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Article

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The typology and determinant of performance measurement for public sector organizations – a literature review

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ABSTRACT

Public sector organization is very influential. However, due to the limitations of the papers discussing the topic of performance measurement for public sector organizations, thus this research explores existing research on this topic. The main objective of this research was to know the issue of performance measurement in public sector organizations. The systematic literature review method was used to explore different issues related to performance measurement for public sector organizations. In this research, various type of performance measurement for public sector organizations is described. Based on the findings, we suggest concerning determinants of performance measurement for public sector organizations at individual and organizational levels as the fundamental performance measurement elements, due to the lack and the limitation of the research concerning individuals as a critical element. The source of the literature from the Scopus Preview from 2013 to 2022 was taken by implementing the typology agenda. The result proposes a performance measurement typology based on the unit, level, measures, target, and realization. Besides, the result confirms that there has not been in-depth research on performance measurement for public sector organizations specifically on the public sector especially mixed-method research approaches from emerging and developing countries of the individual. The contribution of this research is as a reference material in encouraging more effective policies and evaluation in the implementation of public sector performance measurement.

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1. Introduction

Arranging a performance measurement framework (PMF) to plot the specifics of a non-profit organization (NPO) is a challenging mission (Moura et al., 2020). The notion of the social element as design qualifications is a critical topic for arranging a PMF. Throughout the development of the study in PMF, various schemes have been used for an NPO. A framework that is commonly adopted by organizations and discussed in the literature is the balanced scorecard (Kaplan & Norton, 1992). The balanced scorecard (BSC) is designed to be applicated with a target on the public sector organization (PSO) such as government organizations at the local or national level (Hoque, 2014). Even there are numerous measurement approach has been arranged, the BSC has been commonly debated, evaluated, and adopted in the last two decades (Speklé & Verbeeten, 2014).

Furthermore, even though research on the PMF is advancing, but not on research PMF focusing on the PSO (Moxham, 2009). PMF has been widely discussed in PSO in the last ten years. PSO is studied as a sort of NPO (Valentinov, 2011). The challenge is due to there being no consensus on the NPO definition and typology. Various categories of organizations can be grouped into NPO. It comprises colleges, healthcare institutions,

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voluntary institutions, labor institutions, regulatory bureaus, professional federations foundations, social companies, associations, and philanthropic (Moxham, 2009; Valentinov, 2011). Thus, this research recognizes them as NPOs. However, experts debate the adoption of the profit framework of PMF for the inadequate of a robust theoretical basic (Almeida Prado Cestari et al., 2018; Borst et al., 2014). Consequently, most of the PMF made by the consultant agency are eligible to perform the intended PMF's target of NPO due to the lack of a rigid theoretical basis (Mouchamps, 2014). Previous research on PMF as a kind of NPO organization reflection found that PMF frequently fails due to dissimilar perceptions and concerns of the stakeholders throughout the implementation (Leotta & Ruggeri, 2017). That diversity must not be neglected. The adoption of the BSC in a rehabilitation institution should deal with both the recipients' and the economic viewpoints due to the need to satisfy the recipients and keep income stable (Martello et al., 2016). Regardless of the use of BSC in university, the model was not able to catch the main role of this type of institution, and the quality assurance application only slightly expressed the system (Reda, 2017). The adoption of the BSC in the educational background must be arranged with a distinctive element that meets the organizational policy due to the original element, such as financial, recipients, internal operation, and training and development, which are not absolutely appropriate. Research by Keser Ozmantar and Gedikoglu (2016), found the need for practitioners as the fifth additional element of BSC.

Furthermore, arranging a PMF for NPO, especially for the public sector is very demanding. The PMF maker should calculate all elements that affect the strategy, such as legality, the involved participants' requirements, companies' parameters, and the affection one for another. It comprises the aspects, challenges, determinants, and incentives. The target of this organization is chasing social goals rather than monetary profit for their stakeholders or companions. The requirement to have a measurable and accountable performance evaluation for public sector organizations is very critical. However, the literature on this topic is quite limited and there is a need to study the performance measurement of this organization especially the determinant of the PMF so that the leader of the organization can get insight related to this organization (Moura et al., 2020). Besides, the research on public sector performance measurement has been hindered due to the absence of a general conceptual systematic classification and principle descriptions (Alach, 2017). Therefore, the objective of this research is to explore the current state of the art of PMF in the public sector and the determinants of PMF in public sector organizations.

The hypothesis in this study is that important factors in performance measurement for public sector organizations at the individual and organizational levels as elements of performance measurement are more contextual and actual. In addition, there is a lack of and limited previous research on performance measurement in the public sector that conducts performance measurement. Typology is based on unit, level, measure, target, and realization. Since there is no exclusive research on the adoption of performance measurement in Indonesia, future research can discuss the adoption of performance measurement in Indonesia.

2. Literature review

Even there is the universalization of the public sector and private sector to become too simple (Steccolini, 2019). Regarding that fact, the difference between those sectors actually has declined (Bogt et al., 2015), some researchers suggest for see the context of the analysis comprises control, ownership, and finances (Rainey & Jung, 2015). Borders among sectors may not be as rigid and need more study. besides, the diversity among sectors can simply be elaborated, which has directed to an unfruitful typology of the organizational public sector as the complex and organized private sector as simple (Mazzucato, 2018; Cohen, 2019; Cohen et al., 2019). There are some features that are accurate for organizations that work in the public context, that draft practical scenery in which performance measurement research is conducted (Chenhall et al., 2017). For example, the monetary performance of the profit company can usually be analyzed by examining cash flow or income. While those performance measurements in the public sector are quite rare (Hofstede, 2011, 2018). Then, the public organization collaborates with other stakeholders to obtain the target. Some social goals become materialized in the future years. This condition makes detecting and calculating the performance of that definite interventions or program very interesting (ter Bogt et al., 2015) Regarding this, as leaders in private company companies produce benefits for shareholders, the leaders in the public

company generally have a broader array of stakeholders to complete, such as inhabitants, legislator, and interest groups. Their task has been claimed unclear. Numerous organizations are identifying inclusive performance measurement outside the economic indicator (Nudurupati et al., 2011). These non-financial measures such as value, recipients' happiness, and waiting time were calculated. The study of the public sector is a unique research condition (Burgess et al., 2021).

