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E-Government Development and Health Sector: A Bibliometric Analysis

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Abstract

This study intends to conduct a bibliometric analysis on the development of e-government and the health sector within the web of science database from 2005 to 2023. The paper covered the last three decades of publications and performed a science mapping analysis on articles. A no total of 172 articles were evaluated using science mapping methodologies with VOSviewer as the analysis tool. The data show a large rise in publications over the last decade, indicating increased interest among scholars and practitioners in this topic. The most influential journals found in this area were the international journal of environmental research and public health, frontiers in public health, and sustainability. Despite the maturity of research in eGovernment and health, this study is unique in its use of bibliometric analysis to this topic. The thorough approaches used provide excellent insights into scientific productivity, key authors, citable documents, and keyword co-occurrences.

Keywords: Bibliometric Analysis, E-Government Development, Health Sector, Science mapping analysis, Vos Viewer, Web of Science core Collection, E Government.

Introduction

The importance of e-government projects has been realized in the developed as well as in the developing countries. The world-government initiatives are being implemented in several areas in both developed and developing countries, with the aim of providing citizens with government services in an efficient and transparent manner (Khan A. Z., 2021). E-government development is an excellent instance of advancement in the field of digital transformation, since it is changing the way governments engage with the citizens and provide services. The goal of e-government implementation is not only to achieve efficiency and effectiveness in operational activities, but also to use information and communication technology (ICT) to affect macroeconomic development by creating a well-aware society, increasing trade, facilitating national development, and improving living standards (Hassan, 2019; Kumar et al.., 2018). The potential for improved efficiency and accessibility in public services has drawn interest from both developed and developing countries, demonstrating the global significance of e-government initiatives. However, there are several obstacles in the way of implementing e-government successfully. These obstacles include organizational, technological, project management, and environmental ones. The successful implementation of e-government development projects is a challenging task. Despite the effectiveness of e-government is uncertain, the public sector requires bureaucratic transformation to ensure satisfied citizens and government employees with services provided by government offices (Khan A. Z., 2021).

The healthcare industry's ability to accomplish public health objectives is dependent on effective data management. E-government initiatives, such as electronic health records and disease surveillance systems, transmit real-time data collection and analysis, which is critical for targeted interventions and progress

monitoring. Without these digital technologies, meeting public health objectives would be much more difficult (World Health Organization, 2018). The government can improve healthcare performance in the public sector by implementing a health information system (K., 2003). By providing creative ideas and improving service delivery, egovernment has dramatically changed the healthcare industry. As the digital landscape changes, the health sector becomes a prime area for implementing e-government initiatives. The convergence of e-government and healthcare has the potential to revolutionize the delivery of medical services, promoting better communication between healthcare professionals, patients, and policymakers (K., 2003). The health sector will promote information sharing, video and voice consultations, and monitoring of a patient's health in real-time through the adoption of digital technologies. This will, in the long run, enhance the level and effectiveness of health service delivery. The healthcare sector has undergone tremendous changes over the past years due to the introduction of new technology and the high need for affordable, quality healthcare. Developments in e-government or the use of digital technologies to improve access to citizen-relevant government services have been the primary forces behind this transformation (Kunstelj, 2004). In 2005, the Government of Pakistan launched an e-government project for a hospital that provides healthcare services to citizens. HMIS was transferred to the beneficiary organization in the year 2008 (Khan A. Z., 2021). The integration of health care services with e-government technologies is important for achieving the Sustainable Development Goals, according to (Agbozo, 2018).

This study also relates to a few of the sustainable development goals for the betterment of the society includes, Good Health and Well Being (Khan A. Z., 2021). The quality and safety of healthcare services can also be enhanced by its ability to support the sharing of electronic health data, telemedicine consultations, and real-time patient status monitoring. E-government development would be enhancing health outcomes because it increases the availability of healthcare, strengthens information systems, and spreads health education and awareness (K., 2003; Agbozo, 2018). Industry, Innovation and Infrastructure - E-government development helps in the development of innovative healthcare solutions, such as telemedicine, and applications related to mobile health while ensuring that the infrastructure for healthcare delivery is improved (J, 2003). Therefore, the impact of e-government development on the health sector is quite complex and multifaceted that require a systematic review of existing contents (Solaja, 2021). Through the analysis of the most often cited articles, the most prominent authors and institutions, the most important research topics and trends, bibliometric analysis can provide insightful information on the themes and trends in this area of study or research. We can determine the benefits and drawbacks of e-government developments in the health sector with the use of bibliometric analysis, and we can also offer suggestions for further study and regulations. Understanding how these advancements of e-government impact the healthcare industry would thus help build better services that will be more effective and efficient, thus adding value to the health and

wellness of people, either individually or as a collective.

The sudden increase in the number of journals throws up a barrier for understanding the theory and practice of strategic management and technology research for a wide range of stakeholders, including researchers, reviewers, editors, managers, and institutions of learning. These issues can be addressed through a detailed study of a leading journal, that will have an overview of the major issues and trends within the study (Farrukh M. F., 2020), and the branch of bibliometric is accountable for such systematic study. Bibliometric is a field of research within the area of library and information science study that makes use of quantitative methods to analyze the content of bibliographic material (Bar-Ilan, 2008.; Broadus, 1987). This method is useful for classifying and analyzing the general trends of a specific theme, such as a journal, field of study, or a country (Martínez-López, 2018). Bibliometric analysis has been used in literature to evaluate a topic's relatedness (Nawaz K. H., 2020), journals' contribution (Nawaz, Aslam, and Saeed 2020), and the contribution of educational institutions (Martínez-López, 2018). Journals usually publish bibliometric analyses on several occasions, including anniversaries.

