

Transformational Leadership in Public Sector Innovation: A Bibliometric Analysis

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KEYWORDS

transformational leadership; Innovation; public sector; Publication.

ABSTRACT

People and organisations must adapt to rapidly evolving technology and information trends but often face limited resources. Therefore, it is essential to apply innovation to various sectors, including the public sector, which is known for the many regulations that surround it. Innovation is seen as a source of change, growth, and organisational effectiveness, but leadership factors have a dominant impact and are fundamentally critical to success in achieving it. This study aims to see trends in scientific publications (journals) regarding transformational leadership in public sector innovation, the most influential journals and authors, and potential future research topics. This study uses bibliometric analysis taken from the database of highly reputable journals, Scopus, by looking at the results from the Scopus web on data filtered according to criteria and visualisation and analysis of data using the VOS viewer application and biblioshin application. Based on the study results, the research topic of Transformational Leadership in Public Sector Innovation is still not discussed in Scopus-indexed journal publications. The data obtained also shows that in the middle of the last five years, the topic shows the significance of increasing the number of publications, which increasingly shows the interest in the theme of transformational leadership in public sector innovation with the times.

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Introduction

The rapid development of technology and information has also encouraged public expectations of public and private organisations to provide better services. This is certainly a challenge when the demands for change are increasingly massive while facing limited resource conditions. Faced with conditions of limitation also demands the fulfilment of the organisation's values of effectiveness and efficiency. The demands of these changes adjust to the trends and conditions of the times, which are often very easy and fast to change. Therefore, these expectations are challenging to meet without adjustments to the organisation's way and work pattern.

The direction of organisational change to adjust conditions and trends cannot be separated from the desire to create future conditions that will be better than in the past. Today, innovation is becoming increasingly popular and echoed in various lifelines. Innovation is an idea, practice, or object considered new by individuals or groups. Innovation is also defined as introducing new elements in knowledge, organisation, and management, as well as even processes and skills, into services that show changes in the past (Brown & Osborne, 2012). Many public and private sector leaders view innovation as a source of change, growth, and organisational effectiveness.

The results of WIPO research (2023) from 132 world countries and 100 science and technology clusters record many critical indicators of technological progress that show positive trends amid various opportunities and challenges of the innovation environment. Although many studies mention the positive impact of innovation on various aspects and essential values in organisations, its emergence is not immediately realised. The growth and development of innovation require various triggers. Innovation requires group and organisational environmental support, such as management support, decision-making participation, and team support for innovation. In an organisational environment, leadership factors have a significant and fundamental impact and are determinants of success that ensure effectiveness and innovation (Dharmawan et al., 2023).

Leadership is understood as a person's ability to change the behaviour of others as he wants. Therefore, the vision and mission of a leader in an organisation reflect the goals to be achieved and are established as core values in organisational actions and decisions. Leaders with all the authority they have the opportunity to create and foster innovation. These opportunities can be applied to various policies and programs. (Brown & Osborne, 2012) added that in addition to cultural and communication issues, leadership problems must be addressed to support the successful implementation of change and an environment full of innovation. On the other hand, effective leadership with the capacity to encourage executives to develop management skills and leadership styles will contribute to the growth of innovation.

Although innovation is standard in the private sector, it does not mean that it cannot be applied to the public sector. The public sector or government is often attached to various rules that give it no room to do things differently than usual. Even so, public sector innovation has been known since 1980 in the UK through reinventing government or New Public Management. The nature of public organisations has also changed due to the instability of the social and political environment and the confronting of resource scarcity.

Given the diversity of rules in the public sector, it is crucial to pay attention to leadership in organisations to improve organisational performance. Transformational leadership is critical because it enables organisational innovation (Rahayu & Jumiaty, 2023). The behaviour of transformational leaders positively influences innovation orientation. Various studies on transformational leadership in innovation have been widely conducted. However, research on bibliometric analysis of transformational

leadership in innovation in public sector organisations is still scarce. The use of bibliometric methods is considered very effective in providing knowledge about variables in the grand theory of specific fields of science that have not been studied much in research. Furthermore, the bibliometric method can also explain the written communication process and its development in a scientific discipline (Zakiyyah et al., 2022).

