

## THE CURRENT STATE AND FUTURE TRENDS OF SCIENTIFIC RESEARCH ON ACCOUNTING AND MANAGEMENT CONTROL THROUGH BIBLIOMETRIC ANALYSIS

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**Abstract:** *Nowadays, entities are more frequently confronted with uncertainty, the complexity of the environments in which they operate increasing the role of financial-accounting information in the decision-making process. Thus, the present research aims to motivate the efficient management of the entity by applying a management and control system appropriate to its specificity. The research also focuses on the relationship between accounting and management control, with accounting playing a role in setting objectives, providing the information necessary for decision-making, and control implementing decisions and evaluating their efficiency, effectiveness and performance. An additional important aspect in the study of the topic is the bibliometric analysis, as a technique for evaluating scientific research in terms of research quality and productivity, research area and trends, thematic development and other relevant aspects. Thus, bibliometric analysis provides an overview of the theme's research at international level and identifies new research dimensions.*

**Key words:** *management accounting, management control, decision making, management, bibliometric analysis*

**JEL:** M40, M41

### 1. Introduction

In today's economic environment, entities are increasingly faced with uncertainty, the complexity and instability of the environments in which they operate resulting in an increasing role for information in the decision-making process, choosing from a variety of possibilities.

Within the entity, managers use information from management accounting to coordinate their decisions regarding the design, production and marketing of a product or service (Bădicu and Mihaila, 2020, p. 12). The information obtained in management accounting is collected, grouped and analysed in order to accurately and truthfully reflect the results of the activity and to determine the

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actual contribution of the subdivisions to the overall results of the entity's activity, in parallel, it is used to choose a strategy, communicate it and determine the best way to implement it (Nederița, 2000, p. 11).

In order to guarantee an efficient management of the entity, it is necessary to apply a management and control system, which would encompass all areas of activity, including the environment and directly external influencing factors, thus, the main problem in ensuring maximum efficiency of the control system is to adapt it to the organizational structure of the entity, which determines and divides responsibilities within the entity (Bădicu and Mihaila, 2020, p. 47).

The entities are particularly interested in the continuous improvement of their own management control, which is able to ensure the timely identification of deviations from the pre-set objectives and, in general, to carry out a profitable activity, which results in high profits, through the efficient use of financial, material and human resources (Ionescu and Iacob, 2015, p. 7). Therefore, management control must be carried out as an organized and coordinated activity. To this end, each entity must organise its own control system, focusing on its economic and financial objectives and ensuring efficient management at the level of the entity and its subdivisions.

The aim of the research is to highlight the relationship between accounting and management control and its implications for the entity's management and decision-making process. The present research also aims to highlight the level of research on the chosen topic at international level, through the prism of the largest scientific databases. Therefore, through bibliometric analysis, the aim is to identify the main research directions in relation to the research topic and potential research trends at national and international level.

The topicality of the subject is amplified by the wide area of knowledge and research on the topic among both researchers and practitioners. At the same time, the importance of the topic is amplified by the perpetual need for entities to know costs and consumption, to evaluate internal activity, to assess the productivity of the economic activity carried out, to set sales prices and others. Depending on this information, the entity's managers take decisions on supply, storage and disposal, etc.

## **2. Research methodology**

The methodological approach to research involves a rigorous and methodical process that aims to ensure the validity, accuracy and relevance of the results obtained in scientific research. This means that the qualitative and quantitative approach lies at the core of the thematic research, as does the use of research methods characteristic of the social sciences, such as: Analytical method (study of literature in the perimeter of accounting and management control), Comparative method (research of relevant aspects of accounting and management

control, as well as their functioning in business entities together and/or separately), Systemic method (totalisation and interpretation of theoretical information and results of bibliometric analysis), Synthesis method (summarising the main links between accounting and management control, as well as synthesising the research directions of scientific research in the area of the topic under analysis and future research trends), Analytical deduction method (presenting one's own view of the topic under study).

