



Smart City Infrastructure In India -A Bibliometric Analysis Of Relevant Literature

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ABSTRACT

Purpose: India is transforming rapidly due to urbanisation and new technology is critical to this change. The impact is experienced in all areas of smart city missions which indicates a new way to supply services for citizens with innovative applications by integrating new and existing technology. The digital ecosystem provides the right platform to manage and monitor modern cityscapes as environmental, social, and economic sustainability is essential to keep pace with rapid expansion which puts all cities resources to test, and hence be used more efficiently and effectively compared to earlier traditional methods. This emergence has brought many disruptive innovations and many new changes with many issues; many have been solved, but still, many need to be addressed to make it sustainable.

/methodology/approach:

This study provides a comprehensive literature overview of smart city in India and its evolution through many initiatives. It also highlights the status in the different areas with issues faced currently.

Findings: The analysis helped identify the various issues that need to be concentrated for its completion and the findings will be useful for academics, policymakers, and the government. For a nation such as India, utilising current opportunities is of great importance.

keywords: India, Smart City, Review, issues, challenges

INTRODUCTION

India's population is steadily increasing in the twenty-first century, and with the Smart City mission cities are required to enhance inhabitants' quality of life as a result of rising migration. As the population of megacities grows, so does the strain on environmental resources, governance, and technology, which requires many more modifications and is continually changing due to its complexity (Evans, *et al.*, 2019). As a new decade after the effect of the covid-19 pandemic, some foremost changes are required for the existence in cities and is mainly observed in urban city infrastructure, with many smart applied technologies used for day-to-day service facilities. The smart cities mission has been taken by many countries and India is no exception and has made great strides in terms of urban development (Hoelscher, 2016; Ismagilova *et al.*, 2020)

Indian residents are estimated to be 1.39 billion and have 40 cities with more than a million people in 2021 (United Nations, Department of Economic and Social Affairs, Population Division, 2019). Rapid urbanisation is creating greater challenges (Kumar, 2017) and the smart city model assumes that the common goal is optimum resource utilisation with efficiency, which is used to measure and achieve higher benefits for all. (Kidwai & Saraph, 2019) Smart Cities Mission (2015) has accelerated the adoption of several ICT technologies like data analytics, artificial intelligence, mobile internet, automation, nanotechnology, cybersecurity, computing, predictive analytics, cognitive computing, digitalisation, etc.

Before investigating the research question, the study tries to identify major transformations and understand India's Smart City mission significance and identify the research gap. The study is structured as follows: Section 2 reviews the literature relating to transformation and India's Smart City mission. Section 3, describes

in detail how a comprehensive review is conducted and the process. Section 4, investigates existing information on smart cities and presents the issues and challenges. Section 5 highlights managerial implications, and Section 6 recognizes remaining gaps and proposes future directions for research as well as the conclusion of this study.

2. LITERATURE REVIEW:

The smart city governance is a complex process of institutional change with the vision of socio-technical governance combined with local level policy and institutional initiatives in 100 designated smart cities in India through a multiplicity of policies and programs that enable services to be provided from end-user-experience perspective. The smart cities urban innovation aims to operationalize through local urban governance system and attempts to reinforce certain civic urban infrastructure or to advance technological infrastructure, such as ICT in the cities of India as is being seen to transform cities, and has to suffice to the challenges. Smart city development is gaining considerable recognition in the systematic literature and international policies throughout the world.

2.1. MAJOR TRANSFORMATION:

The principle behind smart cities is to improve efficiency through increased connectivity with data related to four major transformations.

1. Global change: Cities are struggling to mitigate the problems caused by increasing population density, and these problems are expected to intensify as other issues such as climate change and calamities are increasing globally. The smart cities programme can help to provide an evidence-based plan for rapid implementation of energy-efficient technologies and investment in climate-resilient infrastructure at all levels by analysing real-time information shared with operational technology structures. (Fromhold-Eisebith & Eisebith, 2019)
2. Technological change: The added value provided to citizens of a country is collected in data from all on the digital infrastructure network and interpretation of this data provides important insight for all vital aspects of smart city existence and development. This data ought to and tin be used to make improvements to all city functions relating to governance, functioning, etc. (Rao & Prasad, 2018) (Stübinger & Schneider, 2020)
3. Citizen change: Citizens and local government authorities are undoubtedly becoming more agile when it comes to launching Smart City initiatives fast with technology which is critical for the success and achieving sustainable development goals, 2015. As change is inevitable with technology, its command, control, responsibility along with fast response to address growing challenges of urbanisation and climate alterations is needed along with citizens' support and cooperation. (Malhotra, Anand, & Singh, 2018) (Tan & Taeihagh, 2020)
4. Competitive transformation: 21st century cities need to be able to constantly innovate to survive and prosper for the future. They need to respond to the changing needs of cities, to pivot and adapt to the rapidly changing landscape from efficiency to innovation to save resources with flexibility and quickness (Praharaaj & Han, 2019) As there is an increase in quality of life which is still evolving, the city should be able to replicate and embrace all kinds of future change (Kumar, Goel, & Mallick, 2018)

2.2. INDIA SMART CITY MISSION:

The government of India launched the smart cities mission on 25 June 2015 and 37 consultancy firms identified across 14 countries (USA, Canada, France Japan, Uk, etc) were ready and most projects were given to corporations such as Klynveld Peat Marwick Goerdeller (Kpmg), PwC, Deloitte McKinsey and CRISIL. The ministry limited the number of cities that could be selected from one state based on its size, population, and the number of towns located there. All over India, out of 100 selected smart cities, many have started the development of integrated command and control centres by these corporations for Smart City plan. Twenty cities were selected in the first round in January 2016, followed by more rounds in September 2016, June 2017, and January 2018, bringing to 100 cities with a total approved 5,151 projects to be completed in five years (FY2015-16 to FY2019-20). Rashtrapati Bhavan was transformed by IBM with intelligent operations centre to provide Smart City solutions. the mission imagines fostering regions inside the urban cities as model regions for space improvement with its impact on different areas nearby cities in the future. (Hoelscher, 2016) Due to the fragmented nature of implementation of the programme, some of the key agendas have not been carried out in India to create many world-class cities and the concept is still emerging as it varies from area to area. One area that has a very strong influence on smart cities is digitalisation to improve connectivity with various modern devices used in civic infrastructure to increase efficiency and environmental sustainability. (Aurigi & Odendaal, 2021) with fewer carbon emissions.

2.3. CONCEPTUAL FRAMEWORK

The unstable development of the urban population and the consequent expansion of cities have certainly created various difficulties for urban resource deployment. This reality illustrates the importance of changing patterns in the way urban cities resources operate from a sustainability perspective which includes the three dimensions of environment, social and economic. Even though the idea of a Smart City has been acquiring

considerations throughout the world, there is still no reasonable predictable comprehensive definition among professionals and academicians regarding a Smart City.