Research (Purbohastuti, 2021) entitled "Bibliometric Analysis of Leadership Research" discusses leadership and the development of leadership science in the 5.0 era. Then, a study by (Idris & Zairoh, 2022) entitled "A Bibliometric Analysis of Servant Leadership for Future Research" discusses Servant Leadership using a Scopus database. The research mentioned does not explicitly address transformational leadership in public sector innovation. Related to this, the bibliometric study that the researcher conveyed became a novelty or novelty in the research conducted.

Based on the explanation the researcher has submitted, this study aims to analyse the scientific literature in answering several questions: 1) What is the trend of scientific publications (journals) regarding transformational leadership in public sector innovation? 2) What journals are most influential?; 3) Who is the most influential author?; 4) Potential research topics for the future?

In the public sector, innovation grows when knowledge of problems and solutions meets individuals who can and are motivated to act, requiring the support of regulatory, legal, and bureaucratic processes that support creativity and innovation development (Daglio et al., 2014). Therefore, in line with the literature found, it can be said that leadership is the most dominant factor in fostering innovation in organisations. The climate in the organisation primarily determines the drive for innovation, that is, how conditions in the organisation support the growth of initiatives to innovate. Innovation experts have noted that support from the highest management level in the organisation is one of the factors supporting the growth of innovation.

Transformational leadership is an approach to leadership that focuses on the leader's efforts to provide inspiration and motivation while changing team members innovatively to achieve higher performance (Siregar & Kemalasari, 2023). Transformational leadership is tasked with aligning the interests of the organisation and its members, which can be directive or participatory. A transformational leadership approach motivates team members to exceed expectations, continually evolve, increase confidence, and prioritise the unit's or organisation's interests over personal interests by combining charisma, intellectual stimulation, and attention to individual needs. Transformational leaders have a strong sense of intrinsic value and conceptual systems, where the leader provides a clear vision for subordinates, stimulates awareness of the importance of the task performed, builds a climate of mutual trust, motivates to put forward the interests of the organisation which ultimately achieves performance beyond expectations (Zhu & Huang, 2023). Public sector transformational leadership is a model with advantages in restoring, maintaining, and building public trust in government (Yusuf et al., 2023).

Research Methods

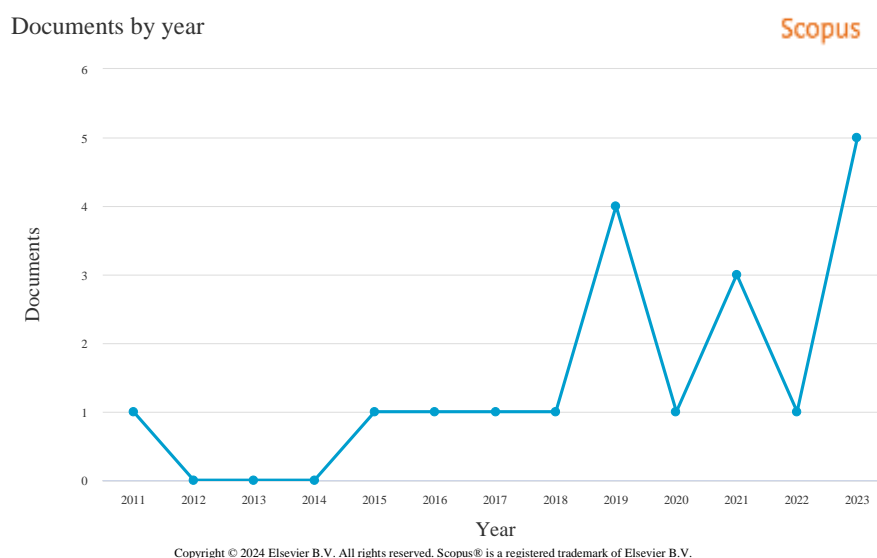
This research is a bibliometric analysis research. Bibliometric comes from Greek, which combines the words *biblion*, meaning "book," and *metron*, meaning "measurement" (Zakiyyah et al., 2022). Bibliometrics is also understood as an instrument to ensure objective publication data, which is often used as measurement data and can help solve things discussed (Mokhnacheva & Tsvetkova, 2020). Kessler (1963) generally revealed that bibliometric analysis is used to determine science development from reputable scientific publications (Barsei & Atmoko, 2023).