This study will be centered on the following major objectives: This study aims at analyzing the developments in the health sector regarding e-government over a specific period. It would note influential scholars, firms, and geographies shaping the use of egovernment applications in medicine. The analysis of recent activities concerning e-government in healthcare would help in identifying emerging trends, techniques, and key concepts. Ultimately, it will detail the current state of the subject along with projections for future e-government research in healthcare. E-government has transformed the health sector in a significant way through creative service delivery and solutions. To look at the extent of how the introduction of egovernment has impacted the health sector, this is a bibliometric analysis. By closely examining the development of these applications, this research analysis will advance vital insights into the partnerships, trends, and research areas that drive progress in healthcare e-governance. This investigation aims to provide important insights into the partnerships, trends, and research areas propelling improvements in the field of healthcare e-governance by analyzing the development of these applications. This research aims to provide a thorough understanding of how e-government activities have shaped the healthcare business and to suggest the crucial areas for further exploration and growth through a systematic assessment of the literature and bibliometric analysis. The goal of this work is to use bibliometric analysis to examine how the field of e-government development and health sector, has developed over the past gighteen (18) years. Since Web of Science is currently the most significant database of abstracts and bibliographic references of peer-reviewed scientific literature, we employed it to accomplish our goal (Mongeon, 2014).

Research question of this study is to considering the development of e-

government, what are the main themes and fields of study in this field, and how has it affected the health sector?

By answering these questions, The study gives readers, researchers, academicians, and even the editorial team important information by providing answers to these questions. For instance, it will provide crucial details regarding the scope and objectives of e-government and health sector since its founding. By identifying the research gaps that need to be addressed in the journal and offering information on the most referenced documents, it may also help academicians and researchers prepare for future studies. Aside from this, by concentrating on the policies with greater influence, it will help the editorial board decide on new guidelines for the journal or adjust the current ones. The remaining sections of the paper are arranged as follows: The bibliometric study's methodology is covered in Section 2. Section 3 discusses the results, including the publications and citation structure. The primary findings and conclusions are summarized under Section 4, which illustrate the graphical display of bibliographic data using VOS viewer software.

Literature Review:

The introduction of e-government in public services has become the main focus of governments worldwide, especially in the provision of public sector information, through the easing of electronic channels. These initiatives are important in transparency, efficiency, and access. Transparent and easy access to public sector information through electronic channels is the most important (Khan A. Z., 2021). E-government initiatives are creating a paradigm shift in different sectors, including healthcare by the enhancement of service delivery and the facilitation of digital interaction between citizens and government (Kumar, 2018; Hassan M. H., 2019). The healthcare sector in particular has become especially benefited from egovernment, due to the fact that health records, disease surveillance, and telemedicine applications using the e-government tool are digital and thus, the management of health information is more efficient and contributes more to health care (World Health Organization, 2018).

It was found by the studies that e-government in healthcare is associated with the sustainable development goals (SDGs) such as “Good Health and Well-being” and “Industry, Innovation, and Infrastructure,” which is makes it accessible, and also it improves the healthcare solutions (Agbozo, 2018). These projects have been particularly game-changing in third-world countries, which deal with the specifics of limited healthcare infrastructure and budgetary constraint issues that often stop good healthcare services from being delivered (K, 2003; Kunstelj, 2004). For example, e-government in healthcare of Pakistan, projects like the implementation of the Hospital Management Information System, has caused a significant positive change in the area of operation efficiency and service accessibility (Khan A. Z., 2021).Yet, these developments notwithstanding, e-government project

implementation suffers from problems involving the organization, technology, and environment as cited by Khan (2021). Many studies draw attention to the fact that strategic planning and management are the probable solutions apart from the challenges to the tremendous amount of e-government accomplishments in healthcare (Solaja, 2021). Based on Farrukh's research (2020) (Farrukh M. F., 2021), bibliometric analysis provides a meaningful means of expounding the trends and research areas on e-government and healthcare areas, including the weaknesses and strengths of the sectors and new research opportunities. This method is helpful for the participating actors in three ways - by specifying the thematic developments in the field, they push for simpler strategies of research and policy items implementations. In this bibliometric analysis, the authors who use VOSviewer software identify the chief themes, as well as publications with profound influence and networking through collaboration, hence they provide a synopsis of the effects of e government which was realized over eighteen years back on healthcare quality and outcomes (Farrukh M. e., 2021; Van Eck, 2011). The origin of this study is the previous literature, which underwent a systematic analysis of the publications from the Web of Science, thus the newly discovered advancement of the field and important areas for future exploration, are exposed.