In the last five decades, the quantification of performance has always been the core of numerous transformation progressions in the public sector of numerous countries. Performance assessment has been conducted in the past, such as in the 19th century to the implementation of the assessment to the UK and the USA teachers' performance (Pollitt & Bouckaert, 2009). In the past ten years, public sector organizations in numerous developed countries improved the adoption of performance measurement but decreased other management regulations such as input, guidelines, and parameters. Nowadays most developed countries adopt performance measurement for their central public sector organization. The search for efficiency and effectiveness is the driver of performance measurement adoption (Newberry, 2020). The efficiency due to the 2008 financial crisis forced numerous governments to be concerned about performance measurement. However, this condition leads to the outlay of other management controls. The government in Europe was provoked by and transformed their concern in the assessment of performance measurement (Bracci et al., 2015). Numerous academicians have also shown their interest in performance measurement adoption (Budding & Helden, 2022). Debate on this topic also occurred such as the argument of the negative effect of performance measurement (van der Kolk, 2022) or the other political agenda (Lapsley & Miller, 2019). The positive and negative effects may also occur on organizational policy (Speklé & Verbeeten, 2014).

Many factors influence the adoption of performance measurements, such as internal stimuli, external stimuli, processes, and changes (Waggoner et al., 1999). Two cases of public service organizations in Italy showed that one of the two organizations was successful. The problems were the factors of the vision of the organization, internal confrontation, and external impact. The adoption should also calculate the external and internal factors (Bracci et al., 2017) and legal aspects, or there will be confrontation (Barbato & Turri, 2017). The process was challenging due to the requirements of the legal and stakeholders.

There are numerous transformations in the public sector toward professionalism (Kroll & Proeller, 2013) due to the financial necessity for efficiency. But the performance measurement in the public sector is debatable due to the various stakeholder's need to satisfy (Borst et al., 2014; Putera et al., 2022b). Consequently, the measurement should be complex. Then the attempt to design was limited (Lee & Nowell, 2015). There should be more studies on this topic in the public sector which consider the limitation of the resources, the perspective of the society as the recipients, and the multi stakeholders' requirements.

Performance management facilitates leaders to supervise performance (Kroll & Proeller, 2013). Performance management has three grades of measures when arranging and adopting: (1) the individual measure that conducts the calculation of the efficiency and effectivity of activity; (2) the group of measures that give an understanding of organizational performance; (3) the required infrastructure to accumulate, examine, distribute and implement regarding information and measures (Neely et al., 2005). Some definitions of performance measurement over time (see Figure 1). This study's main objective is to find out the research gap on PMF and its antecedents. So, it is critical to limit the concerned theme of the study to be analyzed.

3. Method

3.1. Ethics statement

Neither approval by the institutional review board nor obtainment of informed consent was required since this was a literature-based study.

3.2. Study design

This study uses the bibliometric analysis method with data sources from literature studies from various scientific journals. The primary data used in this research was taken from the Scopus database. The author chose the Scopus database because it has complete data and is also one of the databases with



Figure 1. Conceptual discussion on performance measurement over time. *Source:* processed from authors, 2023.

the highest rating in various scientific fields. And they are also equipped with various literature studies to improve research accuracy and get the best conclusions (Abdillah, Buchari, et al., 2023; Abdillah, Widianingsih, et al., 2023; Muhtar et al., 2023).

3.3. Data collection

The context of the study literature review is the ‘performance measurement’ and ‘public sector’. The approach applied is a systematic review. A systematic review is an approach to knowing, asses, and constructing the whole related result of the papers discussing specific questions, certain themes, or areas of research (Kitchenham, 2004; Putera et al., 2022a). The researchers retrieved articles from the Scopus database that was conducted on 18 January 2023. The research strategy uses Scopus data TITLE-ABS-KEY (performance AND measurement AND systems, AND public AND sector). Results from identification and exploration based on 3 criteria relevant is with the topic of performance measurement for public sector organizations which refers to (1) Suitability with the research topic; (2) Connectedness to the topic of research; and (3) Research implications found or recommended (Abdillah, Buchari, et al., 2023; Abdillah, Widianingsih, et al., 2023; Muhtar et al., 2023; Putera et al., 2022a).

Based on [Figure 2](#), we can see the steps of data collection carried out by researchers, as follows:

Step 1: Identification.

The search of document on online bibliometrics. Searching for articles was conducted online by the keywords ‘performance measurement’ and ‘public sector’ in the Scopus Preview on January 2023. This step of searching with no restriction year finds 727 documents.

Step 2: Screening.

Regarding the title and abstract, the document issued that focus on the ‘performance measurement for the public sector’ and ‘the determinants’ were selected. Consequently, the number of papers was reduced to 328 documents.