Research on journal databases is carried out through the following stages: First, researchers pull data from Scopus based on predetermined keywords; Second, researchers limit the year range, subject area, document type, and source type; Third, researchers limit journals with English-language categories; Fourth, the researcher obtained 18 documents that had been included in the search criteria; and Fifth, as a final step is done by looking at the analyse results from the Scopus web on data that has been filtered according to criteria; visualisation and analysis of data using VOSviewer application and Biblioshany application.

Results and Discussions

Trends in scientific publications (journals)

Based on searching data accessed from Scopus with the query, 78 articles fit the specified criteria. According to the abovementioned criteria, researchers have input the year range component, subject area, document type, and source type. Related to the year range, researchers had intended to carry out filtration from 2003 to 2023 (a period of 20 years), but the search results pointed to a time range of 2011-2023. This is because, over the past 20 years, Scopus-indexed research journals that discuss the topic of transformational leadership in public sector innovation only appeared in mid-2011.



Graph 1 Number of Publications on Transformational Leadership in Public Sector Innovation 2011-2023

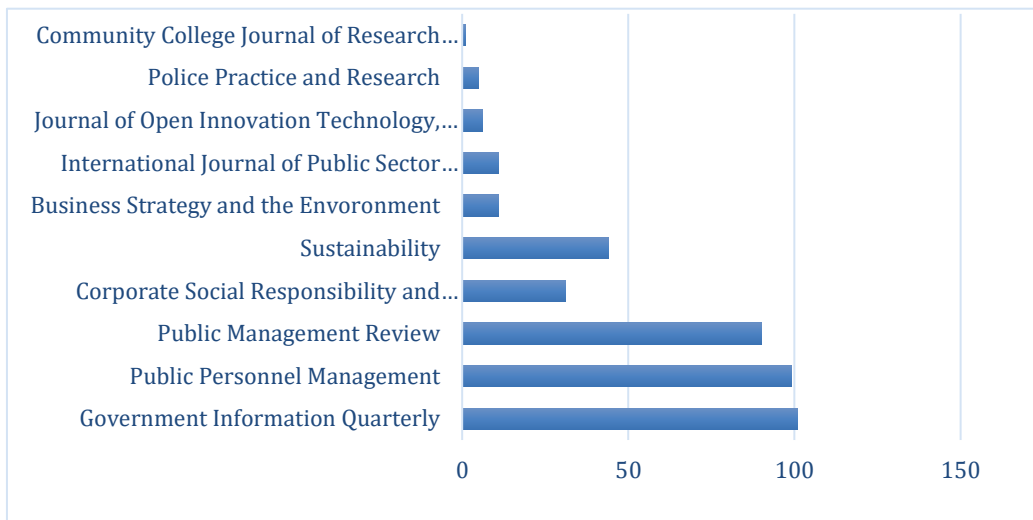
Graph 1, 2011, is the beginning of the existence of a Scopus-indexed research journal that discusses the topic of transformational leadership in public sector innovation. However, the trend dimmed in 2012-2014 after its first appearance. Then, the trend moves dynamically, and in 2023, it reaches its highest point, where the number of Scopus-indexed journals that discuss the topic in question reaches 5. This shows that in the last five years, transformational leadership has been very relevant and has become one of the determining factors in the success of organisational innovation, especially in the public sector.

Most influential journal publications

A search of data from highly reputable Scopus journals found that the most influential journal on transformational leadership in public sector innovation was the Government Information Quarterly journal, with 101 citations. This is evidenced by the high number of citations or citations that refer to the journal. In second place occupied the journal Public Personnel Management with a position of 99 citations, then followed by Public Management Review (90), Corporate Social Responsibility and Environmental Management (31), Sustainability (30), and so on. In the 10th ranking journal for the category of the highest number of citations, the Journal of Community College Journal of Research and Practice is in tenth place, only cited once. This can happen and is ranked 10th in the journal with the most citation intensity because the number of studies on related topics is minimal (see Table 1 and Graph 2).