Theoretical Framework:

Digital transformation theory: Digital transformation is about how digital technologies can bring radical changes at the level of company procedures, individual interactions with clients, and structures of the organization. E-government in healthcare theory can be used to explain the shift towards digitized health services like electronic health records and telemedicine and how these qualities have resulted in more effective systems that are accessible to everyone. Systems that are clear and transparent to the citizens (Farrukh M. F., 2020). The bottom of digital transformation is technology adoption in healthcare, which is the reason for the change in health service delivery and public health information management. Technology Acceptance Model (TAM): A Technology Acceptance Model (Davis, 1989) is the tool that providers and patients can use to understand how new technologies are being accepted and used in the egovernment frameworks. TAM limits its view only to usefulness and efficiency as the prime indicators of technology acceptance, which can be the case in e-health services such as online health information portals and electronic records. This model can be effective in the analysis of how users have accepted and benefited from e-government in health services.

Public Value Theory: According to the Public Value Theory, government activities should portray value creation for citizens. This is because the quality of service delivery improved will enhance citizens' needs and requirements. In fact, this is based on the idea that egovernment is the key to bringing about most of the advantages that benefit society in general: improvement in healthcare,

accountability, and transparency (Hassan M. A., 2019). It is the foundation upon which the study can review the impact of e-government on public health and citizen satisfaction with services by government.

The Sociotechnical System Theory: Sociotechnical Systems Theory proclaims that effective digital transformation occurs where both the social factors (human characteristics, organizational policies) and technical aspects (IT infrastructure, digital tools) are aligned. This especially holds true for e-government in healthcare as digital health solutions should be integrated with healthcare professionals' workflows, regulatory frameworks, and patient engagement models in order to achieve desirable outcomes (Kunstelj & Vintar, 2004).

Methodology:

Using a bibliometric analysis methodology (Broadus, 1987; Donthu, 2021), this study represents a quantitative method of assessing scientific publications through an analysis of bibliography. It constructs a comprehensive view using different characteristics: total number of papers and citations for an author, topic, university, and nation. There were many studies done in various fields, such as management and international business (Brown, 2018; Rialp, 2019) which looked at the relevant journals' bibliographic data. The bibliometric data of this study was sourced from the Web of Science WoS Core Collection, which is a citable index covering an array of scopes and highly cited journals. WoS is a very often-referenced database for bibliometric analysis as it selectively indexes high quality, peer-reviewed scientific literature. We focus on the studies published between 2005 and 2023 to capture recent trends and developments in e-government for the healthcare sector. In the study, we used search keywords "e-government," "healthcare," "digital transformation," and some related keywords, which were combined with the Boolean techinque by Ferasso (2017) to ensure an accurate and comprehensive dataset.

The data collection method began with a Boolean search of the WoS Core Collection. The initial search yielded 210 papers on the impact of e-government in healthcare, dating from 2005 to 2023. After applying inclusion criteria (peer-reviewed articles with at least one citation) and eliminating irrelevant or low-impact publications, a final dataset of 172 articles was assembled for analysis. This selection includes the most relevant and significant papers published within the chosen time, ensuring the credibility of the bibliometric analysis findings.

Since several techniques exist for examining publications, journals, authors, and contributing countries, we concentrate on the overall quantity of publications and citations, authors, frequently used keywords within this research. A study of the number of publications reveals the volume of the published text, whereas a count of citations indicates the journals and the published article's influence and popularity. This study analyzed the data using VOSviewer software, which is extensively used in bibliometric research to visualize and evaluate bibliographic networks. VOSviewer supports the creation of co-authorship, co-citation, and keyword co-occurrence networks, allowing for a thorough investigation of collaboration

patterns, influential publications, and developing themes. Specifically, VOSviewer creates a visual representation of the interactions between different bibliographic entities such as authors, keywords, and journals. Each node is a bibliographic entity while the lines connecting the nodes represent a relationship of interaction with each other, such as collaboration or thematic overlap. High nodes and thicker lines indicate that there are significant connections which highlight essential features of the research subject. This software enables co-occurrence, co-citation, and bibliographic coupling mappings (Farrukh et al., 2020).

