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A systematic bibliometric analysis and literature study

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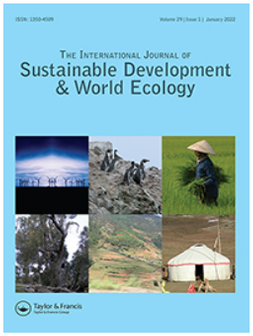

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Mapping key features and dimensions of the inclusive city: A systematic bibliometric analysis and literature study

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ABSTRACT

Many local governments engaging in sustainable urban development also have a growing interest in becoming inclusive too, brand themselves as such and develop policies to become inclusive cities. However, knowing what exactly this entails and how it can be achieved is not always quite straightforward and requires thorough theoretical and empirical exploration. Consequently, we present a systematic deconstruction of the inclusive city concept in order to develop a better understanding of the main features and dimensions; this is done by means of both a bibliometric analysis and qualitative literature review. The results indicate that inclusiveness is multidimensional and comprised of spatial, social, environmental, economic, and political dimensions in which the characteristics of participation, equity, accessibility and sustainability are sometimes interwoven. Overall, the inclusive city is not merely a precondition for the creation of just space, well-being, and environmental responsibility, but also an opportunity to take stock of interests of stakeholders in cities and to create local public value. The findings have implications for urban policy and practice, more specifically, the clarification of the inclusive city concept and conceptual dimensions will provide significant reference for policymakers and practitioners to make prudent decisions in the process of creating an inclusive city.

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Inclusive city; bibliometric analysis; literature review; sustainable urbanization; equity

1. Introduction

Cities are said to be among humankind's greatest social innovations, given the modernity, well-being and economic prosperity they brought to people's lives, both in material and immaterial terms [Glaeser, 2013]. In the past few decades, we have witnessed a surge in initiatives variously aimed at modernizing of urban infrastructure and services and creating better environmental, social and economic conditions (De Jong et al. 2015; Schraven et al. 2021). To strive for these developments, a number of new city categories have entered the policy discourse, such as 'sustainable cities', 'smart cities', 'eco cities' and 'low carbon cities', and it has become apparent that each term exposes important yet sometimes different main features in planning and policy efforts to realize sustainable urban (De Jong et al. 2015).

However, not all recent trends have been positive: competition between cities has become increasingly fierce which has made their respective positions vis-à-vis each other more complex and unpredictable; growing disparity in wealth and income has made the occurrence of social, economic and other forms of exclusion and discrimination more painfully apparent (Cohen 2006; Rebernik et al. 2019). China offers the example of a gap in wealth resulting from its deeply institutionalized dual urban-rural structure where rural migrants work and live cities, but *hukou* (household booklet) excludes them for a host of important services delivered in those cities: this represents a serious form of exclusion (Liu et al. 2019; Hu and Wang 2019). Other forms of inequality can be observed in cities around the world, such as different population groups being subjected to different environmental and health conditions, having differential access to various urban infrastructures and living in various types of housing conditions (Tan et al. 2016; Gorgul et al. 2017; Zhang et al. 2020). Each of these, but especially their combination ultimately poses grave challenges for an inclusive, smart and sustainable development of the global economy and the cities in it (Landau 2007; A-v and De Jong 2020). In response to this emerging plight, leading international and national organizations, local governments and scholars alike have begun to realize the importance of urban inclusiveness and proposed to implement policy measures to remedy the situation (WORLD BANK GROUP 2015; De Vita and Oppido 2016). The above explains the growing popularity and increasingly frequent advocacy of the 'inclusive city' and 'inclusive urban prosperity'.

In recent years, the inclusive city as a concept has increasingly shifted to the centre of the academic debate and insights and conceptualizations for inclusive growth, inclusive urban design, evaluation of urban

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inclusiveness and policy frameworks covering a host of aspects of inclusive urban development have emerged. Some authors have made dedicated efforts to establish conceptual frameworks of inclusive urban development by means of quantitative approaches and mathematical models (Ianchovichina and Lundström 2009; Martinelli et al. 2015; Dyer et al. 2017); others have placed particular emphasis on different areas within the broader field of sustainable urban development, such as inclusive economic growth, spatial accessibility, cultural diversity and social cohesion (Dempsey et al. 2011; Ding et al. 2015; De Vita and Oppido 2016; Gupta and Vegelin 2016); yet another group has focused on policy outcomes and policy impacts from the perspective of public policy and policy analysis (Bunnell 2019; Liu and De, Li F等 2020). In addition, inclusion has aroused growing interest in combination with smart city development, since technological innovation in the urban environment which excludes large segments of society can be seen as a moral liability. Inclusive smart cities, aiming at building a more accessible environment and improving the delivery of public spaces through broadly accessible digital technology and human-centred design, can meet the needs of residents and encourage more diverse stakeholder participation in urban growth.

In spite of the insights offered by abovementioned contributions, knowledge of what the inclusive city exactly entails, how it can be defined, what various dimensions it has, what policy demands it poses and how it can be achieved has not been systematically examined. Insights into the concept of the inclusive city are fragmented and their coherence is poorly understood. This may well lead to high but unfounded expectations or ill-guided policy actions. Thus, this systematic knowledge gap can be seen as the starting point for this contribution. One can only develop an inclusive city if one knows what it is, what characteristics it has, what dimensions it consists of and through what policy actions these can be synthesized or traded off against each other. Findings from this study are aimed to assist decision makers in clarifying what an inclusive city looks like. Although the goal here is not to identify appropriate policies to cope with problems of exclusion, an authoritative conceptualization can certainly help proper policy analysis and action.

Below the main definitions of the concept 'inclusive city' will be mapped, the various conceptual dimensions explored and the interrelationships between relevant keywords related to the concept analysed through both a bibliometric analysis and a qualitative literature review. The remainder of this article is structured as follows. In section 2, we will specify our methodological approach, data sources and research tools. The bibliometric method is used to tease out the various dimensions of the inclusive city and identify the interrelationships that exist between different keywords related to it. In addition, a qualitative analysis is used to review the concept of the inclusive city and a number of relevant definitions are summed up. Subsequently, we will offer tentative explanations of these results and add the number of publications, the distribution across subject disciplines, high-frequency keywords, main clusters and dimensions in the domain of the inclusive city in section 3. In section 4, we will outline the evolution of the term 'inclusive city' over time and review the existing definitions of the term to fathom what breadth of issues it covers. Then, conceptual dimensions and characteristics of an inclusive city will be summarized and discussed based on the results of both the bibliometric analysis and the qualitative literature review in section 5. Finally, we will construe a conceptual framework for the inclusive city and draw conclusions in section 6.

2. Research design, methodology and data collection

2.1. Research design

Figure 1 shows the outline of the specific research framework underpinning this article. Box 1 provides further technical detail, intended to aid replicability for future research. Its approach is based on lessons drawn from previous work conducted by De Jong, Joss, Schraven, Zhan, and Weijnen (2015) (De Jong et al. 2015)and Ma, Schraven, de Bruijne, De Jong, and Lu (2019) (Ma et al. 2019). This contribution provides both a bibliometric analysis and qualitative analysis of the existing literature on inclusive cities. The bibliometric analysis evolved in three steps:

(1) high-frequency keywords in the field of inclusive cities were counted and analysed so that key research contents and topics of this field were obtained;

(2) a co-occurrence analysis was conducted to reveal the interrelationships between high–frequency keywords within the research domain of inclusive cities;

(3) a cluster analysis was performed using SPSS to identify clusters in the field and to further deepen the conceptual underpinnings of the concept 'inclusive city'.

Following that, the bibliometric analysis was complemented with a qualitative review of academic books, policy reports, lecture notes and grey literature, to further deconstruct the concept and gain additional theoretical knowledge of it.

2.2. Data collection

2.2.1 Data selection for bibliometric analysis

The research design started with data collection. For a search strategy, the focus was on the inclusive city concept as a vehicle of sustainable urban development. As a novel concept, inclusive city could be recognized in the title, abstract and as an author keyword as part of the academic literature. In order to

Box 1. Methodological procedures.