There are numerous definitions related to Smart City and the concept is still evolving (Ismagilova *et al.*, (2020) which shows there are no measures for standardisation as there is no one model which fits for all urban cities to be recreated and for a country like India with lots of geographical demographic diversity the change is complex. The current situation demonstrates a need for contextualising and defining a Smart City. A clarification regarding a Smart City is that it is a city where all infrastructure, organizations, and administrations are more adaptable, capable, and sustainable in a digital world. (Praharaj & Han, 2019) (Ismagilova *et al.*,2020)

For the framework of this study, sustainability can be achieved when social aspects along with conservation of the habitat and its assets with satisfactory quality of life are achieved by its citizens, hence Smart City sustainable models have to be established for all cities with responsive self-sufficient designs for hassle-free city administration with comprehensive established adaptive inclusive models.

It is seen that smart cities have four main sustainable pillars of economic, physical, social, and institutional infrastructure (Prasad & Alizadeh, 2020) (Das & Sonar, 2020)

1. Economic infrastructure: Smart cities have investments made for the right future economy foundation with business openings to investigate its capacity to produce new activities in a smart way for better economic growth. (Fromhold-Eisebith & Eisebith, 2019), by reducing the gaps in the city financial framework which comprises new smart incubation focused Centers skills development nodes, industrial parks, and handling zones, trade-focused Centers, financial, services warehousing, logistics terminals, consultancy services, etc. (Praharaj, Han, & Hawken, 2018)

2. Physical infrastructure includes the physical framework relating to affordable housing, urban mobility, roadways, clean offices, strong administration framework, and so forth, which are coordinated by utilising innovation will help in achieving sustainable development goals (Adapa, 2018) (Ghosh s, 2018)

3. Social infrastructure includes social capital, like education, medical healthcare services, entertainment setups, etc. (Evans, Et Al., 2019) (Aurigi & Odendaal, 2021) (Kumarmanas, *et al.*, 2016) (Yadav, Mangla, Luthra, & Rai, 2019)

4. Institutional infrastructure: The elements of a Smart City comprise adequate electricity, water supply, clean sanitation, including solid waste management, public transport, all with robust digitalisation and IT connectivity for day-to-day superior governance and infrastructure use. (Praharaj, *et al.*, 2018) (Chandran, *et al.* 2021) (Adapa, 2018) (Ghosh S, 2018) (Jin, *et al.*, 2014) (Kidwai & Saraph, 2019).

The infrastructure of a city needs to include many dimensions including the natural environment which incorporates protection of the habitats with its various assets for energy creation and use. The social dimensions include added value for city residents' prosperity with easy availability of basic human needs and services with economic aspects for a city to grow with diversity in all regions considered.

2.4. Research Gap

Smart city research has contributed significantly to the general branch of knowledge all over the world and a large number of these investigations are restricted to developed countries that have made huge strides. This study aims to capture the growing understanding of the "India Smart City" concept examine its nature and understand the overall gaps and issues in the implementation and identify areas where future research efforts could be targeted due to its importance to various stakeholders as it has been creating a lot of interest in recent times. This study will give insights to future researchers in this area as it will be widely needed in the next few years and attempts to bridge the gap in the literature through a comprehensive literature analysis and reviews based on India a developing country from smart city related point of view.

Table: I; PROGRESS OF SMART CITIES PROJECTS

| Round | Commencement date | Number of cities | Projects Completed |
|------------|-------------------|------------------|--------------------|
| One | Jan-16 | 20 | 65% |
| Fast Track | May-16 | 13 | 40% |
| Two | Sep-16 | 27 | 54% |
| Three | Jun-17 | 30 | 33% |
| Four | Jan-18 | 10 | 35% |

Source: Smart Cities dashboard, Ministry of Housing & Urban Affairs, as of January 2021

India has various issues for smart city mission completion and some are very critical due to its many geographic, cultural, demographic complications which make this change difficult and now all city projects are expected to be completed by June 2023. the mission was extremely ambitious and most of the urban cities submitted proposals that were beyond their capability in terms of money, human resources, etc. (Kumar, Goel, & Mallick, 2018) (Ghosh & Mahesh, 2015)

Table. 2: Smart Cities Mission Financing (2015to 2021)

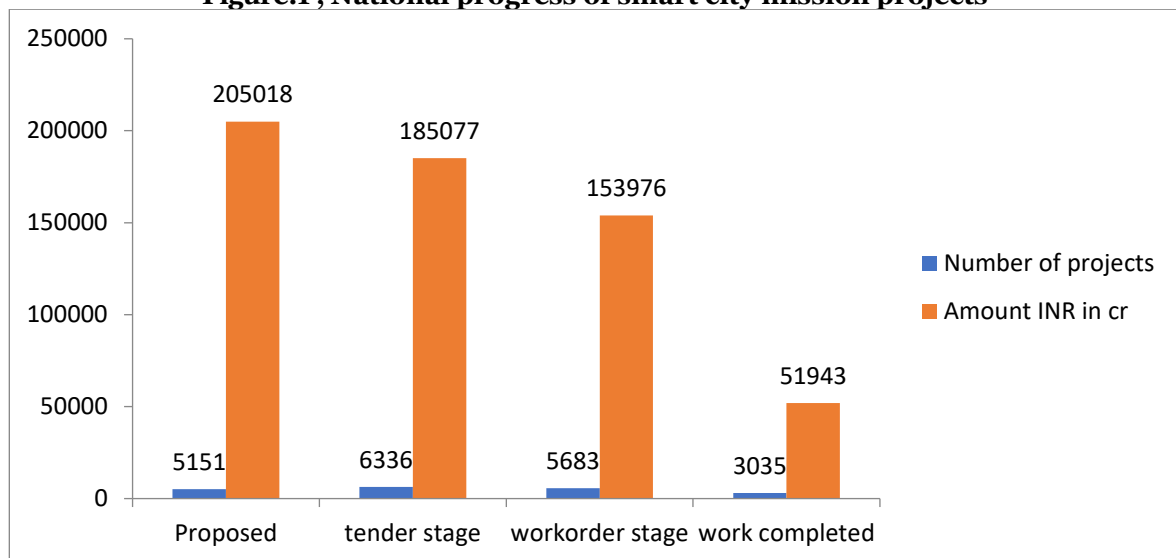
| Item | Amount (in INR Billion) |
|--|-------------------------|
| Total fund required for project cost | 2050.18 |
| Central government financial Support | 480.00 |
| Matching contribution by state /local government | 480.00 |
| Total fund to be mobilized by central/state/local government | 980(47 % of 2050.18) |
| Funds to be mobilized by central/state/local government for each city every year | 2.00 |
| Balance fund from other sources to be mobilized | 1090.18 |

Source: Smart Cities dashboard (Financing of smart cities)

The smart city mission finances contributed by the central government meet less of the assessed project cost and each city has to mobilise its funds through state/local government sources and other central government schemes and also from instruments like municipal bonds borrowings etc from different establishments including the private sector. The state governments for many smart cities are lagging in raising their funds for their main projects.

Strategies Implementation Levels

To carry out the progress of all smart cities, a special purpose vehicle headed by a full-time managing director was created with members from local, state, and central governments on its board, along with help from consulting firms and designated project management consultants for right implementation and finish. The smart city mission guidelines have hierarchical monitoring for checking all projects at different levels. At the national level, an apex panel with a national mission director endorses recommendations, audit exercises, suggests mid-course remedies, and releases finances. At the state level, a high-powered steering committee handles the mission headed by a state mission director and gives direction for project implementation. In all the urban cities, special purpose vehicles along with smart city advisory forums have been set up to empower coordinated effort among different partners and the discussions are managed by the managing director of the special purpose vehicle to highlight various issues and need to execute and monitor strategies for mission timely achievement.