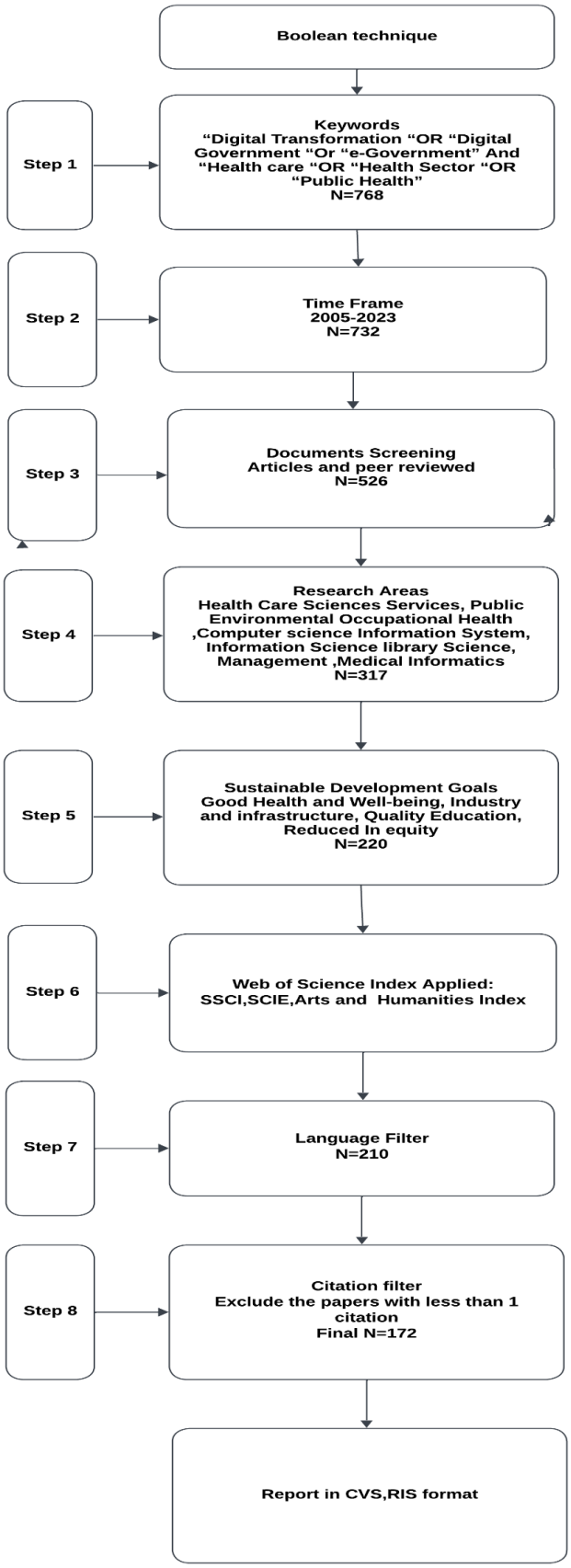


Figure 1 Boolean Technique of Data Collection

Results:

We have used the Web of Science Core Collection database as the source for the extraction of bibliographic data on E-Government Development and health belief. The Web of Science (WoS) Core Collection database is a selective citation index for scientific and scholarly publications, ranging from journals, conferences, books and even data compilations (Liu, 2024). The repository is also used and acknowledged in empirical and quantitative research. The search results gave 210 papers on E-Government Development and Health Belief between 2005 and 2023. These materials consisted of 172 peer-reviewed articles after exclusion of papers that have less than 1 citation. We analyzed all of the publications.

The publications trend and citation structure of E-Government Development and Health belief:

Figure 1 shows the time trend in the number of citations of peer-reviewed papers dealing with the development of e-government and its influence on the health sector. The citation data recorded a remarkable increase in citations in 2010 with 516 citations; it also reflects a highly prominent publication year. Other notable maxima are observed at 2021 and 2020 with 213 and 148 citations, respectively. This pattern thus reflects the fact that this topic has received research interest and impactful works in recent years and some years being particularly notable in scholarly influence.

Most Cited Papers:

Some of the highly cited publications give significant insights into our understanding of how the development of egovernment affects the health sector. Agarwal et al. (2010)'s "The Digital Transformation of Healthcare: Current Status and the Road Ahead" has received over 516 citations and is considered a foundational work. This paper presents an overall survey of HIT-related research activities and identifies emergent areas for future research. Likewise, in their article "Digital Transformation in Healthcare: Analyzing the Current State-of-Research," Kraus et al. (2021) discuss the current advances in digital healthcare solutions with 213 citations, as this paper also underlines a lot of difficulties and opportunities that are ongoing in the area of digital transformation. In the article "Digital Response During the COVID-19 Pandemic in Saudi Arabia," Hassounah et al. (2020) show how vital digital solutions are during a crisis; it has been referred to 148 times. This work shows how digital tools were effectively utilized during the pandemic period. In addition, Anthopoulos et al. (2016) offer important insights into e-government project failures in "Why E-Government Projects Fail? An Analysis of the Healthcare.gov Website," with 139 citations, provides useful insights for future endeavors. Finally, Fletcher and Griffiths (2020) investigate the acceleration of digital transformation during lockdowns in their study "Digital Transformation during a Lockdown," which has been cited 132 times. Together, these studies highlight the rising literature on the relationship between e-government growth

and healthcare transformation, giving crucial insights for maximizing digital health projects.

Table 1 Most Cited papers

Title	Authors	Journals	Publication per year	Total no Citations
The Digital Transformation of Healthcare: Current Status and the Road Ahead	Agarwal, Ritu; Gao, Guodong (Gordon); DesRoches, Catherine; Jha, Ashish K.	Information systems research	2010	516
Digital transformation in healthcare: Analyzing the current state-of-research	Kraus, Sascha; Schiavone, Francesco; Pluzhnikova, Anna; Invernizzi, Anna Chiara	Journal of business research	2021	213
Digital Response During the COVID-19 Pandemic in Saudi Arabia	Hassounah, Marwah; Raheel, Hafsa; Alhefzi, Mohammed	Journal of medical internet research	2020	148
Why e-government projects fail? An analysis of the Healthcare.gov website	Anthopoulos, Leonidas; Reddick, Christopher G.; Giannakidou, Irene; Mavridis, Nikolaos	Government information quarterly	2016	139
Digital transformation during a lockdown	Fletcher, Gordon; Griffiths, Marie	International journal of information management	2020	132
The iron cage exposed: Institutional pressures and heterogeneity across the healthcare supply chain	Bhakoo, Vikram; Choi, Thomas	Journal of operations management	2013	103