The review of the literature is an essential component of the research process, so the focus was on collecting, reviewing and interpreting scientific articles, books and other relevant sources published up to the time of the current research. It can therefore be concluded that in the last few years, accounting and management control have been the subject of research in many national and international scientific papers. Accordingly, the analysis of the literature shows that among the most relevant local authors are: Nederița, A. (Nederița, 2000), Mihaila, S. (Mihaila, 2012), Bădicu, G. (Bădicu and Mihaila, 2020), analogically, in the international literature, the works of the authors Ionescu, I., Iacob, C. (Ionescu and Iacob, 2015), Schaltegger, S. (Schaltegger, 2016), Maas, K. (Maas, 2016).

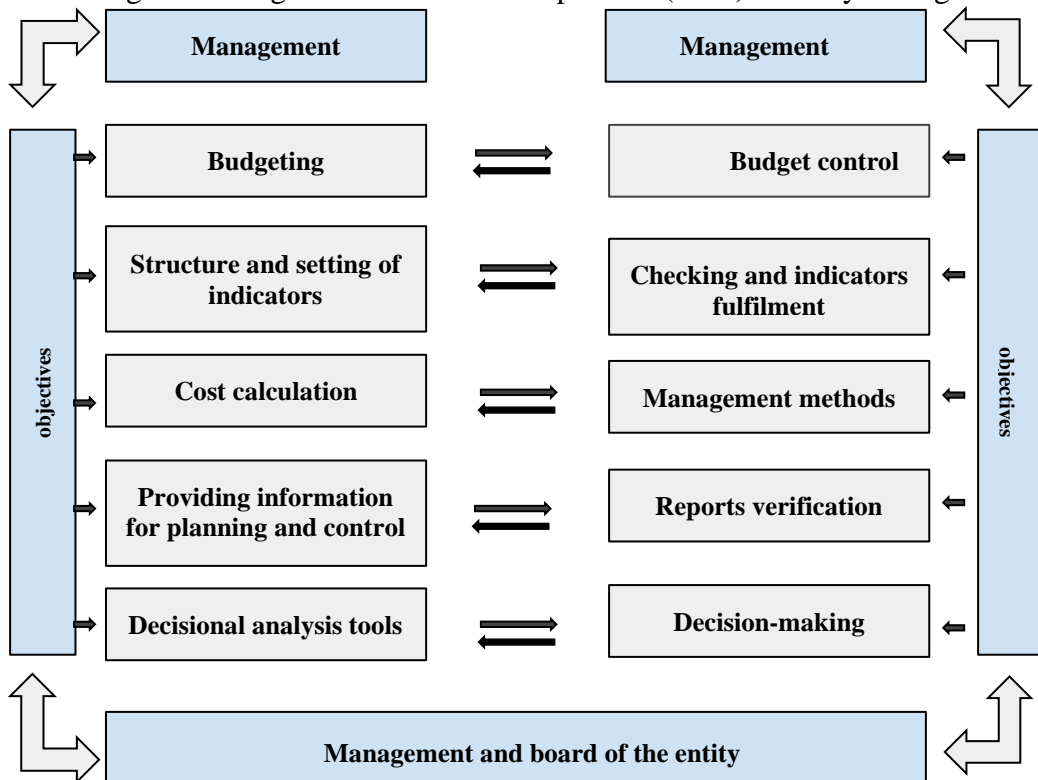
In addition to Qualitative analysis, an aspect that deserves the attention of researchers is Quantitative analysis. In this regard, bibliometric analysis has been carried out as a fundamental method of examination, evaluation and analysis of scientific production in the field of accounting and management control, and the analysis undertaken also provides the reason for the evolution and impact of scientific research in the perimeter of the research topic, as well as the orientation of future research trends.

### **3. Accounting and management control - key components of entity management**

In establishing the relationship between accounting and management control, it should be noted that management accounting contributes to the setting of the entity's future objectives by providing the necessary and timely information for decision-making. Therefore, management control establishes actions and implements decisions, likewise, it contributes to the planning and evaluation of the entity's performance and the necessary information to be provided for the adoption of future decisions.

In the same line of thought, management accounting facilitates the fulfilment of management's control function in order to identify the problematic activities of the entity, or, through the control performed, managers ensure that resources are obtained and used efficiently and effectively (Bădicu and Mihaila, 2020, p. 13-14).