**Table 1
Top 10 Most Influential Journals**

No	Journal	Number of Citations
1	Government Information Quarterly	101
2	Public Personnel Management	99
3	Public Management Review	90
4	Corporate Social Responsibility and Environmental Management	31
5	Sustainability	30
6	Business Strategy and the Environment	11
7	International Journal of Public Sector Management	11
8	Journal of Open Innovation Technology, market, and Complexity	6
9	Police Practice and Research	5
10	Community College Journal of Research and Practice	1



Graph 2: Top 10 Most Influential Journals (Most Cited)

As for the ten most influential articles, in detail as follows:

Table 2
Top 10 Most Cited Journal Articles

Rank	Article Title	Writer	Source	Citations
1	What are followers saying about transformational leaders fostering employee innovation via organisational learning, knowledge sharing, and social media use in public organisations?	Khan, no.a., khan, a.n.	Government Information Quarterly	101
2	An Innovation-driven Culture in Local Government: Do Senior Managers' Transformational Leadership and the Climate for Creativity Matter?	Kim, S., Yoon, G	Public Personnel Management	67
3	Assessing public leadership styles for innovation: a comparison of Copenhagen, Rotterdam, and Barcelona	Richard, L.M., Klijn, E.H., Lewis, J.M., Ysa, T.	Public Management Review	61
4	Research on the influence of leadership style and job characteristics on job performance among accountants of county and city government in Taiwan	Chu, L.C., Lai, C.C.	Public Personnel Management	32

5	Shaping Sustainable Development: External Environmental pressure, exploratory green learning, and radical green innovation	Cui, R., Wang, J.	Corporate Social Responsibility and Environmental Management	31
6	Felt Responsibility for Change in public organisations: general and sector-specific paths	Campbell, J.W.	Public Management Review	29
7	A Study on the effect of change management on organisational innovation: Focusing on the mediating effect of members' innovative behaviour	Sung, W., Kim, C.	Sustainability	24
8	Transformational leadership, systems, and intrinsic motivation impact innovation in higher education institutes: Faculty perspectives in engineering colleges.	Al-Mansoori, R.S., Koc, M.	Sustainability	20
9	Exploring The Linkages Of Green Transformational Leadership, Organizational Green Learning, and Radical Green Innovation	Cui, R., Wang, J., Zhou, C.	Business Strategy and the Environment	11
10	Toward knowledge-based economy: Innovation and transformational leadership in public universities in Texas and Qatar	Al-Mansoori, R.S., Koc, M.	International Journal of Public Sector Management	11

Most influential writers and countries

The impact of an author on a discipline can be measured by the number of academic publications that have been written and the number of times those publications have been cited by other researchers (The Regents of the University of California, n.d.). Therefore, the search results found that the author with the most cited works by other authors was Khan NA with a total of 100 citations then, followed by Kim S with a total of 67 citations; Ricard LM with 61 citations; Chu L-C with 32 citations; Cui R with 31 citations. More details can be seen through the tables and graphs below (Table 3 and Graph 3).

Table 3
Top 10 Most Cited Journal Articles

No	Paper	DOI	Total Citations
1	KHAN NA, 2019, GOV. INF. Q.	10.1016/j.giq.2019.07.003	101
2	KIM S, 2015, PUBLIC PERS. MANAG.	10.1177/0091026014568896	67
3	RICARD LM, 2017, PUBLIC MANAG. REV.	10.1080/14719037.2016.1148192	61
4	CHU L-C, 2011, PUBLIC PERS. MANAG.	10.1177/009102601104000202	32
5	CUI R, 2022, CORP. SOC. RESPONSIB. ENVIRON. MANAG.	10.1002/csr.2213	31
6	CAMPBELL JW, 2018, PUBLIC MANAG. REV.	10.1080/14719037.2017.1302245	29
7	SUNG W, 2021, SUSTAINABILITY	10.3390/su13042079	23
8	AL-MANSOORI RS, 2019, SUSTAINABILITY	10.3390/su11154072	20
9	CUI R, 2023, BUS. STRATEGY ENVIRON.	10.1002/bse.3124	11
10	BAAFI F, 2021, INT. J. PUBLIC SECT. MANAG.	10.1108/IJPSM-01-2021-0005	11

