**Conference Paper**

# Public Service Innovation in Indonesia 2013-2023: Combination Analysis of Open Knowledge Map and VOSViewer

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**Abstract.**
Public service innovation is important to overcome the imbalance between human resources and the high level of demand for services by the community. However, this is still not understood by public sector organizations in general. This study is here to examine the dynamics of implementing innovation in Indonesia in the last 10 years. The study was carried out using the literature review search method which combines the Open Knowledge Map (OKM) and Vos Viewer (VV) applications. The data were processed by following the application procedures used, then analyzed by adopting some of the principles of qualitative methods. OKM is used to map public service innovation clusters, while VV's role is to look at public service innovation clusters with different analyses and sources. The results of the analysis show that innovation in Indonesia is dependent on leadership, which can be an obstacle to the long-term sustainability of innovation. The level of participation and competitiveness of public service innovations has not been evenly distributed throughout Indonesia. There is still a need for strategies and policy directions for collaboration and involvement of the private sector in public service innovation. The combination of digitalization and administration innovations is an innovation that has been carried out in the last 10 years. Barriers to the implementation of public service innovations are generally a problem that often occurs in other public organizations.

**Keywords:** innovation, public service, public organization

# 1. Introduction

Innovation studies have developed rapidly, and the new concepts presented have led to new trends [1], [2] wherein the process of innovation is driven by users, networks, design and ecosystems [1], [3]. Public service delivery should adopt this trend. Referring to the concept of innovation will emerge a service system that adapts and develops through the exchange of the application of resources [4], and also reflects the logic that the focus lies on the customer and is service-dominant, so that value creation is carried out together with the customer [4].

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Several studies discussing public services have emphasized that public services need to innovate [5], because limited resources are not proportional to the increasing demand for services [6]. However, innovation for public organizations is less desirable and often misunderstood, which is influenced by organizational structure and culture [5], [7], [8]. Despite this rejection, there are still public organizations that warmly welcome the existence of innovation in public services, such as those found in the fields of health and employment policy [5], [8].

Based on the findings Muluk & Pratama, (2021), innovation in Indonesia has unfavorable strengths. Indonesia is almost in last place in terms of innovation among ASEAN countries [9]. There have been incentives to implement innovation in Indonesia since 2017 through Government Regulation no. 38/2017 concerning Regional Innovation. The regulation explains that the government needs to implement three forms of innovation, one of which is in terms of public services [10].

This study is present as an effort to explore the public service innovations that have been carried out in Indonesia and identify the causes of the lack of existing innovation power, the types of innovations implemented and reveal the factors driving public service innovation in Indonesia today. This study is also expected to be a reference for research on the same topic.

## 2. Method

This study was designed using a method that combines the use of the Open Knowledge Map (OKM) and VOS Viewer (VV) applications, adopting the method carried out by Marisa, Fitri et al (2022) [11]. Research data comes from the results of previous research presented in the form of articles, which are published in journals and proceedings. At OKM, data is collected directly by the application after inputting the keywords to be reviewed, the number of articles related to the study according to OKM's search is 100 articles in the period 2013 - 2023. In addition, data collection is also carried out using the Publish or Perish application. (PoP). The results of the PoP search consisted of 4 Scopus indexed articles and 32 indexed articles indexed by Google Scholar in the period 2013 – 2023.

Research data processing begins with the use of the OKM application. The keywords used to search for articles are "Public Service Innovation in Indonesia". Before carrying out the mapping process, the timeframe for article publication is set from 2013 – 2020. The type of document selected in the application is journal/newspaper articles. After OKM displays the search and mapping results, further research data processing is

carried out using the VV application. The application begins by opening a metadata file in RIS format that was previously collected through the PoP application. Then, determine the title component by selecting the title and abstract options, so that the keywords searched for in the application can be retrieved from the title and abstract.