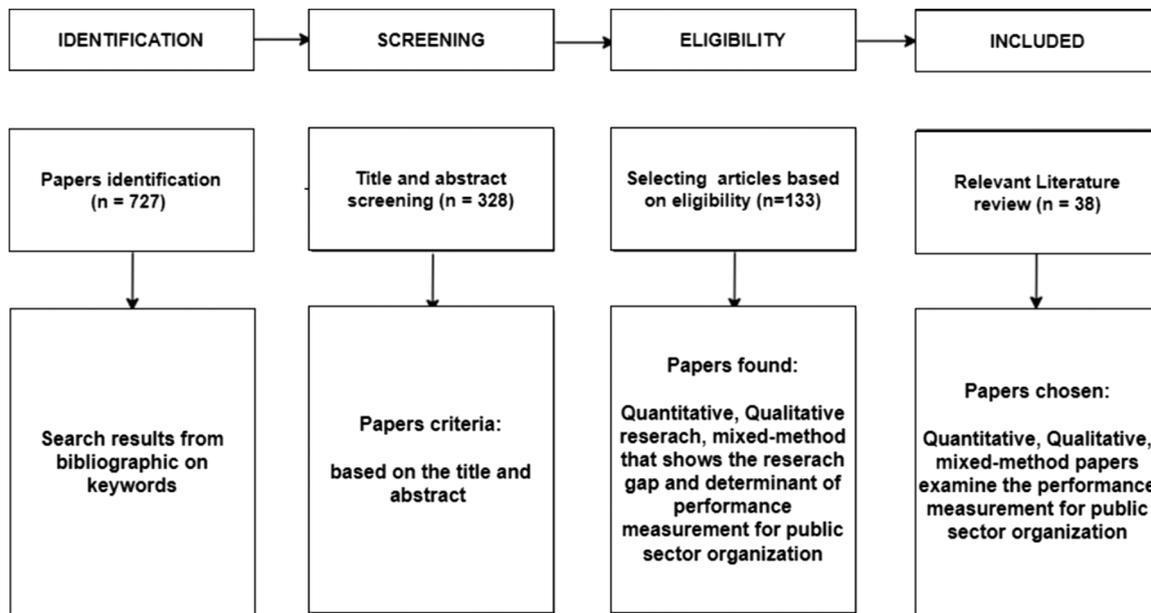


Figure 2. Retrieval process of this study (Putera et al., 2020; Widianingsih et al., 2021).

Step 3: Eligibility.

During the eligibility phase, there were 133 documents selected. These papers examine 'performance measurement for the public sector' and 'the determinants', from the perspective of sociology, economics, and management.

Step 4: Included.

The last step was to select 38 documents that fit the criteria, namely papers examining 'performance measurement for the public sector' and 'the determinants'.

3.4. Data analysis

This research focused the topic of the study on 'performance measurement' and 'public sector'. Therefore, prioritizing the study's topic is 'performance measurement' and 'public sector'. The urgency to concern in the research paper analyses 'performance measurement' and 'public sector' is crucial to explore the research gap other than the selected issue in contrast to an investigation of the extensive problem.

Contemplation of the definite extensive theme: 'performance measurement' and 'public sector' in other topics, to make sure this research focuses on the research topic, the selected documents also facilitate the documents related to the application of 'performance measurement' and 'public sector', in other fields. Since 'performance measurement' and 'public sector' comprehends the measurement, selecting articles in other not exclusive to this topic is viewed as needed.

This study's aim paper selection was made by choosing a specific research bibliography. As exposed in Figure 1, the choices from research catalogs were implemented. This study selects the papers from Scopus, as those search engines have a broad bibliography collection of the documents. The reliable and relevant exploration papers from those search engines are carefully chosen and analyzed. Nevertheless, that method may imply numerous reports and be inefficient in classifying the articles. Therefore, to discover the related papers, it is also probable to organize keywords in advance and determine the bases of the documents, such as a specific source, to limit the papers' results.

This research examines the chosen studied articles by implementing depth-paper analyses. This research also analyzed every selected report to a specific phase until we know the core of the research information, objective, and result. Afterward, the researchers categorized the papers by types of context: 'advanced and developing countries', methodology being conducted which allied to the objectives of the

research, implication, and methodology being implemented by the issue's papers analyzed. Finally, this paper discussed the theme of those papers.

By the stated classification above, it is crucial to boundary the debate of this study, considering the publishers' and papers' editions. This research still requires expert perspectives to confirm the study categorization; and tools like information searching and text examination (Walczak & Kellogg, 2015). That explanation describes why a rigid-based paper categorization scheme fits the need of this research (Denyer et al., 2008). Many studies are concerned with performance measurement, such as the program performance as the object to examine (Ferdilan et al., 2021).

Typology is an 'organized system of kinds' that lead to improved thought of complicated facts (Collier et al., 2012; Kluge, 2000). But, the lack of clarity and consistency ruins academic research, as well as practical. Description and agreement are critical for any systematic search for knowledge (Choong, 2014). Without a compatible and definitive theory, then the study is problematic. Nor is it only an ivory tower consideration. Practical adoption is also hindered. To reach this objective, this paper conducted the following phase. It first described performance measurement and state some areas with its implementation, implying that these complications as a result of weak theory at the underlying level. Examples of theoretical distractions are noted. Afterward, the paper seeks to the categorization pattern, in generic and by analyzing and evaluating some general patterns applied in the research of performance measurement. Constructed based on the pattern, a new approach to categorization is constructed on a more proper barometer. This paper concludes by recording the value of the classification and the possible extension. A series of iterative examinations were conducted to assure the validity of the classification, concerning the correlation, similarity, and contrasting, and uniqueness (Kluge, 2000). The finding was what could be organized as a theory rather than an informative classification (Collier et al., 2012).

4. Results

There are 38 papers about management factors that influence the manifestation of 'performance measurement' and 'public sector' as shown in Table 1. The 'performance measurement' and 'public sector' varies from quantitative, qualitative, and mixed-method. Some management factors that lead to 'performance measurement' and 'public sector', including in the individual and organization. Most of the papers were conducted in Europe and organizational level as the unit analysis.

Declaring the unit analysis is crucial in analyzing the data. The unit analysis can be the person or other things, such as individuals, groups, organizations, nations, and skills due to the limitless object of the research (S. Kumar, 2018).

