

THE CONCEPT OF SUSTAINABILITY IN THE PUBLIC SECTOR: A BIBLIOMETRIC ANALYSIS

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Abstract

The analysis of keywords leads us to consider an enrichment of the understanding of the concept of sustainability. Indeed, new disciplinary fields are linked to this concept, such as those highlighted above. Moroccan research dedicated to sustainability could therefore be enriched both by the ISO approach around the economic, social and environmental pillars and by satellite approaches emerging in the international literature.

Keywords: sustainability – public sector – bibliometric - literature

1. Introduction

"Is the idea of public service still sustainable" (Kerfali & Gharrafi, 2022) was one of the questions asked by Moroccan research at the end of the last century. Beyond the eminently provocative nature of such a formulation, the authors have the merit of pointing out quite early on that the sustainability of public service must be analysed and understood.

Today, the concept of sustainability in the public sector is essentially reduced to its financial dimension. The sustainability of public debt is one of the main concerns of research: it is a question of maintaining the confidence of the country's creditors and economic and financial partners by controlling the public deficit and debt. Debt management is so crucial in the public sector that public accounting adopts specific principles (Biondi, 2013). In this sense, the OECD (2002) has been pointing to the deterioration of the world's financial situations since the 1990s and has thus highlighted the need to develop specific rules.

Accounting is not the only management discipline to have been affected by sustainability issues. Public management control also aims at protecting the financial sustainability of all public entities (Flizot, 2013). The concept then takes on another meaning, beyond debt sustainability. The financial sustainability of the public service also incorporates a so-called fiscal sustainability, which corresponds to a long-term capacity to honour its commitments. Here, it is not only a question of being able to repay debts or interest, but also to maintain public spending and investment in the service of society. Fiscal sustainability is therefore at the heart of public procurement (Gibert and Verrier, 2016), public-private partnerships (Dupas, Marty, and Voisin, 2013)...

However, this focus on the budgetary and financial aspects of sustainability denies the global character of the concept. Moreover, research is not the only one to reduce the concept to one of its branches. The Cambridge Dictionary for instance adopts two views of the concept. The first focuses more on environmental issues: "the idea that goods and services should be produced in such a way as not to use resources that cannot be replaced and not to damage the environment". The second entry emphasises the temporal scope of the concept: "the ability to sustain itself at a particular level over a period of time". While this second entry echoes fiscal and financial sustainability (maintaining public commitments over time), the environmental and ecological approach remains discrete in the Moroccan literature on sustainability.

In reality, environmental issues are mainly addressed through the concepts of social (Ansaloni and Fouilleux, 2008). The concepts are indeed used interchangeably with sustainability (Zeimers, Anagnostopoulos, Zintz, and Willem, 2019). The main explanation for this practice can be found in the roots of sustainability: it is "still an underdeveloped, ambiguous and sometimes vague concept" (Langergaard, 2019). However, in line with McGrath and Whitty (2018), we consider that terminological accuracy is crucial in management science, and especially when dealing with issues as strong as sustainability which are then translated into tools, devices and practices.

The concept of sustainability is indeed of interest to professionals and researchers alike (Guthrie, Ball, and Farneti, 2010). For example, Weerawardena et al (2010) point out that, for professionals, "The central issue is the need to build a sustainable organisation that can continue to provide social value by pursuing its social mission". The number of international publications on the sustainability of public services has grown exponentially since the early 2000s. However, the Moroccan literature, as well as public authorities, reduce the concept of sustainability to its financial and budgetary dimension.

The objective of this paper is therefore to rework the concept of sustainability in the Moroccan context of public management using a bibliometric methodology. It allows us to confront the international literature with the Moroccan literature in order to reconstruct the relevant dimensions and associations of sustainability. Our research question can thus be formulated as follows:

How to approach the concept of sustainability through the filter of international literature?

This paper therefore presents the preliminary reflections at the origin of this research, the methodological approach chosen and the first results obtained.