Next, the step taken is to determine the type of word calculation that is netted by the binary method, that is, if the search process finds the same word, it will count as one. Then, determine the threshold by lowering the recommendation threshold from 10 to 1 to group the captured terms. The next step is to determine the number of terms that are netted to be 100% of the minimum 60% recommended, this step has the aim of streamlining the cluster results. After that, verification is carried out by selecting the items that are most appropriate to the topic being analyzed before proceeding to the process stage.

After the application produces network visualization, overlay visualization and density visualization, the next step is to perform data analysis. Data analysis was carried out by taking into account the results of OKM and OVS data, while still adopting some of the principles of data processing in qualitative methods.
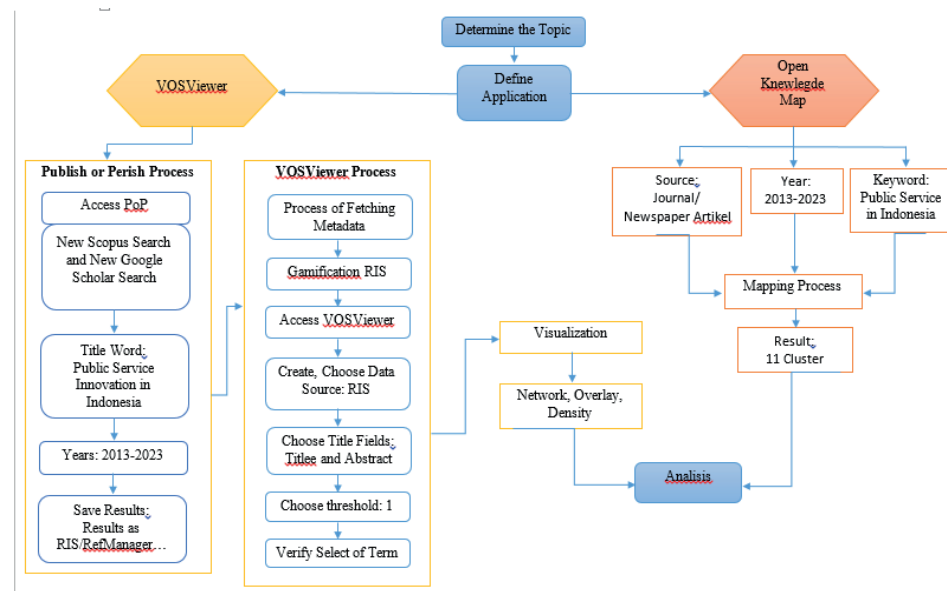


**Figure** 1: Research Method.

## 3. Result And Discussion

This section presents the results of the analysis from the Open Knowledge Map (OKM) and VOSViewer (VV) applications in the form of visualization and tabulation which are then grouped to facilitate analysis. The results of the OKM analysis are presented in

Figure 2 and Table 1, and the results of the VOSViewer analysis are presented in Figures 3,4,5,6 and 7 and Table 2.

Figure 1 shows that from the results of the OKM visualization, there are 11 clusters, 4 of which are the largest clusters, namely the Implementation, Collaboration, Public Sector Innovation and Governance Innovation clusters. Implementation is the largest cluster that has 17 source items, and overlaps with Collaboration clusters (15 source items) and public sector innovation (14 source items).).



**Figure** 2: Results of Open Knowledge Map Visualization, 2023.

The results of the OKM study produced several analytical materials. First, the last ten years of research have focused more on the implementation of public service innovations. This is proven that implementation is the largest cluster in the mapping analysis presented by OKM. Studies on the implementation of public service innovations conducted by several previous studies have identified that the successful implementation of public service innovations in Indonesia is highly dependent on leadership aspects

[12]–[16]. Effective leadership is able to stimulate motivation which in turn encourages the implementation of innovation [13]. Effective leadership is meant by the results of previous research, namely when a leader has a reliable leadership style [16] and continues to make changes consistently and has the initiative to make breakthroughs [15]. When public service innovation can be implemented properly, it can increase the efficiency, effectiveness, transparency and accountability of public services [17]–[19] community satisfaction, and welfare [20], [21].

