on the subsections below.

3.1.1. Search Strategy

This study used Google Scholar as a database, as it is more open and inclusive compared to other platforms, such as WoS and Scopus. This database was also found to be used by other smart city scholars, such as [76–78]. Through the platform of Google Scholar, the authors were able to refer to articles and other research sources, such as conference proceedings, theses, books, book chapters, reports, and qualified working papers.

The comprehensive search strings developed by the authors were the keywords and their analogous concepts included “smart city(ies),” “citizen-centric,” “citizen centricity,” “people-centered (centred),” “citizen participation,” and “citizenship responsibility(ies).” Unlike [75], the search strings were applied individually without using “OR” as a one-off search. The authors found that too many results were generated under an individual search. Therefore, repeated individual searches were more organized regarding converting the results to a master spreadsheet for data synthesis and analysis.

3.1.2. Inclusion and Exclusion Criteria in the Stage of Identification

According to [79], the preferred reporting items for systematic reviews include the stages of identification, screening, eligibility, and inclusion. In the first stage, namely, identification, five inclusion and exclusion criteria were established to guide the authors when gathering the relevant studies for this review. First, both the boxes of “include patents” and “include citations” were unchecked on the Google Scholar page. Patents were irrelevant to this academic study, while citations were found to be repetitive and challenging regarding finding online sources for further investigation.

Second, the “Advanced Search” setting of “Find Articles” was utilized. Articles with the exact phrase were identified and the selected keyword strings were keyed in, as mentioned earlier. The selection of “with all of the words,” “with at least one of the words,” and “without the words” were ignored, as the search results would be too general to review. Third, only the word occurring in the article title but not anywhere was identified. This selection also narrowed down the search results. Fourth, both the boxes of “return articles authored by” and “return articles published in” were ignored, with no limitation to authors and publishers.

Finally, the first box for the search period was left blank, with “2017” written down in the second box. Though the search period included up to December 2017, the authors
did not set a specific limit for the beginning of the search period. Unlike [76–78], the initial search periods were set in 1992, 1993, and 1997, in line with the argument that these years appeared in the literature that is relevant to smart city concepts. Nonetheless, this study revealed that the topic of citizen centrality in smart cities was relatively discursive and multidisciplinary, with insufficient and reliable sources for an estimated period of two decades. Furthermore, the authors intended to acquire as many articles as possible to define the indicators. The detailed numbers of exclusion records in the first stage of identification are shown in Table 1.

Table 1. Records of patents and citations that were excluded in the identification stage (source: authors).

| Keywords                  | Search | Exclusion of Patents and Citations | Records after Patents and Citations Were Removed |
|---------------------------|--------|-----------------------------------|-----------------------------------------------|
| Smart city                | 6690   | 2420                              | 4270                                          |
| Smart cities              | 6390   | 2320                              | 4070                                          |
| Citizen-centric           | 378    | 127                               | 251                                           |
| Citizen centricty         | 8      | 4                                 | 4                                             |
| People-centered           | 652    | 339                               | 313                                           |
| People-centred            | 632    | 333                               | 299                                           |
| Citizenship responsibility| 36     | 16                                | 20                                            |
| Citizenship responsibilities| 30    | 9                                 | 21                                            |
| Citizen participation      | 6210   | 3170                              | 3040                                          |
| Total                     | 21,026 | 8738                              | 12,288                                        |

3.1.3. Data Extraction in the Screening Stage

All the studies found through the initial search process using the selected keyword strings were incorporated in a master Excel worksheet. In the second stage of screening, first, duplicates were deleted. As the Google Scholar database was algorithmically autogenerated, the duplications needed to be manually deleted by filtering the worksheet. Furthermore, paper exclusions concerning absent or irrelevant title sources (i.e., PowerPoint presentations, white papers, book introductions, calls for papers, competition announcements, and all non-English works) were performed.

3.1.4. Data Extraction in the Eligibility Stage

In stage 3 (eligibility), justified full-text article exclusions were performed, where we read the article titles and keywords. For example, the most-cited source document of [35] in smart city literature outlined the divergent roots of smart city development, including the elements of a smart economy, people, governance, mobility, environment, and living, thus indicating the diversity of the various smart city papers in the Google Scholar database.

In answering the research question concerning the identification of the indicators of citizen centrity in smart cities, the scope was further narrowed down to papers involving smart people and governance. Nonetheless, both topics were scarce, with there being more literature on ICT-related urban innovations [80]. The consequent exclusion of papers concerning smart economy, mobility, living, and environment drastically reduced the number of eligible papers to 2350 studies.

Furthermore, the papers involving citizen centrity in smart cities were carefully assessed by reading the abstracts and contents, such as introductions and conclusions. In this regard, the irrelevant abstracts and contents were identified, with the number of papers included in the qualitative synthesis narrowed down to 71 studies.

3.1.5. Data Extraction in the Inclusion Stage

In stage 4 (inclusion), the authors performed an additional backward–forward search [74,81] on each identified article besides the identified studies from the Google Scholar database search.
The backward–forward search (involving articles dated before or after the identified article) observed the detailed themes or indicators relevant to this study, as the potential article titles were indirectly related to citizen centricity and smart cities.

The authors considered the backward–forward search to be an important step in finding the themes or indicators that were directly related to answering the research question. Hence, five records were found in the backward search, whereas three studies were found in the forward search. Finally, a total of 79 articles were finalized for performing a thematic analysis. The search protocol process is presented in Figure 3 below.

![Figure 3. The execution stages of the systematic literature review (source: adapted from [79,82]).](image)

### 3.1.6. Data Analysis and Risk of Bias

Based on the selected articles, the authors conceptualized the formation of items. A common name was used to describe similar concepts from various authors during the line-by-line coding of the thematic analysis process [74]. For example, “participation” was used as a common name to describe similar concepts of “engagement, collaboration and involvement” [83]. Figure 4 depicts the distribution of the reviewed papers per year,
with the earliest article appearing in 1969, which was authored by [52], and the highest number of articles in a year was 14 articles in 2016.