Figure:1 ; National progress of smart city mission projects

Source: Ministry of Housing and Urban Affairs (Ministry of housing and urban affairs, September 2021)

As on 10 April 2022 the completed proposed projects 7,905 ventures worth ₹1,93,143 crore have been offered, work orders have been given for 7,692 projects worth around ₹1,80,508 crore. 3,830 ventures have additionally been completely finished worth ₹60,919 crore and are functional.

Progress has been seen in many of the completed smart projects and is providing social and economic benefits to its citizens. Many large states who have issued many tenders are still in the process of implementation due to fund nonavailability, and many smaller states are not able to mobilise their funds and are in wait for project implementation and completion. Hence, ways to increase the fund's disposal and availability have to be identified along with administrative and financial bottlenecks to complete the city-wise mission on time.

As of September 23, 2022, more than 56 per cent of the projects cumulatively in these cities (4,436 out of 7,902 projects) are completed. This is according to the data available with the SCM. However, these projects are not uniformly distributed across cities. www.thehindubusinessline.com, September 23, 2022

Table: 3; Key areas

| Sector | Completed | | In Progress | |
|---------------------------------------|-----------|-------|-------------|--------|
| | Projects | Cost | Projects | Cost |
| Integrated Command and Control Centre | 70 | 8,100 | 18 | 2,991 |
| Smart Roads | 310 | 5,362 | 459 | 21,518 |
| Smart Solar | 57 | 563 | 38 | 481 |
| Smart Water | 101 | 5,081 | 185 | 18,146 |
| PPP | 123 | 4,420 | 178 | 25,049 |
| Vibrant Public Places | 72 | 1,662 | 76 | 8,551 |
| *All cost in Rs. crore | | | | |

Source: 6 years of urban transformation; PIB Delhi (6 YEARS OF URBAN TRANSFORMATION; PIB Delhi , 25 JUN 2021)

Out of the 100 smart cities 80 has their Command and Control Centre and the work in the remaining expected to be completed by August 15, 2022. These help for smart city components integration for a sustainable environment to provide with sufficient water supply; secure power supply, strong waste administration, sanitation, proficient urban and public transport, good governance, its accessibility with digitisation, health, education with security and safety for citizens with their cooperation. The government of India is committed to completing the smart city agenda by 2030, along with sustainable improvement goals which require building an empowering environment having huge smart data. Each cities issues have to be identified along with their challenges to finish the mission on time. The smart city projects by the Indian government pose an unexpected ordeal to the ground -level staff and understanding future capacity requirements is essential for the accomplishment of such projects. the right evaluation of innovation technology required and their options for each city with the public-private partnership is of imperative significance.

Objectives of study

RO1- To understand the evolution of Indian Smart City infrastructure research

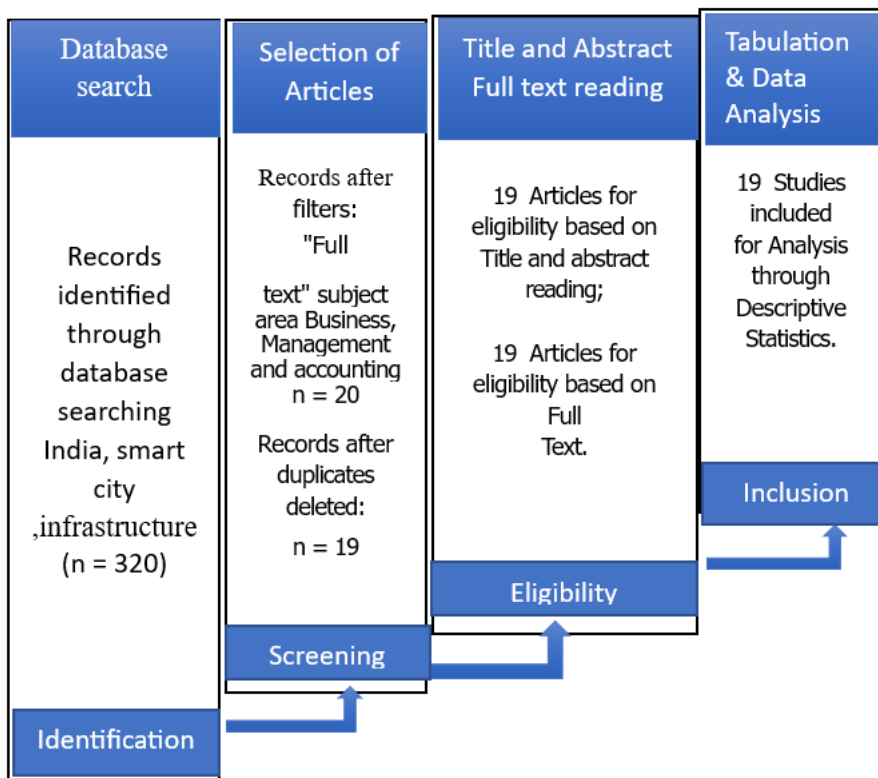
RO2- To investigate the research studies done in this area

RO3- To examine the emerging trends in Smart City infrastructure research

2.MATERIALS AND METHODS

To find pertinent papers in the Scopus database, appropriate search criteria were first identified. This database was chosen because it offers thorough coverage of peer-reviewed research published in credible journals and is widely used in the academic world. To decide which articles to include in our database for the bibliometric and content analyses, we used a set of criteria in the second stage with the title abstract and keyword list identified in the article. Since the inspiration behind this study was to get a more comprehensive understanding of the present status of the Indian smart cities point of view, the enquiry was confined to keywords "Smart City" AND "India" AND "infrastructure" from 2015 to 2023 and is limited to subject area Business, Management and accounting. In India, many studies had been done from 2015 onwards and this study is an examination to obtain a holistic view from Indian infrastructure and smart sustainable perspective. The studies distribution in India with Smart City research shows that various aspects are less studied compared to others. This proposes that related Smart City based research is still evolving due to its various complexity, featuring the likely additional scope for this kind of examination.

METHODOLOGY



The articles included were checked to guarantee that they were within the purview of this study. All articles incorporated were assessed for their comprehensive examination to guarantee that they offered a better understanding of different perspectives related to India smart cities have been analysed concerning mainly emerging new technologies in the last decade. However, after 2013 a growing number of studies examined mainly in artificial intelligence, IOT, and digitalisation. After screening and from the examination of the selected articles shows that after 2013, it concentrated more on different aspects relating to advantages. The main number of studies referring to Smart City was seen after 2015 and research investigations done from India sustenance point of view, most papers are in computer science and engineering. Articles from Business, Management and accounting subject alone were taken for this study and 19 papers are pertinent to this review's work. In order to verify that the selection process for the articles is consistent and reliable, all chosen articles are separately reviewed. Eventually, results are combined, and any discrepancies and contradictions are at this point handled interactively.