Therefore, Figure 1 illustrates the functional link between management accounting and management control as components (tools) of entity management:

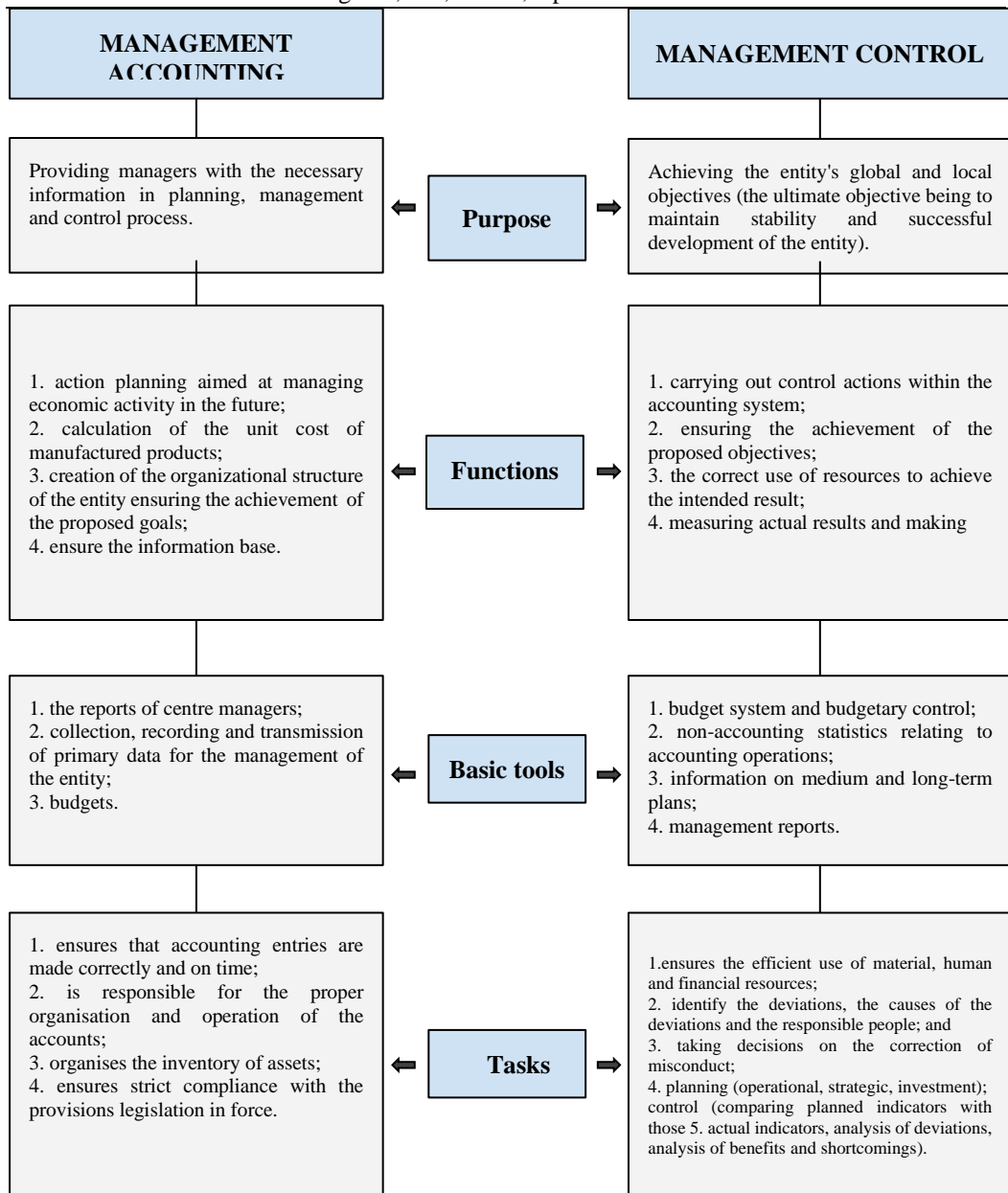


*Figure 1. Relationship between accounting and management control and entity management*

*Source: elaborated and adapted by the author based on (Mihaila, 2012, p. 190).*

As of today, control has begun to be regarded as a system that has its own object, method and functions, and accounting deals with the generalization of information about the organization's activity for the purpose of control actions, and is considered a component part of the control system (Mihaila, 2012, p. 190).

