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## A BIBLIOMETRIC ANALYSIS OF PUBLICATION ON PERFORMANCE MANAGEMENT IN PUBLIC INSTITUTIONS

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### **Abstract**

*This article researches the implications of performance management in public institutions. The methodological approach is based on the use of the bibliometric software R-Stata Bibliometrix, specialized in Science Mapping Workflow, to extract meaningful results about the thematic evolution of the performance management in the publication indexed by the Web of Science database. Our search is about “performance management in public institution” and the bibliometric analysis unigram, bigram, and thematic evolutions is about the title and abstract of the articles. The scope of the research is to identify which are the new trends at publication in this field of performance in public administration.*

**Keywords:** *performance, public administration, bibliometrix, qualitative analysis*

**JEL Classification:** H83

### **1. PERFORMANCE MANAGEMENT IN PUBLIC INSTITUTION**

Performance in public administration is one of the main challenges for the management of governmental, national, and local institutions. Performance is the management concept that sets up one mechanism to develop, evaluate, monitor, budget, promote, and celebrate the strategic components of the organization. The benefits of performance management are to increase efficiency and effectiveness in an institution, but at the same time needs to clarify the vision, mission, and strategic direction of the country, county, city, village, etc. Berend van der Kolk, identified three types of performance management in this sector: *target systems*, which measure performance against a standard, *ranking systems*, which measure performance against comparable units, and *intelligence systems*, which measure performance for background information (Berend van der Kolk, 2022). Because public institutions offer in

many cases services for the people and the financial parts have no limit measuring performance is quite a problematic and very relevant issue (Balaboniene and Vecerskiene 2015). Performance is defined as actions of the employees in public institutions: medical treatment, teaching a course, identifying children with drop out, judging in court, solving citizen problems about taxes, planning new streets, etc, or quality of these actions that can be either high or low. (Van Dooren, Bouckaert and Halligan, 2015).

In the public sector, performance measurement was often associated with operational aspects such as the definition of a measurement object, the development/formulation of performance measures, data collection, and data analysis (Castelo and Gomes, 2023). The nature of the public institution has two directions: is about *enabling rather than delivering* because rarely provides final goods and services and a chain of impact including typical horizontal functions such as: financing, human resources management, etc (Van Dooren, De Caluwe and Lonti, 2014).

Initially, many research papers are oriented on identifying the level of satisfaction for the people who are the beneficiaries of the public entities' activities. For this reason, the performance of the public institutions is in correlation with the motivation of the public employees to solve different problems of the citizens. At the same time in the private sector, Kaplan and Norton developed one system Balance Score Card (BSC) to develop and evaluate the results of the business with four perspectives: learning and growing, business process, customer, and financial (Kaplan and Norton, 2008). The main question for the research in this public field is, could find a model or method to adapt the Kaplan and Norton model to the type of institution who have some specific characteristics: not many strategic objectives and abilities in planning, human resources management in many cases with different skills according with jobs description or less rewarded, transparency, accessibility, responsiveness (Van Dooren, De Caluwe and Lonti, 2014). Consider, that the main problem for decision-making is selecting the indicators for evaluating performance because the complexity of the public system depends on budgeting and because costs are more easily measured than benefits efficiency often reduces the economy (Ates, 2001).

## 2. METHODOLOGY

The research presented in this paper is realized based on a search about "*performance in public administration*" in Web of Science Core Collection and dates extracted, 122 publications (articles, conference proceedings, etc.) were analyzed with R-Stata Bibliometrix software. The software offers us the opportunity to identify different aspects in the evolution of the concept between 1997-2024, by generating graphs: i) *co-occurrence network*, has been proposed as an approach to facilitate the understanding and visualization of the structure