![Figure 4. The distribution of the reviewed papers per year (source: authors).](image)

Furthermore, it was discovered that the four most selected publishers were Wiley-Blackwell (nine articles), Springer (eight articles), Taylor & Francis (six articles), and Elsevier (six articles). Organizations such as the OECD, the World Bank, and universities also contributed to this group of articles (Appendix ??).

According to [79], no guarantees were provided on the assessment or interpretation of the appropriate content by systemic reviewers. Thus, the authors aimed to report the possible risk of bias across selected studies, depending on the qualitative judgment from the authors when interpreting the contents and extracting suitable themes or items to answer the research question.

3.2. Verification by Practitioners

With the structuring of indicators through the rigorous process of the systematic literature review, all the indicators were verified again by practitioners in the fields of smart city and participation. The verification process also assisted in reducing the risk of bias from qualitative judgment by the authors. The selected practitioners consisted of two groups, which were the “power holders” with 19 people (11 local authority officers, 5 federal or state officers, and 3 politicians), and the “have-not citizens” as the remaining half (8 representatives of community organizations or residents, 2 non-governmental organizations, 3 academicians, and 6 private sector representatives). Overall, the selected informants provided ideas and suggestions to validate the studied items.

Nonetheless, some practitioners were uneasy about how ordinary citizens could understand the technical terms in the verification process. With such limitations, more examples relevant to common terms were applied in the items, such as grants, as opposed to contracts in the form of finance in running city programs (refer to Appendix ?? for the terms adjusted by practitioners).
4. Findings

4.1. Systematic Literature Review

4.1.1. The Items for the Construct of a Citizen-Centric Smart City (DV 1)

In searching for and suggesting the items for building the study constructs, the authors found sources with few statistical tests. On the other hand, most of the sources were related to conceptual discussions. According to works of literature, the decisions made by local authorities (LAs) should be more focused on citizens’ needs and not merely on technology to reach a consensus with citizens regarding realizing the state of citizen centricity in a smart city. LAs also learned to delegate power to citizens, specifically at the initial level of smart city programs. From the citizens’ perspective, individuals should be free to participate, play voluntary roles, and continuously contribute information. Both the LAs and citizens should play a role in building a good relationship and understanding and trusting each other.

Table 2 was developed to show the comparisons between themes, collected sources, and items [84]. General terms were applied to explain similar concepts from the articles. The majority of the items were derived from [1,35,36]. The suggested items for measuring the construct of citizen centricity in smart cities were converted into understandable sentences.

| No. | Themes | Sources | Citizen-Centric Smart City Item |
|-----|--------|---------|--------------------------------|
| 1   | Focus on citizens’ needs, not just technology | [1,35,48,54–56,85–97] | The decision by the local authorities (LAs) is more focused on our needs (i.e., both mine and the community’s) and not merely on technology. |
| 2   | Decision through consensus with citizens | [1,91,93,95,98–104] | The decisions by LAs need to reach a consensus with us. |
| 3   | Learn from users/citizens | [1,56,87,94,103–106] | LAs learn from users like us. |
| 4   | Power needs to be delegated | [1,35,36,103–105,107–110] | LAs delegate power to us, especially at the initial level of smart city programs. |
| 5   | Freedom to participate | [1,35–37,92,100,103,104,107,110–112] | We are free to involve ourselves in any smart city programs. |
| 6   | Volunteers needed | [35,36,113] | We play the role of volunteers and contribute information continuously. |
| 7   | Build good relationships | [1,100,101,109,114,115] | We understand each other and build a good relationship with LAs. |
| 8   | Mutual trust | [1,93,108,110,111,114–118] | We and LAs trust each other. |

Table 2. Items of “citizen centricity in a smart city” that was derived from the literature (source: authors).

The design of the items was geared toward the citizens as the respondents. Thus, from the perspective of citizens, the term “we” was chosen and used with caution in representing “I and the community.” Respondents were guided to answer the survey according to the “ideal” situation, but not in the “existing” situation that occurs in reality. Highlighting this point is essential to steer the respondents to answer the survey as objectively as possible and think collectively in terms of personal opinions and the community’s perceptions of the respondents.

4.1.2. The Items for the Construct of Understanding of Participation (IV 1)

An understanding of citizen participation is considered important and influences the effectiveness of citizens’ engagement in city programs [37,119]. This construct attempted to measure the level of citizens’ understanding of the participation concept from the perspective of the citizens.

As such, citizens should have a clear understanding of the objective or aim and be aware of the benefits and obstacles of participating in smart city programs. Furthermore, citizens should be confident in playing relevant roles, evaluating the available options, and choosing to reject any programs that are deemed to be inappropriate. Furthermore,
citizens should have the desire to influence priorities, attend the programs without going through a representative, and assist in forming the goals and objectives of smart city programs beyond mere participation. Citizens should also understand that the responsibility to make a communal decision and sign an agreement with the LAs, which is beneficial to the community, depends on the citizens.

The themes, primary references, and items in the sentences for the construct of “understanding of participation” are displayed in Table 3.

| No. | Themes                                                                 | Sources          | Understanding of the Participation Item                                                                 |
|-----|------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------|
| 1   | Clear understanding of the objective of participation                 | [98,119–126]     | We have a clear understanding of the aim of participating in smart city programs.                      |
| 2   | Be aware of the benefits and obstacles                                 | [52,69,127]      | We are aware of the benefits and obstacles to participating in smart city programs.                    |
| 3   | Convinced of your role                                                 | [69,102,126,128] | We are confident about the role we can play in smart city programs.                                    |
| 4   | Unaware of the minimum rights, responsibilities, and choices          | [52,128–130]     | We evaluate the options available and choose to reject any programs that are deemed to be inappropriate.|
| 5   | Desire to influence the priorities                                     | [52,116,120]     | We influence the priorities of the programs to be implemented.                                        |
| 6   | Focus on non-superficial involvement                                   | [36,52,100,130]  | We are involved in the programs without going through a representative.                               |
| 7   | Help set goals                                                         | [70,120]         | We assist in the formation of the goals and objectives of the smart city programs.                    |
| 8   | Joint decision-making procedure                                        | [52,105,131]     | We evaluate the decision-making procedure together.                                                  |
| 9   | Power-sharing agreement                                                | [52]             | We sign an agreement with the LAs, which is beneficial to the community.                              |

4.1.3. The Items for the Construct of Types of Participation (IV 2)

Type of participation refers to the level or stage of participation. This classification distinguished the approach of participation and the distribution of power, where there may be a co-occurrence without a precise point at the beginning or end. This construct attempted to measure the differences at the level or stage of participation, primarily known as the [52] participation ladder.