TABLE 1: Data Cluster Tabulation of OKM Analysis Results.

| Cluster | Item | Number of Sources |
| --- | --- | --- |
| Cluster-1 | Implementation | 17 |
| Cluster-2 | Collaboration | 15 |
| Cluster-3 | Public sector innovation | 14 |
| Cluster-4 | Governance Innovation | 14 |

The second analysis, namely the implementation of public service innovation cannot be separated from collaboration. This is proven by implementation clusters that intersect with collaboration. When viewed from the research results, the outcome of service innovation is problem solving [22]. In order for problem solving to address all aspects of public service problems, the implementation of public service innovation requires collaboration. The collaboration model that is considered appropriate in the implementation of public service innovation is the E-Government Integration model [23], which is a collaborative model that relates to central and regional institutions, between agencies, and relationships that involve service users, namely the public and the private sector [23]. Collaboration in public services is based on aspects of common goals, a commitment to provide speed, convenience and security in services [24]. In addition, collaboration must be accompanied by open communication [24]. From the results of research that has been carried out by previous studies, it shows that collaboration in public service innovation is still not implemented [25]. The government needs to design policy directions and strategies that can encourage collaboration in public service innovation [25].

The third analysis, based on the intersection between public sector implementation and innovation, shows that in the last ten years public sector organizations have innovated in the delivery of public services. Innovation in services in the public sector is inseparable from the influence of the New Public Management (NPM) [15], [26] and New Public Services (NPS) [14] paradigms. Process innovation is a type of innovation implemented in the public sector [22]. This innovation is a combination of technological and administrative innovation dimensions [25]. This type of process innovation was

chosen because this type of innovation is a type of innovation that is easy to implement and implement [22].

The fourth analysis, which is based on aspects of implementing or managing innovation in the public sector, where Figure 1 shows the public sector innovation cluster intersects with Governance. The results of previous research revealed that public service innovation dominated by local governments rather than the central government [22], [25], because the coverage of services at the regional level is more varied and specific [22], and generally carried out by local governments spread across the island of Java [25], [27]. Based on government policy, public service innovation is prioritized in the health sector [28]. This is caused by conditions that demand health to be the world's top priority in the last 4 years. In implementing public service innovation, the obstacles experienced by the government are budget constraints, resistance to change, lack of technical personnel (HR), organizational culture, government support, rule of law, infrastructure and facilities, Incompetencn face the risk, and lack cooperation with the private sector [12], [17], [18], [29]–[31].

In the VOS Viewer (VV) analysis in the network visualization section, clusters related to public service innovation are divided into 5 clusters. The cluster has a relationship with the results of the OKM analysis. In Figure 3 the results of the network visualization show that public service innovation is related to implementation, public service, service innovation, government, and public private partnerships. This indicates that the results of the VV mapping corroborate the results of the OKM analysis that have been described.
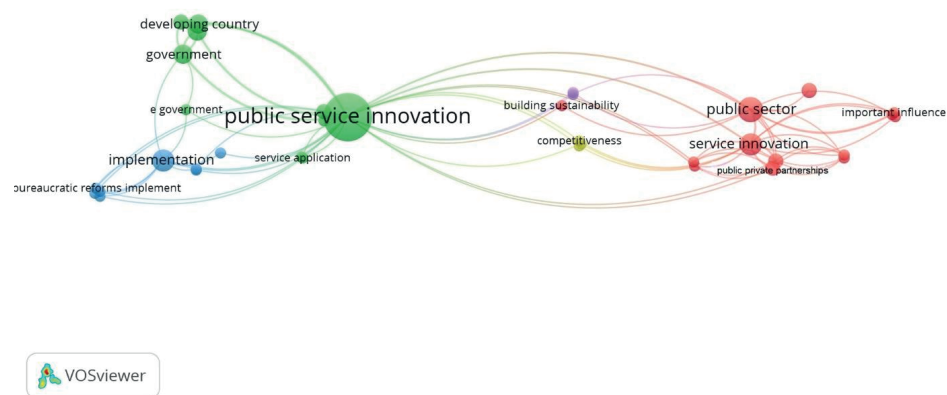