Based on Figure 1, it can be seen that the management accounting - management control relationship is an important point in the management of the entity, with accounting providing the information necessary for management control. Consequently, Figure 2 shows the comparative aspects between them, given that they are interrelated:



*Figure 2. Comparative aspects of accounting and management control*  
 Source: elaborated and adapted by the author on the basis of (Mihaila, 2012, p. 190).

As the socio-economic environment has developed, management control has also evolved and has been oriented towards the information and management needs of the entity's management.

#### **4. Scientific content analysis through bibliometric analysis**

Quantitative analysis allows the analysis and measurement of scientific output and the impact of scientific research by applying certain statistical and mathematical methods to bibliographic information. Basically, the aim of bibliometric analysis is to assess the impact of scientific research, the relationships between authors, publications, institutions and research fields.

Therefore, in order to present an overview of scientific research associated with accounting and management control, two of the largest bibliographic databases, namely Web of Science (hereafter WoS) and Scopus, were used. Therefore, WoS is a global leader in providing reliable information and analysis to accelerate the pace of innovation, similarly, Scopus is a database that provides a variety of metrics to assess the impact of medical research (Scopus vs Web of Science).

In short, both WoS and Scopus are valuable platforms for researchers. Despite differences in coverage, metrics, open access and more, the platforms also share many similarities. Ultimately, the choice between WoS and Scopus depends on user preferences, WoS stands out for its stricter quality control measures and Scopus has a larger database of scholarly papers.

In the context of the above, both databases were used for bibliometric analysis, using the following research criteria: identification of the phrases "management accounting" and "management control" in the subject of the scientific publication, in the period 1975-2023, the results obtained were interpreted with the help of the bibliometric analysis tool Biblioshiny. Therefore, the results of the analysis are illustrated in Table 1:

*Table 1. General information on scientific research published between 1975-2023*

<b>Description</b>	<b>Results</b>	
	<b>Web of Science</b>	<b>Scopus</b>
<b>General information</b>		
Reporting period	1995-2023	1977-2023
Sources (magazines, books, etc.)	136	179
Works	287	371
Annual growth rate of publications, %	6,97	9,53
Average citations per work	28,06	30,69
Bibliographic references	15.333	23.347
<b>Type of work</b>		
Articles	194	275
Conference publications	38	21
<b>Contents of works</b>		
Keywords plus	677	325
Authors' keywords	851	932

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Description	Results	
	Web of Science	Scopus
<b>Authors</b>		
Authors	578	663
Authors of single-authored works	62	98
Multiple-author works authors	516	565
<b>Authors' collaboration</b>		
Works by author	0,497	0,56
Authors per work	2,01	1,79
Co-authors per work	2,33	2,16

*Source: elaborated by the author based on data obtained using the Web of Science platform, processed through the Biblioshiny visualization tool.*

According to Table 1, it results from the WoS database that the first scientific work on accounting and management control appears in 1995, with 287 scientific works published in 136 sources, based on 15,333 bibliographic references. Similarly, in Scopus, the first scientific paper on accounting and management control appeared much earlier, in 1977, with 371 scientific papers published to date, i.e. 84 papers more than in WoS, published in 179 sources and with 23,347 bibliographic references.