The highest level of “citizen-power” participation entailed that citizens should ideally have complete control over smart city programs or delegated power to make decisions benefitting the community. Through consultations, citizens should reach the final word (decision) and allow for the joint management of smart city programs. For the middle level of encouraging “token” participation, LAs offered grants (financial incentives), rewards, and conducted questionnaires related to citizens’ perception of smart city programs. For the lowest level of “non-participation,” LAs held communal meetings and broadcasted accurate information to citizens.

Relevant themes were published in the literature, as shown in Table 4. It was revealed that various types of “actions” could be classified as involvement and was also a source of confusion for the LAs, citizens, and the writing of articles by the scholars or organizations concerned. Most importantly, the last item in the construct was deliberately designed as a negative item to test respondents who answered the questionnaire unethically.
Table 4. Items for the construct of “types of participation” (source: authors).

| No. | Themes                                                                 | Sources                                                                 | Types of Participation Item                                                                                                                                 |
|-----|------------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | The power of the citizens is strong                                    | [52,69,71,121,132,133]                                                | We (I and the community) have full control over smart city programs.                                                                                         |
| 2   | Delegation of authority for mutual benefit                             | [52,109,112,116,121,129,130,132]                                      | LAs delegate the power to us to make decisions that benefit the community.                                                                                  |
| 3   | Consultation enables citizens to achieve dominant decision-making power | [49,52,69,93,109,112,122,124,125,127,130]                             | Through consultation, we managed to reach the final word (decision) in smart city programs.                                                              |
| 4   | Citizens are allowed to co-produce                                       | [49,52,69,70,92,105,121,130]                                          | We are allowed by LAs to jointly run smart city programs.                                                                                                   |
| 5   | Offering grants (financial incentives)                                 | [52,69,112,116,128,129]                                               | LAs offer grants (financial incentives) to run smart city programs.                                                                                         |
| 6   | Offering rewards (material incentives)                                 | [52,69,116,128]                                                       | LAs offer rewards, but LAs are still in full power.                                                                                                         |
| 7   | Conducting questionnaires                                              | [52,69]                                                               | LAs conduct questionnaires related to our perception of smart city programs.                                                                               |
| 8   | Hold community meetings                                                | [52,116,122,132]                                                      | LAs hold meetings with the community.                                                                                                                                 |
| 9   | Inform (educate) through information releases                           | [49,52,69,92,103,104,116,121,123–125,130]                             | LAs broadcast the correct information to us.                                                                                                               |
| 10  | Explain misunderstandings (therapy)                                    | [52,69,100,108,114,116,132]                                          | LAs explain misunderstandings of the smart city program to us.                                                                                             |
| 11  | Manipulating (emphasizing the purpose of administrative legitimacy, rather than the actual function of the people) | [52,100,114,115,128,129]                                             | LAs manipulate or use us for a reason.                                                                                                                     |

4.1.4. The Items for the Construct of Processes of Participation (IV 3)

The processes of participation refer to public engagement in the value chain of a program or activity from the initial process of drafting the agenda to the final evaluation process. Although the idea of the people involved in the value chain process of a city program was quoted from [70], there were no further explanations of the appropriate items. Thus, most of the relevant items were derived from [69].

In explaining the initial “processes” of participation in a program’s value chain, citizens should be involved in formulating the agenda, decision-making, planning, and designing the program’s content. Consequently, citizens should be involved in managing and implementing the programs, together with LAs, in the middle process. Finally, citizens should oversee and evaluate the program after the implementation. Table 5 summarizes the themes, sources, and questionnaire items in layperson's terms.

Table 5. Items for the “processes of participation” (source: authors).

| No. | Themes                                                                 | Sources                                                                 | Processes of Participation Item                                                                                                                                  |
|-----|------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Formulate agendas, where the power of the people is limited            | [56,69,117,118,133–137]                                              | We are involved in formulating the program agenda.                                                                                                               |
| 2   | Make the right decision                                                | [56,69,111,116,125,133,134,136–139]                                   | We are involved in decision-making.                                                                                                                               |
| 3   | Plan program content                                                   | [52,69,70,98,116,121,125,140]                                         | We are involved in planning the program’s activities.                                                                                                             |
| 4   | Design program details                                                 | [37,70,120,141]                                                       | We are involved in designing the program’s content.                                                                                                              |
| 5   | Manage program processes                                               | [37,69,70,94,140]                                                     | We are involved in managing the program’s processes.                                                                                                             |
| 6   | Implement the program                                                  | [52,69,70,124,125,136,139,141]                                       | We implement the program.                                                                                                                                         |
| 7   | Monitor (supervise) the program’s continuity                           | [70,135,141]                                                          | We oversee the course of the program.                                                                                                                             |
| 8   | Evaluate the program after its implementation                          | [69,70,100,125,139]                                                   | We evaluate the program after its implementation.                                                                                                               |
4.1.5. The Items for the Construct of Roles of Citizens (IV 4)

The role of the people was discussed as one of the important factors in building citizens’ responsibilities in a citizen-centric smart city. Eight roles were identified in the construct items using language that is easily understood by the average respondents, as shown in Table 6.