2. Conceptual and sectoral approaches

Before looking at the literature, it is essential to agree on a general definition of sustainability. According to ISO (2012), sustainability is defined as "the state of the total system, which includes environmental, social and economic subsystems, in which the

needs of the present are met without compromising the ability of future generations to meet their own needs". The global nature of the concept is thus recalled by international standard-setters, all the more so as they insist on the distinction to be made with the concepts of sustainable development and social responsibility.

This global definition is particularly adapted to the case of public sustainability, insofar as the concept concerns both the state and its subsystems. Of course, it takes up the financial issue previously discussed, from the perspective of survival (Besel, Williams, and Klak, 2011). An internal sustainability approach can be added, taking up the survival issue while adding the importance of maintaining the action over time (Moldavanova and Goerdel, 2018). An external vision thus completes the triptych by specifying that sustainability also aims at the well-being of society: there must therefore be a convergence between collective expectations and the actions taken (Weerawardena et al., 2010). This vision is nevertheless rooted in the three issues highlighted by the ISO (Manfred Bergman, Zinette Bergman, and Lena Berger, 2017), sometimes assimilated to Elkington's Triple Bottom Line (1998), and summarized by a triple P: Profit - People - Planet.

It is in the literature dedicated to non-profit organizations that we find the major works dedicated to sustainability but also the most critical ones. Thus, Jones and Mucha (2014) recall that the concept of sustainability is the subject of multiple definitions but note, with Hart (2010), that they have three points in common: "(1) living within the natural limits of the planet; (2) understanding the interconnections between the economy, society, and the environment; and (3) distributing resources and opportunities equitably. In the case of non-governmental organisations, Arhin et al (2018) then define sustainability as "an ongoing process rather than an end in itself; a multidimensional construct including elements such as financial, social, operational and identity forms". In sum, the international literature on non-profit organizations has already investigated the concept in depth (Plaisance, 2021). Because of the major commonalities between NPOs and the public sector (i.e. non-profit status, orientation towards beneficiaries/users and the strength of values), the literature dedicated to the former seems to be able to shed light on the Moroccan issues. For this reason, the NPO sector will be included in the fields of literature studied.

3. Methodology

This paper is based on a bibliometric analysis of the international literature on public sustainability (Adams, Lind Infeld, Wikrent, and Bintou Cisse, 2016; Marques, Reis, and Serra, 2020).

The bibliometric approach consisted firstly of a census via Scopus of articles containing the following keywords: (KEY (sustainability) AND KEY (public) OR KEY (nonprofit) OR KEY (npo) OR KEY (not-for-profit) OR KEY (ngo) OR KEY (volunteer) OR KEY ("public management") OR KEY ("public organization")) AND (LIMIT-TO (SUBJAREA, "BUSI")).

The extraction only takes into account sustainability as a keyword, associated with the traditional keywords of public and NPOs, and only for management research.

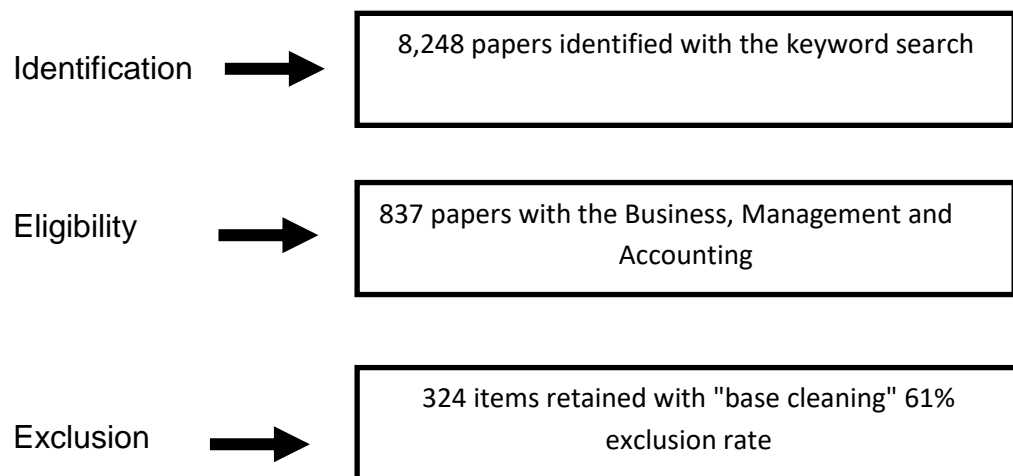
Following this first extraction, we began a process of 'cleaning' the database in order to exclude articles considered out of scope. This process is based on an approach used in many fields of research such as public action (Bartoli and Blatrix, 2012) or auditing (Rana, Steccolini, Bracci, and Mihret, 2022). While it was relatively obvious to remove articles not dealing with the public, the following points were discussed:

- whether or not to include public-private partnerships;
- The limits of the studies in the field of urban planning. It was agreed to include those dealing with public policies related to urban planning and to exclude all those more related to the construction sector;
- The limitations of studies in the field of public health and, as in the previous point, we have limited the scope to studies on public policies.

Finally, most of the exclusions concerned articles involving private land, technological and ecological issues or the tourism and agri-food sectors.

The following diagram shows the main stages of data collection:

Figure 1: Data collection, details and exclusion rates



Following this data collection, the analysis of the data was carried out by distinguishing three distinct treatments leading to complementary results:

- 1) a study of the profile of the articles (journal, year of publication, etc.) to better identify the academic fields concerned;
- 2) a textual data analysis (TDA) of key words, in order to determine the set of concepts associated with public sustainability in the international literature;

- 3) Finally, a lexicometric analysis of the summaries, with the aim of obtaining a similarity tree "highlighting the close relationships between the items collected in the free association phase" (Ferrara and Friant, 2016).

This methodology makes it possible to approach the objectives of lexicometrics, which itself aims to study the proximities between the words used through frequencies (Fallery and Rodhain, 2007). By focusing on the lexical universes associated with sustainability, the analysis will make it possible to address the related collective representations and knowledge. It has already been used in the field of public management (Desmarais and Moscarola, 2008).

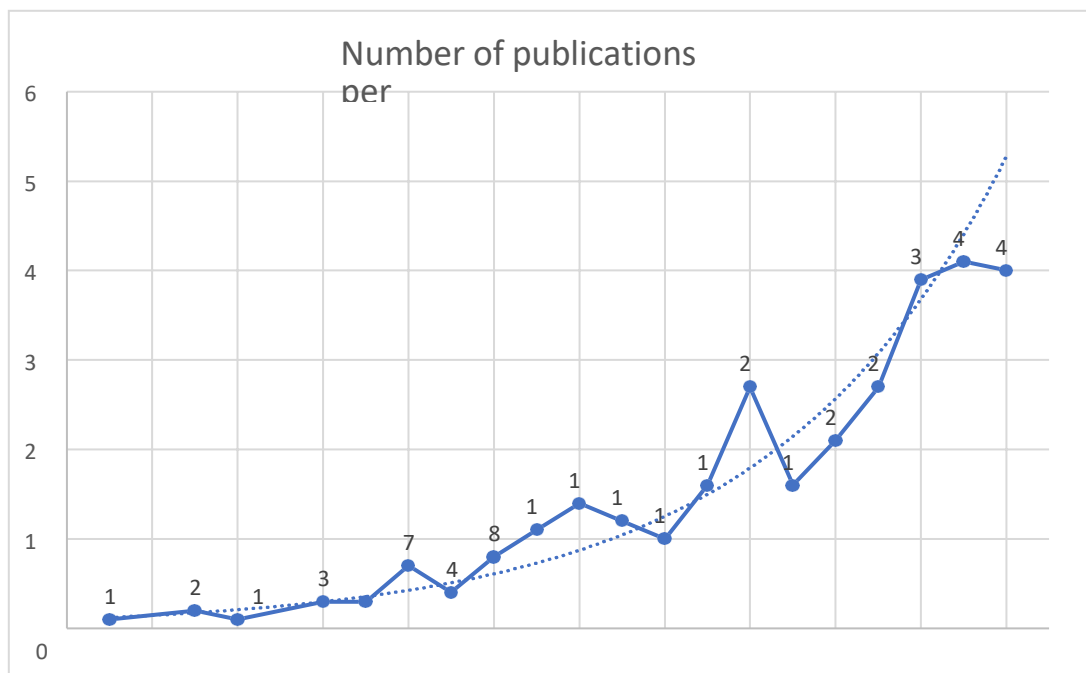
4. Bibliometric results

a. The profile of the selected publications

The analysis of the publications in our sample allows us to establish a profile of the published literature on public sustainability.