of different text items and their content (Puerta *et al.*, 2020). According to Ruiz and Barnett co-occurrence network is a semantic network based on the k data set is an  $n \times n$  matrix S, where n equals the number of nodes in the analysis and  $s_{ij}$  is the measured relationship between the specific nodes i and j. The node is the unit of analysis, that represent the most salient words, identified based on cumulative (weighted) frequencies. Links are based on word co-occurrences within a five-word distance. There are a few indicators of a node's position in the network. The Gini coefficient measures the inequality of words within a frequency distribution where a zero score expresses perfect equality and a score of one expresses maximum inequality among the words. Centrality denotes the importance, prominence, or power of a concept in the network (Ruiz and Barnett, 2015). ii) *thematic map* is a method for identifying, analyzing, and reporting patterns (themes) within data, which permit to interpretation of various aspects of the research topics (Braun and Clarck, 2006). According to Callon, Courtial, and Laville (1991), the thematic map is a cluster analysis based on two notions: *centrality*, measures for a given cluster the intensity of its links with other clusters, more numerous and stronger these links, the more this cluster designates a set of research problems considered crucial by the scientific field and *density* characterizes the strength of the links that tie the words making up the cluster together and that density provides a good representation of the cluster's capacity to maintain itself and to develop over the course of time in the field under consideration. The ideas of centrality and density allow us to give a synthetic and simplified presentation of the network's morphology and provide a stepping-stone for dynamic analysis. Since each cluster can be defined by its centrality and density, it is possible to trace what we will call - for reasons that will become obvious - a strategic graph. This graph is obtained by ordering clusters horizontally (along the x-axis) by increasing the order of centrality, and vertically (along the y-axis) by increasing the order of density. This operation allows us to classify all aggregates into four general categories, which correspond to the four quadrants of the graph. This mathematical description of density and centrality help Callon, Courtial, and Laville (1991) to develop the matrix with four quadrants or cluster:

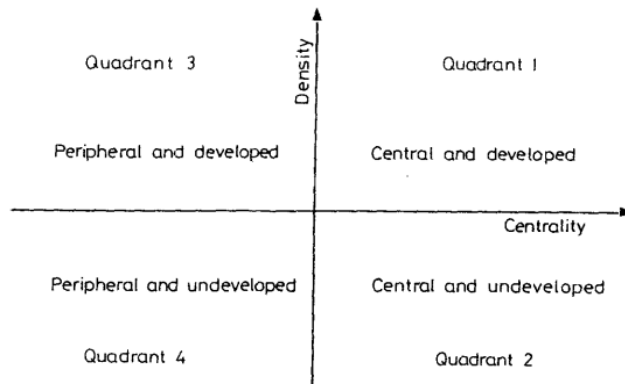
*Quadrants 1 - Clusters of type 1* are both central to the general network (they are strongly connected to other clusters) and have intense internal links (they display a high degree of development). These clusters in some sense constitute the file's core. Their position is strategic, and they are probably dealt with systematically and over a long period by a well-defined group of researchers.

*Quadrants 2 - Clusters of type 2* are central, that is to say, that they are strongly connected to other clusters, but the density of their internal links is relatively low. Such aggregates, although strategic to the file under consideration, might in reality be the object of investments in other, connected, files. They correspond in this case to points of transfer between separate but linked networks. They can

also signal the appearance within a given network of research problems that are becoming central, but which are not yet the object of significant investments: they are becoming mature, and their importance for the field is already indicated by their degree of centrality.

*Quadrants 3 - Clusters of type 3* are not central - we will call them peripheral - and the strength of their internal links leads us to suppose that they correspond to research problems whose study has already been well-developed. They might be clusters that at an earlier time were central, but which - while remaining the object of significant investments (it is not so difficult to explain such permanence) - have been progressively marginalized, generating less and less interest. They appear as specializations that interact weakly with the other sub-networks of the field under study.

*Quadrants 4 - Clusters of type 4* are both peripheral and little developed. They represent the margins of the network. Only a dynamic analysis (the evolution of a network over several periods) or a comparative one (the relationship of the network with other networks) allows us to determine their contribution to the field.



Source: Callon, Courtial and Laville (1991, p.166)

**Figure 1. Strategic diagram and characterization of the clusters in the file**

iii) *thematic evolution* is a spatial representation of relationships between disciplines, fields, and documents or authors.