In order to assess and gauge the significance of the articles that have been published and to identify potential future research areas, bibliometric analysis is a reliable and useful method. Analysis of the fundamental data, including authors, citations, keywords, titles, journals, publication years, and other information, would be used to achieve this. Based on the defined aims and thorough conclusions, the bibliometric analysis provides assessors with a detailed picture of the subject by Biblioshiny (a user interface of the R package) it is adaptable and reliable bibliometric analysis tools and Therefore used in this work to conduct the bibliometric analysis for identifying, evaluating, and visualising the trends and patterns of published scientific publications in this field.

Data relating to smart cities projects in India and their progress etc, were obtained from the Smart City dashboard, Ministry of Housing & Urban affairs, and other related secondary sources. The review analysis's in-depth specifications, pertinent findings, etc is given in detail in the following section.

Table:1 ANALYSIS

| Description | Results |
|--------------------------------|-----------|
| MAIN INFORMATION ABOUT DATA | |
| Timespan | 2015:2023 |
| Sources (Journals, Books, etc) | 18 |
| Documents | 19 |
| Average citations per doc | 20.25 |
| DOCUMENT CONTENTS | |
| Keywords Plus (ID) | 108 |
| Author's Keywords (DE) | 73 |

| | |
|--------------------------------|-----|
| AUTHORS | |
| Authors | 50 |
| AUTHORS COLLABORATION | |
| Single-authored docs | 3 |
| Co-Authors per Doc | 2.8 |
| International co-authorships % | 25 |
| DOCUMENT TYPES | |
| Article | 13 |
| book | 2 |
| book chapter | 3 |
| conference paper | 2 |

The keywords listed were utilised in the Scopus database with the following restrictions The language is only English , and the source type is Journal only. The chosen document type is "Article, and the publishing stage is taken into account for studies that are in the "Final".

Figs. 1: Annual Scientific Production

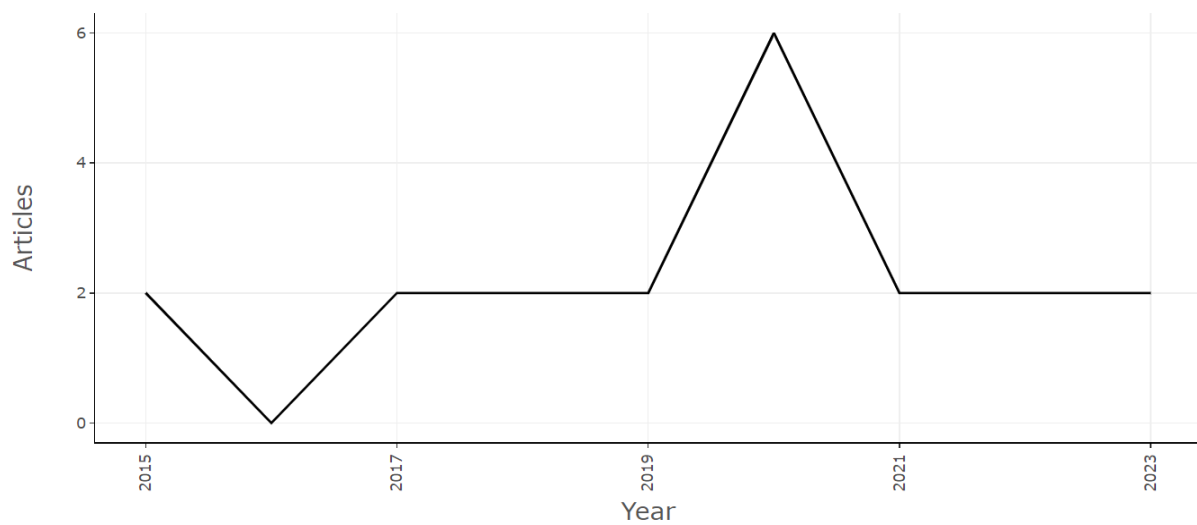
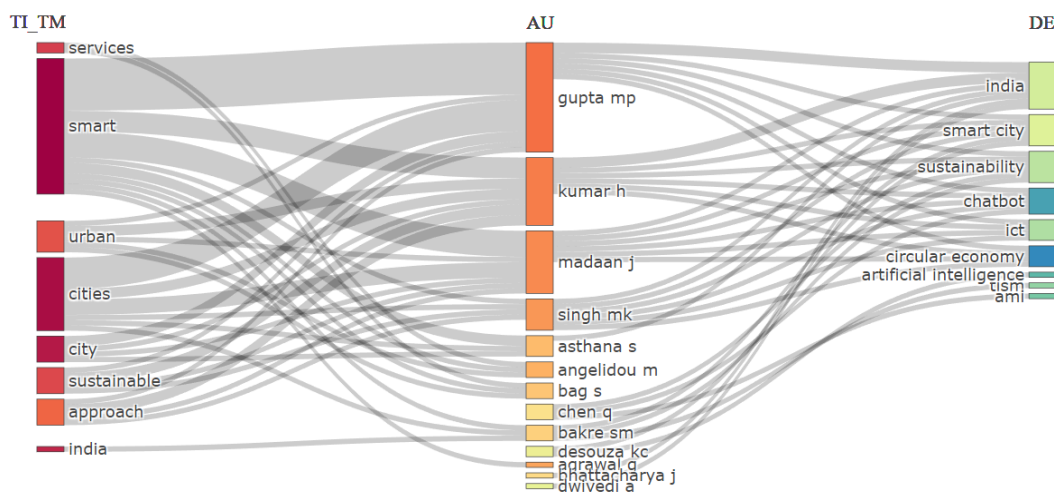


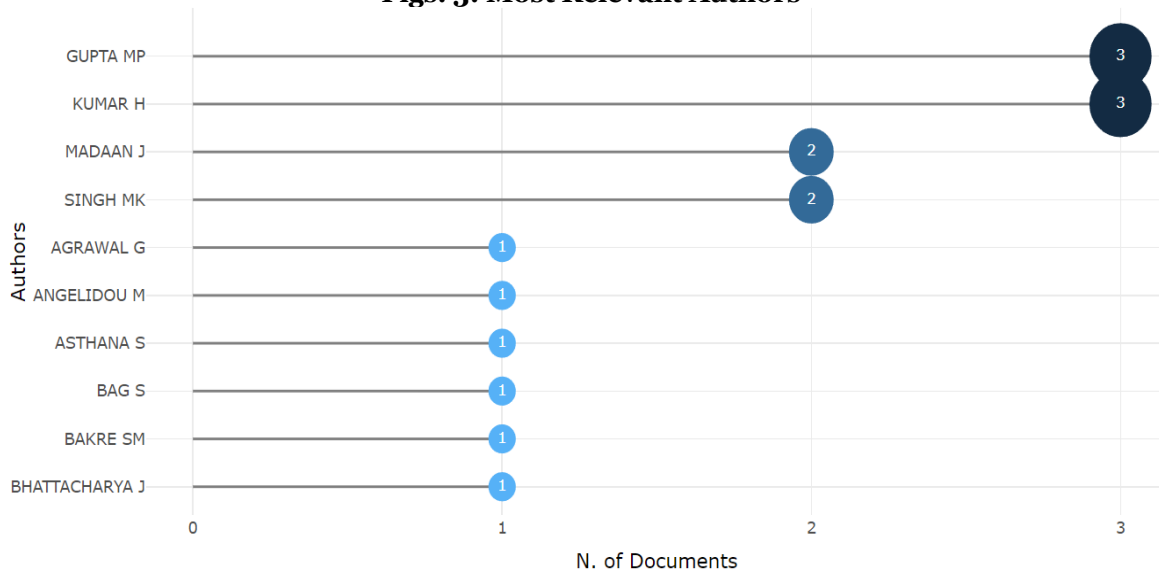
Figure 1 depicts the publishing distribution based over the years 2015 through 2023. The distribution trend has steadily risen over the past years, and this is without a doubt. On the other hand, 2019 and 2021 had a discernible increase. It should be emphasised that the smart city India infrastructure has attracted a lot of researchers and professionals in recent years.