Firstly, as mentioned in the introduction, this field of research is attracting increasing interest from researchers, who are publishing on the subject in ever greater numbers (Figure 1).

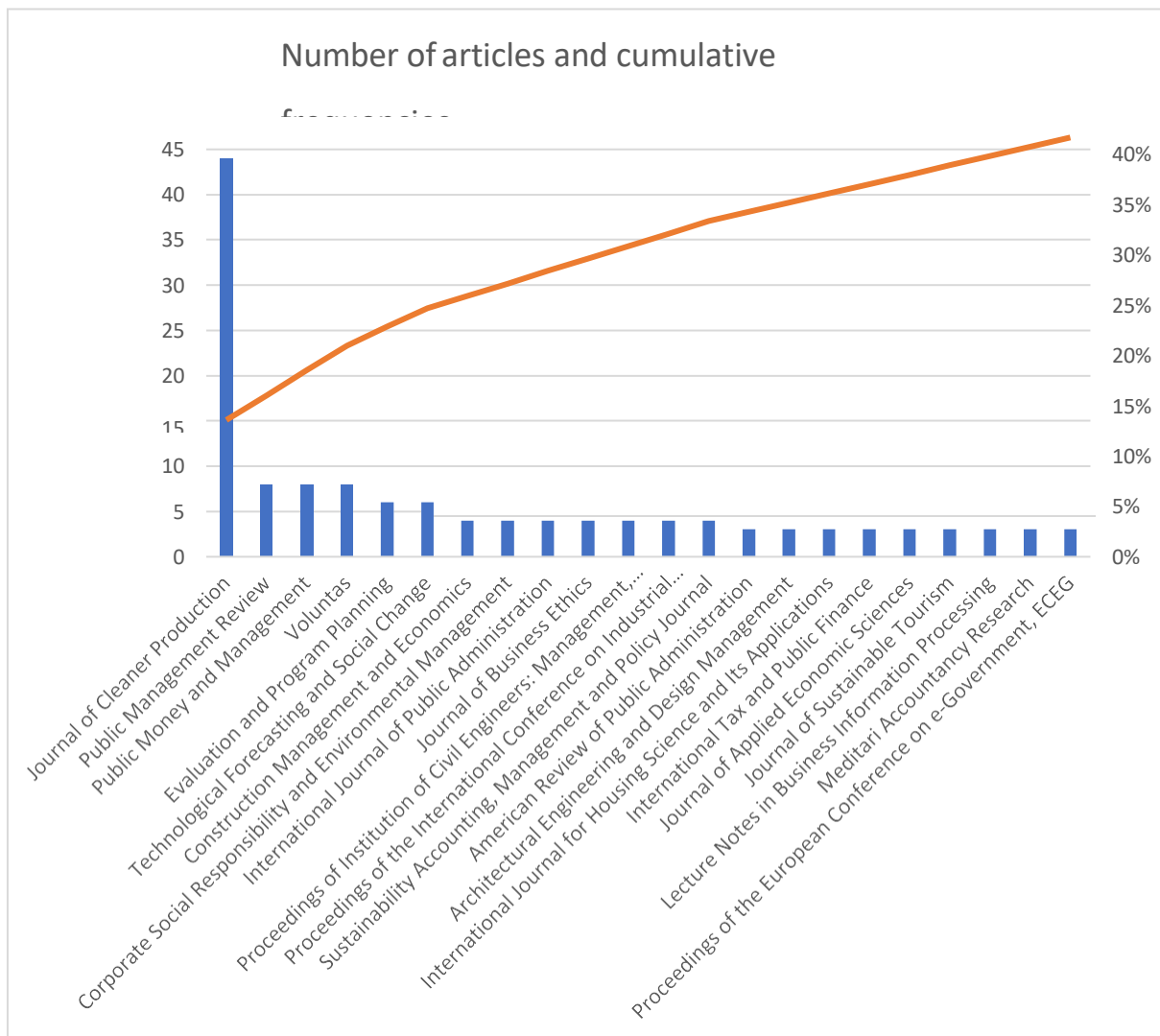
Figure 2: Representation of the number of publications per year