Step 1: Complication of bibliometric database

- *Establish search query*
- *Enter search query in Scopus, setting 2000-2020, thus retrieving 114 articles and reviews [excuted 12/01/21]*
- *Collect bibliometric data: (i) title; (ii) abstract; (iii) author keywords*
- *Result: Database of 114 articles and reviews: titles; abstract; 355 keywords*

Step 2: Complication of qualitative database

- *Selection of books and book chapers*
  - *Establish search query*
- *Enter search query in Scopus, setting publish year < 2020, thus retrieving 25 books and 6 book chapters [excuted 12/01/21]. The documents that were cited more than 1 time were selected, thus downloading 6 books and 3 book chapters*
- *Collect books with the search query as 'inclusive city' through Amazon Books, setting publish year < 2020 and English language, thus retrieving 121 books. Further leaving out the books that are irrelevant, repeated, out of stock and no purchase links*
- *Result: Database of 19 books and 3 book chapters, see* Table 1
- *Selection of valuable reports and lectures*
  - *Collect valuable reports from the official websites of leading international organizations and institutions: United Nations, the World Bank, OECD and Asian Development Bank, thus retrieving 9 reports*
  - *Result: Database of 9 reports: see* Table 1

Step 3: Bibliometric Analysis

- ***Publication activities:*** *describing basic information of publication activities in inclusive city research*
  - *Draw line graph showing yearly counts of publications from 2000 to 2020*
  - *Result:* Figure 2
  - *Draw histgram showing the distribution across different disciplines from 2000 to 2020.*
  - *Result:* Figure 3
- ***High-frequency keywords analysis:*** *count and calculate the number of high-frequency keywords and the frequency of each keyword in an article or a review*
  - *List of merged and renamed keywords*
  - *Result:* Table 2
  - *List of high-frequency keywords and their frequencies related to inclusive cities articles*
  - *Result:* Table 3
- ***Co-occurrence analysis of keyowrds:*** *count the frequency of two keywords simultaneously appearing in the same article; use the software VOSviewer to construct a co-occurrence network of keywords*
  - *Draw a co-occrrence network graph by VOSviewer*
  - *Result:* Figure 4
- ***Cluster analysis:*** *explore different clusters composed of closely linked high-frequency keywords*
  - *Count the frequency of two high-frequency keywords appearing together in the same article with the help of Microsoft EXCEL; construct a co-word matrix (28 x 28) of high-frequency keywords*
  - *Transform the co-word matrix into the correlation matrix by formula (1)*
  - *Subtract "1" and all correlation matrices to obtain a dissimilarity matrix*
  - *Import the dissimilarity matrix into SPSS 26.0: the hierarchical cluster, the Ward's method, and the Squared Euclidean Distance metric*
  - *Draw a tree diagram showing the number of clusters and their structures*
  - *Result:* Figure 5
  - *Draw a table showing each cluster of high-frequency keywords (summarized by* Figure 5)
  - *Result:* Table 4

Step 4: Qualitative literature review

- ***At policy level:*** *identify description about the inclusive city concept, key drivers and main dimensions of the inclusive city concept*
  - *United Nations first proposed the term inclusive city and gave a definition; UN-Habitat and World Bank proposed some key drivers; OECD provided a inclusiveness framework; Asian Development Bank developed an integrated framework describing specific features*
- ***At theory and practice level:***
  - *exclusion and inclusion: inequality (see Espino, 2015); urban violence (see Salahub et al., 2018; Salahub et al., 2019); urban poverty (see MacRae, 2016; Zuberi et al., 2017; Herrle and Walther, 2005; Pokhrel, 2019)*
  - *given comprehensive descriptions of the inclusive city concept with political, social, economic and environmental dimensions (see Hambleton, 2014; Westendorff, 2004; Kundu et al., 2020; Anttiroiko and de Jong, 2020)*
  - *For specific issues: an inclusive city for people with disabilities (see Pineda, 2020); Women's right to city (see Whitzman et al., 2013; Viswanath, 2013; Andrew and Legacy, 2013); participation (Schippers and Heumen, 2014); affordable housing (Bharne and Khandekar, 2019; Steinberg and Lindfield, 2011); urban infrastructures(ADB, 2010; Laquian and Hanley, 2007); governance (Gupta et al., 2015); innovation(Attia, 2018)*
  - *offer an overview of which dimension(s) and key terms can be found in the work of which authors*
  - *Result:* Table 5

systematically capture the relevant research on inclusive cities, we collected bibliometric data on articles using the following search query:

> TITLE-ABS ("*inclusive city*" OR "*inclusive cities*") OR AUTHKEY ("*inclusive city*" OR "*inclusive cities*") AND DOCTYPE (ar OR re) AND PUBYEAR < 2021 AND PUBYEAR > 1999 AND LANGUAGE (English)

A few implicit decisions were made with regard to this query:

First, Scopus was used to compile the library of academic articles referring to inclusive city as a concept. For one thing, Scopus indexes a larger number of journals than Web of Science, and includes more international and open access journals (Aksnes and Sivertsen 2019). Also, Scopus fits the aim of this study because of its comprehensiveness in covering a wide range of journals, thereby ring-fencing a multitude of possible dimensions that the inclusive city could target.

Second, the analysis was centred on academic journal articles and reviews in the English language ranging the timeframe of the years 2000 to 2020. Academic papers and reviews offer a stable, verified and accessible account of the academic literature, which helps to initially profile and subsequently review the different angles of attention to the inclusive city through key words. Publications in other languages were not taken into account, because according to the authors the debate on the inclusive city mainly

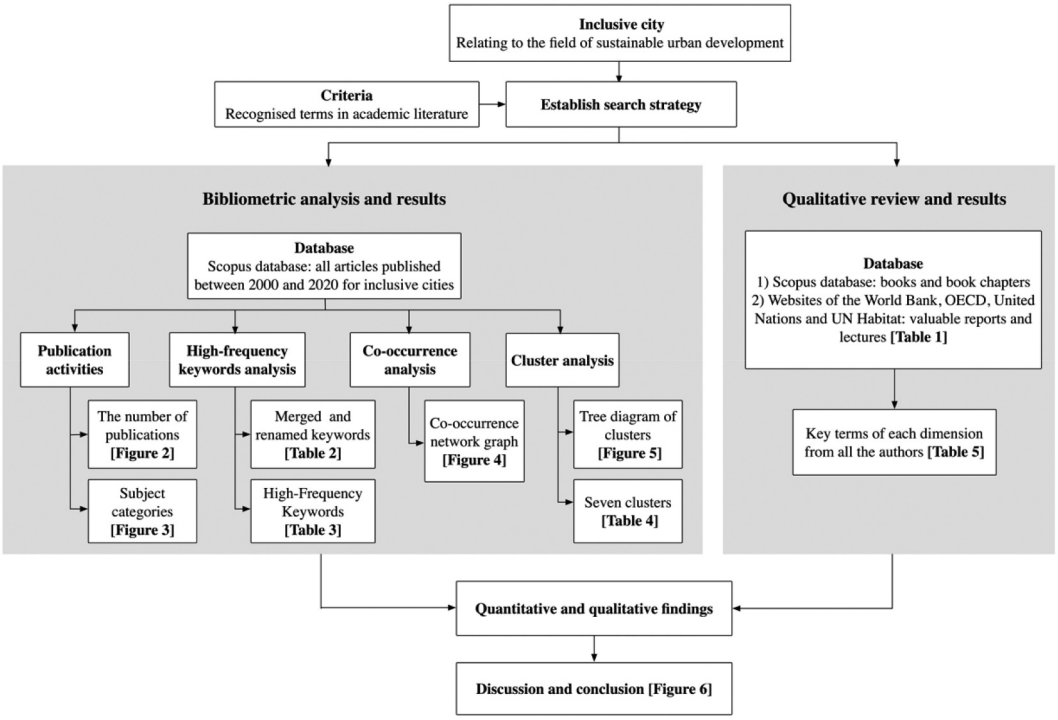

Figure 1. The research design.

takes place in the English language. The collection period starts from 2000, because the inclusive city concept was first introduced in an article from that data (De 2000). The last year of collection is 2020, because this was the most recent completed publication year at the time of writing.

The longitudinal scale of the data sample allowed for exploration of the knowledge of the inclusive city concept. Title, abstract and author keywords are three bibliometric locations that convey the essence of a published study and therefore largely reflect the position of inclusive city into relevant research fields.

The search query for bibliometric analysis was executed on 12 January 2021. Based on the search strategy and the above criteria, a total of 114 publications from Scopus database were finally downloaded and cleansed for subsequent bibliometric analysis.

2.2.2 Data selection for qualitative analysis

The subsequent step in the research process aimed to uncover the definitions and conceptual meaning of the inclusive city concept, independent from the bibliometric analysis. It was therefore more qualitative and practice-oriented in nature. Books, book chapters and valuable reports provide more clarity on conceptual underpinnings of the inclusive city, which are different from the documents used by bibliometric analysis. Therefore, we collected books and book chapters in English language in the Scopus database from 2000 to 2020 with the following search query:

> TITLE-ABS ("inclusive city" OR "inclusive cities") OR AUTHKEY ("inclusive city" OR "inclusive cities") AND DOCTYPE (bk OR ch) AND PUBYEAR < 2021 AND LANGUAGE (English)

Books and book chapters were selected for in-depth review, if these were cited more than an incidental time. This way, the input of these sources was at least having some academic resonation. Relevant books on the topic 'inclusive city' through Amazon Books were also collected as a data source of this study.

Additionally, valuable reports from leading international organizations and institutions have announced a number of significant initiatives with implementation frameworks and approaches, which paved the path for understanding the context in which a concept emerges and develops in policy practice. Therefore, we collected a number of valuable reports from the official websites of leading international organizations and institutions (i.e., United Nations, the World Bank, OECD and Asian Development Bank) for qualitative analysis. These organizations and institutions are formal international and authoritative entities that issue high-quality reports with policy implications and provide a clear reference point for the sustainable development broadly conceived.