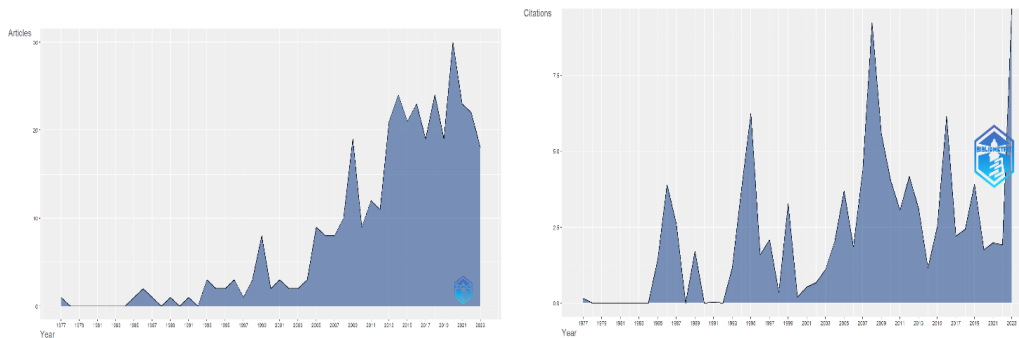
In terms of contents of the works, 677 (WoS) and 325 (Scopus) keywords plus 851 (WoS) and 932 (Scopus) author keywords were identified. Also, in both databases, the preponderance of scientific papers is in the form of articles, i.e. 194 publications and 275 publications, respectively, at the same time, it can be concluded that more authors who published in WoS presented their scientific research in conference publications, i.e. 38 and 21 works.

Overall, the 287 scientific works published in WoS were written by 578 authors, with an average of 0.497 works/author and 2.01 authors/work, which means that at least two authors contributed to each scientific work, with one author contributing 0.497 works. Analogously, 663 authors published their scientific research in the Scopus database, 98 of them authors of single-authored papers and 565 authors of multi-authored papers. Author collaboration shows that there are at least 2 authors per scientific paper, in WoS there are 2.33 co-authors per work and in Scopus 2.16 co-authors per work.

Therefore, considering that in the Scopus database the research area is larger, the following will present results interpreted by the Biblioshiny visualization tool following the analysis of the identified scientific contents by research category.

*The annual scientific productivity and the annual average number of citations* indicate that the most scientific papers were published in 2020, i.e. 30, while in 2018 and 2014 24 scientific works were published and in 2021 and 2016 23 scientific works were published, moreover, the annual growth rate of

publications in the period under review is 8.36%, which indicates a considerable increase in research in this direction. Similarly, on the basis of Figure 1 it can be seen that the top average citations per article are recorded in the years 1995, 1986, 2008 and 1994, with 175, 144, 138.5 and 109.5 average citations per article, similarly, the top average citations per year relieve the years 2008, 1995, 2016 and others, with 9.23, 6.25 and 6.15 average citations per year.

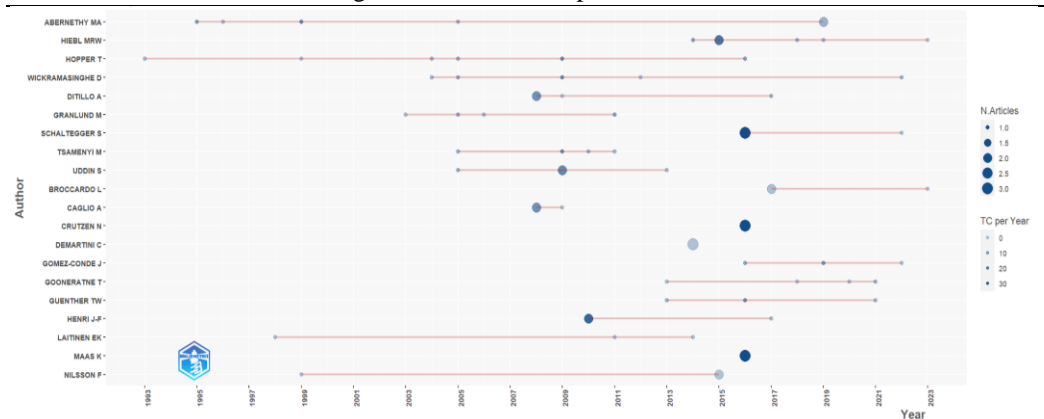


*Figure 3. Annual scientific productivity and average annual citations from 1975-2023*

*Source: elaborated by the author based on data obtained using the Web of Science platform, processed through the Biblioshiny visualisation tool.*