**Figure** 3: The results of the VOSViewer Network Visualization analysis.

The results of the VV analysis in the Visualization overlay section shown in Figure 3, provide an explanation that much research on public service innovation in Indonesia has been carried out in the 2016 timeframe related to aspects of the implementation of bureaucratic reforms, which are marked in purple. Entering the 2018 timeframe, research

on public service innovation relates to aspects of implementation, the public sector, and service innovation. In the 2020 timeframe, public service innovation was studied by previous researchers on aspects of government, e-government, and developing countries. Entering the 2022 timeframe, public service innovation studies examine the aspects of competitiveness, building sustainability and public private partnerships.
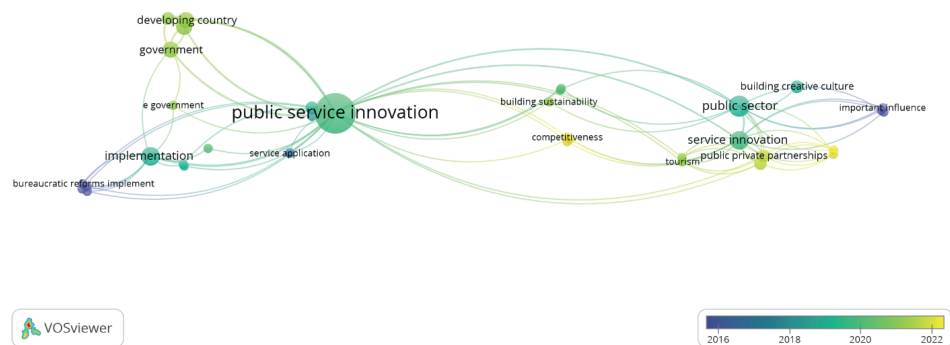


**Figure** 4: The results of the VOSViewer Overlay Visualization analysis.

When Figures 3 and 4 are clarified as seen in Figure 5, it shows that a dimension connects public service innovation with the public sector, namely the building sustainability dimension. This indicates that the implementation of service innovation in public sector organizations needs to pay attention to the sustainability of the implemented innovations. The attention of previous researchers to the dimensions of building sustainability in public service innovation in Indonesia is based on the main factor of its implementation, namely leadership. The dependence of innovation on leaders can be a challenge in long-term sustainability [9], because in Indonesia, each leader only has a term of office of no more than five (5 years). Each leader certainly has a different orientation and interests. The results of research conducted by Muluk & Pratama, (2021) [9] recommend that the sustainability of innovation, especially in public services, is based on system capacity.

In addition, the VV results show that there is also a dimension that links public service innovation with service innovation and the public sector, namely the competitiveness dimension (Figure 6), which means that public service innovations implemented must be competent in increasing competitiveness and participation. According to the results of Muluk & Pratama's research, (2021), currently the competence of public service innovation has shown progress towards increasing competitiveness and levels of participation [9]. If it is based on the results of previous research, which has explained that the implementation of innovation is only centered on the island of Java, then the

**Figure** 5: Analysis of the relationship between Public Sector Innovation, Public sector and building sustainability.

competency capabilities for public service innovation are in line with the findings of Muluk & Pratama, (2021), only centered on the island of Java [9].



**Figure** 6: Analysis of the relationship between Public Sector Innovation, service innovation, public sector and competitiveness.