The search query for qualitative review was executed on 12 January 2021. Finally, 19 books, 3 book chapters and 9 reports are selected for further inspection (see Table 1). When listing the sources in Table 1, we followed the order of their publication time first, and then the order of document types.

Table 1. Overview of selected books, book chapters and reports for qualitative review.

Author	Year	Title	Type
D. Westendorff	2004	From Unsustainable to Inclusive Cities	Book
P. Herrle, U. Walther	2005	Socially Inclusive Cities: Emerging Concepts and Practice	Book
A. Laquian, L. Hanley	2007	The Inclusive City: Infrastructure and Public Services for the Urban Poor in Asia	Book
F. Steinberg, M. Lindfield	2011	Inclusive Cities	Book
C. Whitzman, C. Legacy, C. Andrew et al.	2013	Building Inclusive Cities: Women's Safety and the Right to the City	Book
R. Hambleton	2014	Leading the Inclusive City: Place-based Innovation for a Bounded Planet	Book
J. Gupta. K. Pfeffer, H. Verrest et al.	2015	Geographies of Urban Governance: Advanced Theories, Methods and Practices	Book
N. Espino	2015	Building the Inclusive City: Theory and Practice for Confronting Urban Segregation	Book
S. Venkateswar, S. Bandyopadhyay	2016	Globalisation and the Challenges of Development in Contemporary India (Dynamics of Asian Development)	Book
D. Zuberi, A. Taylor	2017	(Re)Generating Inclusive Cities: Poverty and Planning in Urban North America	Book
S. Attia, Z. Shafik, A. Ibrahim	2018	New Cities and Community Extensions in Egypt and the Middle East: Visions and Challenges	Book
J. Salahub, M. Gottsbacher, J. de Boer	2018	Social Theories of Urban Violence in the Global South: Towards Safe and Inclusive Cities	Book
N. Pokhrel	2019	Transforming Kolkata: A Partnership for a More Sustainable, Inclusive, and Resilient City	Book
V. Bharne, S. Khandekar	2019	Affordable Housing: Inclusive Cities	Book
J. Salahub, M.Gottsbacher, J.De Boer et al.	2019	Reducing Urban Violence in the Global South: Towards Safe and Inclusive Cities	Book
D. Kundu, R. Sietchiping, M. Kinyanjui	2020	Developing National Urban Policies: Ways Forward to Green and Smart Cities	Book
V. Pineda	2020	Building the Inclusive City: Governance, Access, and the Urban Transformation of Dubai	Book
B. Dahiya, A. Das	2020	New Urban Agenda in Asia-Pacific: Governance for Sustainable and Inclusive Cities	Book
A. Anttiroiko, M. De Jong	2020	The Inclusive City: The Theory and Practice of Creating Urban Prosperity for all	Book
K. Viswanath	2013	Gender Inclusive Cities Programme: Implementing Change for Women's Safety	Book chapter
C. Andrew, C. Legacy	2013	The Role of Partnerships in Creating Inclusive Cities	Book chapter
A. Schippers, L. Van Heumen	2014	The Inclusive City through the Lens of Quality of Life	Book chapter
United Nations Centre for Human Settlements	2001	The State of the World's Cities	Report
Asian Development Bank	2010	Access to Justice for the Urban Poor: Toward Inclusive Cities	Report
World Bank	2015	Inclusive Economic Growth in America's Cities: What's the Playbook and the Score?	Report
United Nations General Assembly	2015	Transforming our world: the 2030 Agenda for Sustainable Development	Report
World Bank	2015	World-Inclusive Cities Approach Paper	Report
UN-Habitat III	2015	Habitat-III-Issue-Paper-1_Inclusive-Cities	Report
OECD	2016	Making Cities Work for All: Data and Actions for Inclusive Growth	Report
UN-Habitat III	2017	The New urban agenda	Report
Asian Development Bank	2017	Enabling Inclusive Cities: Tool Kit for Inclusive Urban Development	Report

2.3. Methodology

2.3.1. High-frequency keywords analysis

In order to explore the knowledge distribution structure in the inclusive cities research domain and deepen our comprehension of the concept, we statistically analysed and summarized the number of high-frequency keywords and the frequency of each keyword in an article or a review. The results of high-frequency analysis convey information about the variety in focus and the state of the inclusive city research field (Song et al. 2016).

Before the calculation, it was necessary to perform two processes: (1) irrelevant and meaningless keywords were removed in order to make the results of the analysis more accurate and rigorous, such as impact, analysis; and (2) some keywords with similar academic meanings and relatively low frequency of occurrence (no more than 3 occurrences) were combined and renamed so as to avoid unexpected omissions in the summary of high-frequency keywords and potential misunderstanding (Song et al. 2016; Guo et al. 2017).

Table 2 shows that a total of 115 keywords were merged, for example, 'inclusive city', 'inclusive cities', 'inclusive urban development' and 'inclusive city development' were merged into 'inclusive city'. Finally, we obtained 26 renamed keywords, such as inclusive city, smart city, housing, governance, etc. In addition, it deserves mentioning that SDGs was not merged with sustainable development, because SDGs specifically target the Paris Agreement from 2015, whereas sustainable development is more generically used, also before the Paris Agreement.

2.3.2. Keywords co-occurrence analysis

Keyword co-occurrence analysis counts the frequency of two keywords simultaneously appearing in the same article, thereby revealing the correlation strength of different keywords in an article. The more frequently two keywords simultaneously appear in the same document, the more explicit the connection between the two keywords has been made. The size of nodes in the co-occurrence network is determined by the occurrences of keywords. A larger node reflects a higher correlation with the research topic: inclusive city. In addition, the line between two nodes is called a link, indicating the strength of the co-occurrence relationships between different keywords.

The amount of bibliometric research and analytical tools has expanded and enriched substantially in

Table 2. Complete list of merged and renamed keywords.

Renamed keywords	Included original keywords	Reasons for combination
inclusive city	inclusive city; inclusive cities;	similar academic meaning
smart city	smart city; smart cities; smart sensors sustainable cities;	
housing	housing; affordable housing; social housing; housing policies; public housing;	
governance	governance; urban governance; inclusive governance; land governance; multi-level governance;	
rights	rights; human rights; right to the city; empowerment; language rights;	
SDGs	sdg; sdgs; sdgs 11 & 10.2;	differences in singular and plural forms, but similarities in academic meaning
inclusion	inclusion; inclusiveness; disability inclusion; social inclusion;	
sustainability	sustainability; sustainable; social sustainability;	
accessibility	accessibility; accessibility strategies in 2030;	
public space	public space; public spaces; urban open space; open space;	
environment	environment; environments; built environment; environment equity; living environment;	
citizenship	citizenship; citizens' perception; citizen–state relations;	similar academic meaning and relatively low frequency of occurrences (no more than 3 occurrences)
economic regeneration	economic regeneration; informal economy; employment;	
street trading	street trading; street vending; street traders;	
neighbourhood	neighbourhood; neighbourhoods;	
migration	migratory phenomena; migration; international migration; immigrants;	
participation	participation; participatory mapping; participatory research; participatory technologies;	
engagement	social engagement; socially engage art; community engagement; engagement channels;	
community	community art; community capital; community organizations; community savings; community-based organizations; gated communities;	
sustainable development	sustainable development; sustainable development framework; sustainable development indicators; sustainable development principles;	
planning	planning; urban planning; city planning; modern planning; planning interventions; planning and design; participatory-collaborative planning;	
infrastructure	urban green infrastructure; urban infrastructure; inclusive infrastructure; living infrastructure; urban green infrastructure; soft infrastructure; smart infrastructure; infrastructure of mobility;	
segregation	segregation; social segregation; urban segregation; spatial segregation; socio-spatial segregation;	
finance	innovative finance; alternative finance; local finance; municipal finance; housing finance;	
transport	green transportation; transport inequality; transport policy; sustainable transport; congestion tax; traffic congestion; commuting burden; tramway; railway;	
mobility	mobility; mobility of care; mobility planning; independent mobility; children's independent mobility;	

recent years, so various options can be chosen for visualization, for example, CiteSpace, VOSviewer, and PAJEK. In this article, we used the software VOSviewer to construct a co-occurrence network of keywords in order to present and reveal the interrelationships between different keywords (Van Eck and Waltman 2014).

2.3.3. Cluster analysis

The next step in the analysis focused on exploring different clusters composed of closely linked high-frequency keywords by cluster analysis, identifying the conceptual structure of the inclusive city concept. Cluster analysis is a way of grouping cases of data based on the similarity of responses to several variables, and its principle is to give the keywords within the same category as high a homogeneity as possible, while the heterogeneity between categories is as high as possible. Therefore, the aim of using cluster analysis in this study was to identify groups of keywords, that are connected based on a stronger association with each other than to other keywords from other clusters. The application of cluster analysis followed four steps:

First, we counted the frequency of two high-frequency keywords appearing together in the same article with the help of Microsoft EXCEL, and a co-word matrix of high-frequency keywords was constructed subsequently.