Figs. 2 Three-Field Plot



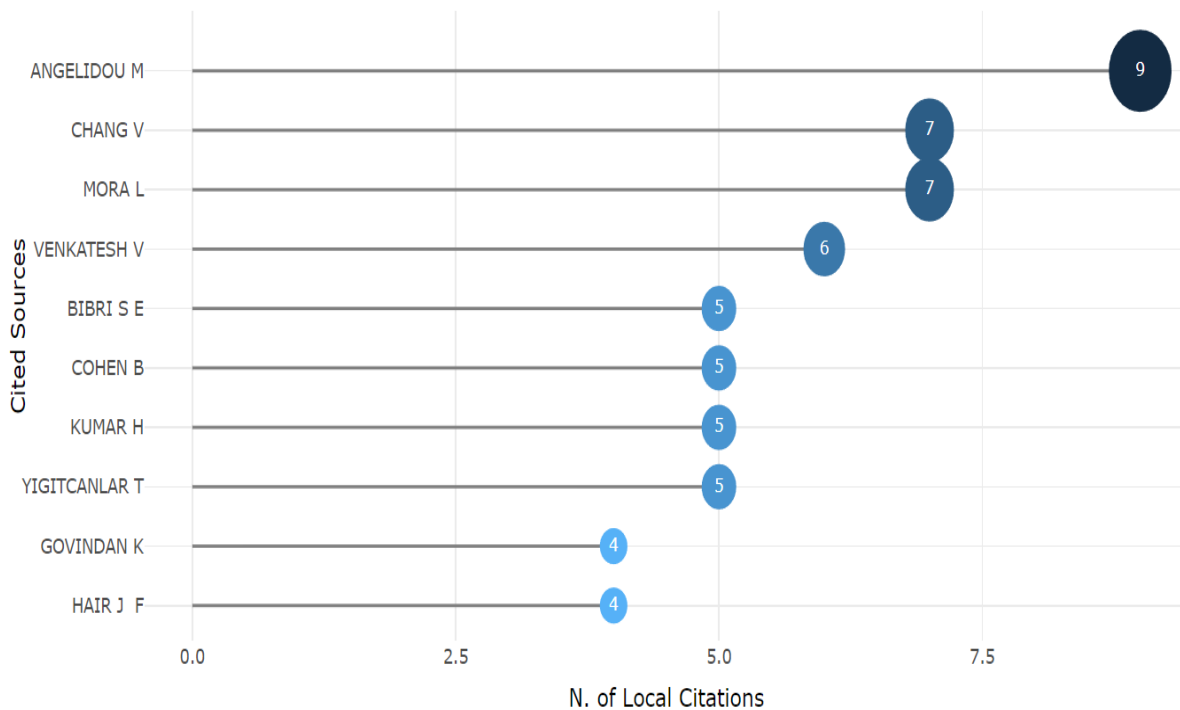
To understand the distribution of study themes by keywords and author and the areas of papers they mentioned, a three-field Plot (Sankey diagram) of title, author and Keyword of the cited References was developed. Figure 2 illustrates how smart city are the primary areas of focus for researchers in this area. India have published most articles and have been explored mainly in smart city infrastructure.

Figs. 3: Most Relevant Authors



According to the Bibliometrix analysis, the top ten most relevant authors. The top ten authors represent the total number of scholarly works from all sources. The most relevant author is Gupta M P & Kumar H with more publications. Which reflects on the specific impact this author has had on the course of this study.

Figs. 4: Most Local Cited Sources



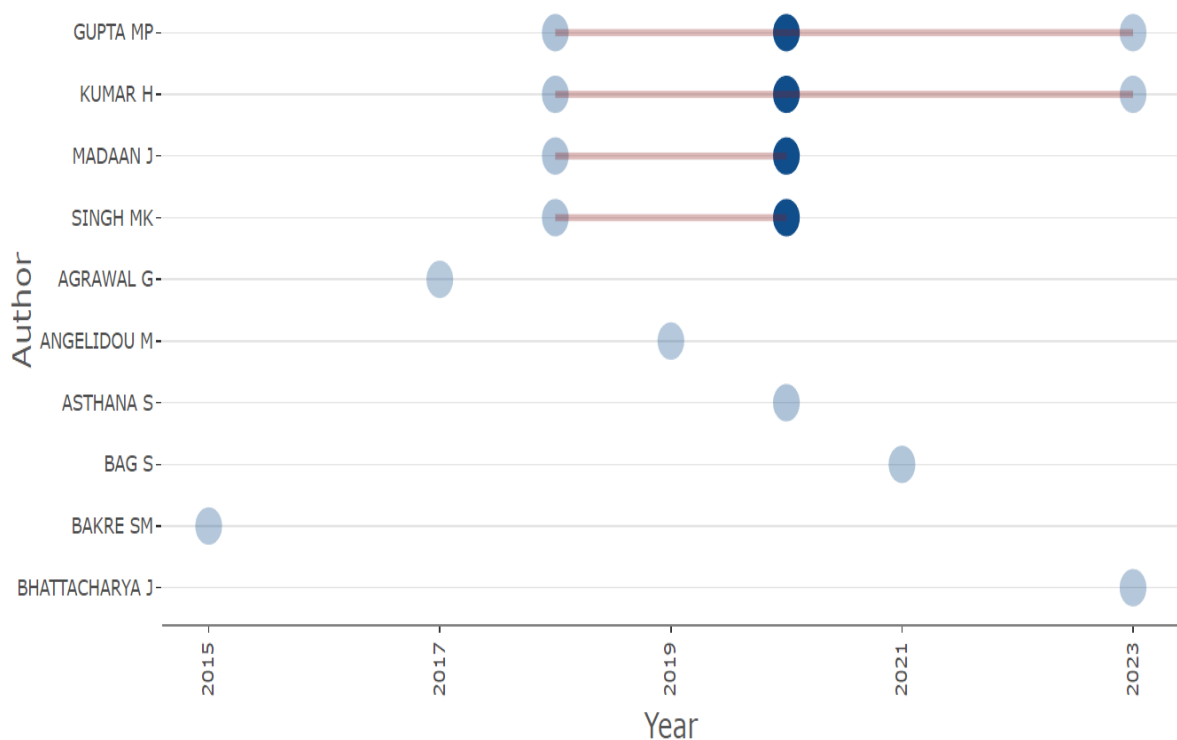
The citations measurements have identified the top 10 most cited authors in this field (see Figs. 4). The citation measurements show how well-liked publications on cutting-edge smart city infrastructure are doing.