Furthermore, the results of the density visualization (Figure 7) show that the nodes that have a relationship with public service innovation have unequal power, where the brightness of the nodes is not the same. In this analysis, the density of the service innovation and public sector nodes has a brighter brightness compared to implementation, this certainly has a difference if you look at the results of the OKM analysis, where the implementation cluster is the dominant cluster. This could be due to research related to the implementation of public services being studied by taking into account other aspects such as the implementation of bureaucratic reforms which are still related to the implementation of public service innovations. In accordance with the cluster grouping, the two nodes are combined into cluster 3 as shown in table 2.

## 4. Conclusions

Based on the results of the analysis using the OKM and VV applications regarding public service innovation in Indonesia, it can be concluded that public service innovation in
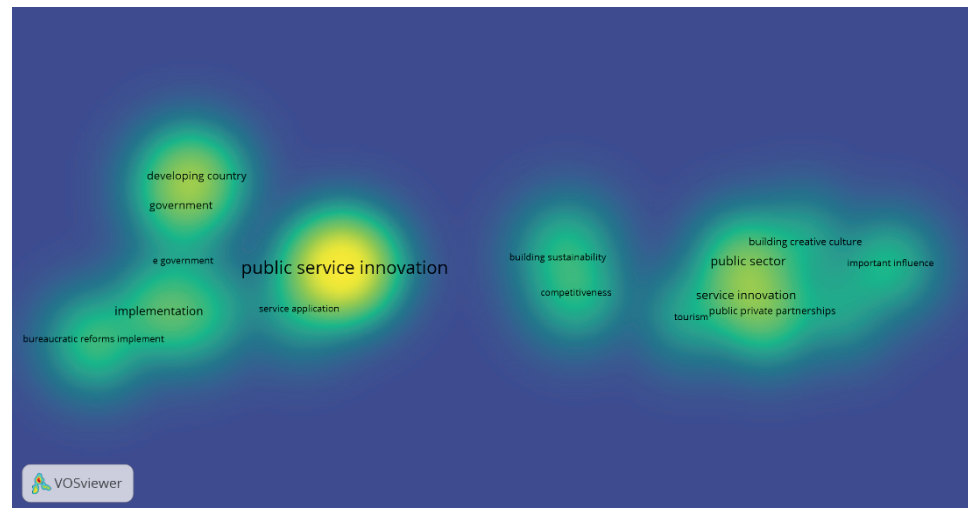
**Figure** 7: VOS Viewer Density Visualization Analysis Results.

TABLE 2: Cluster Data Tabulation of VOS Viewer Analysis Results.

| Cluster | Item | Number of Items |
|---|---|---|
| Cluster-1 | Building Creative Culture Building Sustainability Development Improvement Process Leadership Public Private Partnership Public Sector Service Innovation Tourism Tourism Management Tourism Service Innovation | 11 |
| Cluster-2 | Eveloping Country E-Government Government Information Network Innovation Management Innovation & Management Public Sector Innovation | 7 |
| Cluster-3 | Bureaucratic Reforms Implemenntation Governence Implementation Local Government Institution Public service Improvement Regional Government | 6 |
| Cluster-4 | Competitiveness | 1 |
| Cluster-5 | Stop-service public Innovation | 1 |

Indonesia still depends on aspects of leadership, which can actually be one of the inhibiting factors for the sustainability of innovation in the long term. Sustainable public service innovation in Indonesia can be achieved by optimizing the capacity of existing service systems. The level of participation and competitiveness of local government public service innovations has not been evenly distributed throughout Indonesia. In addition, strategies and policy directions for collaboration and involvement of the private sector are still needed in implementation public service innovation.

The combination of digitalization and administration innovations is a type of innovation that has been mostly carried out in the field of public services in the last 10

years. This type of innovation was chosen because of the ease of implementation and implementation by the current government. Obstacles to the implementation of public service innovations are generally problems that often occur in other public organizations, such as the low quality and number of human resources, lack of facilities and infrastructure, systems and organizational culture.

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