Publications dedicated to public sustainability are in fact concentrated in certain scientific media (Figure 2 and Appendix 1). The Journal of Cleaner Production thus dominates scientific production. Scientific journals dedicated to the public sector and to

non-profit organisations in general then host articles on the subject: Public Management Review, Public Money and Management, Voluntas, International Journal of Public Administration, American Review of Public Administration, International Tax and Public Finance, etc. Journals dedicated to ethics are also well placed: Corporate Social Responsibility and Environmental Management; Journal of Business Ethics; Sustainability Accounting, Management and Policy Journal, etc.

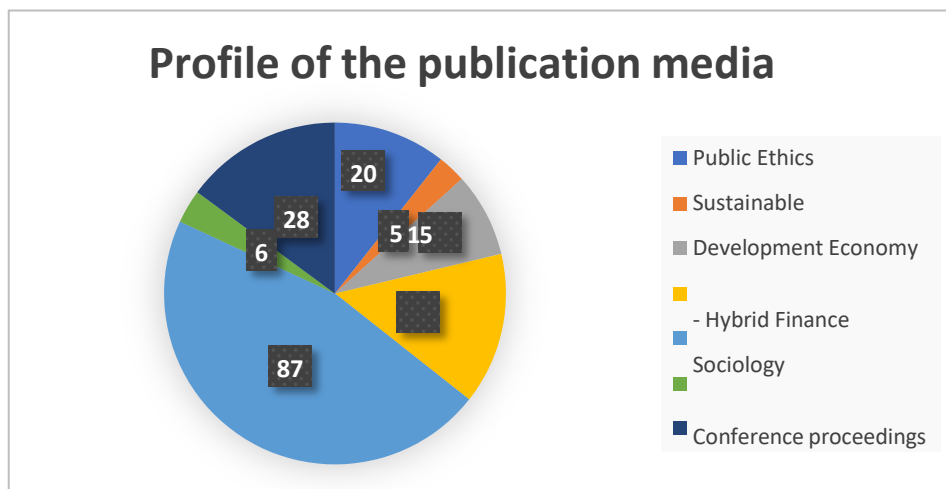
Figure 3: Number of articles per journal or conference proceedings



Without taking into account the cumulative frequency by publication medium, it can be seen that hybrid journals are the ones that host mainly articles dedicated to public sustainability (Figure 3). By hybrid, we mean journals that are neither close to the public sector, nor to ethical or sustainability issues: they are, for instance, in the fields of

engineering, quality management, technology, tourism or transport. Secondly, it is mainly journals dedicated to an economic or financial approach to organisations that host the articles studied here, followed by public management journals. However, sustainable development and ethical approaches should not be neglected. Finally, we should note the presence of sociology journals.

Figure 4: Publication media by nature



b. Analysis of the keywords of the articles

The analysis of the keywords of the articles was carried out in two steps: on the one hand, the concepts associated with sustainability were sorted according to their link or not with the extended ISO definition (Table 1 and Figure 4) and, on the other hand, the keywords associated with the public sector were sorted (Appendix 2). Inductive coding was therefore used to organise the keywords and make sense of them.

The ISO approach has allowed the emergence of the three traditional pillars of sustainability, around economic (ISO - Ec), social (ISO - S) and environmental (ISO - En) issues. The first pillar is also prominent in the literature. Without being integrated into the three pillars of sustainability, concepts associated with the ISO standards have also been found: management (transition, resources, programmes, and plans), governance (reports, decisions, accountability, and leadership), ethics (responsibility, stakeholders) or performance (so-called global, evaluation, quality, impact).

The concepts that are not associated with ISO then allow, through an inductive approach, to integrate new fields of the literature in the understanding of the concept of sustainability in the field of Moroccan public management. These include the fields of innovation, change management, values, strategy, risk management, organisational capacity and crisis management, to name but a few.