Table 6. Items for the “roles of citizens” (source: authors).

| No. | Theme                                                      | Source             | Roles of Citizens Item                                                                 |
|-----|------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
| 1   | Leaders—lead local authorities to make decisions           | [52,100]           | As leaders, we lead LAs to make decisions.                                             |
| 2   | Local champion—takes the initiative                       | [112,113,116,136]  | As local champions, we take the initiative to start the program and connect to the relevant parties. |
| 3   | Co-producers—work together                                | [39,70,112,134,138,142] | As co-producers, we work together with LAs.                                           |
| 4   | Entrepreneurs—bring economic innovation                   | [113,143]          | As entrepreneurs, we bring economic and financial innovation to the community.        |
| 5   | Solution proposers—advise and propose                    | [71,103,105,109,138,141,144,145] | As solution proposers, we suggest alternatives and advise LAs.                       |
| 6   | Human sensors—supply data, reports, or complaints         | [38,56,57,71,72,100,141] | As human sensors, we contribute data.                                                 |
| 7   | Volunteers—contribute time and energy                    | [72,102,106,112,113,124,125,136,142,145] | As volunteers, we contribute time and help regardless of returns.                     |
| 8   | Experts—share competencies or experience                  | [52,72,100–102,106,108,116,132,136,146] | As experts, we contribute our expertise to help smart city programs.                  |

The first role that ideal or radical citizens played in smart city programs was in leading authorities to make decisions [147]. The second role was as local champions, where citizens took the initiative to initiate the program and connect to relevant parties. The third role was as co-producers in collaboration with LAs. Furthermore, citizens could play the role of entrepreneurs in producing economic and financial innovations for the community. Citizens could also be solution proposers by suggesting alternatives and advising LAs. For the sixth role, citizens contributed data, consciously or subtly, as human sensors. Citizens could also volunteer to contribute time and help intrinsically. Finally, citizens contributed knowledge and expertise as experts. All the proposed citizen roles would eventually assist LAs with the shortage of human and financial resources involving smart city management.

4.1.6. The Items for the Construct on Characters of Citizens (IV 5)

Along with the people’s responsibility for developing a citizen-centric city, people’s attitudes were equally crucial to the study. Here, the researchers summarized the relevant themes and resources and synthesized the items that fit this study in Table 7.

Table 7. Items for the “characters of citizens” (source: authors).

| No. | Theme                                                      | Source             | Characters of Citizens Item                                                                 |
|-----|------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------|
| 1   | Active involvement is known to be important                | [102,103,123,128,136,137,141,148] | We are active and care about each other.                                                  |
| 2   | Aware and sensitive to what is happening                   | [35,100,103,116,132,136,146,149] | We are aware and sensitive to the programs that take place in the city and the surroundings. |
| 3   | Independence in problem-solving                            | [35,38,117,118,129,131,136,137,149] | We choose not to rely on governmental resources.                                          |
| 4   | Higher education allows for meaningful involvement         | [100,103,108,109,136,149,150] | Being educated is important for us to get involved in city programs.                     |
| 5   | Interest in public life and public values                  | [5,35,37,38,48,101,151–153] | We are interested in public life, public values, and act quickly against things that disrupt community life. |
The first attitude that citizens should possess is the active care of each other, such as neighbors and communities. Furthermore, citizens should pay attention and be sensitive to the programs occurring in the city and the surrounding environment. Citizens should be independent when problem-solving instead of merely relying on governmental resources. Being educated in colleges or universities would also allow for meaningful involvement. Finally, ideal citizens in smart cities should have an attitude that reflects an interest in public life, public values, and acting quickly against the disruptions in community life.

4.2. Verification by Practitioners

Once the six constructs and 49 items were derived from the literature, further verification of the feasibility was conducted by practitioners. The authors confirmed that the six constructs were deemed appropriate to explain a citizen-centric smart city model. However, the exact items needed some modifications, such as including the appropriate usage of words, sentences, and examples to guide respondents in answering the questionnaire with more accuracy [94]. In total, two of the original items were removed, and a total of 47 items were applied in the conceptual framework for future use in the instrument (Appendix ??). The details of the items adjusted through the practitioners’ verifications are presented in Appendix ??.

5. Discussion and Reflection

The notion of citizen centricity in (smart) city development is not a novel one and is perceived as a continuous trend in the development of e-government, which started in the mid-2000s. It is in line with the concept derived from new public management, where citizens should be viewed as customers to improve public service delivery. As customers, the demands of services have implications that are likely to turn citizens into passive users or beneficiaries who receive and demand from public administrators. It was argued that in constructing a citizen-centric smart city (CCSC), there should be no generalizations in viewing citizens as customers. In fact, there is a need to seriously research and construct a CCSC from the perspectives of both citizenships (to explain the notion of citizen centricity) and literature on the conception of the smart city conception.

The theoretical framework of a CCSC formed in this study is the first structured framework of its kind in the literature on smart cities. This CCSC theoretical framework thoroughly explains the original combination of the source of references for the notion of citizen centricity and the smart city concept. From these combinations, it was revealed that the construction of such detailed indicators and citizenship conception should include three major components, namely, citizens’ rights (not included in this study, as it was already detailed by [13,17]), citizens’ responsibilities, and the practices of citizen participation in governance. This framework is unique, as the framework is viewed from a fundamental perspective of what citizens can contribute to the formation of a CCSC. The focus of the indicators originated from the perspective of the citizens rather than the government’s point of view. Such a perspective would make the role of citizens proactive and similar to the conception of self-organizing cities [49,154–156], which developed beyond the current neoliberal smart cities.

From such a theoretical framework, this study has attempted to construct a conceptual framework consisting of six constructs and 47 items. All the constructs were verified carefully by 38 practitioners in the fields of smart city development and community participation. The first stage of the formation of indicators was derived from the majority of literature reviews from scholars in developed Western countries, hence outlining the holistic scope of citizenship notions. Moreover, practitioners from emerging and developing countries with comparatively lower democracy and citizenship conceptions, such as Malaysia, tended to agree with all the indicators from the Western literature and included additional examples from the local context to gain a better understanding of the residents. Thus, the design of such indicators could be said to suit both developed and developing
countries. Concerning future implementations, the examples of particular items should be altered with caution to suit other local contexts.

The authors predict that further studies on empirical survey results could yield a less significant result on some indicators, as the mindset and acceptance of democracy and the rights in emerging and developing countries, such as Malaysia, could be lower compared to developed countries. Hence, the full acceptance of the indicators is not possible, as the democratic innovations of developing countries are faced with challenges and restrictions [157]. The proposed democratic innovation includes expanding the role of citizens as co-producers [158], which is rarely practiced in developing countries. Furthermore, with regard to the usage of political slogans in building a CCSC, leaders may appear insincere if people are tokenized as customers with needs to fulfill but not cultivated and given the opportunities to participate in governance practices. Thus, the authors are fully aware of the challenges and costs of participatory and deliberative governance [136,159]. However, to intervene in such neoliberal smart urbanism [160] and realize the possibility of “self-organizing” smart cities, these CCSC indicators are worthy of reference and can be modified in different contexts.