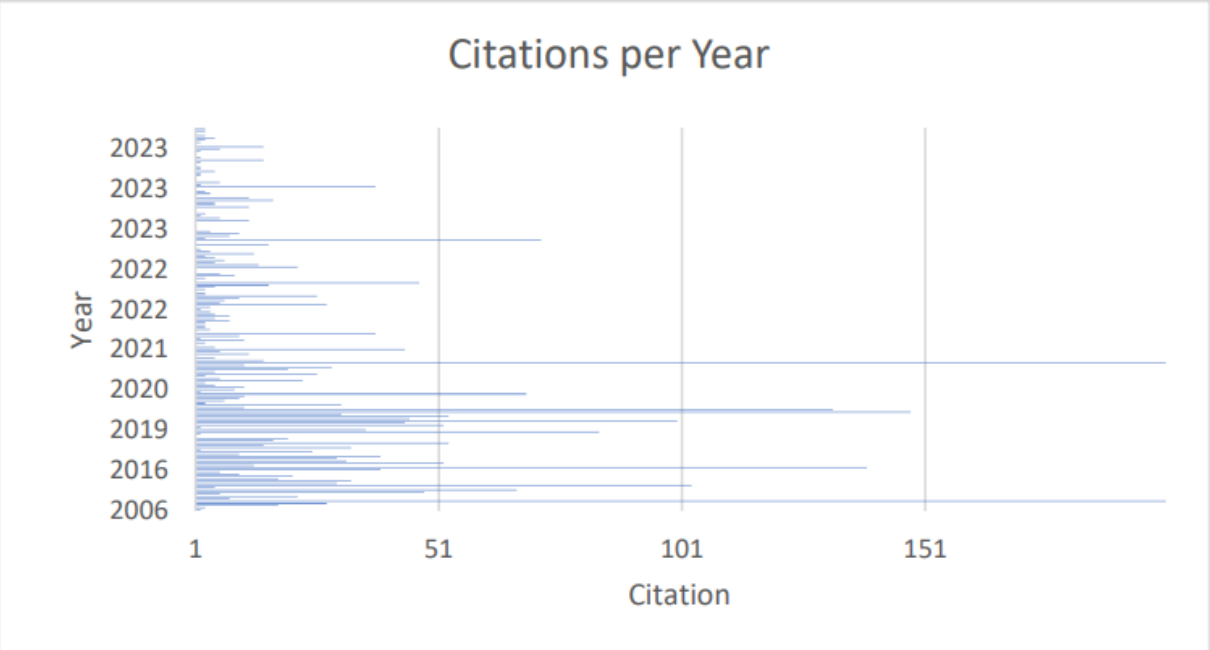
A Survey of IoT Security Based on a Layered Architecture of Sensing and Data Analysis	Mrabet, Hichem; Belguith, Sana; Alhomoud, Adeeb; Jemai, Abderrazak	Sensors	2020	100
Reconfigurable Smart Factory for Drug Packing in Healthcare Industry 4.0	Wan, Jiafu; Tang, Shenglong; Li, Di; Imran, Muhammad; Zhang, Chunhua; Liu, Chengliang; Pang, Zhibo	IEEE transactions on industrial informatics	2019	84
Unlocking digital technologies for waste recycling in Industry 4.0 era: A transformation towards a digitalization-based circular economy in Indonesia	Kurniawan, Tonni Agustiono; Othman, Mohd Hafiz Dzarfan; Hwang, Goh Hui; Gikas, Petros	Journal of cleaner production	2022	72
Perceptions of Digital Health Education Among European Medical Students: Mixed Methods Survey	Machleid, Felix; Kaczmarczyk, Robert; Johann, Doreen; Balciunas, Justinas; Atienza-Carbonell, Beatriz; von Maltzahn, Finn; Mosch, Lina	Journal of medical internet research	2020	69
Social media in public health care: Impact domain propositions	Andersen, Kim Normann; Medaglia, Rony; Henriksen, Helle Zinner	Government information quarterly	2012	67
Changing the conversation on evaluating digital transformation in healthcare: Insights from an	Burton-Jones, Andrew; Akhlaghpour, Saeed; Ayre, Stephen; Barde, Payal; Staib, Andrew; Sullivan, Clair	Information and organization	2020	53

institutional analysis				
Digital Transformation Requires Workforce Transformation	Eden, BurtonJones, Casey, Draheim, Michael	Rebekah;Mis Andrew;executive Veronica;	quarterly2019	53

- **Citation per Year:**

In April 2024, a Web of Science database search yielded 172 documents on E-Government Development and Health Belief published between 2005 and 2023. The year 2006 witnessed the release of only one article on E-Government Development, with an average citation rate of 0.11 per piece. Notably, the years 2005–2013 were the least fruitful in terms of publication output. Although mean number of citations per article in 2006 was modest, it changed in future years, indicating varying levels of engagement with the literature. Overall, the average number of citations each year across all articles was around 3.9, demonstrating that this topic has gradually gained interest and scholarly attention over time.