Table.2 : **Countries' Scientific Production**

| region | Freq |
|---------|------|
| INDIA | 41 |
| UK | 4 |
| USA | 3 |
| DENMARK | 2 |
| FRANCE | 2 |
| IRELAND | 2 |
| BELGIUM | 1 |
| MOROCCO | 1 |

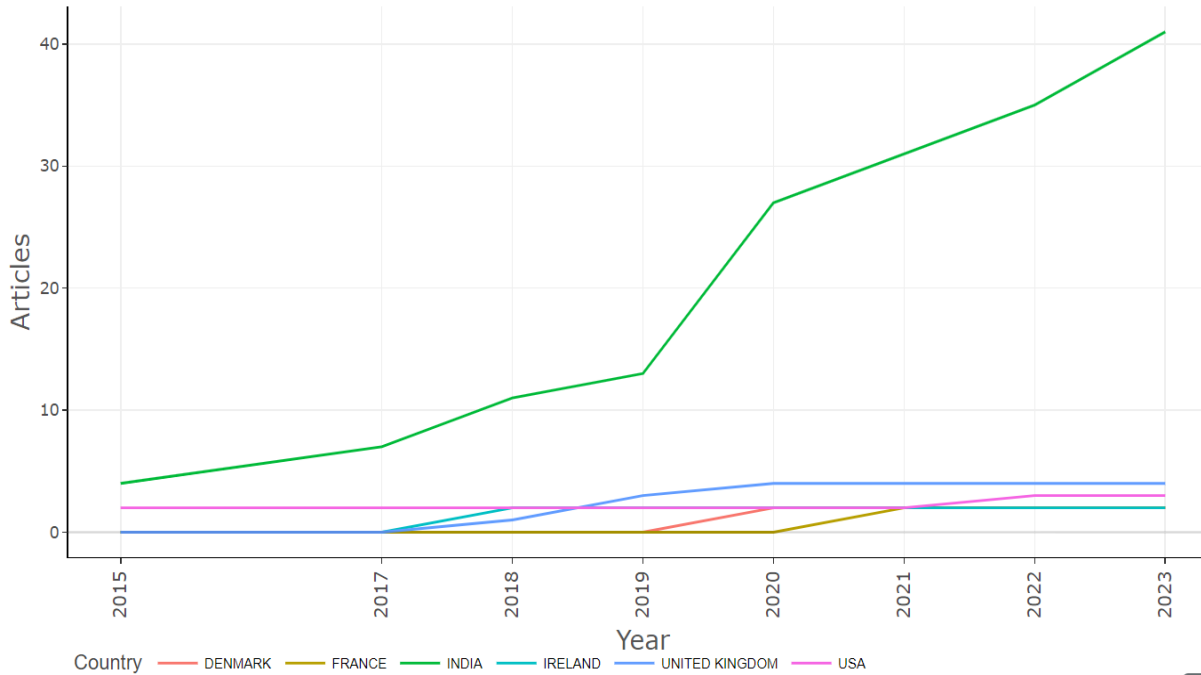
To comprehend the state of the research on smart city infrastructure in the context of key nations analysis (see Table 2). In terms of nations, India, United Kingdom, and USA are three of the top in this field's most often referenced publications. This data raises the possibility that authors in these nations are writing on current, pertinent research subjects in this area.

Figs. 5: Authors' Production over Time



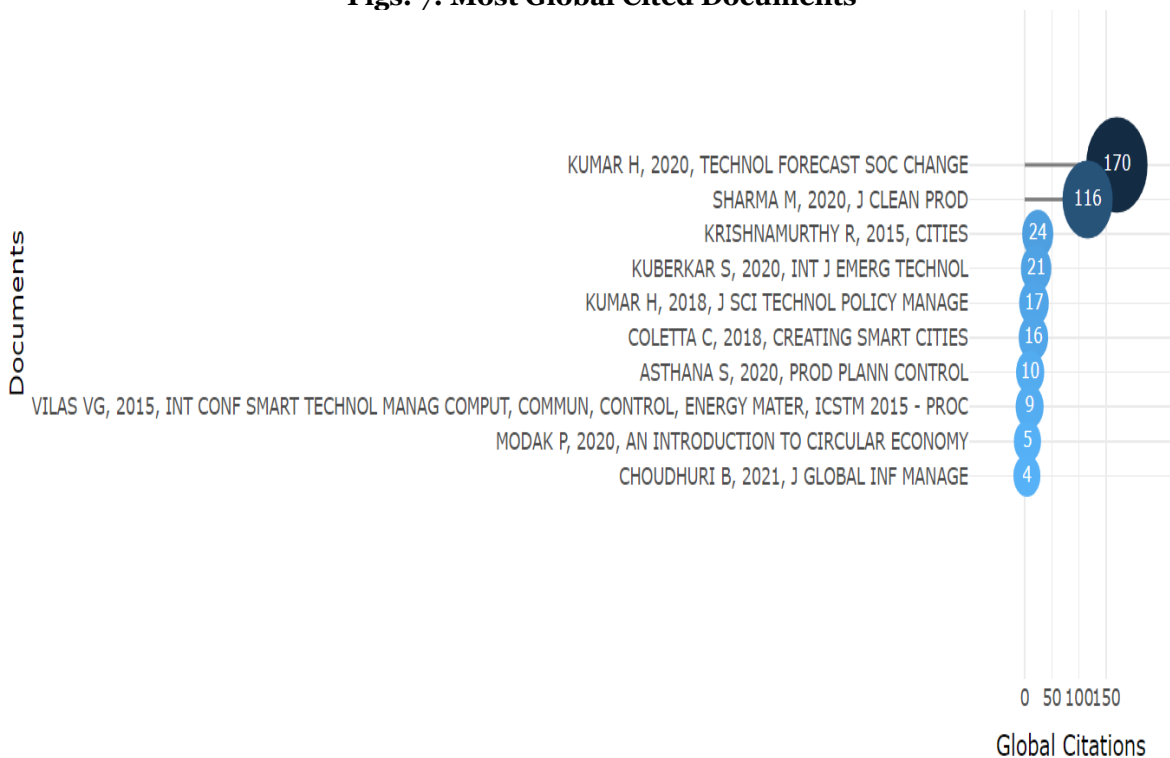
Another unit of analysis focuses on the author's output. Looking at the most prolific authors, we can see that there are more article written authors—Gupta M P ; Kumar H—as well as those who have published less. The production for each individual author in Fig. 5, supports the trend found in the sources. The figure 5 go into further depth by demonstrating that certain authors, are more productive compared to others. The further examination of Figure 5 depicts the breakdown of corresponding authors.