### 3. RESULTS

Figure 2 shows us the relationship between topics from 1997 – 2024 and could observe the evaluation of concept performance in public administration from administration, performance, and local, measurement (1997- 2010) to factors, organizational, administration, evaluation, study, and impact in 2019-2020. In the last period (2021-2024) the research was oriented to the two relevant directions: public and impact. We can point out that, the topic has many links with each other, and we could identify research topics that have been



centrality values indicate a core location of this node in the network, whereas low betweenness centrality values indicate a more peripheral location (Ma et al., 2016). Closeness centralities indicate the number of steps required to access all other nodes from a given node (Ma et al., 2016) or how close a node is to all other nodes in the set of clusters (Wasserman and Faust, 1994).

**Table 1. Closeness of co-occurrence network, unigram titles**

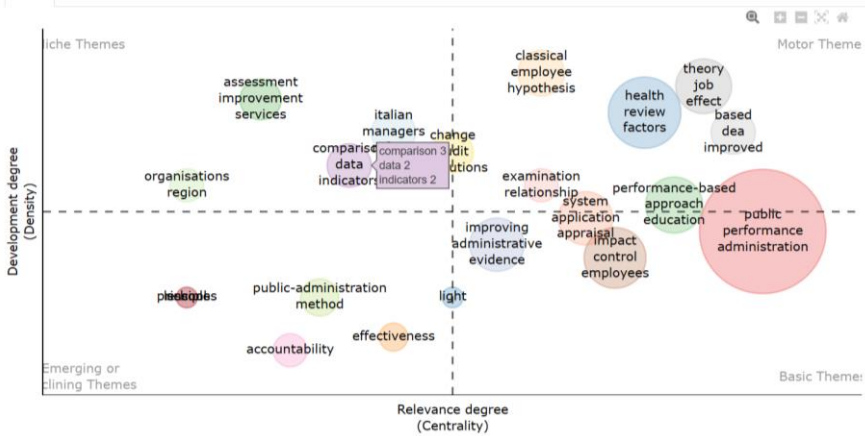
NODE	BETWEENNESS	CLOSENESS
public	373,53	0,02
performance	349,27	0,02
administration	317,89	0,02
management	4,95	0,012
evaluation	0,622	0,011

Source: authors' own processing in R-Stata Bibliometrix

Related to our factor from performance in public administration the closeness is between 0,02 (public, performance, administration) and 0,012 or 0,011 (management and evaluation), that means factor (words) who has the highest value in the context of communication relation, such actors need not rely on other factors for the relaying of information, and they are very productive. The value of betweenness, for the main results (public, performance, administration, management, evaluation) shows us according to Wasserman and Faust that these factors depend on the "other factors" in the set of factors, especially the factors that lie on the paths between the two and they could have potentially might and some control over the interactions between the two nonadjacent factors. The value 373,53 represented that from this node "*public*" passes more than 373, communication links from another factor and could observe in Figure 3 the higher dimension of this node or performance and administration which has approximatively the same values. So, the results in our research presented in Table 1 are "factor in the middle," the one between the others, has some control over paths in the graph.

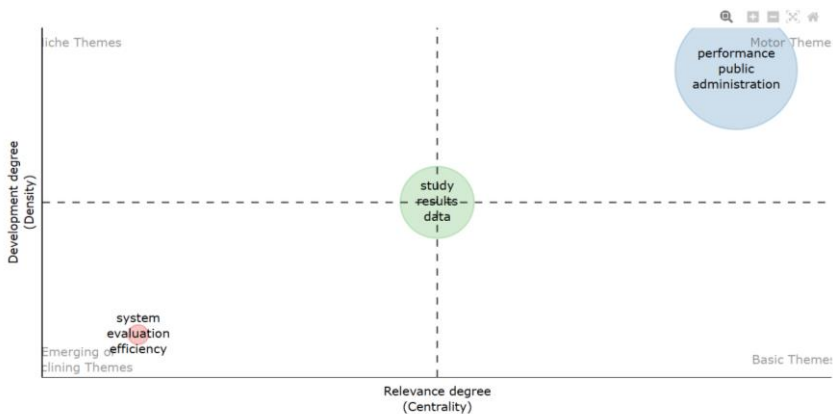
Thematic analysis of unigram titles, presented in Figure 4, shows us according to the description of decreased, that public performance administration is in quadrant 2, which means this cluster is strongly connected to other clusters, at performance-based education, improve administrative evidence, but the internal density of his internal links is relatively low and this field of research could have resulted in the future but the position in the matrix could be one signal that this cluster became mature and the importance in the field decrease indicated by his centrality value. Motor themes situated in

quadrant 1 are: the health review factor, and theory job effect, which are dealt with systematically and for a long period by the researcher.