Next, the co-word matrix was transformed into the correlation matrix by an *Ochiia* coefficient in order to avoid the co-occurrence of two keywords being affected by the frequency of these two keywords and further reflect their true degree of interdependence (Zhang and Ma 2007). The formula for calculating the *Ochiia* coefficient reads as follows:

$$\mathrm{Ochiia}(A,B) = \frac{C_{AB}}{\sqrt{F_A \times F_B}} \quad (1)$$

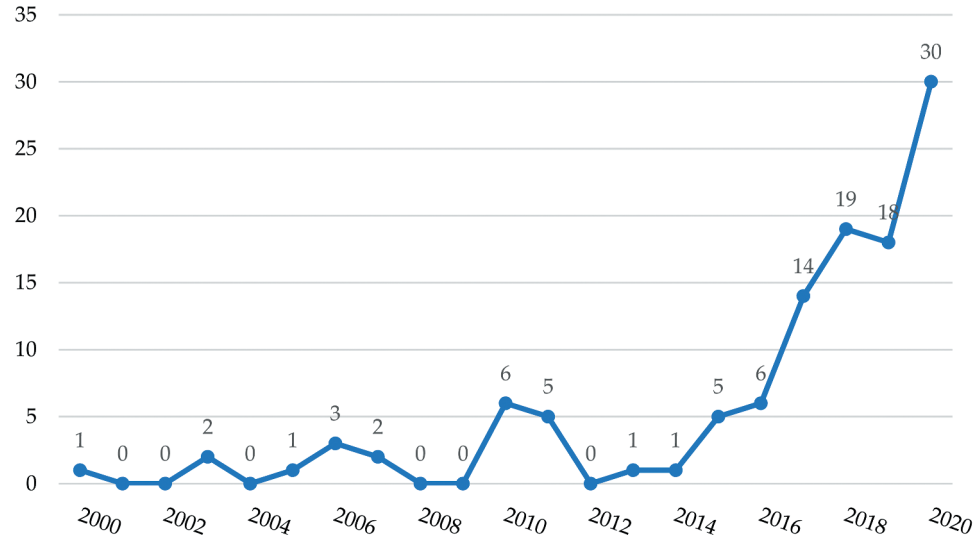

Figure 2. Total number of articles and reviews about inclusive cities research (2000–2020).

In formula (1), C_{AB} means the sum of the co-occurrences of keywords A and B. F_A and F_B respectively denote the sum of the number of occurrences of keywords A and B (Zhou and Leydesdorff 2016; Liu and Liu 2019).

Then, we subtracted '1' and all correlation matrices to obtain a dissimilarity matrix representing the degree of difference between two keywords so that statistical errors can be avoided. In a dissimilarity matrix, the smaller the value is, the smaller the distance between keywords is, and the better the similarity (Wang et al. 2014).

Finally, we imported the dissimilarity matrix into SPSS 26.0. The hierarchical cluster, the Ward's method, and the Squared Euclidean Distance metric were used to process the dissimilarity matrix of high-frequency keywords and categorize the high–frequency keywords of inclusive cities research.

In this article, we chose hierarchical clustering for the following reasons: (1) it can help uncover various aspects of the inclusive city concept when it is not clear how many clusters are distinguished, and (2) it is an aid in exploring the hierarchical relationship between clusters (He et al. 2020). Ward's method is used to join cases into clusters such that the variance within a cluster is minimized. In other words, two clusters are merged if this merger results in the minimum increase in the error sum of squares (Murtagh and Legendre 2014). A number of studies have shown that the clustering effect of Ward's method is improved by maximizing the inter group distance and minimizing the intra group distance (Vijaya et al. 2019; Aktan et al. 2020); thus, we chose it as our method to identify the clusters in this article. In addition, we used the Euclidean Squared Distance to measure the similarity (Khulaidah and Irsalinda 2020), the results of which imply that the smaller the distance, the more similar the cases are. As a consequence, the cases with the highest similarity were merged to form the nucleus of a larger cluster. In fact, hierarchical clustering can be seen as the process of forming a tree with clusters as nodes (Murtagh and Legendre 2014; Milligan et al. 2014).

3. Quantitative findings

3.1. Publication activities in the inclusive city literature

In order to get a basic picture of the inclusive city research domain, it is essential to start with describing basic information of publication activities in inclusive city research. We counted the annual number of publications in our dataset in Scopus from 2000 to 2020, and the quantitative evolution of inclusive city research over time (see Figure 2). We can see from Figure 2 that the quantity of annual publications concerning inclusive cities was overall relatively small. It increased slightly between 2000 and 2016 and reached a small peak in 2010. However, we see a sharp increase since 2016 and the number of publications reached a peak in 2018. It subsequently reached its second peak in 2020. It shows the increased attention to inclusive city research in recent years. It has become a key issue with a strong development momentum in the process of sustainable urbanization.

Figure 3 clearly shows the distribution across different disciplines of inclusive city research from 2000 to 2020. The largest number of publications on inclusive cities has been issued in the discipline of Social Sciences, followed by environmental science, economics, econometrics and finance, and energy. The result indicates that social sciences are leading and environmental sciences also occupy an important position in the field around inclusive cities.

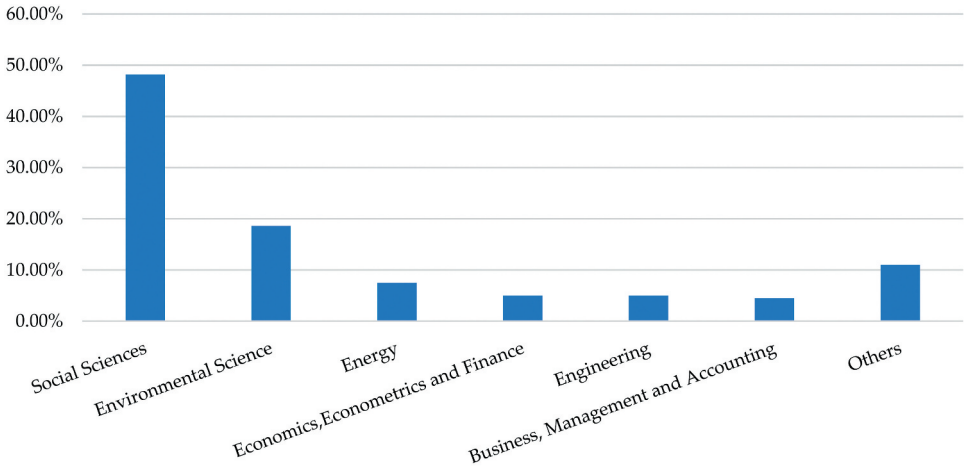

Figure 3. Disciplines and their academic publication numbers on inclusive city research (2000-2020).

3.2. High-frequency keywords

The reason why we chose high-frequency keywords in the following steps is that they represent a high concentration and the core content in the literature and offer an indication of the direction in which this emerging research domain is moving. What is more, they help describe what inclusive cities conceptually represent. In this article, the number of high-frequency keywords can be counted and calculated using the following model proposed by Donohue(Donohue 1973):

$$I_n = \frac{1}{2}\left(-1 + \sqrt{1 + 8 \times I_1}\right) \quad (2)$$

In formula (2), I_1 represents the number of keywords which occurred only once and I_n represents the number of high-frequency keywords. In this article, a total of 371 keywords occurs only once in our dataset, indicating that there are 26 high-frequency keywords. Therefore, high-frequency keywords and their frequencies related to inclusive cities articles are listed in Table 3. The table shows that the range of high-frequencies lies between 26 and 4 occurrences, where 'inclusive city' ranked first (26) and 'planning' second (13). It is noted that six high-frequency keywords all rank still within the threshold of rank 26: 'citizenship', 'sustainable development', 'land use' and 'innovation'.

The keywords in Table 3 represent the topics that received the most attention in articles about the inclusive city. Overall, these keywords reflect the meaning of inclusive cities as well as core issues and insights in the research domain. However, a richer picture can be obtained if their underlying relationships are further explored with co-occurrence analysis.

3.3. Co-occurrence of high-frequency keywords

In order to examine the relationships between these high-frequency keywords related to inclusive cities, we established a co-occurrence network by using VOSviewer. Figure 4 displays the co-occurrence network of high-frequency keywords related to inclusive cities. We can see from Figure 4 that 'inclusive city' had the largest node, followed by 'planning', 'governance', 'sustainability', 'public space', 'smart city', 'housing', 'migration' and 'inclusion'. It should be noted that" inclusive city" is in the central node in the network and has close connections with 'governance', 'sustainability' and 'public space'. In addition, 'public space', 'sustainability', 'planning' and 'governance' are seen as research focuses that play a vital role in the inclusive cities research domain.