The potential self-organizing cities led by local stakeholders could emerge as responses to unsatisfactory government-driven processes, market failures [161], the intention to legitimize a government’s retreat from sectors that have traditionally played a vital role [162], or the intervention of e-participation through digital technologies [163,164]. This self-organizing and more democratic realm of a CCSC has led to three levels of discussion. The first level is the democratic culture of a country, the leaders’ understanding, and the delegation of decision-making power in governance. The second level is society’s perception of citizenship, the participative culture of societies, and the lack of links to decision-making [165]. The third level is the individual citizens’ discipline and contributions to the country or city.

For an emerging and developing country like Malaysia, the dual forms of Islamic and secular administrations and constitutions are often criticized by scholars in the context of democracy [166–168]. Such a context hints that the highest constitution is not as open to democracy as practiced by Western countries. Canada, for example, has the Citizenship Act, the Charter of Rights and Freedoms, and the Multiculturalism Act [169–171], as opposed to Malaysia. Another example is the Nordic welfare society in the context of a democratic culture, welfarism, and redistributive policies that provide support to the development of participatory and innovative platforms by strengthening social inclusion, regulating the growth mechanisms, and easing the tensions between pro-growth and anti-growth coalitions [143].

In Malaysia, “participatory governance practice” is a tokenized term under the current top-down policy governance practices. The majority of government administrators “listen” and act according to political masters, but less focus is given to grassroots suggestions [172,173]. The lack of participatory governance practices was also similar to other developing countries, such as India, China, and Egypt [23,117,174,175]. In developing India’s 100 smart cities, [174] questioned the liberal electoral democracy in India on the extent to which a smart city can deliver de facto inclusion and participation. [176] added that, instead of testing Indian smart cities as the grounds for democratic participation, smart citizens were nudged as subaltern citizens in urban governance. In China’s smart-eco city projects, [117,177] reported that citizen input in the decision-making phase was quite limited, hence suggesting legislative reforms and the professionalization of Chinese officials in dealing with bottom-up input. In Egypt, [175] recommended that the Egyptian government focus specifically on smart people, such as giving citizens equal opportunity to participate in public decision-making.

Suppose the future survey results of the proposed indicators in this study receive high acceptance. In that case, participatory governance may become a new norm in local governance and mark a transition from party politics, expert dominance, and siloed
bureaucracy to citizen participation, consequently supporting citizens’ efforts to co-produce public services and build potential self-organizing smart cities.

At the level of society, the culture of participation in government programs is considered to be low [9,178]. From studies based on the Petaling Jaya and Cyberjaya smart city cases [9], the low level of participation was not interpreted based on the moderate quantity of participative programs involving citizens in the implementation stages, but the interpretation was based on the particularly low (even none) quantity of programs that empowered citizens at the initial stage of decision-making. The situation in Malaysia resembles making “decision by decision,” where the community has no liberty to decide, is constrained by decisions from authorities, and is at the mercy of the authorities [9]. Furthermore, as described by [162], in the context of Amsterdam and Amersfoort, The Netherlands, “self-organization seems to take place in the shadow of a government hierarchy: either a fear-based one or a benevolent one,” particularly in the context of meta-governance. In the context of Helsinki, Finland, self-organization also lacked links to decision-making, thus constraining new solutions and creative actions [165].

Such contexts indicated that society’s mindset is still conservative, with a vague understanding of the citizenship’s regime, leading to a possibly high dependency of people on the government. The evidence in Malaysia, such as the withdrawal of participation from the Rome Statute of the International Criminal Court [179] and the human rights issues evoked by racially and religiously motivated political parties, had correctly signaled the relatively low appreciation of equality in human rights when race- and religion-based interests are challenged.

At the level of individual Malaysian citizens, people’s self-discipline would increase with the realization of a CCSC. For example, the role of volunteers, local champions, and co-producers with characteristics of proactiveness and awareness of CCSC development are all important responsibilities that a citizen has to contribute to building a CCSC. In a potential majority of highly responsible citizens, this contributes to the building of sustainable and inclusive societies, cities, and a wider scope of progressiveness in Malaysia.

6. Conclusions

The construction of a CCSC is much like developing a democratic society, which requires a higher appreciation of a society with a wider citizenship regime and a self-disciplined and responsible culture for individual citizens. As technology has been identified as a mere catalyst in solving societal issues [180], the new main focus is now on the people (along with good policy) in rightly building a CCSC based on public values and upholding the realms of democracy and citizenship.

Nonetheless, [12] pointed out that hegemonic neoliberal urban growth is mostly incompatible with citizen-centered ideas. Thus, this study’s limitation concerned the non-appreciation of neoliberal thinking parties (specifically ruthless capitalists and far-right and antidemocratic national and local authorities), who have become too used to and trapped under the mainstream of neoliberal smart urbanism. These parties may criticize and strongly oppose the viability of the proposed indicators and provide negative empirical results. Still, the authors encourage further investigations to apply the proposed indicators in the contexts of both developed and developing countries.