There is an almost limitless variety of potential units of analysis in social research. Even individuals are the most common unit of study, yet, various research questions can be answered more effectively via the study of other kinds of units. Thus, social scientists can study anything that stands on social life. They could be also a person, aggregate level of groups or organizations, the institutions in a special, or cultural and social context (Rosenberg, 1968). John and Lofland (1995) divided the unit of analysis into roles, organizations, relationships, and social world. They could be also a person, group, space, and social (Yurdusev, 1993). While in performance measurement research, the unit of analysis commonly on the individual, department, and organization (van der Kolk, 2022). Thus, the various units of analysis in this study are the individual and the organization due to the most common unit of analysis are those units of analysis.

The Scopus search engines led the number with the keywords: 'performance measurement', and 'public sector', = 727 articles. Therefore, the articles were chosen and analyzed due to the correlation of the limitation of the issue. The following phase to narrow the papers was based on the peer-reviewed title, abstract, and duplication. The results were 38 papers. The final step was skimming, scanning, and thoroughly reading the papers that discussed 'performance measurement for the public sector'. Some studies finding in illustrates based on the keyword being applied are not associated with the boundary or context of the theme of the issue, are too far from the correlation to 'performance measurement for the public sector', or the article does not discuss this theme were deleted, such as a paper

Table 1. Reviewed papers.

No	Author	Country, setting	Unit analysis	Performance measurement	PM determinant	Research method
1	Bassani et al. (2022)	Italy, health	Organization	BSC: financial, customers, internal business process	Internal factor: 1. Top managers; External factors: 1. Political parties, 2. Social, 3. Politic, 4. Economic,	Qualitative-longitudinal case studies
2	Betto et al. (2022)	Global, health	Organization	BSC: financial, customers, internal business process, and learning and growth	Internal factors: 1. Communication, leadership, support, training 2. Incentive method 3. Transparency, knowing the strategy, collaboration 4. Participation and commitment 5. Organizational culture	Qualitative-SLR
3	Elbashir et al. (2022)	Australia, government	Organization	NA	Internal factors: 1. Support of top management 2. Employee capability	Quantitative-survey
4	J. Kumar et al. (2022)	Global, public sector	Organization	BSC: financial, customers, internal business process, and learning and growth	Internal factors: 1. Support of top management 2. Communication 3. coordination	Qualitative-SLR
5	Malakoane et al. (2022)	South Africa, health	Organization	4 aspects of BSC: financial, customers, internal business process, and learning and growth	Internal factors: 1. Service delivery 2. Workforce 3. Information systems 4. Access to resources 5. Financing system 6. Leadership dan governance	Qualitative-action research
6	O'Neill et al. (2022)	Canada, health	Organization	4 aspects: financial; learning and growth; customers; internal business process	Internal factors: 1. Mission and vision 2. Structure Organizational 3. Approach of PM 4. Timing 5. Unobservability indicators External factors: 6. Macro context	Qualitative-thematic analysis
7	Ippolito et al. (2022)	Italy, health	Organization	NA	Internal factor: 1. Technological innovation 2. The involvement of middle management	Qualitative -case study
8	Sardi et al. (2022)	Italy, government	Organization	2 aspects: Legitimacy and economic	Internal factors: 1. Regulation and 2. Managerial needs	Qualitative-action research
9	Sayed et al. (2022)	Canada, government	Organization	5 aspects of BSC adoption: 1). Diversity and growth, 2) customer, 3) internal process, 4) organizational learning and support, 5) financial	Internal factor: The leadership of the management	Qualitative- case study
10	Krupička (2021)	Czech, health	Organization	Financial, customer, process, learning, and support	Internal factor: 1. IT support, 2. Communication 3. Manager engagement	Mixed-method
11	Střiteská and Sein (2021)	Nordic (Sweden, Finland, and Norwegian); government	Organization	4 aspects of BSC: financial, customers, internal business process, and learning and growth	Internal factor: Organizational culture: leadership, communication, reward, and punishment	Qualitative- case study

(Continued)

Table 1. Continued.

No	Author	Country, setting	Unit analysis	Performance measurement	PM determinant	Research method
12	Domokos and Szolnoki (2020)	Global, public sector	Organization	BSC: 4 aspects: financial, customers, internal business process, and learning and growth	Internal factor: management tools: 1. Good governance, 2. Good organizational management, 3. Economical, effective, and efficient operation, 4. Quality-driven operation, 5. Creation of added value 6. The utilization of professional activities.	Qualitative-conceptual
13	Kallio et al. (2020)	Finland, education	Organization	Financial	Internal factors: 1. Administration, 2. Performance measurement practices, 3. Coordination mechanisms and 4. The reallocation of power	Qualitative multiple case studies
14	Mättö et al. (2020)	Finland, government	Organization	4 aspects: financial, customers, internal business process and learning and growth	Internal factor: Legitimay of the organization	Qualitative- cases study
15	Narayan (2020)	New Zealand, education	Organization	2 aspects: financial and research performance	External factor: Government reformation	Qualitative- historical research
16	Simonet (2020)	France, health	Organization	2 aspects: financial and non-financial	External factor: Government reformation	Qualitative -critical
17	Syachbrani and Akbar (2020)	Indonesia, government	Organization	2 aspects: financial and non-financial	Internal factor: 1. Technical factors 2. Organizational culture	Quantitative- survey
18	Avby et al., (2019)	Sweden, health	Organization	4 aspects: financial, customers, internal business process and learning and growth	External factor: Government system reformation	Qualitative-case study
19	Siverbo et al. (2019)	Europe, government	Organization	NA	Communication	Qualitative- explorative
20	Dobija et al. (2019)	Poland, education	Individual and organization	3 aspects: teaching, research and other mission	External factor: 1. Exogenous factors (isomorphistic influence): stakeholder expectations, external relationships, accreditations, rankings and external evaluations Internal factor: a. organizations: culture, traditions, leadership position and organisational structure b. Individuals: personal motivation, reward expectations, training, familiarity with the PM system, position, experience, tenure and rationality	Qualitative case study
21	Mauro (2019)	Italy, government	Organization	Budget	External factors: Government system reformation: 1. redefinition of budgeting procedures and budget structure, 2. the reinforcement of performance management systems 3. integrating budgeting ad performance cycles	Qualitative- case study

(Continued)

Table 1. Continued.