3.4. Cluster analysis of high-frequency keywords

High-frequency keywords which are closely related can be associated by cluster analysis so as to form various classes and show the structure of relevant topics in the research field. As output of the cluster analysis, we developed a tree diagram demonstrating the structure and relationships between different keywords (see Figure 5). Each case began as a cluster and subsequently the two most similar cases were found (e.g., rights and land use) by looking at the square Euclidean distances between pairs of cases. The next case merged was the one with the highest similarity to rights or land use, and so on (e.g., economic regeneration, land use, housing and public space). Finally, all high-frequency keywords could be divided into seven clusters at the threshold of 15, and an initial speculation regarding the degree of association among the high-frequency keywords also became possible.

We further sorted out and summarized the information from Figure 5, the results of which exercise can be seen in Table 4. Our 1st cluster was designated 'spaces and rights' as it included the following keywords: 'public space', 'housing', 'rights' and 'land use'. The 2nd cluster was named 'community and finance' as it

Table 3. High-frequency keywords related to the inclusive city.

Rank	Keyword	Frequency	Rank	Keyword	Frequency
1	inclusive city	26		informal	6
2	planning	13	17	participation	5
3	governance	11		accessibility	5
	public space	11		segregation	5
5	sustainability	10		finance	5
	housing	10		engagement	5
	transport	10		South Africa	5
8	smart city	9		SDGs	5
9	migration	8		mobility	5
	inclusion	8		economic regeneration	5
11	infrastructure	7	26	citizenship	4
	rights	7		sustainable development	4
13	community	6		land use	4
	environment	6		innovation	4

Figure 4. Co-occurrence network of high-frequency keywords.

contained three keywords: 'community', 'finance' and 'informal'. The 3rd cluster was entitled 'segregation and economic regeneration' since it contained the following keywords: 'South Africa', 'economic regeneration', 'segregation' and 'inclusive city'. Our 4th cluster became 'smart participation and citizenship'; it included as keywords: 'smart city', 'accessibility', 'participation', 'engagement', 'mobility' and 'citizenship'. The 5th cluster received the denomination 'sustainable migration' as it included the two keywords 'migration' and 'sustainable development'. The 6th cluster was named 'infrastructure and environment' as it included 'planning', 'transport', 'infrastructure' and 'environment', and the last cluster can be summarized as 'sustainable innovation and governance' as it contained the following keywords: 'governance', 'innovation', 'sustainability', 'inclusion' and 'SDGs'.

In accordance with the size of the nodes, the strength of the correlation shown in Figure 4 and the clusters of high-frequency keywords shown in Table 4, we further analysed the relationships between different keywords within each cluster and explained the specific meaning of each cluster.

Cluster 1 (Spaces and rights): Right to the city, public space and neighbourhoods are all closely related to the inclusive city. Right to the city involves the right of all individuals, present and future, permanent and temporary, to inhabit, use, occupy, produce, govern and enjoy just, safe and sustainable cities and human settlements (Ö and Eder 2018; Turok and Scheba 2019; Mahadevia and Lathia 2019). For example, pursuing the right to housing is considered an important duty for the state to ensure universal access to decent accommodation(Agyemang and Morrison 2018).

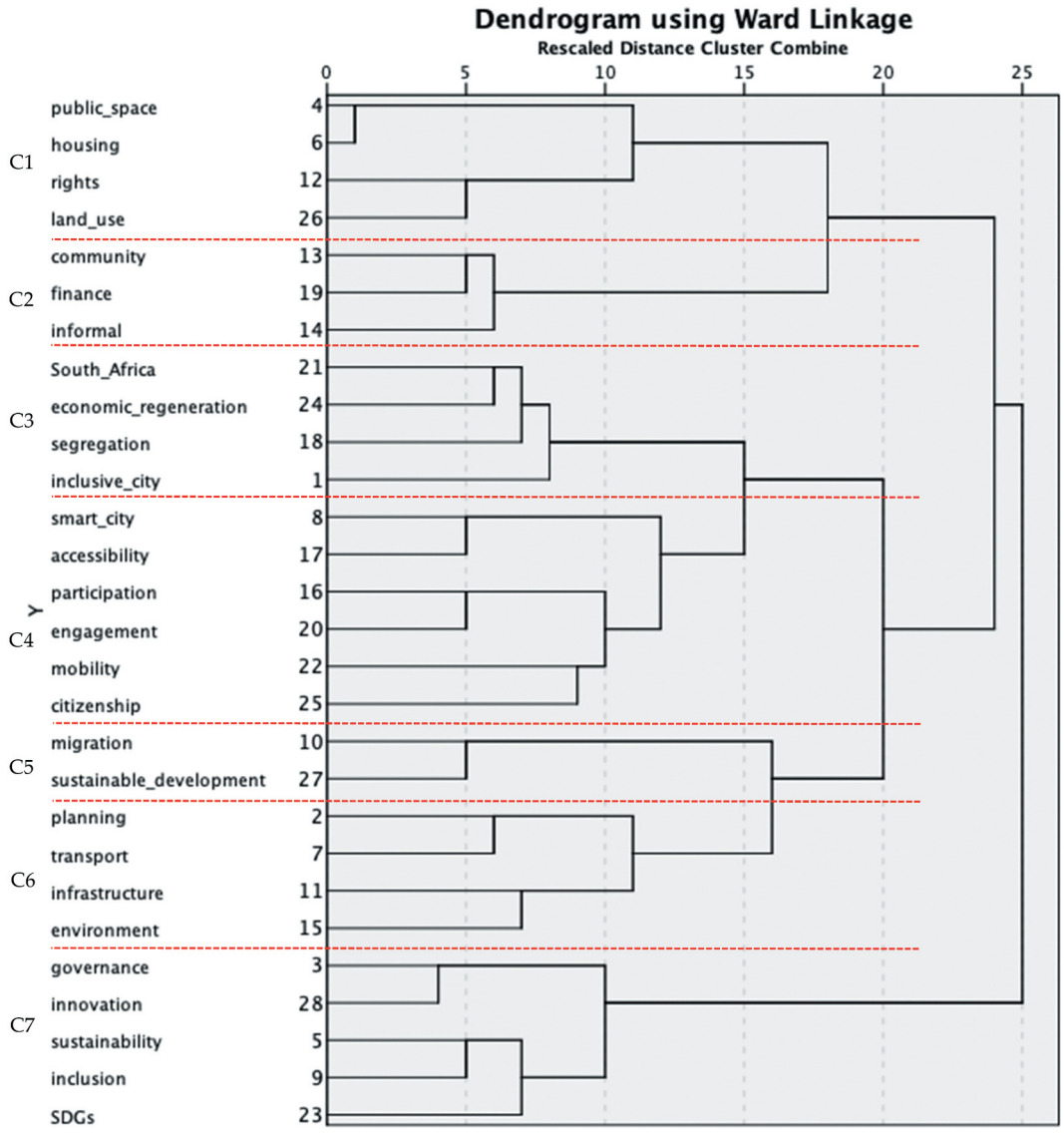

Figure 5. The tree diagram of cluster analysis.

However, a single-minded focus on state delivery of mass housing alone would neglect the economic requirements of households and also proves financially unsustainable; thus, a purposeful rights-based approach needs to be complemented by unlocking collective public-private efforts that promote socioeconomic development (Turok and Scheba 2019).

Cluster 2 (Community and finance): Many community-based finance initiatives aimed at providing support to enable individuals and organizations in developing and creating wealth in disadvantaged communities have been observed worldwide (Affleck and Mellor 2006). In practice, community finance has boosted saving habits of their members and helped them acquire better access to credit facilities, which indirectly affects their socioeconomic and political status (Kharel 2017). Financial arrangements as a basic factor also play a significant part in determining the availability of community infrastructures (Wang and Li 2018), so that it is increasingly recognised as an important driver of community regeneration and an aspect of social-economic equality.

Cluster 3 (Segregation and economic regeneration): There are direct and significant relationships between economic regeneration, segregation and the inclusive city. Segregation is recognized as a major barrier in creating an inclusive city and a potential threat to urban economic development, people's wellbeing and social stability. Economic regeneration plays a vital role in realizing urban inclusiveness and is often seen as an effective way to promote the urban economies development and prosperity (Keen and Ride 2019). For example, understanding legal street trading can be seen as a central element in the process of economic regeneration to embrace the involvement of excluded groups (Affleck and Mellor 2006; Agyemang and Morrison 2018). It highlights their potential contribution to

Table 4. Seven clusters of high-frequency keywords identified by clustering analysis.

Label	High-frequency keywords	Topics
C1	Public space, housing, rights, land use	Spaces and rights
C2	Community, finance, informal	Community and finance
C3	South Africa, economic regeneration, segregation, inclusive city	Segregation and economic regeneration
C4	Smart city, accessibility, participation, engagement, mobility, citizenship	Smart participation and citizenship
C5	Migration, sustainable development	Sustainable migration
C6	Planning, transport, infrastructure, environment	Infrastructure and environment
C7	Governance, innovation, sustainability, inclusion, SDGs	Sustainable innovation and governance

urban development and galvanizes a more inclusive version of it.