More information and refinements on the indicators will eventually yield the acceptance of the CCSC model. As such, the conception of a CCSC is the ideal state of building cities resembling “self-organizing” types, but with possibilities to be rejected by neoliberal-thinking leaders and administrators in practice. However, the authors strongly believe that in an estimated period of 30 to 50 years, the CCSC will receive wider acceptance with the emergence of drawbacks in neoliberal smart cities (see [57,181,182]). In the meantime, the smart cities’ trend of branding, be it the alternative new brandings of cities or the conception of the citizen centricity perspective, will remain valid and strive for realization in a sustainable, just, and humane form of city development [183].
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Appendix A

Table A1. Literature discussing the direction of citizen centricity in smart cities’ development (Source: Authors).

| No. | Perspective | Methodology | Scholars and Descriptions |
|-----|-------------|-------------|---------------------------|
| 1(a) | Conceptual discussions | | [184]—To achieve the Dubai Happiness Agenda through digital technology, which is tokenized on the essence of participation. |
| 1(b) | Empirical proofs of the design of web/mobile urban service applications toward achieving a citizen-centeredness state. | | [185]—Using (customer relationship management) data analysis to measure the dimensions of smart city services that match the needs of the citizens (i.e., the needs for hedonic, contact, value co-creation, or a real-time response). |
| 1 | Technology-driven method: Stresses the importance of digital technology and big data in helping to attain citizen (centricity) participation in the smart city (services). | | [32]—Through the design of the IES (Internet Enabled Services) Cities platform to enable citizens to act as prosumers (double consumer and producer). |
| 1 | Technology-driven method: Stresses the importance of digital technology and big data in helping to attain citizen (centricity) participation in the smart city (services). | | [186]—Viewed citizens as primary beneficiaries and empowering citizens (deep participation * and data-literate citizenry) as challenges, thus proposed a solution of an Open City Toolkit (OCT) ** through GIScience and open data. |
| 1 | Technology-driven method: Stresses the importance of digital technology and big data in helping to attain citizen (centricity) participation in the smart city (services). | | * Deep participation is about raising awareness and enabling communities to have their say in matters related to city life. |
| 1 | Technology-driven method: Stresses the importance of digital technology and big data in helping to attain citizen (centricity) participation in the smart city (services). | | ** Examples of OCT can be accessed through http://geo-c.eu/opencitytoolkit (European Union’s funding project). Related papers: [187,188]. |
| 1 | Technology-driven method: Stresses the importance of digital technology and big data in helping to attain citizen (centricity) participation in the smart city (services). | | [189]—Proposed an open model (open government, open innovation, open data, and open services paradigms) oriented toward the design, production, and deployment of public services and mobile apps ***, where citizens were viewed as co-creators of ideas. |
| 1 | Technology-driven method: Stresses the importance of digital technology and big data in helping to attain citizen (centricity) participation in the smart city (services). | | ** Examples of the WeLive platform can be accessed through https://www.welive.eu/ (European Union’s funding project). Related papers: [190,191]. |
| 1 | Technology-driven method: Stresses the importance of digital technology and big data in helping to attain citizen (centricity) participation in the smart city (services). | | [192]—Proposed a citizen-centric typology for smart city services from marketing and service science, where citizens were viewed as users and customers. Others: [31,193–198]. |
Table A1. Cont.

| No. | Perspective | Methodology | Scholars and Descriptions |
|-----|-------------|-------------|---------------------------|
| 2   | Human-driven method: Stresses the importance of citizenship/social participation perspective in attaining the direction of citizen centricity in smart city development. | 2(a) Conceptual discussions | Component of governance practice: [33]—Achieving Smart Nation Singapore through citizen-oriented smart city (governance) policies. Component of a general mention of citizenship: [34]—Stressed genuine citizen centricity will either happen when citizens were engaged in a partnership or delegated power and involved in the decision-making process in smart city programs. Others: [36–39]. [10]—Proposed a “Scaffold of Smart Citizen Participation” to assess the citizen-centric nature of smart city initiatives in Dublin. They concluded that these “citizen-centric” smart city initiatives were rooted in stewardship, civic paternalism, and a neoliberal conception of citizenship, rather than being grounded in civil, social, and political rights, and the common good. [13,17]—Proposed indicators for safeguarding citizens’ rights. [35]—Proposed indicators for smart people and smart governance. |
| 2   | 2 (b) Propose empirical measurements of citizen participation and citizens’ rights in the smart city (standard). |                          | Note: * Deep participation is about raising awareness and enabling communities to have their say in matters related to city life; ** Examples of OCT can be accessed through http://geo-c.eu/opencitytoolkit (European Union’s funding project); *** Examples of the WeLive platform can be accessed through https://www.welive.eu/ (European Union’s funding project). |

Appendix B

Table A2. List of selected reviewed articles (source: authors).

| No. | Source’s Title                                                                 | Publisher                          | Publication                  | Author |
|-----|--------------------------------------------------------------------------------|------------------------------------|-----------------------------|--------|
| 1   | Citizen-centric approaches to e-government and the back-office transformation   | Association for Computing Machinery (ACM) | (Proceedings) [85]           |        |
| 2   | Conceptualizing smart city with dimensions of technology, people & institutions | ACM                                | (Proceedings) [48]           |        |
| 3   | Citizen-centered e-government services: benefits, costs, and research needs     | ACM                                | (Proceedings) [86]           |        |
| 4   | Assessment methodology in smart cities based on public value                   | ACM                                | (Proceedings) [153]          |        |
| 5   | Models of e-democracy                                                          | Association for Information Systems (AIS) | Communications of the Association for Information Systems [140] |        |
| 6   | Citizen-centric demand model for transformational government systems           | AIS                                | (Proceedings) [95]           |        |
| 7   | A ladder of citizen participation                                              | American Institute of Planners     | Journal of the American Institute of Planners [52] |        |
| 8   | The smart city from a public value perspective                                 | Atlantis Press                     | (Proceedings) [152]          |        |
| 9   | Public value from co-production by clients                                     | Australia and New Zealand School of Government | (Working paper) [151] |        |
| 10  | Using the transformational government framework to deliver public sector services | Brunel University                   | (Working paper) [91]         |        |
| 11  | A review on public participation in Environmental Impact Assessment in Malaysia | Academy of Economic Studies, Bucharest, Romania | TERUM-Theoretical and Empirical Research in Urban Management [146] |        |
Table A2. Cont.