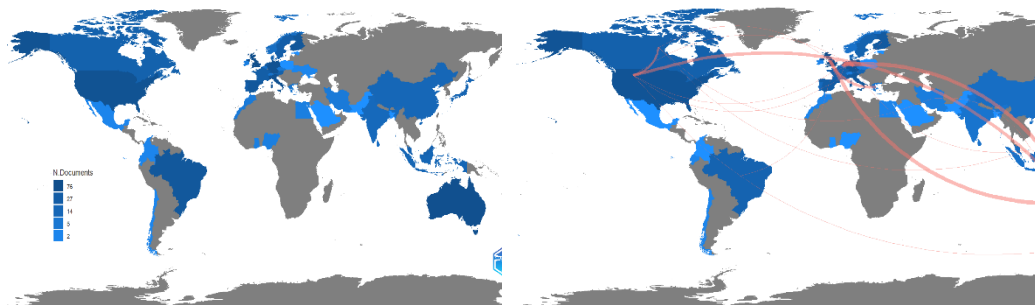
*Relevant authors and affiliations* highlights the most significant and productive authors in terms of publications on the researched topic, thus, based on Figure 4 highlights the author Schaltegger, D. who in 2016 published 3 articles on accounting and management control, with a total number of citations of 31.12, which highlights the relevance of his research in the perimeter of integrating corporate sustainability assessment, management accounting, control and reporting (Schaltegger, 2016). Likewise, the author Maas, K. is highlighted, who in 2016 published 3 articles on the topic of advancing the integration of corporate sustainability measurement, management and reporting (Maas, 2016), with a total number of citations of 31.12. In addition to the most relevant authors, it is appropriate to highlight the most relevant affiliations in terms of frequency of publication, namely: University of Turin - 9 publications, Copenhagen Business School, University of Colombo - 7 publications, University of Siegen, Lancaster University Management School - 6 publications etc.





*Figure 4. Annual scientific productivity of top authors from 1975-2023*  
 Source: elaborated by the author based on data obtained using the Web of Science platform, processed through the Biblioshiny visualisation tool.

*Demographic distribution of publications and international collaboration* highlights that most scientific works were published in the UK, i.e. 76 scientific works. Similarly, the most productive countries include Australia, Italy, Germany, the United States and Finland, whose researchers have published 64, 61, 57, 55 and 42 scientific works over time. At the same time, in terms of citations by other researchers in their papers, the most cited scientific papers come from the United Kingdom - 3,044 citations, Finland - 1,253 citations, Germany - 512 citations, Canada - 373 citations and others, so it can be seen that the countries that are most productive in terms of research on the subject of accounting and management control are also the most cited, but this is not an absolute rule.

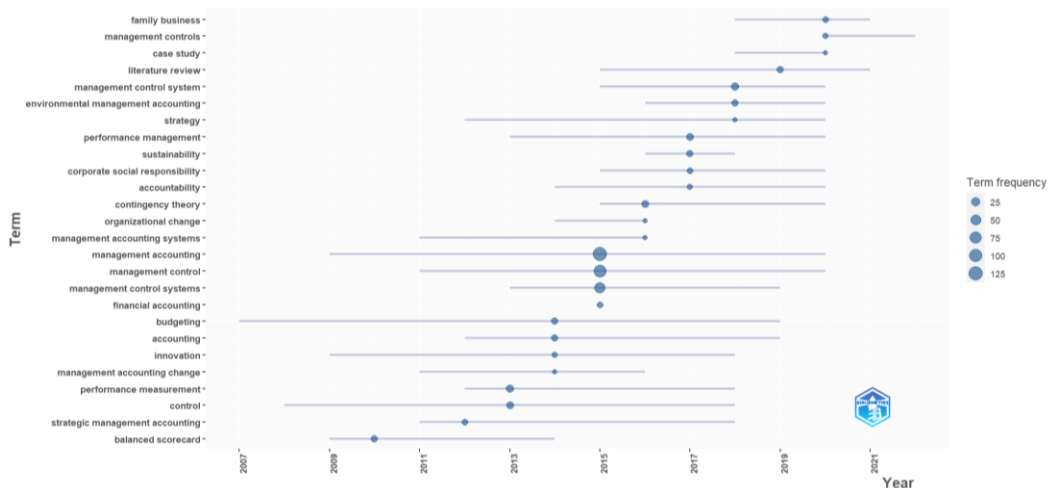


*Figure 5. Demographic distribution of publications and scientific international collaborations between 1975-2023*  
 Source: elaborated by the author based on data obtained using the Web of Science platform, processed through the Biblioshiny visualization tool.