Cluster 4 (Smart participation and citizenship): The smart city has become a fashionable urban development model and an indispensable part in realizing the inclusive city in recent years (Paskaleva 2011). It emphasizes the important role of leveraging technology to promote better inclusion across urban services, public engagement, and mobility in many different ways (Pérez-delhoyo et al. 2018a, 2018b). This entails increasing the transparency of the city by means of technical approaches, making it easier for citizens to communicate with local governments through data systems and platforms and helping the visually impaired people navigate transportation network of the city with the help of applications (Pérez-delhoyo et al. 2017). In this regard, smart and digital solutions reflect the need for accessibility. In addition, citizenship is often the principal ticket which allows a person to act as a member of society and it is often through a person's citizenship that they access basic rights like housing, education and various categories of employment (Kabeer 2002; Omotola 2008).

Cluster 5 (Sustainable migration): The importance of paying special attention to migrants through eliminating multiple forms of discrimination and removing barriers in their access to health care, education, and other basic services, and providing support for them to fully integrate into neighbourhoods is expressed in this cluster (Guo 2010; Liu et al. 2020).

Cluster 6 (Infrastructure and environment): Most governments have come to realize the advantages of improving transport, energy, digital and other infrastructures and the built environment (Fredericks et al. 2018; Jetoo 2019). Citizens should be enabled to use high quality public urban infrastructures and services, fully participate in urban life through them and truly become owners of the city. Therefore, the application of participatory technologies for urban infrastructures has become an important issue in the inclusive city urban development (Dionisio et al. 2016; Murphy et al. 2016; Pérez-delhoyo et al. 2016).

Cluster 7 (Sustainable innovation and governance): The link between sustainability and governance trends to work both ways in the sense that governance may be framed as a way to achieve sustainability as much as sustainability can be depicted as a means to achieve good governance (Billi et al. 2021). Along with continuous technological innovation, it not only provides tools to facilitate an effective dialogue between local governments and citizens but is also conductive to efficient governance in other areas. In addition, open innovation as an effective mode of green governance is applied to explore the possibility of realizing sustainable socioeconomic development through innovative models, methods and technologies and ease tensions between human wishes and the natural environments (Li et al. 2018).

4. Qualitative findings

The above bibliometric findings have provided a multidimensional depiction of the inclusive city. However, some questions, such as whether different perspectives lead to different understanding of the inclusive city and how the connections between the various conceptual dimensions can be analysed, are best answered through a qualitative review of the literature. Therefore, this section aims to provide supplementary insights to those in the previous section.

4.1. Qualitative findings from documents and reports

At policy level, the release of a series of important documents and reports has paved the way for our understanding of inclusive cities. The term inclusive city was first promoted by the United Nations in 2001 and described as a place where everyone, regardless of their economic status, gender, race, ethnicity or religion, is enabled and empowered to fully participate in the social, economic and political opportunities that are on offer (UNITED NATIONS CENTRE FOR HUMAN SETTLEMENTS 2001). Subsequently, some key drivers of inclusive urban development aiming at putting people and their immediate needs at the forefront were proposed by UN-Habitat and World Bank (WORLD BANK GROUP 2015; Iii 2017), such as political commitment, participation and social innovation, high-quality basic services, inclusive spatial planning, accountability and governance, financial and technical assistance and building partnerships within and outside the World Bank. The OECD further provided a multidimensional inclusiveness framework with two domains of

indicators: human and social capital (income, jobs and education) and urban environment (housing, transport, environment, safety, social support and subjective well-being) (OECD 2016). Notably, global commitment to sustainable urban development was reaffirmed taking the adoption of the New Urban Agenda in 2016 as sign, which marked a paradigm shift in urban studies (佚名 2017). It has contributed to realizing sustainable development goals and has a close connection with the 2030 Agenda for Sustainability (UNITED NATIONS 2015). In addition, the Asian Development Bank developed an integrated framework with four critical aspects, accessibility, affordability, resilience and sustainability to describe specific characteristics of the inclusive city (Singru and Lindfield 2017). Therefore, these documents as well as reports provide a brief description of policy and practice scenarios of the inclusive city initiative and help further clarify the inclusive city concept and its dimensions.

4.2. Qualitative findings from books and book chapters

A growing number of academic books have focused on both theory and practice of inclusive city recently, such that systematic underlying theoretical explanations have been summarized. In this contribution, we collected and summarized various definitions derived from the most significant books and book chapters.

In fact, concerning exclusion and inclusion, these have been mostly covered in relation to inequality of social status and power. As Espino (2015) discussed, segregation and exclusion go hand in hand and constitute the context in which inequality is expressed in urban space (Espino 2015). He sheds light on the modern phenomenon that 'social distinctions require physical segregation' which is central to most forms of contemporary urban development. In other words, most people assume that one's location in social space is a reflection of wealth and status (Espino 2015). However, this loss or behavioral codes for behavior across classes has minimized interaction among people with dissimilar levels of social power. Therefore, Espino gives an explanation that differences in status and social class translate into spatial segregation as a form of exclusion and combating social and spatial segregation is an important component of any effort to create a more equitable urban society.

Urban violence resulting from a lack of social inclusion can be seen as the other form of exclusion. Taking the perspective of law and urban safety, Salahub, Gottsbacher and de Boer (2018) provided an overview of a safe and inclusive city where residents are safe from water-borne diseases and a high risk of theft and have a sense of security with adequate, safe, affordable housing and basic services. It is also a place where personal privacy is respected and families can live as separate units, protected from unexpected and unwanted intrusions (Salahub et al. 2018). It is obviously demonstrated that properly designed policies, laws and social institutions, regulated labor markets and honest state officials without any forms of urban violence (i.e. gendered violence, state violence and interpersonal violence) play a vital role in spatial equalities and social inclusion (Salahub et al. 2018, 2019).

In addition to the above two aspects, exclusion is also closely connected with urban poverty. MacRae (2016) argued that poverty caused by the pattern of unbalanced growth has increasingly worsened and it has been a subject of considerable critical development challenge in India.(Venkateswar and Bandyopadhyay 2016). Similarly, the socio-spatial dislocation of the urban poor in North American cities caused by neoliberal urban regeneration is related to achieving equity and diversity along both the social and spatial dimensions (Zuberi and Taylor 2017). Tendencies of social, economic and spatial polarization caused by urban poverty and exclusion can be counteracted by integrated strategies, for instance, investments in accessible social housing, basic infrastructure and education, security of tenure, participatory planning initiatives and inclusive public spaces (Herrle and U-j 2005; Zuberi and Taylor 2017; Pokhrel 2019).

Some scholars have given more comprehensive descriptions of the inclusive city concept. Hambleton (2014) emphasized four substantial themes for creating an inclusive city from the lens of place-based leaderships. As Hambleton (2014) argued, it is of great importance to create an inclusive city on the basis of understanding the links between inclusion, inequality and place, enhancing inclusive approaches to democracy, considering human's relationships with the natural environment and adopting a 'right based' perspective (Hambleton 2015). On its part, it is apparent that the political, social, economic and environmental dimensions are all main aspects of the inclusive city and doing well on all of them constitutes essentially a *sine qua non* for getting there.

Westendorff (2004) also offered a similar definition and argues that a sustainable city has to be based on an inclusive approach comprising four dimensions: environmental sustainability, social equity, economic growth and the political empowerment, which have to be approached simultaneously in the process of development (Westendorff 2004). Kundu, Sietchiping and Kinyanjui (2020) argued that promoting inclusive and sustainable development should take into account spatial, economic, social, cultural and environmental dimensions of cities based on a participatory process, push factors (subsidies and institutional framework) and societal mobilization (Kundu et al. 2020).

Anttiroiko and de Jong (2020) described the inclusive city as a democratically governed citizen-centric urban community and do so from an essentially socioeconomic viewpoint. As they suggested, all individuals and groups can contribute to urban development beyond conventional financial capital alone; this also includes human, social, physical and natural capital, which are all of value even if not measured satisfactorily (A-v and De Jong 2020). In their work, inclusion is a relative rather than an absolute phenomenon and should be understood through 'exclusion'. They argued that modernity has led to a redefinition of inclusion as an absolute moral imperative that the government and other stakeholders should realize together (A-v and De Jong 2020). It is noteworthy because not all claims to inclusion from different societal groups in reality can always be granted at the same time, leading to the need for well-considered and practical tradeoffs based on stakeholder-oriented governance and moral leadership (A-v and De Jong 2020).