| No. | Source’s Title                                                                 | Publisher                                      | Publication                                   | Author                                |
|-----|-------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------|---------------------------------------|
| 12  | “Citizens as analysts” redux: revisiting Aaron Wildavsky on public participation | University of Westminster Press                | Journal of Public Deliberation                | [145]                                 |
| 13  | An institutional analysis of Environmental Impact Assessment (EIA) in Malaysia: social conflict and credibility | Delft University of Technology (Thesis)        | (Thesis)                                     | [114]                                 |
| 14  | The guide to effective participation, Particpator learning for sustainable agriculture | Delta Press, Brighton (Book)                   | (Book)                                       | [69]                                  |
| 15  | From e-government to we-government: defining a typology for citizen coproduction in the age of social media | Elsevier                                       | Government Information Quarterly              | [141]                                 |
| 16  | Transformation and business process reengineering (BPR): lessons from the British and Dutch public sector | Elsevier                                       | Government Information Quarterly              | [127]                                 |
| 17  | Public participation in waste management decision making: analysis and management of conflicts | Elsevier                                       | Journal of Hazardous Materials               | [137]                                 |
| 18  | Citizen participation in China’s eco-city development. Will ‘new-type urbanization’ generate a breakthrough in realizing it? | Elsevier                                       | Journal of Cleaner Production                | [117]                                 |
| 19  | Participation’s place in rural development: seeking clarity through specificity | Elsevier                                       | World Development                            | [139]                                 |
| 20  | Citizens’ attitudes towards e-government and e-governance: a UK study          | Emerald                                        | International Journal of Public Sector Management | [87]                                 |
| 21  | The smart city and its citizens: governance and citizen participation in Amsterdam Smart City | Erasmus University (Thesis)                    | (Thesis)                                     | [49]                                  |
| 22  | E-participation—a key factor in developing smart cities | European Citizen and Public Administration (Proceedings) | (Proceedings)                               | [101]                                 |
| 23  | A handbook for citizen-centric eGovernment | European Commission (Book)                     | (Book)                                       | [1]                                   |
| 24  | A citizen-centric public sector: why citizen centricity matters and how to obtain it | International Academy, Research and Industry Association (IARIA) (Proceedings) | (Proceedings)                               | [36]                                  |
| 25  | Citizen-centric eGovernment services: use of indicators to measure degree of user involvement in eGovernment service development | IARIA (Proceedings)                           | (Proceedings)                               | [105]                                 |
| 26  | Citizen participation in smart cities: evaluation framework proposal           | Institute of Electrical and Electronics Engineers (IEEE) (Proceedings) | (Proceedings)                               | [120]                                 |
| 27  | A web 2.0 citizen-centric model for t-government services                      | IEEE                                            | IEEE Intelligent Systems                     | [97]                                  |
| 28  | Understanding smart cities: an integrative framework                          | IEEE                                            | (Proceedings)                               | [109]                                 |
| 29  | Involving citizens in smart city projects: systems engineering meets participation | IEEE (Proceedings)                             | (Proceedings)                               | [106]                                 |
| 30  | E-governance and development: service delivery to empower the poor            | Idea Group (IGI) Publishing                    | International Journal of Electronic Government Research | [92]                                 |
| 31  | Citizens as sensors/ information providers in the co-production of smart city services | Luiss University Press (Proceedings)            | (Proceedings)                               | [38]                                  |
| 32  | Where’s wally? In search of citizen perspectives on the smart city           | Multidisciplinary Digital Publishing Institute (MDPI) | Sustainability                                | [126]                                 |
| 33  |                                                                                                                                               |                                                |                                        |
| No. | Source's Title                                                                 | Publisher                                      | Publication                                      | Author |
|-----|-------------------------------------------------------------------------------|-----------------------------------------------|-------------------------------------------------|--------|
| 34  | City-as-a-platform: the rise of participatory innovation platforms in Finnish cities | MDPI                                          | Sustainability                                   | [143]  |
| 35  | Making local democracy work: municipal officials’ views of public participation | National League of Cities                      | (Book)                                          | [142]  |
| 36  | New politics: towards a mature Malaysian democracy                             | National Translation Institute of Malaysia     | (Book)                                          | [99]   |
| 37  | Being a ‘citizen’ in the smart city: up and down the scaffold of smart citizen participation. | National University of Ireland Maynooth        | (Working paper)                                  | [71]   |
| 38  | Citizens as partners: OECD handbook on information, consultation and public participation in policy-making | Organisation for Economic Co-operation and Development (OECD) | (Report)                                        | [123]  |
| 39  | Engaging citizens in policy-makings: information, consultation and public participation | OECD                                          | (Report)                                        | [122]  |
| 40  | Models of democracy: from representation to participation?                     | Oxford University Press                       | (Book chapter from) The Changing Constitution    | [131]  |
| 41  | Critical interventions into the corporate smart city                           | Oxford University Press                       | Cambridge Journal of Regions, Economy and Society | [55]   |
| 42  | Assessing public participation in U.S. cities                                  | Sage                                          | Public Performance & Management Review           | [135]  |
| 43  | Conflicting perceptions on participation between citizens and members of local government | Springer                                      | Quality & Quantity                               | [116]  |
| 44  | The role of citizen participation in municipal smart city projects: lessons learned from Norway | Springer                                      | Smarter as the New Urban Agenda                  | [56]   |
| 45  | Technology helps, people make: a smart city governance framework grounded in deliberative democracy | Springer                                      | Smarter as the New Urban Agenda                  | [54]   |
| 46  | ‘Mind the gap’: e-government and e-democracy                                  | Springer                                      | International Conference on Electronic Governance | [103]  |
| 47  | ‘Mind the gap II’: e-government and e-governance                              | Springer                                      | International Conference on Electronic Governance | [104]  |
| 48  | Co-production makes cities smarter: citizens’ participation in smart city initiatives | Springer                                      | Co-production in the Public Sector               | [37]   |
| 49  | Smart city projects and citizen participation: the case of London              | Springer                                      | Public Sector Management in a Globalized World   | [144]  |
| 50  | The citizens in e-participation                                                | Springer                                      | International Conference on Electronic Governance | [132]  |
| 51  | Depoliticising development: the uses and abuses of participation              | Taylor & Francis                              | Development in Practice                          | [129]  |
| 52  | Assessing public participation initiatives in local government decision-making in Malaysia | Taylor & Francis                              | International Journal of Public Administration   | [118]  |
| No. | Source's Title                                                                 | Publisher                          | Publication                                      | Author       |
|-----|--------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------|--------------|
| 53  | Citizen participation: models and methods                                      | Taylor & Francis                   | *International Journal of Public Administration City | [134]         |
| 54  | Will the real smart city please stand up?                                      | Taylor & Francis                   | *Local Environment                              | [62]         |
| 55  | Contemporary public involvement: toward a strategic approach                    | Taylor & Francis                   | *Journal of the Community Development Society    | [98]         |
| 56  | Caught in the middle: Community Development Corporations (CDCs) and the conflict between grassroots and instrumental forms of citizen participation | Taylor & Francis                   | *International Journal of Public Administration City | [130]         |
| 57  | Smart cities in Europe: A comparatives study on public participation in Environmental Impact Assessment (EIA) in Malaysia and European Union | Technical University of Košice     | (Proceedings)                                    | [107] *      |
| 58  | E-government survey 2012: e-government for the people in smart cities: the citizens at the core of Smart Namur | Tilburg University, Netherlands  | (Thesis)                                         | [115]        |
| 59  | Factors influencing participation of rural women in Padzey Project in Taiz Governorate, Yemen | United Nations                     | (Report)                                        | [96]         |
| 60  | Citizen-centric demand model for transformational government                    | Universite De Namur                | (Thesis)                                        | [102]        |
| 61  | Influence of citizen-centric perspective on the effectiveness of e-governance systems in Malaysia | Universiti Putra Malaysia           | (Thesis)                                        | [94]         |
| 62  | Engaging citizens in democratic governance and the decision-making process with congressional committees | Vienna University of Technology  | (Report)                                        | [35]         |
| 63  | Models of democracy                                                            | Wiley-Blackwell                    | *Journal of Regional Science                    | [110]        |
| 64  | Beyond engagement and participation: user and community coproduction of public services | Wiley-Blackwell                    | *Public Administration Review                   | [70]         |
| 65  | Smart cities: ranking of European medium-sized cities                           | Wiley-Blackwell                    | *Public Administration Review                   | [121]        |
| 66  | Engaging democracy: an institutional theory of participatory budgeting           | Wiley-Blackwell                    | *Public Administration Review                   | [136]        |
| 67  | Why are smart cities growing? Who moves and who stays                           | Wiley-Blackwell                    | *Public Administration Review                   | [138]        |
| 68  | Citizen participation: can we measure its effectiveness?                        | Wiley-Blackwell                    | *Public Administration Review                   | [133]        |
| 69  | Put the "public" back in public values research: designing participation to identify and respond to values | Wiley-Blackwell                    | *Public Administration Review                   | [133]        |
### Table A2. Cont.