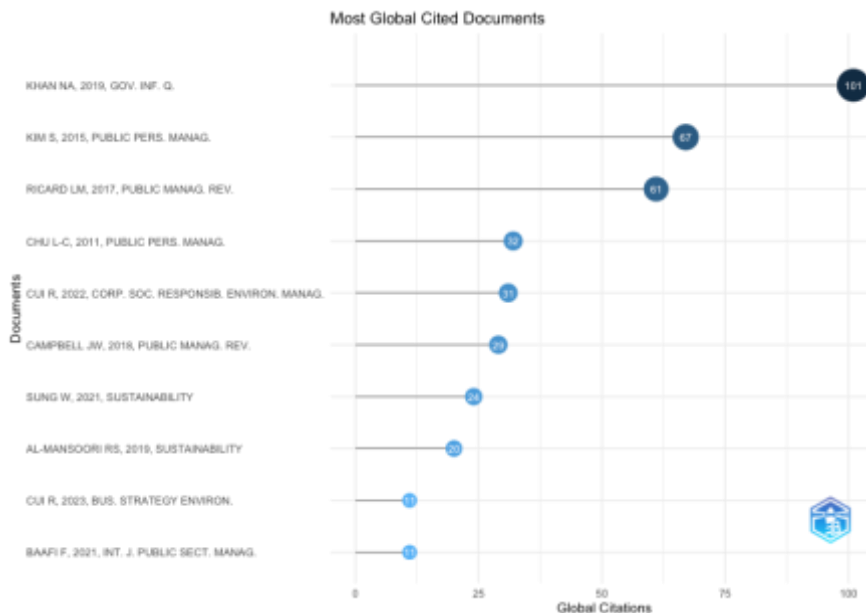


Chart 3: Top 10 Most Cited Authors

Criteria regarding country limitations are not included in the search criteria, so the data displayed is an accumulation of research journal publications from all countries indexed by Scopus with a predetermined theme. The data that has been drawn shows that China is the most productive country publishing Scopus-indexed journal publications that discuss the topic of transformational leadership in public sector innovation with a total of 4 journals, followed by Indonesia with the achievement of 3 journals. South Korea also achieved the same achievement (3 journals) in Indonesia. Qatar and the United States achieved the fourth and fifth ranks, with the same number of achievements, namely two journals. Furthermore, it can be seen through the following graph (Graph 4):

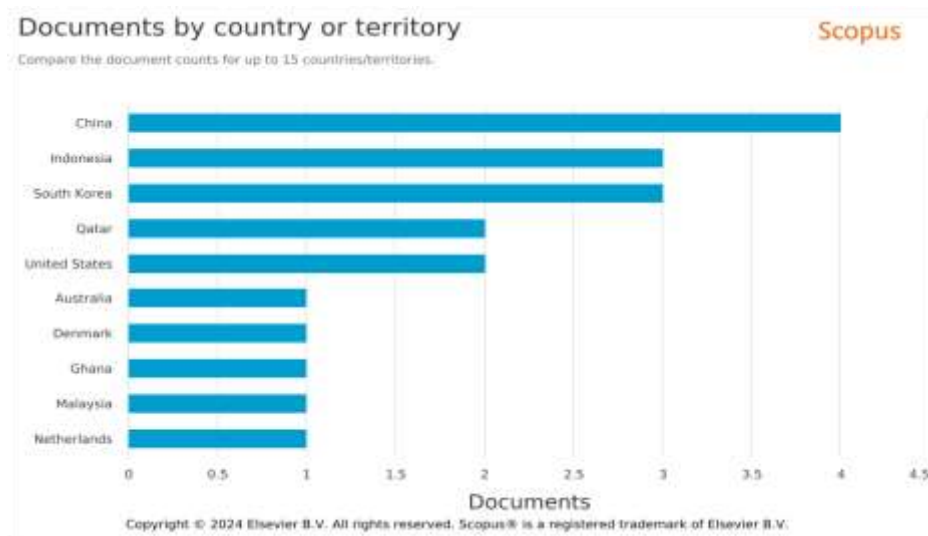


Chart 4
Identification of Publication Productivity of Scopus Indexed Journals by Country

When viewed from these data, there are ten countries with the highest contribution in productivity to transformational leadership research topics in public sector innovation in Scopus-indexed journals. The list is still dominated by developed countries (70%, consisting of South Korea, Qatar, United States, Australia, Danish, Malaysia, and the Netherlands) compared to developing countries (30%, consisting of China, Indonesia, and Ghana). On the other hand, Indonesia ranks second in the research topic. It can also provide an overview and inspiration for other researchers to continue to develop transformational leadership research topics in public sector innovation.