Figure 2 Citation per Year



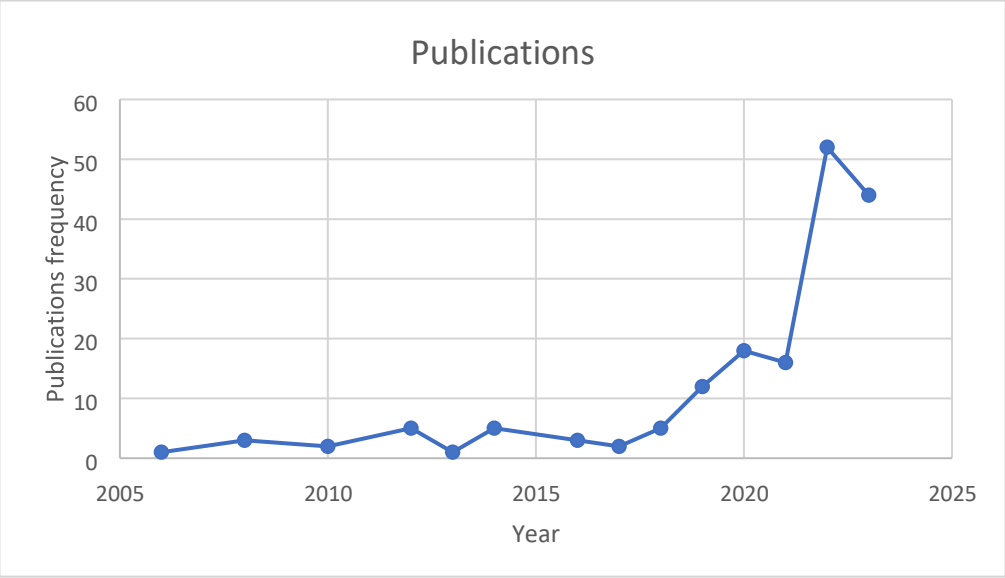
It can be seen that the peered reviewed papers with high citation were published in 2010 with 516 citations. Then came second with 213 citations published in 2021,

2020 with 148 citations ranking third. This shows that the Nineteen years of documents with many citations were from 2010 to 2022.

- **Publications per Year:**

The frequency with which publications about E-Government Development and the Health Sector were published between 2005 and 2023 demonstrates significant trends in scholarly interest over time. Notably, 2022 was the most dominent year, with 52 publications published on this topic. This increase in publications reflects a greater emphasis on the integration of egovernment projects into the healthcare sector, reflecting the growing understanding of the value of digital technologies in enhancing health care. Soon after, 44 papers appeared in 2023, reflecting the continued importance of this topic. The sustained output over the last few years has been a manifestation of an expanding literature that seeks to examine different aspects of e-government and its role in healthcare delivery. In its entirety, this trend points to an increased interest among academics in examining the ways through which e government may strengthen health care, thus leaving open avenues for further research and development on the matter.

Figure 3 Publications per year



- **Most cited journal**

Table 2 presents the most frequently published journals in fields E-Government Development and Health Sector, giving a greater insight into the academic scene from 2005 to 2023. The first is International Journal of Environmental Research & Public Health with 13 occurrences that significantly represents public health issues and its confluence with e nvironmental variables. Public Health is the second most represented with 12 articles, suggesting robust activity concerning contemporary issues in public health. Sustainability and Technology & Health

Care are the third and fourth important journals, each of which contains nine articles, reflecting a wide gamut of interdisciplinary research on sustainability practices and technical breakthroughs in healthcare. These publishing trends demonstrate an increased interest in the way e-government efforts impact health outcomes and public health policy. Eight articles by the International Journal of Medicinal Informatics and Tec Innovation insist on the need to integrate information technology into health systems. The Australian Health Review and Government Information Quarterly also have seven articles, which only added to the discussion around governance and its effects on health services. This overall spread across a multitude of credible journals indicates that the research environment associated with e-government development and health-care advancement is thriving.

Table 2 Most cited Journals

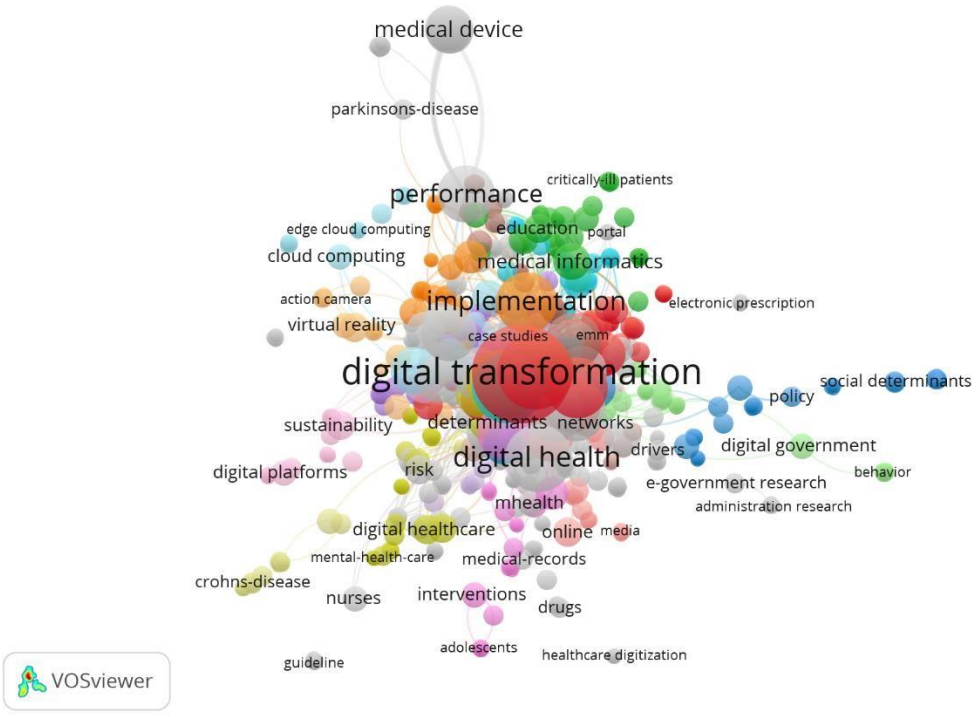
Rank	Journal name	Occurrence
1	International Journal of Environmental Research & Public Health	13
2	Frontiers In Public Health	12
3	Sustainability	9
4	Technology & Health care	9
5	International Journal of Medicinal Informatics	8
6	Tec novation	8
7	Australian Health Review	7
8	Government Information Quarterly	7