Each new academic field identified can become a new extension of the concept of sustainability applied to public management and allows to illustrate this conceptual gap identified through the lexicometric analysis that distinguishes very, very clearly between sustainability and the field of public management.

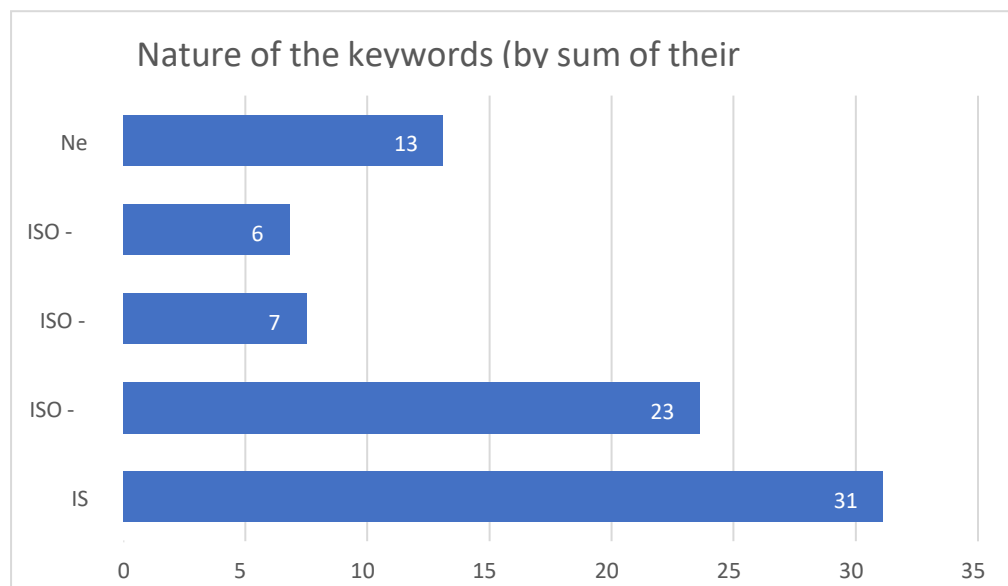
Table 1: Frequency of keywords within the sample associated with the concept of sustainability

Associatedconcept	F	Comment
social	60	ISO - S
management	53	ISO
policy	41	ISO
tax	39	ISO - Ec
debt	36	ISO - Ec
report	32	ISO
environmental	30	ISO - In
responsibility	21	ISO
innovation	21	New
governance	19	ISO
change	17	New
account	16	ISO - Ec
financial	15	ISO - Ec
value	13	New
economic	13	ISO - Ec
strategic	12	New
performance	12	ISO
strategy	11	New
finance	11	ISO - Ec
environment	11	ISO - In
initiative	10	New
transition	9	ISO
green	9	ISO - In
fund	9	ISO - Ec
decision	9	ISO
stakeholder	8	ISO
resource	8	ISO
program	8	ISO
plan	8	ISO
global	8	ISO
commitment	8	New
economy	8	ISO - Ec
deficit	8	ISO - Ec

community	8	New
balance	8	ISO - Ec
accountability	8	ISO
waste	7	ISO - In
risk	7	New
reform	7	ISO
cost	7	ISO - Ec
capacity	7	New
assessment	7	ISO
quality	6	ISO
growth	6	ISO - Ec
expenditure	6	ISO - Ec
budget	6	ISO - Ec
participation	5	New
network	5	New
leadership	5	ISO
investment	5	ISO - Ec
impact	5	ISO
human	5	ISO - S
ethic	5	ISO
efficiency	5	ISO - Ec
climate	5	ISO - In
capital	5	ISO - Ec
benefit	5	ISO - Ec
tax	4	ISO - Ec
spend	4	ISO - Ec
society	4	ISO - S
revenue	4	ISO - Ec
gri	4	~ ISO
equity	4	ISO - Ec
crisis	4	New
collaboration	4	ISO
water	3	ISO - In
standard	3	ISO
stability	3	ISO
regulation	3	ISO
productivity	3	ISO - Ec
poverty	3	ISO - S
iso	3	ISO
goal	3	ISO
gdp	3	ISO - Ec
evaluation	3	ISO

ecological	3	ISO - Ec
digital	3	New
demographic	3	ISO - S
consumption	3	ISO - Ec
conservation	3	ISO - In
common	3	ISO
alliance	3	ISO

