



## Scientometrical Analysis On The Use Of Cost Information In Decision Making By Using Managirieal Accounting Cocept

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**Abstract :** *From simple analytical cost accounting, it has now reached an integrated system to meet the needs of managers regarding the measurement of enterprise performance and the need to make the best decisions. The field of using costs in decision-making has become multifunctional and has expanded into all branches of activity, including non-productive ones. The purpose of this research is to see how motivated are the concerns of research in the academic world related to the field of costs and their usefulness in decision-making based on scientometric analysis with the help of two software tools, namely OpenAlex and VoSviewer. From the scientometric analysis undertaken, the conclusion emerges that research in the field of the use of costs in decision-making developed rapidly after 2014, with the number of journals in the economic field doubling between 2015-2024. However, there is an interconnection between the terms of one cluster and the terms of another cluster, which demonstrates the fact that the issue of costs and decisions cannot be reduced only to the field of management accounting, it requires a holistic vision and cooperation between various fields, the basis remaining however, the level of the economic field.*

**Keywords :** *cost, decision, scientometrics, OpenAlex, VoSviewer, evaluation, managerial accounting*

### INTRODUCTION

Studying the specialized literature, we find that there is no single concept of cost that is valid in all circumstances, practically, we need different concepts of cost because the goals are also different and, moreover, they gain practical meaning only by relating to the objectives for which their evidence is necessary.

Based especially on the vision of Kaplan and Atkinson, most authors analyze cost information in close connection with the decision.

In the decision-making process, the cost information system plays an important role within any entity, the American specialized literature defining the role of costs as being the financial manager of the entity itself.

Any entity seen as a constellation of centers of activity and responsibility leads to the idea that the main attention of management must be directed to the control of operations and activities carried out and, last but not least, to costs because the cost information system monitors the results of all other centers within the entity.

We note the existence of the concerns of most authors in the direction of the detailed analysis of expenses, either in the form of expenditure items from the budget, or in the form of performance measurement indicators, or in the form of indicators that are the basis of the financing of the activity carried out.

Therefore, the concepts of costs must not be interpreted absolutely, their analysis and estimation must be done in the context of a certain situation and in certain time intervals.

Concerns related to cost accounting in some countries, and within them in some branches of activity, are however secondary. But we can ask ourselves the question, if the cost information is less useful for making managerial decisions, for the operational tracking of expenses and their control, as well as for forecasting, then what is the value of such information?

Between cost information and the financing decision, the relationship is inversely proportional, and each cost information system can only be unique and will have to meet the requirements of each structure in the analyzed economic system.

## **LITERATURE REVIEW**

Notions related to costs should not be interpreted in an absolute manner, because normally, they require analysis and estimations to be made in the context of a certain situation and within a certain time frame.

The information system provided by cost management accounting is an important resource in any economic entity for decision-making. In the management accounting literature, it is mentioned that cost information is a true manager.

Cost information is useful throughout the activity, many of the economic entities emphasizing the operativeness of obtaining the information and not its accuracy. Andrew Carnegie (1872-1902), the founder of the giant American steel company "Carnegie Steel Company", believed that the efforts of managers must be directed towards costs because, if they can control costs, profits will appear by themselves, an opinion joined by R.S. Kaplan and A.A. Atkinson (1998).

The possibility of management action on costs is given by the degree of knowledge of the field of application of the cost and the identification of those over which it can exercise control or not: irreversible cost vs. reversible cost, controllable cost vs. managed cost (uncontrollable), determined cost vs. discretionary cost, visible cost vs. hidden cost (invisible), internal cost vs. external cost

We observe that managerial decision-making power manifests itself over internal, controllable, visible, reversible and determined costs, which suggests that the decision-maker's power over costs is limited.

If we consider the opinion of H.Bouquin (2004) who brings into discussion the three questions that define the management "charter" (which costs must be observed?, on which

horizon?, to compare them with what?), the idea emerges that cost information should be considered tools to create value at a lower cost.

Unlike traditional management accounting, the new tools of modern management that aim at total quality, analysis and management by activities, involve global cost management. The performances achieved by the Japanese industry are precisely due to the fact that, as Imai Masaaki emphasized (cited by Lorino, 1997), a process-oriented way of thinking was approached.

The period that followed the 1980s is characterized by a strong manifestation of research for the use of the ABC (Activity-Based Costing) method, which allows better management of resources by focusing on the most profitable activities. However, the impact of this method on organizational performance depends on how information is generated to make informed decisions and implement concrete actions. In this direction we find many empirical studies that examined the effect of the ABC method on a company's performance (Shields, 1995; McGowan and Klammer 1997; Gosselin, 1997; Baird, 2007; Cagwin and Bouwman, 2002; Ittner et al., 2002; Pizzini, 2006; Banker et al., 2008; Zaman and Nozile, 2016). Interest in the ABC method peaked in the 1998s, after which it declined significantly, giving way to other integrative decision costing methods.

Against the background of the opposition encountered by the ABC method and the decrease in interest for it, three authors, Kaplan (2004), Brimson (1991) and Johnson (1991), embark on a differentiation strategy that contributes to the outline of three derived methods, respectively : time driven ABC, feature costing and MBM (management by means) considered as management accounting models and not simple calculation techniques.