- **Keywords Co-occurrence:**

The linked keywords in this VOSviewer visualization underline the paper's major subject, "Impact of E-Government Development on the Health Sector." Central keywords such as "EGovernment," "Health Sector," and "Science Mapping Analysis" appear as larger nodes which highlight their frequency and importance in the framework of the study. Such nodes include "Telemedicine," "Digital Health," "Data Management," and "Sustainable Development Goals (SDGs). This article explores subtopics that find how these digital innovations have restructured access to healthcare, efficiency in delivery, and the use of data in policy formulation. This picture illustrates connections between different subject matters, where proximal

nodal distances represent cooccurrence patterns and illuminate interrelated research issues like public health data management, electronic health records, and healthcare policy reforms. This network acts as a visual summary of the theme arrangement in the study, and hence represents the link between egovernment advancements and healthcare outcomes. The network is demonstrated graphically, which is highly used to express links between various entities such as keywords, topics, authors, and articles. The network consists of nodes (dots) connected by lines (Van Eck, 2011). Each node represents an entity, whereas each line denotes a relationship or connection between the entities. The nodes are colored differently, which may indicate various categories or groups of linked things.The visualization employs different sizes for the nodes, implying that the size may reflect the relevance or weight of each item, which is commonly determined by metrics such as frequency of occurrence, citations, or other criteria, depending on the context. Additionally, we can see labels on some of the larger nodes, which are terms that most likely indicate the primary topics or ideas inside the network map.

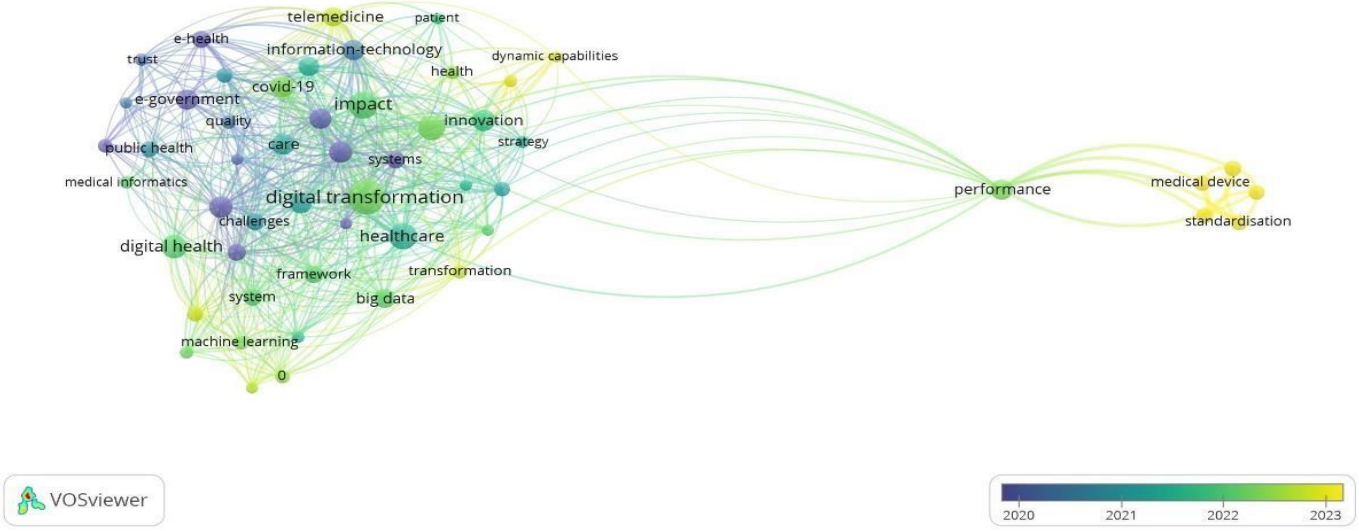
Figure 4 Keywords



This network's keywords are related to E-Government ,Health and technology disciplines, including "e-health," "digital transformation," "machine learning,"

"healthcare," "medical informatics," "performance," " E-Government," "Information Technology" and "medical device." This shows that the network is mapping out a research area or literature in which these terms are important. The pattern also appears to depict the relationships between several areas of attention. For example, phrases connected with "performance" are on one side in the middle, E-Government, e-health, digital transformation, etc. on the left side and those associated with "medical device" are on the other. The software logo in the bottom left corner, "VOSviewer," shows that this network was generated with the VOS viewer tool, which is commonly used to create maps based on bibliometric data.