| No. | Source's Title                                                                 | Publisher      | Publication                  | Author      |
|-----|--------------------------------------------------------------------------------|----------------|------------------------------|-------------|
| 77  | Further dissecting the black box of citizen participation: when does citizen involvement lead to good outcomes? | Wiley-Blackwell | *Public Administration Review*          | [108]       |
| 78  | The World Bank participation sourcebook                                           | World Bank     | (Report)                     | [124]       |
| 79  | Strategic framework for mainstreaming citizen engagement in World Bank Group operations | World Bank     | (Report)                     | [125]       |

Note: * Ref. [71]—this working paper was published in GeoJournal, 2019; Ref. [116]—this journal article was online first in 2017; Ref. [107]—this proceeding paper was published in Journal of Urban Technology, 2011.

### Appendix C

#### Table A3. Selected and adjusted items after the verification by practitioners (source: authors).

| No. | Item from Literature                                                                 | Adjusted Item with Verification by Practitioners                                                                 |
|-----|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| 2   | The decision by LAs needs to reach a consensus with us.                              | Decisions made by LAs are through an agreement, *such as dialogues with us.*                                   |
| 4   | LAs delegate power to us, especially at the initial level of smart city programs.    | LAs delegate authority to us at the initial stages of urban programs, *such as meeting with us for decision-making.* |
| 6   | We play the role of volunteers and contribute information continuously.               | We are responsible and together build a smart city.                                                            |
| 6   | We are involved in the programs without going through a representative.              | We attend *(without a representative)* and join along in the program organization.                             |
| 8   | We value the decision-making process together.                                       | We value the decision-making process together, *and not just comply with LAs.*                                |
| 5   | LAs offer grants (financial incentives) to run smart city programs.                  | LAs offer grants/contracts in the form of finance to run city programs.                                       |
| 6   | LAs offer rewards, but LAs still have full power.                                    | LAs offer rewards/gifts, such as shirts, bins, and others.                                                   |
| 8   | LAs hold meetings with the community.                                                | LAs hold meetings with us.                                                                                    |
| 9   | LAs broadcast the correct information to us.                                         | LAs publish accurate information.                                                                            |
| 3   | As co-producers, we work together with the LAs.                                       | As co-producers, we work together with LAs and contribute relevant resources.                                 |
| 6   | As human sensors, we contribute data.                                                | As human sensors, we report issues to the LAs.                                                                |
| 3   | We choose not to rely on government resources.                                        | We choose a less dependent approach to government resources.                                                    |
| 4   | Being educated is important for us to get involved in city programs.                 | *Efforts to obtain higher education (BSc and above) are important to prepare us to be involved in the program.*  |
| 5   | We are interested in public life, public values, and acting quickly on things that disrupt community life. | We are interested in *public affairs* and act quickly on things that disrupt community life.                   |
Appendix D

Table A4. Instrument construct and items (source: authors).

| Construct                          | Num. of Original Items (Based on Literature Review) | Num. of New Items (Improved after the Interview) | Detail Num. of New Items after Adjustment | Detail Num. of New Items Remaining |
|-----------------------------------|----------------------------------------------------|-----------------------------------------------|------------------------------------------|----------------------------------|
| (1) Citizen-centric smart city    | 8                                                  | 8                                             | 3                                        | 5                                |
| (2) Understanding of participation| 9                                                  | 9                                             | 2                                        | 7                                |
| (3) Types of participation        | 11                                                 | 11                                            | 4                                        | 7                                |
| (4) Processes of participation    | 8                                                  | 6                                             | 5                                        | 3                                |
| (5) Roles of citizens             | 8                                                  | 8                                             | 3                                        | 5                                |
| (6) Characters of citizens        | 5                                                  | 5                                             | 3                                        | 2                                |
| Total                             | 49                                                 | 47                                            |                                          |                                  |

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