Similarly, Figure 5 shows that most international scientific collaborations took place between Australia and the Netherlands, the United Kingdom and Australia - 6 collaborations, Australia and the United States of America, Germany

and the Netherlands - 5 collaborations, Germany and Belgium, the Netherlands and Belgium - 4 collaborations and others.

*The content of scientific works and the research axis* are shown in Figure 6, by the topics frequently addressed in scientific research on accounting and management control, namely: management accounting - 128 appearances, management control - 85 appearances, management control systems - 56 appearances, performance measurement, performance management - 18 appearances, control - 12 appearances, budgeting, literature review, balanced scorecard - 10 appearances and others. Obviously, the topics reflect the authors' concern for improving the management of the entity, the decision-making process, the efficient use of economic resources and its performance.



*Figure 5. Graphical presentation of the areas of scientific interest in the period 1975-2023*

*Source: elaborated by the author based on data obtained using the Web of Science platform, processed through the Biblioshiny visualisation tool.*

*Relevant keywords* used by authors of scientific works indicate the main direction of research. As can be seen in Figure 6, over the period analysed, certain keywords have shown a considerable upward trend, such as management accounting, management control, management control systems, performance measurement, control, which in 2023 had 128, 85, 56, 18, 17 and 12 cumulative occurrences.

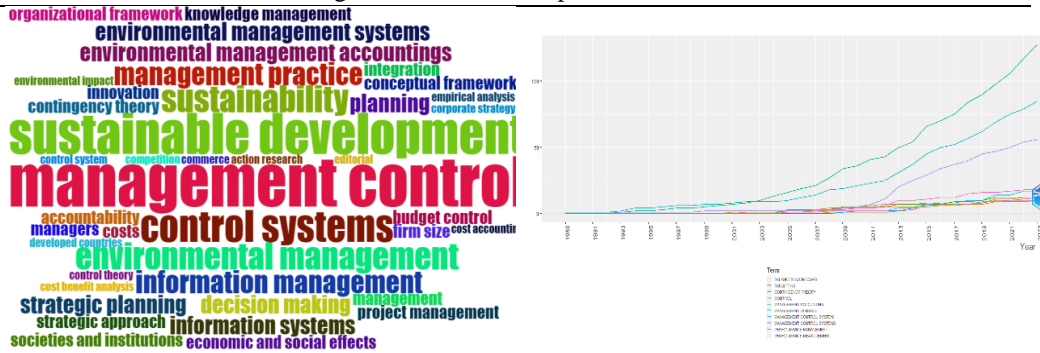
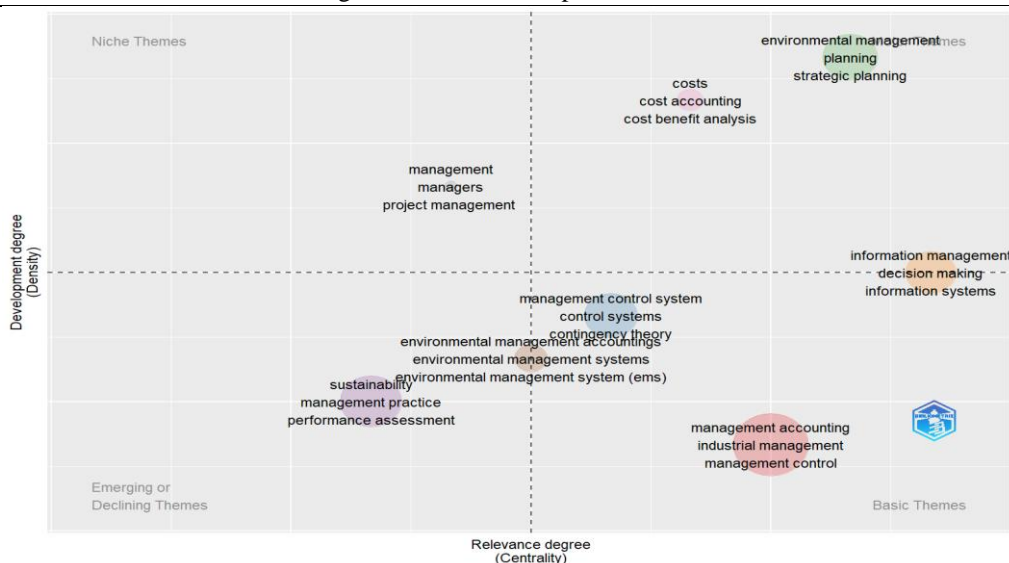