Potential research topics for the future

The results of the CSV file pulled from Scopus are further processed through the VOSviewer application to see Network Visualization, Overlay Visualization, and Density Visualization. From the results of processing on VOSviewer, it can be seen that four clusters are often discussed, namely transformational leadership, innovation, leadership, and sustainable development. The blue cluster, which has almost the exact visualisation, shows a strong relationship between innovation and transformational leadership, with closer research topics on performance and organisational innovation. In the leadership cluster, topics of interest are related to organisational commitment and transactional leadership. From the university sector cluster, they are showing the direction of relations with public sector topics: the United States and Qatar. Meanwhile, the last cluster, namely sustainable development, has a close relationship with the topic of environmental regulatory pressure, green transformational leadership, and radical green innovation (see Figure 2).

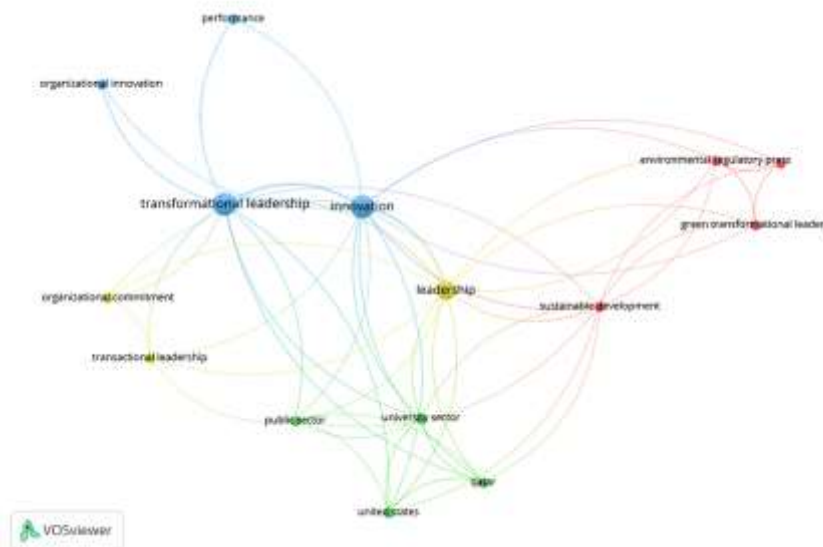


Figure 2: Overview of the relationship between keywords

The following image (Figure 3) shows the keyword grouping by year. VOSviewer indicates these colour categories as four clusters. The blue colour shows various keywords often used until 2019, such as leadership, organisational commitment, university sector, United States, and Qatar. Meanwhile, the green colour in the transformational leadership cluster shows various keywords often used until mid-2021, such as transactional leadership, sustainable development, transactional leadership, and the public sector. In 2022, the keywords refer to green transformational leaders, environmental regulatory press, and radical green innovation. Finally, in 2023, the keyword performance will be a word that increases the intensity of its use in research topics.

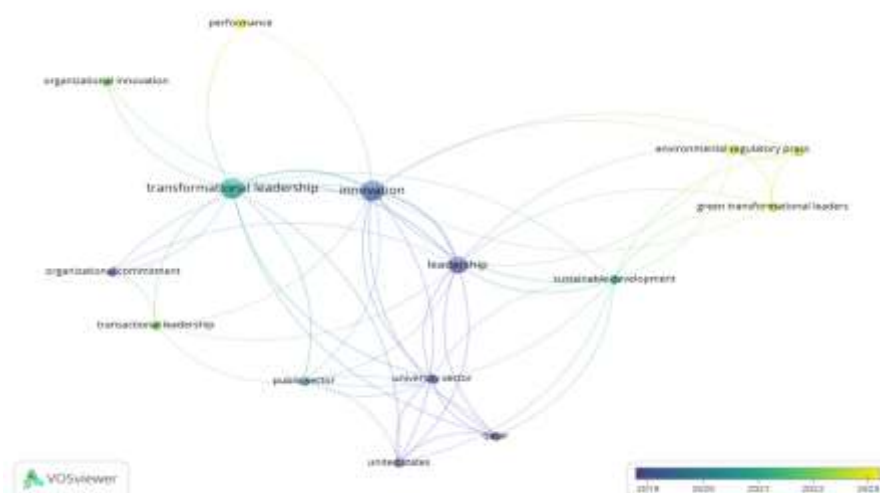


Figure 3: Overview of keywords by period

From the VOSviewer analysis in the Density Visualization menu, it is shown through the following image:

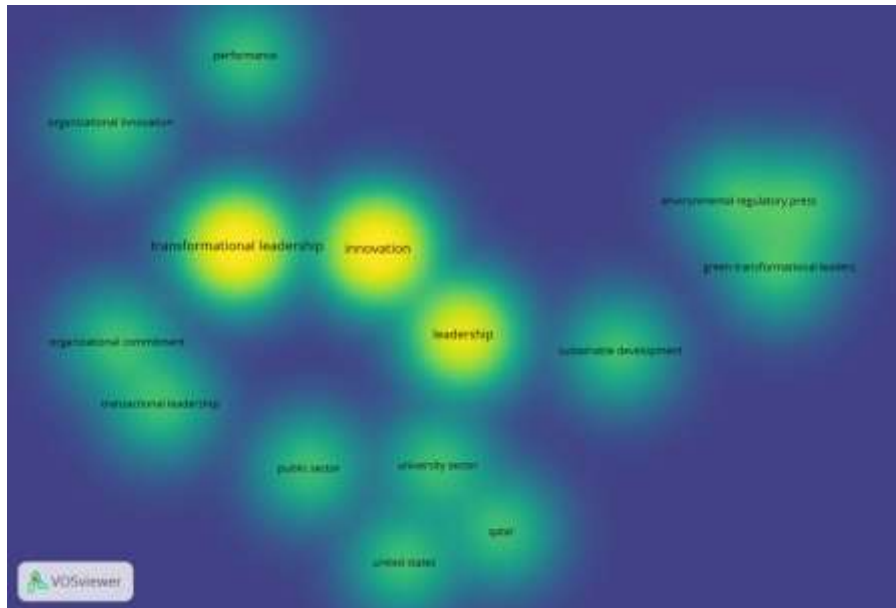


Figure 4: Overview of keyword density

Density visualisation shows the density of keywords used in research with indications of light and dark colours. Keywords that occupy bright lights indicate the intensity of use in transformational leadership research topics in public sector innovation. Conversely, keywords that occupy low light indicate that they are rarely used in research on the topic.

The dominance of keywords is shown by the words transformational leadership and innovation, where both show the same occurrences, namely 10. The next position is indicated by the word leadership, which has occurrences of 7. This shows that these keywords are most often used in research. The words performance, organisational innovation, organisational commitment, transactional leadership, and the public sector still have low occurrences, which is 2. The low occurrences indicate that the keyword is rarely used in research on transformational leadership in public sector innovation. Therefore, keywords that have a low occurrence rate and are shown through their placement in dim light, then these keywords can be raised into themes with the potential for the value of future research novelty in the development of innovation leadership transformation studies in the public sector.

Furthermore, the study used the Biblioshiny application to see the word cloud of various studies filtered according to predetermined criteria. Of the 18 journal publications found, words that often appear in publications are illustrated as follows (Figure 5):



Figure 5: Wordcloud Between Keywords

Visualisation in the Biblioshiny application shows that leadership and innovation dominate, as the words appear to be the largest size. It also reinforces the results of previous VOSviewer applications, which, in similar words, indicate the dominance of their use in transformational leadership research and innovation in the public sector.

Conclusion

The analysis used a combination of results from the Scopus web, VOSviewer, and Biblioshiny applications accessed on January 1, 2024. The data shows that 2011 was the beginning of the publication of research publications in Scopus-indexed journals that discuss the topic of transformational leadership in innovation in the public sector. Although the trend of research topics had dimmed until the end of 2023, this topic showed significant numbers and even the highest since 2011.

Searching data from highly reputable journals through Scopus, the most influence on this topic is occupied by the Government Information Quarterly Journal, with the number of citations reaching 101. The most influential author writing this research topic is Khan, NA, from China. The results of the observations on the Density Visualization tab provide an overview of keywords that have not been widely used in research, such as performance, organisational innovation, organisational commitment, public sector, university sector, sustainable development, environmental regulatory press, and green transformation leaders. Wordcloud visualisation in the Biblioshiny application shows the dominance of the most frequently used keywords on the theme: leadership and innovation. Therefore, novelty can be inspired by keywords that occupy low light (low occurrence) and can be used as a research theme for transformational leadership of public sector innovation.

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