Figs. 6: Countries' Production over Time



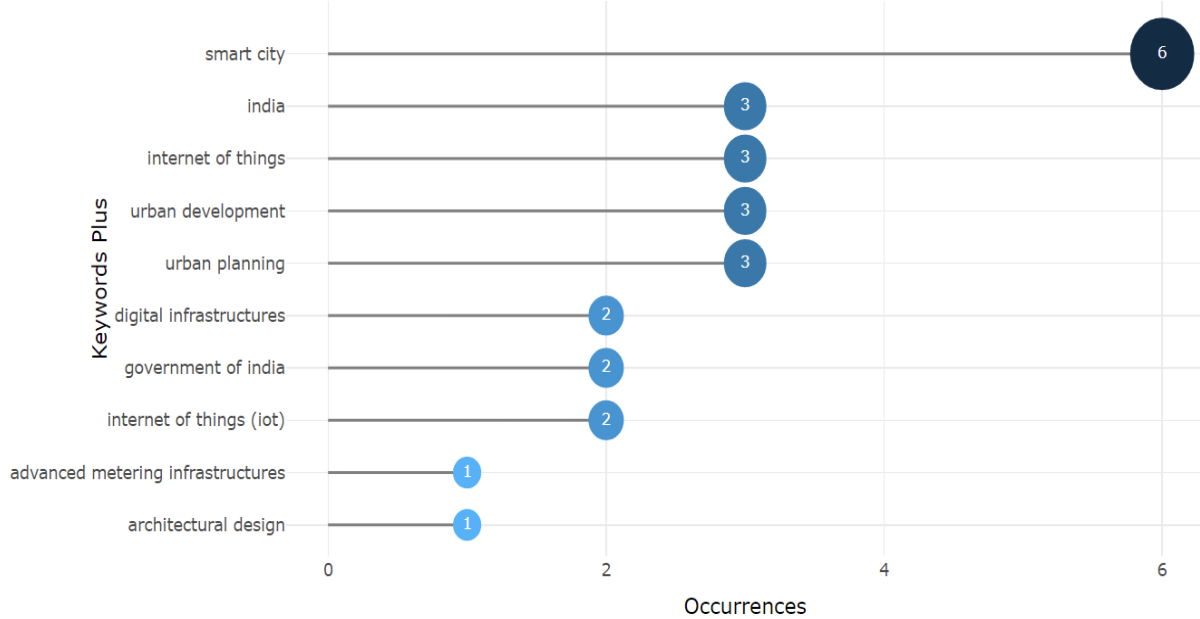
A frequency is more for India , this data suggests that the degree of interest in this issue varies The participation rates of various nations are shown in Fig 6, which does imply that these nations have researched on this subject.

Figs. 7: Most Global Cited Documents



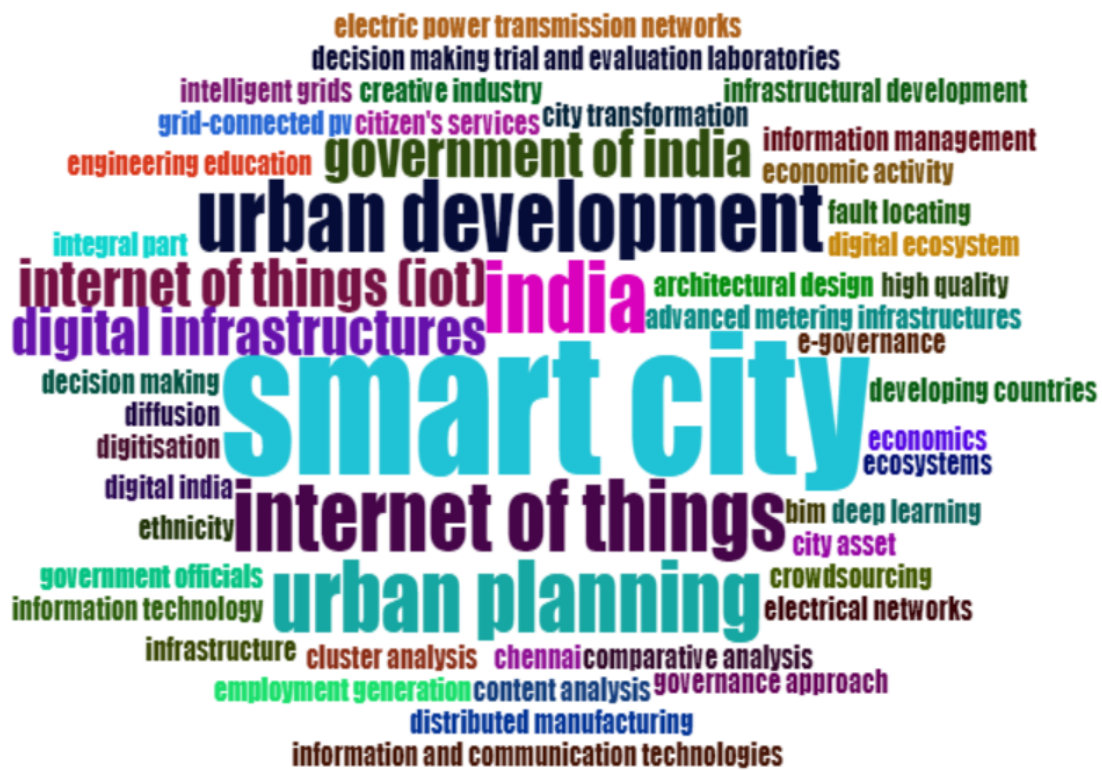
To learn more about the organisation of scholarly contributions in this area, citation analyses were used. The Fig: 7 lists top writers along with the metrics. Most of the time, the institutions listed correspond to those of highly cited works in the subject. The citation analysis reveals the journal that have made the most important contributions. This result shows that area-specific works in this field have drawn a lot of attention, which has resulted in a lot of citations.

Figs. 8: Most Frequent Words

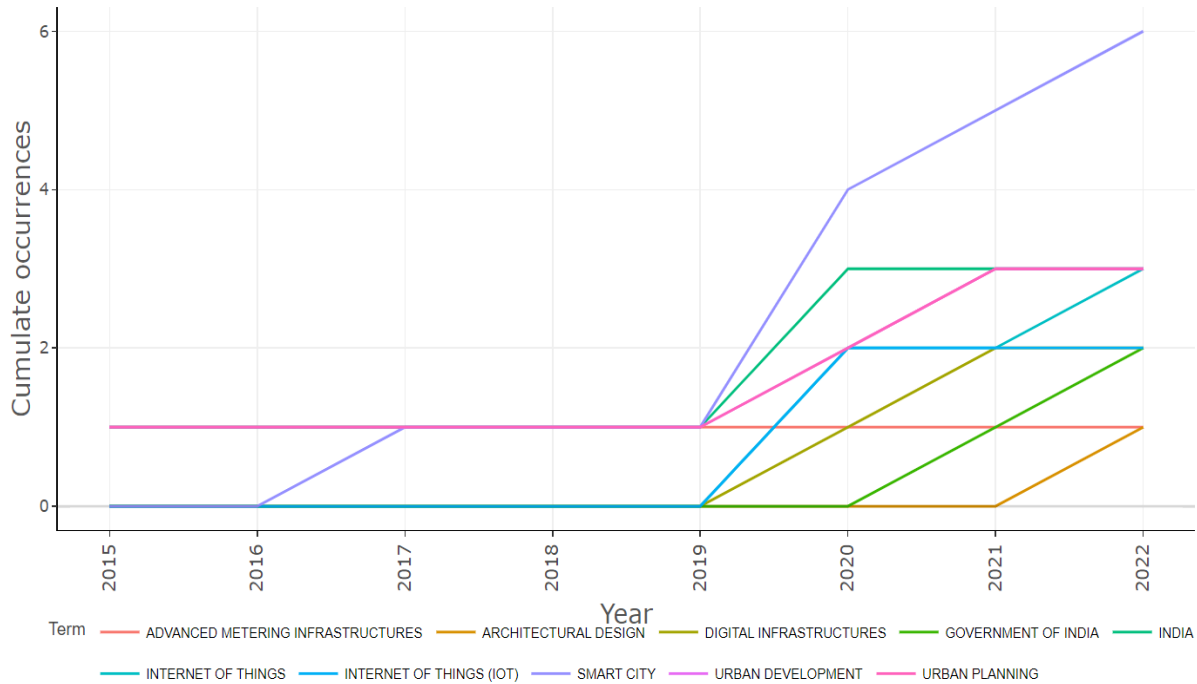


As shown in Figs.8 the Most Frequent words show that the primary focus areas of the existing study largely relate to smart city. These results point to the academic community's interest in investigating potential areas in several fields. The potential of smart city seems to be attracting more and more attention. Furthermore, topics like IoT, urban development, urban planning also point to a growing study interest in various complex and specialised domains.