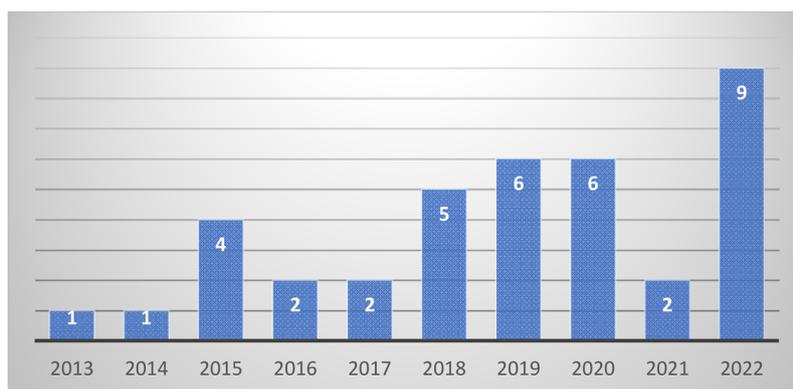
No	Author	Country, setting	Unit analysis	Performance measurement	PM determinant	Research method
22	Rana et al. (2019)	Australia, government	Organization	2 factors: financial and non-financial	External factor: Government system reformation	Qualitative- case study
23	Zheng et al. (2019)	Global, general public sector	Organization	Balance stakeholder's interest	Internal: 1. Goal 2. Operation 3. Resources 4. Stakeholder External 1. Resources 2. Stakeholder	Qualitative-conceptual
24	Barbato et al. (2018)	Italy, government	Organization	NA	External factor: Governments' administrative activities	Quantitative
25	Ndevu and Muller (2018)	South Africa, government	Organization	4 aspects of BSC: financial; learning and growth; customers; internal business process	Internal factor: Transparency and communication	Qualitative- thematic analysis
26	Poli et al. (2018)	Italy, education	Organization		Internal factor: 1. The identification of the performance indicators, 2. Specific skills 3. The resources 4. Flexibility strategy External factor: 1. The multiple stakeholders with different needs	Qualitative-conceptual
27	Rajala et al. (2018)	Finland, government	Organization	NA	Communication	Qualitative-content analysis
28	Sofyani et al. (2018)	Indonesia, government	Organization	NA	Internal factors: 1. Technical factors 2. Organizational factors	Qualitative-case study
29	Barbato and Turri (2017)	Italy, government	Organization	NA	Internal factors: 1. Incentives strategy 2. Sanctions strategy	Qualitative-case study
30	Cepiku et al. (2017)	Italy, government	Organization	NA	Internal factors: 1. Participation of employees and internal stakeholders 2. Organizational values, organizational construction and resource accessibility External context: 1. regulation and 2. external stakeholder	Qualitative case study
31	Kalgin (2016)	Russia, government	Individual	NA	Internal factor: Individual behaviour (manipulation)	Mixed- method
32	Klovienė et al. (2016)	Lithuania, government	Organization	NA	Internal factors: 1. PM application strategy 2. Financial resources External factors: 1. Political will and support 2. Assistance and expertise	Qualitative case study
33	Alboushra et al. (2015)	Sudan, education	Organization	NA	Internal factors: 1. Strategy and plans to translate mission and vision into program 2. Resistance to change 3. Financial resources 4. Personnel competency	Qualitative case study
34	Carlucci et al. (2014)	Italy, government	Organization	NA	Internal factors: 1. Goal Orientation, 2. Resources, External factors: 1. Cultural factor 2. Political factors:	Quantitative- survey

(Continued)

Table 1. Continued.

No	Author	Country, setting	Unit analysis	Performance measurement	PM determinant	Research method
35	Jurnali and Siti-Nabiha (2015)	Indonesia, government	Organization	Financial and non-financial	Internal factors: 1. Punishment and 2. reward system External factors: 1. Political and 2. administrative culture	Qualitative-descriptive
36	Srimai (2015)	Thailand, government	Organization	4 aspects of BSC: Goal, Citizen Source management effectivity Organizational development	Internal factor: Control system	Qualitative- case study
37	Agostino et al. (2014)	Italy and Netherland, transport	Organization	NA	Internal factor: Communication	Qualitative- case study
38	Lemire et al. (2013)	Global, public sector	Organization	4 aspects: financial, customers, internal business process, and learning and growth	Internal factors: 1. The clarity of the goals, 2. The system's governance 3. The incentives External factors: 1. The relationship among stakeholders	Qualitative- SLR

Sources: processed from source varian, 2023.

**Figure 3.** Number of chosen papers yearly.

examining the great green wall in the Sahara to get an insight of the SWOT analysis of the Sahara restoration (Sarr et al., 2022) to get noticed the novelty of the current research. The result was that 38 papers discussed performance measurement for public sector organizations development published between 2013 and 2022 (Figure 3).

Nevertheless, some chosen articles were not planned, which expresses that the current research has been limited. The classification of the paper's topic was founded on the awareness that implementing the performance measurement concept that concerns the public sector.