Figure 5



- **Co-occurrence Authors:**

The authors in this study employed VOSviewer, a software tool for visualizing bibliometric networks, to examine collaboration ties and research subjects in their area. The authors displayed on the VOS viewer map (Figure) are 68 researchers who published in the field of E government Development and health sector. There are 43 clusters with 68 numbers of items and 25 links.like cluster 1 have 3 items includes (bohnet-joschko, s. koebe, p. schmidt,).Each circle on the VOS viewer map represents an author, and its size correlates to the author's weight, which is the number of publications. The authors are arranged on the map according to their co-authorship affiliations, with closely spaced circles indicating strong collaborative or thematic links. The authors are listed alphabetically by last name, and their

connections are not specified in the context. Their initials follow the authors' names, and some have numerous initials (for example, abedsoltanh).

Figure 6 Authors

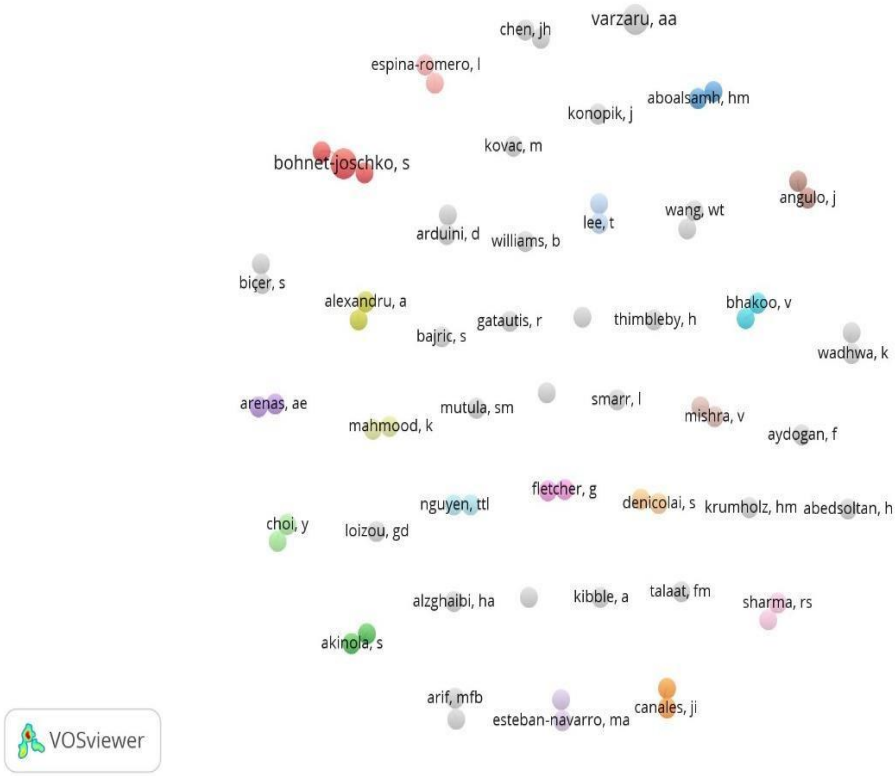


Figure 7 Co occurance of Authors

Discussion:

The goal of bibliometric analysis is to quantitatively evaluate published articles and assess their influence on Impact of E government on Health sector. Previous research were limited in scope, This study covers all articles related to on Impact of E government on Health sector(Park et al..,2018, Kovac & Mario 2014, Agarwal et al.., 2010). Over the past 18 years, many researchers work on E Government development, Digital transformation in health sector and many more. This bibliometric analysis provides a thorough overview of the research on the impact of E-Government on the health sector. The findings emphasize the increasing interest in this topic, the significance of Journals, and the emergence of major themes and writers. The findings can help shape future research directions and policy decisions in this area. The study adds to the subject and expands on Impact of E-Government on the health sector current reviews in several ways. This paper examines peer reviewed research on Impact of EGovernment on the health sector from the past 18 years. This research methodology can be replicated by scholars in other domains to improve their understanding and application of bibliometric analysis. The study includes diverse keywords and document sources to cover EGovernment and health sector studies. It also identifies productive authors, most cited articles, prominent Journals, co-occurrence of keywords, and networks of authors. The report provides a detailed examination of performance and science mapping, examining all actors

and parameters involved. The study utilizes the Vos viewer for bibliometric analysis, creating data matrices for keyword co-occurrence, co-citation, and authors. This allows for better data visualization and interpretation by the authors. The study provides advice and implications for managers and scholars. First and the foremost, managers can utilize the dataset to identify the issues encountered by specialists, as well as how researchers have handled these issues in Government and heath sectors. The second advice and application, is the study can assist managers in identifying the most recent advancements in the field government and heath sectors and how these changes contribute to sustainable development goals. Third, academicians can utilize this study as a reference to better understand how to evaluate academic achievements using multiple indicators. Fourth, the study can help scholars and academics better comprehend emerging topics, trends, and patterns in Government and health sector.

The limitations of this bibliometric analysis should be discussed. The study's data was collected from core WOS. WOS, the l most significant abstract and citation database, but have certain limitations coverage is biased towards English language, it focus on articles, reviews and proceedings may also omit other important publication types (Mongeon et al, 2016). Future research should extract bibliometric metadata from Scopus to identify relevant documents for review. The study utilized Vos Viewer for science mapping of Impact of E government Development on Health Sector literature. Other tools, such as Gephi, CitNetExplorer, and SciMat and Biblioshiny were excluded. The bibliometric analysis was conducted from 2005 to 2023, and article productivity may vary by time. Future research can analyze the data separately for each period.

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