Figure 6. Evolution of relevant keywords in scientific papers between 1975 and 2023

Source: elaborated by the author based on data obtained using the Web of Science platform, processed through the Biblioshiny visualisation tool.

Analogously, Figure 7 shows the researchers' framework of interest, summarising the main keywords used within a coordinate system according to the degree of relevance (horizontal axis) and the degree of development (vertical axis). Thus, the keywords characterising the basic themes addressed by the authors of the scientific papers are: management accounting, management control, management control systems, control systems, contingency theory, information management, decision making, information systems. The authors also focus their research on keywords or driving subjects such as: costs, cost accounting, cost benefit analysis, planning, strategic planning, environmental management and others. In addition to the above, it can be concluded that the niche theme of the identified researchers is captured by the keyword "management", which focuses on the proper management of the entity and its processes. Moreover, the quadrant of declining themes points to the fact that there are less and less scientific works that address these keywords as the basis of scientific research, such as: sustainability, management practice, environmental management systems, etc.



*Figure 7. Thematic evolution of scientific research between 1975 and 2023  
 by degree of relevance and development*

*Source: elaborated by the author based on data obtained using the Web of Science platform,  
 processed through the Biblioshiny visualisation tool.*

On the basis of the bibliographical analysis carried out, it can be concluded that the first scientific study dealing with the relationship between accounting and management control dates back to 1977, over time, there is at least one scientific work on this topic, moreover, since 2000 there are at least 2 scientific works, the peak being reached in 2020 with 30 scientific works per year. The average age of scientific works is 9.53 years, which indicates that most of the research is relatively recent and that there is a constant flow of new information in the field of accounting and management control.

## 5. Conclusion

The management control, entity management and management accounting, is the science of entity management. Therefore, it is a new qualitative phenomenon in the theory and practice of entity management, in other words, a process of integrating traditional methods of planning, record-keeping, control and analysis into a single system of obtaining, processing and summarizing information and the process of making managerial decisions based on this system (Mihaila, 2012, p. 192).

To conclude, accounting and management control are present in every entity that carries out an economic activity, which is why the management system becomes the "right hand" of the entity's management, being a support and guide for executive management.

In turn, management accounting provides managers with the necessary information that enables them to understand the dynamics and processes taking place in the entity, operational information on the basis of which they can make relevant decisions, forecast the results of the decisions taken and, at the same time, have the levers necessary to carry out permanent and effective control, thus ensuring performance management (Bădicu and Mihaila, 2020, p. 9-10).

Moreover, management control extends to all areas of the entity's economic activity (production, supply, marketing, technical) and manages the influence of various internal and external factors on them. Moreover, the quality of management control depends on its ability to guarantee the quality of management through the use of control instruments.

Consolidating the results of the bibliometric analysis, the following research directions can be identified which could be discussed in future scientific research:

- the role of management accounting in the decision-making process;
- the relevance of costs in underpinning operational and strategic decisions;
- the organisation and exercise of management control within the entity;
- the implementation of systems for evaluating the entity's performance;
- the control of the entity's costs through budgeting.

Considering the ever-changing economic environment, there will be even more topics for analysis, and researchers must be constantly concerned with the transformations that have occurred, with the analysis of new methods and systems that would facilitate the management of domestic entities, in this endeavour, international practice constitutes a fertile environment for research and implementation of new innovative ideas.

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