Unit of analysis form as a typology: individual and organizational was chosen explicitly because those forms are known differently in practice founded on which kind of unit analysis is being analyzed. The selected papers are shown in Table 1.

This research shows the assortment of papers based on this base. Some documents produced by the exploration activity through the Scopus Preview discuss 'performance measurement', and 'public sector', in this research. Some were comprised, and some were omitted, due to the nature of the papers. Some papers discussed performance measurement as an additional issue and elaborated lightly, some stating the terms of performance measurement without elaborating more deeply. Some have no definite approach or research practice that quotes the phenomenon of performance measurement. Those types of papers were excluded.

4.1. Assortment of papers based on country, setting

Regarding Table 1, this research shows that the leading recent research on PMF has been carried out in the context of the public sector. This research analyses numerous methods connected to the context of PMF assortment. Nevertheless, PMF for public sector research papers based on the context of the country's origin is mainly from the Europe countries' perspectives or 'west countries'. Primarily the topic of performance measurement papers is written by authors from the West and in the category of advanced economic countries. There are ten articles from Italy (Agostino et al., 2014; Barbato et al., 2018; Barbato & Turri, 2017; Bassani et al., 2022; Carlucci et al., 2014; Cepiku et al., 2017; Ippolito et al., 2022; Mauro, 2019; Poli et al., 2018; Sardi et al., 2022), Finland with 4 articles (Kallio et al., 2020; Mättö et al., 2020; Rajala et al., 2018; Stříteská & Sein, 2021), Canada with two articles (O'Neill et al., 2022; Sayed et al., 2022), Australia with two articles (Elbashir et al., 2022; Rana et al., 2019), While other Europe countries just have a paper each: (Siverbo et al., 2019), Czech (Krupička, 2021), Norwegian (Narayan, 2020; Stříteská & Sein, 2021), New Zealand (Narayan, 2020), France (Simonet, 2020), Poland (Dobija et al., 2019), Russia (Kalgin, 2016). There are also articles from Indonesia with three articles (Jurnali & Siti-Nabiha, 2015; Sofyani et al., 2018; Syachbrani & Akbar, 2020), Sweden with two articles (Avby et al., 2019; Stříteská & Sein, 2021), South Africa with two articles (Malakoane et al., 2022; Ndevu & Muller, 2018), Sudan with an article written by Alboushra et al., (2015) and Thailand (Srimai, 2015) as other than West countries. Besides, there are also five papers written in the global context (Betto et al., 2022; Domokos & Szolnoki, 2020; J. Kumar et al., 2022; Lemire et al., 2013; Zheng et al., 2019).

Interestingly, there are many papers from Italy discussing the reformation of the government that force the public sector to adopt performance measurement. Besides, there is Syachbrani & Akbar (2020) from Indonesia that claimed performance measurement for public sector organizations with poor performance even have been transforming in twenty years 'organization culture'. Further research on the case of performance measurement adoption in Indonesia's public sector organizations will be fascinating.

Further research on the implementation of another country will be exciting such as research on performance measurement for public sector organizations development from USA, Africa, and developing 'West' countries or advanced non-West economic countries and other populous emerging countries in Asia besides Indonesia, such as India. The 'other' perspectives will contribute to the theoretical and practical implications.

Besides, the context of the papers is mostly discussing the government and health. This fact is very critical for the policymakers and academicians toward learning the theoretical foundation of performance measurement adoption in the government setting because the performance measurement adoption is directed by the government, but there is still poor adoption, such as the case in Indonesia as stated by Syachbrani & Akbar (2020) (Figure 4).

4.2. Typology of the paper is based on the research methodology

The chosen paper's methodology method was studied deeply to know the study's position, the type of method used, and the results and limitations of the current research. The approach analyses concern is sampling procedure, approach, and suggested solution throughout the study. It is crucial to see this classification to know the concept of performance measurement in the public sector organization from the perception of the approach being applied to find the nature of recent academics' state on this issue. Most of the previous research has involved the methodological perspective from a qualitative such as through semi-structured interviews and case studies. Previous research has also used quantitative form a survey methodology and a mathematical statistic approach, i.e., regression analysis. Some others are mixed method approaches that give broader analyses compared to just one approach: qualitative or quantitative method.

Table 1 shows that most papers are analyzed based on qualitative approaches. In contrast, the other articles are analyzed by quantitative method and mixed-method. Interestingly, most articles explore the performance measurement and propose the framework without validating the framework through the quantitative method. Further research validating the proposed framework will be needed (Figure 5).

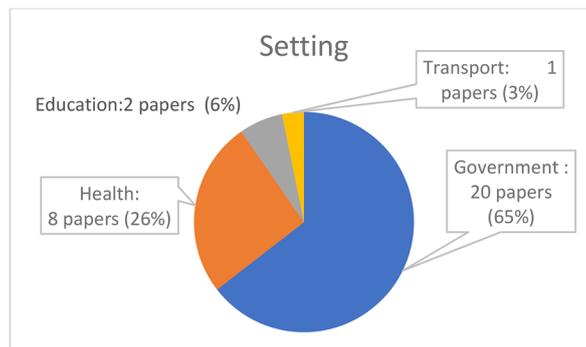


Figure 4. The setting of the research.

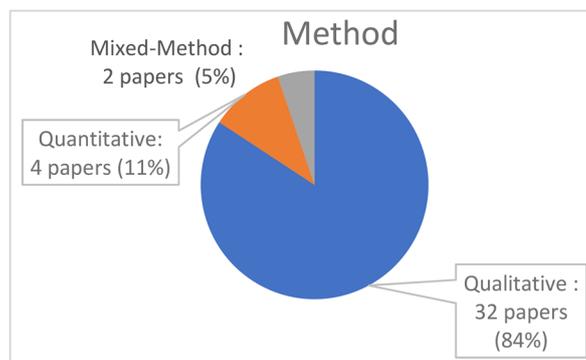


Figure 5. Research method.