Figure 5: Ranking of keywords according to their link with the ISO definition



5. Discussion and conclusion

The analysis of keywords leads us to consider an enrichment of the understanding of the concept of sustainability. Indeed, new disciplinary fields are linked to this concept, such as those highlighted above. Moroccan research dedicated to sustainability could therefore be enriched both by the ISO approach around the economic, social and environmental pillars and by satellite approaches emerging in the international literature. In order to complete this work, a lexicometric analysis has been carried out, in order to build a similarity tree (Figure 5). The lexicometric analysis leads us to note a strong distinction, or at least a lack of link between the concept of sustainability and the field of public management. The tree is not tree-like but rather shows a literature that develops the two concepts rather independently.

This double observation finally represents an opportunity for the field of Moroccan public management and becomes a source of recommendations.

- ❖ ANSALONI M. AND FOUILLEUX E., (2008). Terroir and environmental protection: an undesirable marriage? *Politiques et management public* (Vol. 26/4), 3-24.
- ❖ ARHIN A. A. KUMI E. AND ADAM M.-A. S., (2018). Facing the Bullet? Non-Governmental Organisations' (NGOs') Responses to the Changing Aid Landscape in Ghana. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations* 29 (2), 348-360. <https://doi.org/10.1007/s11266-018-9966-1>
- ❖ BARTOLI A. AND BLATRIX C., (2012). Modest sciences of public action? Public policy and management in the face of the crisis. *Politiques et management public* (Vol 29/3), 289-304.
- ❖ BESEL K. WILLIAMS C. L. AND KLAK J., (2011). Nonprofit sustainability during times of uncertainty: Nonprofit Sustainability during Times of Uncertainty. *Nonprofit Management and Leadership* 22 (1), 53-65. <https://doi.org/10.1002/nml.20040>
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- ❖ CHEVALIER J.-M. EKELAND I. AND FRISON-ROCHE M.-A., (1999). *L'idée de service public est-elle encore soutenable?* Paris: Presses Universitaires de France - PUF.
- ❖ DESMARAIS C. AND MOSCAROLA J., (2008). Content analysis and lexical analysis, the case of a study in public management. Presented at the 9th JADT conference.
- ❖ DUPAS N. MARTY F. AND VOISIN A., (2013). Maturity of financing and public-private partnership contracts: the challenges of mid-term refinancing. *Politiques et management public* (Vol 30/1), 113-130.
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- ❖ FLIZOT S., (2013). Issues and scope of management control and public policy evaluation in the context of strengthening local autonomies. The experience of the Moroccan and Italian states. *Politiques et management public* (Vol 30/3), 359-372.
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- ❖ GUTHRIE J. BALL A. AND FARNETI F., (2010). Advancing Sustainable Management of Public and Not For Profit Organizations. *Public Management Review* 12 (4), 449-459. <https://doi.org/10.1080/14719037.2010.496254>
- ❖ HART M., (2010). Definitions of sustainability. Retrieved from West Hartford, CT: Sustainable Measures website: <http://www.sustainablemeasures.com/node/35>
- ❖ ISO, (2012). Sustainability, sustainable development and social responsibility - ISO definitions and terminology (N° 2012-05; p. 7). Geneva - Switzerland: International Organization for Standardization.