Other authors discussed specific different aspects of an inclusive city. Pineda (2020) specifically assessed the transformation of disability policy through an innovative conceptual framework and answers the question what factor planners and policymakers take into account when making Dubai more inclusive for people with disabilities: leadership, institutional capacity, attitudes and beliefs, and participation and representation, which shape the conditions for people with disabilities to access all relevant urban places (Pineda 2020). Whitzman, Legacy, Andrew, et al (2013) provided a concrete description of inclusive cities where a wide range of people, of all ages, backgrounds, genders, races, ethnicities, migratory statuses, in large and small cities, working in communities, public and private organizations have safer access to transportation, basic infrastructures, discursive space, paid employment and other necessities, and enjoy freedom from violence (Whitzman et al. 2013). Women's right to city has been attracted special attention to (Whitzman et al. 2013; Viswanath 2013) and the role of partnerships in creating safe communities for marginalized women and everyone is of great importance. Such partnerships between women-centered groups, local governments and other relevant partners advance women's interests through closer collaboration (Andrew and Legacy 2013). Schippers and Heumen (2014) placed particular emphasis on social participation, economic participation, cultural participation, active citizenship, empowerment and the involvement of citizens, which are considered to be closely related to quality of life (Schippers and Van Heumen 2014).

Focusing on the generation of affordable housing and urban infrastructures has also been called for. Affordable housing plays a vital role in bridging the economic gap across different social, political and cultural geographies, especially for the individuals who live in slums and informal settlements (Steinberg and Lindfield 2011; Bharne and Khandekar 2019). In some places, efforts are made to make available urban infrastructures for all by allowing poorer people to participate in designing the methods of coordination, establishing community grievance and dispute resolution mechanisms, increasing the disadvantaged groups' voice and accountability of government and service providers, in order to make all access to efficient and sustainable urban services (ADB (ASIAN DEVELOPMENTBANK, 2011; Laquian and Hanley 2007; Pokhrel 2019).

And last but not least, inclusive cities can be seen as a paradigm shift when it comes to developing, governing and managing cities (Dahiya and Das 2020). Gupta, Pfeffer, Verrest and Ros-Tonen (2015) explained how dimensions of inclusive urban development affect the most vulnerable people and ecological standards and how persistent imbalances in power perpetuate inequality and injustice (Gupta et al. 2015). On that basis, they demonstrated that governance contributes to inclusive urban development through the lens of geographies, spatial scales as well as networks. Therefore, whether the SDGs realize will be determined by how a range of ideas about good governance, networks, instruments and policies are designed (Gupta et al. 2015). Besides, it is of the great importance to establish an innovative mode of action and adjust the use of new technologies and digital policies in such a way that socioeconomic disparities and environmental crises are addressed in unconventional ways (Attia et al. 2018).

Although authors above differ in their disciplinary perspective and levels of moral indignation and idealism, we can see a consensus that the inclusive city concept mainly encompasses social, spatial, environmental, political and economic dimensions. Below, we offer an overview of which dimension(s) and key terms can be found in the work of which authors (see Table 5).

5. Conceptual dimensions of inclusive cities

As stated earlier, the purpose of this study is to explore and examine the inclusive city concept as well as the interrelationships between its different dimensions. Accordingly, we extracted the following five dimensions of the inclusive city concept on the basis of our bibliometric analysis and qualitative literature review.

First, we collapse cluster 1 from bibliometric analysis and dimension 1 from qualitative review into spatial inclusion. It is often seen as a process of equal access to the essential living environment encompassing land, streets, housing and public infrastructure and facilities for all individuals. Spatial inclusion often depends on

Table 5. Key terms of each dimension from all the authors.

	Dimension	Key terms
1	Spatial inclusion	Affordable housing (Salahub et al. 2019,Venkateswar and Bandyopadhyay 2016, Kundu et al. 2020, Bharne and Khandekar 2019, Steinberg and Lindfield 2011, Laquian and Hanley 2007); public space (Venkateswar and Bandyopadhyay 2016, Pokhrel 2019, Pineda 2020, Whitzman et al. 2013, Gupta et al. 2015, Attia et al. 2018); transportation and other basic infrastructures (Herrle and U-j 2005, Pineda 2020, Whitzman et al. 2013, Laquian and Hanley 2007); spatial justice (Pineda 2020);
2	Social inclusion	Right to city (Espino 2015, Pokhrel 2019, Pineda 2020, Whitzman et al. 2013, Laquian and Hanley 2007); a sense of security (Espino 2015, Salahub et al. 2019, Whitzman et al. 2013); citizens' rights (Espino 2015); human rights (Pineda 2020); social justice (A-v and De Jong 2020, Pineda 2020, Bharne and Khandekar 2019, Steinberg and Lindfield 2011); social equity (Westendorff 2004); social participation (Venkateswar and Bandyopadhyay 2016, Pineda 2020, Schippers and Van Heumen 2014, Laquian and Hanley 2007); public services (Salahub et al. 2019, Pineda 2020, Laquian and Hanley 2007); access to information (Pineda 2020); quality of life (Schippers and Van Heumen 2014, Laquian and Hanley 2007);
3	Environmental inclusion	Environmental sustainability (Westendorff 2004); solid waste management (Pokhrel 2019, Laquian and Hanley 2007); reduce water loss, make up for lost water and conserve water (Pokhrel 2019); the natural and reproductive qualities of urban space (A-v and De Jong 2020);
4	Economic inclusion	Employment (Whitzman et al. 2013); inclusive growth (A-v and De Jong 2020, Westendorff 2004); shared prosperity (A-v and De Jong 2020); diversion of economy (Attia et al. 2018); green growth (Kundu et al. 2020);
5	Political inclusion	Political participation (Pineda 2020, Schippers and Van Heumen 2014); political empowerment (Espino 2015, Westendorff 2004, Schippers and Van Heumen 2014) (A-v and De Jong 2020); active citizenship (Schippers and Van Heumen 2014);

the degree to which public space, physically and socially, is open to all. Enhanced knowledge on ICT has made itself even more important in improving urban infrastructures (Paola and Rosenthal-sabroux 2014), which is reflected in the fact that innovative technologies make cities more accessible and sustainable through increasing access to public spaces and housing for all. What is more, innovative technologies have played a vital role in addressing the conflict between the rapid expansion of urban land and the provision of adequate space for citizens in an inclusive city (Lin et al. 2018).

Second, cluster 4 and 5 from bibliometric analysis and dimension 2 from qualitative review primarily cover aspects of social inclusion. What social inclusion focuses on is increasing equal development opportunities for everyone and attending to social members' needs(Albuquerque 2018). Sustainable migration and public participation are two significant characteristics of social inclusion, the former is reflected in the entitlement to decent and affordable accommodation and protection from forced eviction (showing some overlap with spatial inclusion) and the latter denoting the public's concern about social affairs and the level of social acceptance and integration. In addition, all individuals and social groups should have equal access to social resources (e.g., employment, insurance, education, information), and their rights should be protected and secured in situations of vulnerability with diseases, crime, violence, food and accidents. However, everyone also should accept the corresponding risks and responsibilities when using social resources.

Third, the cluster 6 primarily matches dimension 3 of environmental inclusion. Environmental inclusion is to meet the needs of current generations for natural sources and environment without compromising the interests of future generations. Meanwhile, it places an emphasis on close and inseparable relationships between allocation of resources, environmental pollution and responsibilities (Sands and Peel 2012). Nowadays, efforts made by local governments represent their focus on environmental inclusion. For instance, a growing number of local governments have called on the public, social organizations and communities to be involved in environmental assessment and have extensively listened to their opinions. It shows that local governments give full play to the vital role of the public, social organizations and communities in addressing environmental issues (e.g., climate change, air pollution, sewage disposal, etc.), while citizens should abide by environmental principles and take on environmental responsibilities. Hence, maintaining the natural and reproductive qualities of urban space and improving environmental quality can be seen as the crux of environmental inclusion.

Fourth, clusters 2 and 3, albeit covering different aspects, both fit in the 4th dimension of economic inclusion. Economic inclusion makes it possible for all people, especially the disadvantaged and typically low-income people, to share in rising prosperity, i.e. to share in and contribute to gains in welfare and well-being(De Souza et al. 2015). In fact, from in terms of labor market relations and resource allocation, economic inclusion is also considered as a process of eliminating economic inequities caused by rapid urbanization and industrialization along with changing technologies and demand for various skills through a series of implementations encompassing equal access to job opportunities, labor market information and reasonable distribution of income. For instance, local governments increase investment in manufacturing and utilities, encourage migrants to establish new linkages with industries in cities, provide employment opportunities and vocational training for young,