4.3. Typology of papers based on the unit analysis

The chosen paper's methodology method was studied deeply to know the position of the study and what type of unit analysis is for the performance measurement for public sector organizations' development. It is crucial to see this classification to know the unit analysis of the literature to know the research gaps to fill.

Table 1 shows that most papers discuss the organizational level (95%). Besides, there is a paper analyzed from an individual and another paper discussed from an organizational and individual perspective. Performance measurement is not only about the individual who runs the organization or the organization itself, but Performance Measurement need help from various actors and systems. To know how to promote Performance Measurement, especially for public sector organizations that have limited resources, there should be further research on the individual and both individual and organization levels to enhance the knowledge of this area (Figure 6).

5. Discussion

The current research on the performance measurement adoption for public sector organizations shows a crucial need to get a solution to the transformation (George et al., 2019; Siverbo et al., 2019). In the rise of performance measurement adoption for public sector organizations, most of the literature is from Europe, with just a few from Asia, Africa, the USA, and Australia. It is interesting due to the numerous papers are from Asia: Indonesia. It shows that the performance measurement adoption for public sector organizations has not only spread in Europe but also in Asia, especially in Indonesia even with the poor transformation of performance measurement adoption. Indonesia as an emerging economy country in Asia expansive in the performance measurement adoption. Syachbrani & Akbar (2020) stated that after 20years of adopting performance measurement, the result is not significant. Learning from other countries, the government realizes the intervention at the individual and organizational level, so that result of the transformation will be maximum.

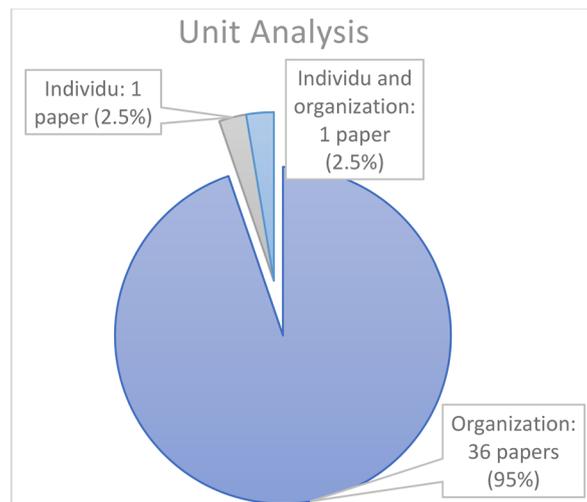


Figure 6. Unit analysis.

The adoption of performance measurement is much more crucial. These research findings confirm that the research method is still quite limited for mixed-method and quantitative approaches. The literature is just in the phase of exploring the information through observation or case study.

Performance measurement as a theoretical field could be challenging to describe (Choong, 2014; Singh et al., 2023). However, it is critical to conduct precisely that as a first action against establishing a classification. Some researchers have proposed that the critical aspect is the adoption of quantitative parameters to calculate organizational movement, work, and performance (Choong, 2013; Sitopu et al., 2021; Putera et al., 2022b). To broaden the picture, some researchers have proposed that qualitative should be comprised (García-Aracil & Palomares-Montero, 2010). For the objective of this research, performance measurement is stated as the 'application of the data to calculate organizational work, movement, and performance; this then mixed quantitative and qualitative elements'. Performance management is a richer area; it comprises performance measurement and the adoption of performance intelligence for the objective of the proposal and implementation (Kloot & Martin, 2000; Nudurupati et al., 2021; Robert et al., 2020). As this research is concerned with performance measurement, this research focuses on the performance management theory, as are considerable cross-overs (Audenaert et al., 2019; Murphy, 2019). Performance measurements of quantitative and qualitative parameters of some categories (Ferreira & Otley, 2009).

Examples of theoretical distractions are noted. Afterward, the paper seeks to the categorization pattern, in generic and by analyzing and evaluating some general patterns applied in the research of performance measurement. Constructed based on the pattern, a new approach categorization is constructed on the more proper barometer. This paper concludes by recording the value of the classification and the possible extension. A series of iterative examinations were conducted to assure the validity of the classification, concerning the correlation, similarity, contrast, and uniqueness (Kluge, 2000). The finding was what could be organized as a theory rather than an informative classification (Collier et al., 2012).

To fill those targets, this typology is based on findings in Table 1 and is also affected by literature (Alach, 2017; Flynn, 1986; Smith, 1990). While the previous literature states the typology into four elements: level, measures, target, and actual, this research extended the element into five elements. The reason is due to the measurement performance measurement and state of some areas with its implementation, implying that these complications as a result of weak theory at the underlying level. Some efforts have been conducted to fix this problem (Lewis, 2015).

The public sector performance measurement literature does not comprise numerous efforts to explicitly seek and compare the theory and the practical. The vast majority of research are concerned with the design and implementation of performance measurement model and systems, the reaction of actors and organization to performance measurement, and the construction of normative suggestion for enhanced practical (Bititci et al., 2012; Johnsen, 2005). The literature on performance measurement divides the classification into four major groups, Fitzgerald, BSC, Strategic Value Framework, and outcome framework.

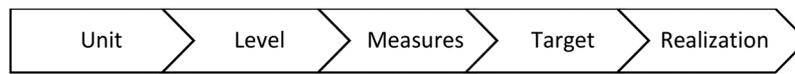


Figure 7. Proposed typology.

The literature on the performance of measurement mostly conducts on the level of the organization, while at the same time, the unit of the individual also influences the result of the performance measurement adoption. Uncalculating the individual aspect as a critical influencing aspect will affect the adoption process, for example, the behavior of individuals who conduct manipulation due to the intervention just concern does not comprise the detail of individual behavior Kalgin (2016). This research suggests comprising the unit of intervention as the fundamental of performance measurement (e.g., organizational, and individual) (Figure 7).