- ❖ JONES K. R. AND MUCHA L., (2014). Sustainability Assessment and Reporting for Nonprofit Organizations: Accountability "for the Public Good". *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations* 25 (6), 1465-1482. <https://doi.org/10.1007/s11266-013-9399-9>
- ❖ KERFALI, S., & GHARRAFI, M. (2022). Contribution to the study of the complexity of public action through the research-intervention method: case of the municipality of Ouarzazate. *International Journal of Accounting, Finance, Auditing, Management and Economics*, 3(4-3), 531-546.
- ❖ LANGERGAARD L. L., (2019). Interpreting 'the social': Exploring processes of social sustainability in Danish nonprofit housing. *Local Economy: The Journal of the Local Economy Policy Unit* 34 (5), 456-470. <https://doi.org/10.1177/0269094219846626>
- ❖ MANFRED BERGMAN ZINETTE BERGMAN AND LENA BERGER, (2017). An Empirical Exploration, Typology, and Definition of Corporate Sustainability. *Sustainability* 9 (5), 753. <https://doi.org/10.3390/su9050753>
- ❖ MARQUES T. M. G. REIS N. R. AND SERRA F. A. R., (2020). Bibliometrics in Public Administration. *Global Encyclopedia of Public Administration, Public Policy, and Governance*. <https://doi.org/10.1007/978-3-319-31816-5>
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Appendix 1: Journals or conference proceedings hosting the sampled papers (if N > 1)

Title of publication medium	N	% accumulated
Journal of Cleaner Production	4	
	4	14%
Public Management Review	8	16%
Public Money and Management	8	19%
Voluntas	8	21%
Evaluation and Program Planning	6	23%
Technological Forecasting and Social Change	6	25%
Construction Management and Economics	4	26%
Corporate Social Responsibility and Environmental Management	4	27%
International Journal of Public Administration	4	28%
Journal of Business Ethics	4	30%
Proceedings of Institution of Civil Engineers: Management, Procurement and Law	4	31%
Proceedings of the International Conference on Industrial Engineering and Operations Management	4	32%
Sustainability Accounting, Management and Policy Journal	4	33%
American Review of Public Administration	3	34%
Architectural Engineering and Design Management	3	35%
International Journal for Housing Science and Its Applications	3	36%
International Tax and Public Finance	3	37%
Journal of Applied Economic Sciences	3	38%
Journal of Sustainable Tourism	3	39%
Lecture Notes in Business Information Processing	3	40%
Meditari Accountancy Research	3	41%
Proceedings of the European Conference on e-Government, ECEG	3	42%
Accounting Forum	2	42%
Business and Society	2	43%
Business Strategy and the Environment	2	44%
Cities	2	44%
Current Issues in Tourism	2	45%
Decision Support Systems	2	45%
E a M: Ekonomie a Management	2	46%
Economic Challenges of Pension Systems: A Sustainability and International Management Perspective	2	47%
Innovar	2	47%
International Journal of Finance and Economics	2	48%
International Journal of Operations and Production Management	2	48%
International Journal of Procurement Management	2	49%
International Journal of Productivity and Performance Management	2	50%
International Journal of Systems Assurance Engineering and Management	2	50%
Journal of Economic Policy Reform	2	51%
Journal of Money, Credit and Banking	2	52%
Journal of Nonprofit and Public Sector Marketing	2	52%
Proceedings of 22nd International Conference on Advancement of Construction Management and Real Estate, CRIOCM 2017	2	53%
Proceedings of the 32nd International Business Information Management Association Conference, IBIMA 2018	2	53%
Public Integrity	2	54%
Public Works Management & Policy	2	55%
Public Works Management and Policy	2	55%
Scientific Annals of Economics and Business	2	56%

Socio-Economic Planning Sciences	2	56%
Sustainable Business	2	57%
Transylvanian Review of Administrative Sciences	2	58%
Utilities Policy	2	58%
Proceedings of the 21st International Business Information Management Association Conference, IBIMA 2013	2	59%

Annex 2: Frequency of keywords within the sample referring to the sector studied

Sector	F
sector	54
procurement	30
service	28
nonprofit	28
government	27
private	26
local	24
corporate	20
pension	18
partnership	18
transport	17
urban	16
organization	16
health	15
administration	14
organizational	11
transportation	10
state	10
ngo	10
market	10
house	10
education	10
profit	9
infrastructure	9
tourism	8
university	7
organization	7
library	7
enterprise	7
institution	6
city	6
business	6
agent	6
agency	6
volunteer	5
mobility	5
governmental	5
energy	5
supply	4
regional	4
municipality	4

institutional	4
hybrid	4
healthcare	4
country	4
construction	4
care	4
smart	3
national	3
nation	3
corporation	3
art	3