Source authors' own processing in R-Stata Bibliometrix  
**Figure 4 Thematic map, unigram titles**

Thematic analysis of unigram abstracts, presented in Figure 5, is interesting because you can observe that performance management in public administration has a few motor themes such as *performance*, *public*, and *administration*, some medium directions at *study*, *results*, and *data* but these words have zero relevance for our analysis. What is important for our study is the future direction from quadrant 4 where according to the description of Callon, Courtial, and Laville (1991) are peripheral or undeveloped, that means the *system*, *evaluation*, and *efficiency* of public administration could be the relevant field for research in the future.



**Figure 5 Thematic map, unigram abstracts**  
 Source authors' own processing in R-Stata Bibliometrix



#### 4. CONCLUSIONS

The qualitative analysis of the performance of the public administration in all articles published in the Web of Science database has evolved the concept in the last forty decades. Utilization of the social analysis network in this research helps us to understand the relevance of the specific words in the publication titles or abstracts. The dimensions of the node, betweenness or closeness present a picture of the importance of a few words for this domain: *public, administration, performance, management, and evaluation*. Thematic analysis, based on bigram (two words near together) representation is that the field has some basic or motor theme with many publications in the direction of public performances, public administration, or public evolutions and some niche research direction that could be exploited in the future and could become more relevant for publish and citation.

#### References

- 1) Ates, H., (2001). Using performance indicators in public administration: lessons from the british experience. *Idari Bilimler Fakultesi*, C6, S2, s.15-27.
- 2) Balaboniene, I., Vecerskiene, G. (2015). The Aspects of Performance Measurement in Public Sector. *Procedia - Social and Behavioral Sciences* 213, pp. 314-320. <https://doi.org/10.1016/j.sbspro.2015.11.544>.
- 3) van der Kolk, B. (2022). Performance measurement in the public sector: Mapping 20 years of survey research. *Financial Accountability & Management*, 38, pp. 703–729. <https://doi.org/10.1111/faam.12345>.
- 4) Braun, V., Clarke, V., (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, pp. 77-101
- 5) Callon, M., Courtial, J.P., Laville, F. (1991). Co-word analysis as a tool for describing the network of interactions between basic and technological research-the case of polymer chemistry. *Scientometrics*, 22(1), pp. 155–205. <https://doi.org/10.1007/BF02019280>
- 6) Castelo, S.L., Gomes, C. (2023), The role of performance measurement and management systems in changing public organizations: An exploratory study. *Public Money & Management*, DOI: 10.1080/09540962.2023.2204400.
- 7) Ma, B., Wang, H., Dsouza, M., Lou, J., He, Y., Dai, Z., Brookes, P.C., Xu, J., Gilbert, J.A. (2016). Geographic patterns of co-occurrence network topological features for soil microbiota at continental scale in eastern China. *ISME* 10(8), pp. 1891-901. doi: 10.1038/ismej.2015.261.
- 8) Puerta, P., Laguna, L., Vidal, L., Ares, G., Fiszman, S., Tárrega, A. (2020). Co-occurrence networks of Twitter content after manual or automatic processing. A case-study on “gluten-free”, *Food Quality and Preference*, Volume 86.
- 9) Ruiz, J., Barnett, G. (2015). Exploring the presentation of HPV information online: A semantic network analysis of websites, *Vaccine*, 33(29), pp. 3354-3359. <https://doi.org/10.1016/j.vaccine.2015.05.017>.

- 10) Van Dooren, W., Bouckaert, G., Halligan, J., (2015). *Performance Management in the Public Sector*, Second Edition, Routledge, 2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN.
- 11) Van Dooren, W., De Caluwe, C., Lonti, Z. (2014). How to Measure Public Administration Performance. *Public Performance & Management Review*, 35(3), pp. 489-508, DOI: 10.2753/PMR1530-9576350306.
- 12) Wasserman, S., Faust, K., (1994). *Social network analysis: methods and applications*. Cambridge University Press.