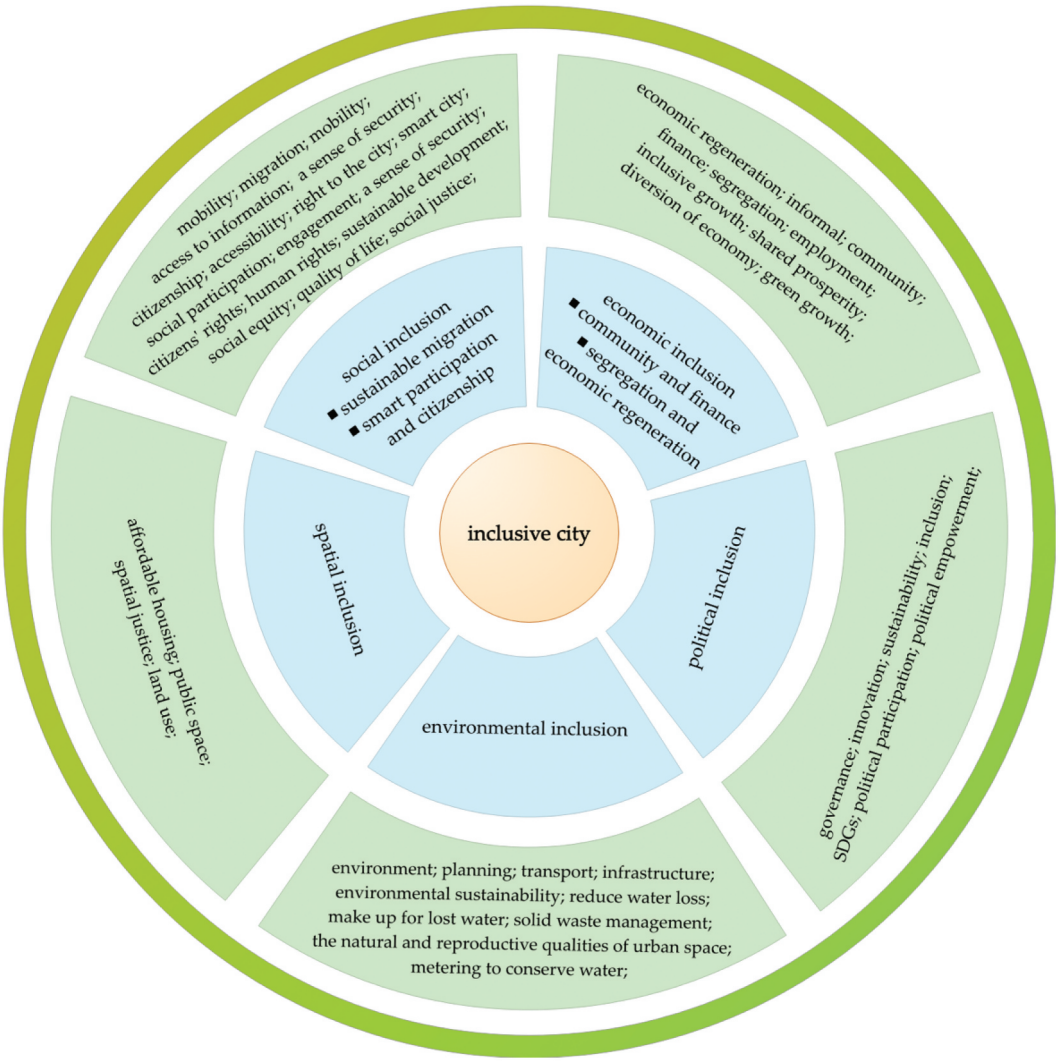

Figure 6. A multidimensional conceptual framework of the inclusive city.

women and those in underdeveloped regions, and strengthen marketing supervision and other supporting aspects. Besides, informal economy (e.g., street vending) also has been paid attention as a way of urban economic regeneration.

Fifth, cluster 7 matches dimension 5 of political inclusion, which can be defined as a rational and non-discriminatory citizen–state relationship based on civil and political rights, more precisely citizen's sense of belonging and identity and their empowerment (especially in Western countries). It is thus primarily related to major issues of democratic institutions, human rights, political participation, and national identity. Notably, sustainable innovation plays a significant role in the process of governing or overseeing state operations nowadays. It provides convenience for effective communication between local governments and citizens, and creates a way for citizens to make their claims. From such a perspective, governance, sustainable innovation, political participation and political empowerment are a reflection of freedom, democracy, and justice and as such important aspects of political inclusion.

Following the above subdivision in five dimensions, we have made an attempt to clarify the links that exist between the seven clusters in the quantitative analysis with the five dimensions discerned in the qualitative one. By comparing the terms found in the bibliometric analysis (see Table 4) and those derived from the qualitative literature review (see Table 5), we found that the terms overall and not unexpectedly show substantial overlap: public space, rights, housing, participation, engagement, transport, infrastructure, citizenship, sustainability and environment clearly appear in both tables. Furthermore, the terms sustainable development and accessibility are somewhat related to the terms citizen's rights, human rights, social participation, access to information and political participation in Table 5. Economic regeneration and finance are to some extent related to the terms of employment and diversion of economy which are in Table 5. There are also some terms present in Table 4 but missing as

labels in Table 5, such as, land use, community, informal, South Africa, segregation, smart city, migration, mobility, planning, governance, innovation and SDGs.

Overall, it makes sense to collapse cluster 1 and dimension 1 into one of spatial inclusion covering various aspects (e.g., spatial justice, affordable housing, informal settlements, public space, land use, transportation and other basic infrastructures). Clusters 2 and 3, albeit covering different aspects (e.g., shared prosperity, inclusive growth, diversion of economy, economic regeneration, informal economy, community finance), both fit in the 4th dimension of economic inclusion containing two sub-dimensions: community and finance and segregation and economic regeneration. Clusters 4 and 5, on the other hand, primarily cover aspects of social inclusion (e.g., migration, mobility, social participation, public engagement, right to city, citizens' rights, human rights, a sense of security, social justice, social equity, public services, access to information, quality of life) including two sub-dimensions: smart participation and citizenship and sustainable migration. And while the 6th cluster primarily matches the 3rd dimension of environmental inclusion (e.g., planning, environment, transport, infrastructure), cluster 7 matches the dimension of political inclusion (e.g., governance, innovation, SDGs, political participation and political empowerment) rather well.

6. Conclusions and implications

In this contribution, we have drawn out a critical review of the literature on inclusive cities by means of both a bibliometric analysis and an interpretive literature review.

The bibliometric research on the inclusive city concept reveals that the number of academic publications in the field of inclusive city has seen a sharp increase over the past two decades; it has attracted particular attention from the social sciences, arts and humanities, and the environmental sciences. Smartness and accessibility, governance and sustainability, environment and infrastructure, migration and citizenship, participation, community finance and economic regeneration have become the focal issues or domains around the concept.

Apart from the contribution to the basic description and conceptual visualization within the scientific literature, the findings from interpretive qualitative literature would benefit the heated discussion about what is an inclusive city and how to create it.

First, as a new concept and urban development-oriented policy approach introduced by scholars and policymakers, the inclusive city has been aimed at eliminating urban exclusion, inequality and discrimination. In recent years, it has further been developed as a theoretical concept focused on how cities may enhance their inclusionary performance by coordinating the participation of local stakeholders and allowing each of them in their own manner to contribute to inclusive urban prosperity. What is more, inclusion would then appear at the center of inclusive smart city development and deeply reflect urban transformation from technology-centric environment where only the knowledgeable have access to vital resources to a human-centric with a higher level of tolerance for those who need to make a stronger effort to participate actively in the fruits of technological innovation and be supported to do so.

Second, we found various definitions and interpretations of the inclusive city, mapped which are main clusters of inclusive city concept and to which other concepts the inclusive city is linked, and distinguished seven clusters and five dimensions. A more detailed analysis has indicated the interrelationships of keywords within seven clusters of research regarding inclusive cities, demonstrated the characteristics of five different dimensions and compared the features of those seven clusters and five dimensions. Taking into account that the economic and social dimensions both cover two 'sub-dimensions' found under the clustered approach, we can conclude that the analyses in the quantitative and qualitative show rather similar results and turn out to be fairly robust: they do cover the multiple essences of the inclusive city. Figure 6 presents the pictorial reflection of these findings.

We have consequently identified five conceptual dimensions of the inclusive city:

- Spatial inclusion which enables everyone to have equal access to public housing, transportation, and public infrastructure;
- Social inclusion which covers two sub-dimensions: sustainable migration and smart participation and citizenship, and is manifested in people pursuing better living conditions, using their legal entitlements and participating in social activities;
- Economic inclusion which covers two sub-dimensions: community and finance and segregation and economic regeneration, and is considered as a process of eliminating material inequities and increasing access to employment opportunity;
- Environmental inclusion which requires that contemporary human beings do not carry out their mode of production and consumption in such a manner that the needs and interests of future generations are sacrificed; and
- Political inclusion which refers to the relationship between citizens and their (national, regional or local)

state in terms of equal political rights and obligations before the law, political participation, and sense of belonging to that state.

Although the above five dimensions above can be clearly distinguished from each other, they are interwoven and mutually complement each other: there are synergistic effects between them in enhancing inclusiveness of the city as a whole. Creating an inclusive city can thus be seen as a complex practice both intellectually and politically, because it is comprised of different dimensions for which a form of coordination is to be found in governance, policymaking and management to accommodate various partly divergent stakeholder interests.

Limitations to this study are twofold. First, the database selection of this study only includes Scopus and excludes other databases such as Web of Science. Because of this bias in the data source, it is conceivable that potentially more points of view and insights have been missed. However, this task may be taken up in future study. In addition, there is a concern regarding the measurement of the relationships among the different conceptual dimensions. That weakness can be fixed in future work by qualifying the links between these dimensions through social network analysis.

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