Figs. 9: WORD CLOUD

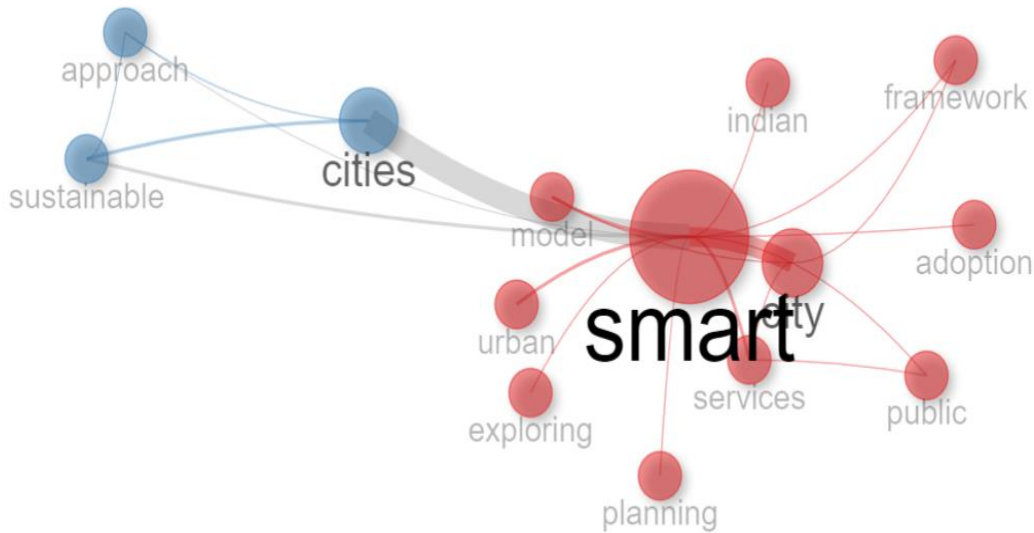


Figs. 10: Most used Keywords

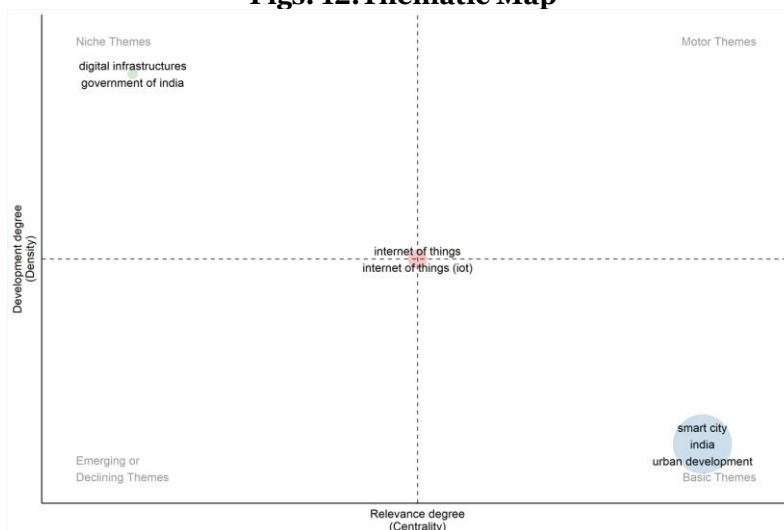


The development of keywords through time is a fascinating topic to think about. Finally, a few example keywords from 2015 to 2022 in Figure 10 .The themes or keywords in this research field that are becoming more or less popular may be seen from this graph. In further detail, we see that the term "Internet of things" has become more popular over time.

Figs. 11: Co-occurrence Network



To identify the main issue covered by the existing literature, a co-occurrence analysis of indexed keywords was performed and the keywords were prominent in the integrated network, which can be explained by looking at the interlinking lines between the keywords. These lines show the applicability of the connections between the keywords. These connections show the growing significance of smart city infrastructure aspects in India that have proved important.

Figs. 12: Thematic Map

The thematic map is shown in Figure 12. topics in the upper-right quadrant of this time period are driving topics with high centrality and density, and are thus regarded as well-researched and significant. There are four clusters in this quadrant: and each cluster contains the keywords widely used. These clusters are connected, via statistical techniques, to the issue of authorship attribution in literary works and we can see the topic widely researched.

Future research direction:

The smart city is very complex and many smaller cities are lacking the capacity to develop large cloud-based methods to respond to various quick responses for better management and delivery, hence future, studies can concentrate on collecting more information from various stakeholders for different cities based on size to understand more about the various projects and their future sustainability. India's ministry of electronics and information technology systems are still evolving and with a colossal number of gadgets connected in a smart city, it will have boundless data to share information ceaselessly which requires an advanced framework with safety to forestall, digital attacks to secure the city and its residents, hence more research tin be undertaken to identify a smart customized solution. The main concern that can help to catalyse the cycle of normalisation in all activities is proper coordination as a smart city offers numerous benefits but the execution of many projects is still in progress and has to be completed with proper error-free strategies sooner than later. Future research can be done to identify solutions according to the different city issues and challenges. the smart city mission is still progressing and is still expanding with some nearing completion, with smart data the chances of error are also more which may leave citizens vulnerable to various negative effects if not secured properly, so more studies across different areas be undertaken for long term sustainability in different cities.

Limitations:

This study has some constraints as articles were studied in this bibliometric analysis according to the objectives of the examination and had to exempt many studies outside the study preview.

Conclusion

A smart city infrastructure is a complex system with many infrastructures, domains, activities, organizations, and it is very important to be integrated and coordinated to avoid unnecessary overlaps to be smart for everyday activities. A truly smart city needs a holistic, collaborative effort between its various stakeholders for completion, and a need to rethink everything - finances, people, and technology - to fundamentally improve and find a responsive way for the future citizen is very important. As all smart cities have to work with a host of emerging sensor-based citizen-centric solutions with large-scale data analytics, hence the right framework is needed for each project completion along with long term practical sustainable results as per united nations sustainable development goals (SDGs). A smart city data management system has to have access to information with security as the backbone of everything, as activities need to be performed through various evolving innovations with machine-to-individual interaction and may have hurdles but fortunately, many smart cities are progressing ahead in various aspects. They are custom programmed to find ways to gather, incorporate and disseminate huge information with increased cooperation from different agencies, leaders, and the public to achieve the planned commitments.

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