The unit of intervention could be divided into two parts: individual and organization. Most of the previous research in Table 1 discusses the intervention in the unit of organization. Just a paper examines the performance measurement in the unit of individuals Kalgin (2016) and an article examined from the perspective of individual and organization (Dobija et al., (2019). While the perspective of the intervention on the organization could be based on the organization or individual; or both organization and individual. Furthermore, performance measurement could lead to misinformation if the movement (Kravchuk & Schack, 2014; Cohen, 2019; Cohen et al., 2019) as the organization and individual have their goals. The reasoning is the correlation of among the organization's movement and the individual goals. The application of individuals should be led by the organization's goals. Otherwise, the conflict will come up in the case of individual behavior who conduct manipulation due to the intervention just concern do not comprise the detail of individual behavior Kalgin (2016). Besides, when as the previous research stated the fundamental divisions are the level, this research found it insufficient no to dividing the nature of the performance issue being reviewed. This research, then, put the unit of intervention as the fundamental.

The next is the level of performance. It is stated that those were arranged in a causal chain which is claimed that the under-level influenced the shift of the upper level. The level of performance is generic enough to be adopted in the entire scope of the public organization. Those five levels are divided into five levels (Alach, 2017) and need to be validated (Flynn, 1986):

1. The outcome or the intended final condition is the effect of the action applied. An example is the number of smokers. Different public sector organizations may focus on different results, such as those related to health (such as life expectancy), law enforcement (crime rates), or municipal government (economic performance within its jurisdiction), but the goals themselves are universal.
2. The impact is 'the transitional efforts undertaken to a result by the products provided by the entity'. The public sector experiences a wide variety of effects.
3. The output is 'the transitional efforts undertaken to a result by the products provided by the entity'. These are the first results from the outputs and are frequently referred to as 'intermediate outcomes' to differentiate them from 'real outcomes', which are the final alterations.
4. Processes are activities inside the reporting entity that transform inputs into outputs. The results are not shared with any other parties, and the processes are not used elsewhere in the manufacturing process. Planning and budgeting, information technology, and human resources are all examples of procedures that are likely to be highly generalized, despite the fact that they may be used by vastly diverse public sector organizations.
5. Input is the operations of the reporting entity to consume inputs in order to generate results or outputs. Inputs, like processes, tend to be very standard.

The third is the measures of performance. The operations of the reporting entity consume inputs in order to generate results or outputs. Inputs, like processes, tend to be very standard. Land, labor, and capital are the pillars of conventional economic models; these concepts may be renamed property and infrastructure, personnel, and money in public sector organizations. It's possible that certain businesses have very distinct needs for their inputs, such as fresh meat for a public sector manufacturing company

or fresh produce for a public school. In conclusion, inputs permit processes, which generate results, which have effects, which have consequences, which ultimately lead to outcomes (Smith, 1995).

The fourth is the target. Goals are 'intended states for quantitative and qualitative performance evaluations'. The target number of surgeries throughout the reporting period and the intended average cost per output are both examples of such information that are readily understandable. In terms of consequences, it's more convoluted. Desired effects and outcomes are goals, however general they may be since the phrase 'desired' indicates an intentional rather than descriptive assertion. However, context is crucial: 'fewer individuals smoking' might be an effective measure if it is only an assessment of the present condition, or it could be an effective aim if the reporting entity wants to see fewer smokers.

Because they are aimed after rather than just descriptive, all organizational goals may be categorized as targets. This encompasses broader, long-term objectives. Goals for the average cost per employee or any other lower-level aim are not clearly distinct from more qualitative goals, such as those found in vision statements.

The fifth is realization. The realizations are 'qualitative and quantitative assessments of states of performance'. To put it simply, actuals are the outcomes that the reporting entity has accomplished in relation to predefined performance metrics. They provide a vivid picture. Despite appearances, typology allows for estimated levels of performance to be included in actuals. The reason for this is that estimates are just another kind of observation, albeit one that relies on old data rather than real-time information.

These findings could contribute to the policy maker as the tools to implement performance measurement in their regions. Besides, the findings will be contributing to the theoretical framework of performance measurement at the individual and organizational levels.

6. Implications

The theoretical implications in this study offer significant implications for research and theories that contribute to the literature on the development of the concept of performance measurement of public sector organizations. The practical implications of this research as reference material, evaluation and governance in public sector organizations (government).

7. Conclusion

This research has analyzed the scholarly research on performance measurement for public sector organizations. The literature review suggests gaps in the study of performance measurement related to based on individual and organizational intervention could influence the impact of organizational performance and could be another future research. It is possible to explore the complexity.

Nevertheless, the analyses of a fit performance measurement could expose novel understanding from the limited source of insight by applying inclusiveness. In the current literature, the performance measurement adoption could be examined by an individual and organization at the fundamental level. The typology should be based on the unit, level, measures, target, and realization. Since there has not been exclusive research about performance measurement adoption in Indonesia, future research could discuss the performance measurement adoption in Indonesia, and another populous countries such as China, India, or Brazil.

This research also suggests the limitation of this paper as the following research opportunity. The current research strategy facilitates the literature review from the Scopus Preview database. Therefore, due to the research limitation, future research may be enhanced the database from Web of Science and Google Scholar. This research inspires scholars to see this opportunity for the following literature review of the social, cultural, and political context in performance measurement from an inclusive viewpoint. These findings would contribute to future performance measurement and handling of problems related to performance measurement through the knowledge of the current study and the feasibility of public sector organizations. This research sees it crucial for academics to analyze this issue in the following research deeply. Such research findings will contribute from practical and theoretical sides.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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