According to N. Hedhil (2013), Time-Driven-ABC is a method that is based on the estimation of two parameters which are: the unit cost of a group of resources and the time required for this group to carry out the activity, a method that with less collection of information and time we arrive at the same result as the ABC method. In addition, the TDABC method makes it possible to calculate undercapacity or overcapacity and leads to fair investment decisions.

Following the thematic area "the use of costs in decision making, 2015-2024", we can see that in order to make a decision, the authors placed their writings on fields of activity trying to answer certain questions, such as:

- Which costs are influenced by the decision to be taken by the company's managers?
- What is given up if one solution is chosen instead of another (deciding means giving up)?

- What will be the cost behavior after the decision is made? What will be the logic and what laws will they follow?

- What actions can be taken on costs?

- Which calculation methods best respond to decision-making

This aspect leads us to the conclusion that decision-making has mostly been studied separately from action control, assuming that the former is based on the purpose of the action and not on its execution.

## **OBJECTIVES AND QUESTIONS**

Regarding the use of cost information in decision making, we find that the literature on this topic has grown rapidly over the last decade, but most of the work revolves around resource management, supply chain management, portfolio and program management, knowledge management, product management, sales and delivery, etc. (Miterev, Turner and Mancini 2017), both in the economic field, but also in other fields of activity.

The purpose of this research is to see how motivated are the concerns of research in the academic world related to the field of costs and their usefulness in decision-making based on four questions:

- What is the period in which the most papers related to the usefulness of cost in decision-making were published?

- How many clusters can be identified internationally based on the authors' cost and decision concerns?

- What is the geographical distribution of the authors and to what extent have the Iraqi authors shown concerns in this field?

- What are the future trends of management accounting derived from the content of the published articles and where can the information on the use of costs in decision making be found?

## **METHODOLOGY AND DATA**

To answer the formulated questions we used scientometric quantitative research based on two software tools, namely OpenAlex and VoSviewer.

OpenAlex is a bibliographic catalog of scientific works, authors and institutions accessible in open access mode, named after the Library of Alexandria. It was launched in January 2022 by OurResearch as a successor to the discontinued Microsoft Academic Graph. OpenAlex competes with commercial products such as Clarivate's Web of Science or Elsevier's

Scopus, and is complemented by bibliometric tools and an API.

Using the OpenAlex tool and the search engine "the use of costs in decision making, 2015-2024", we found 23,931 results, free access being 97.4%, respectively 23,313 publications, embodied in articles, book chapters, books, reviews etc., 66.7% being articles.

The scientometric analysis carried out according to the search engine "the use of costs in decision making, 2015-2024", on 15.09.2024, highlights the multitude of international concerns in the analyzed field, with 13086 authors (teaching staff, doctoral students and specialists) identified ) come mainly from the university environment, most representing the University of London (505), but the number of authors coming from other universities in other countries is not to be neglected either (University of Melbourne – 103, Harvard University – 95, University of Oslo – 90, University of Toronto – 77, University of Indonesia – 69, University of Hong Kong – 58 etc).

The topic of research areas is vast and reveals the fact that when you research the performance in a field you cannot do it outside the analysis of the cost-value couple and the decisions that can be made based on this analysis. Starting from this aspect and to answer the formulated questions, I used the VoSviewer program that allows the construction and visualization of bibliometric networks, i.e. groups of words that often appear together (clusters) in a publication.

## **RESULTS AND DISCUSSION**

### ***a) What are the future trends of managerial accounting derived from the content of published articles and where can information be found regarding the use of costs in decision-making?***

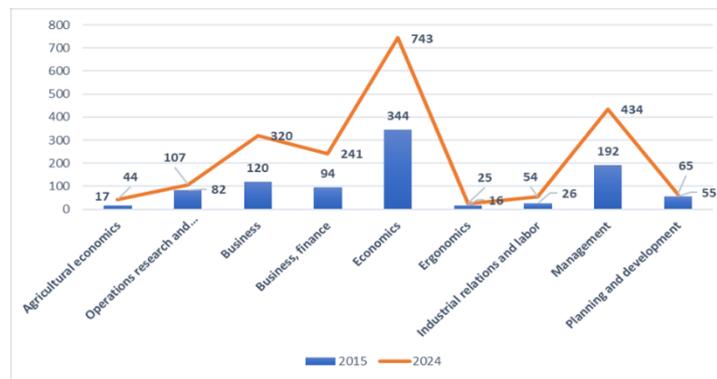
With the rapid evolution of the market and technologies, management accounting plays a crucial role in business strategy. Companies are moving towards more integrated and automated accounting systems, enabling real-time data collection and analysis. This shift to automation and systems integration provides a clearer, more instantaneous view of a company's financial health, facilitating more informed and timely business decisions.

This shift to modern approaches highlights the growing importance of management accounting in strategic decision making. Adopting these new technologies and methodologies not only improves operational efficiency, but also predicts future trends, giving businesses a significant competitive advantage.

Publishing articles in scientific journals is a major challenge, especially for academics and researchers, as it is an essential vector for substantiating the maximization of the impact of the results obtained in business decision-making based on accurate data.

Internationally, there are currently 25,065 journals targeting various fields and which can be grouped into specialized journals, generalist or interdisciplinary journals and professional journals.

The global situation of ISI VOS categories associated with economic fields (figure no. 1) shows a substantial increase in the number of journals in 2024 compared to 2015 by 2.38 times.



**Figure no.1. The comparative situation of magazines in the ISI VOS categories associated with the economic field, year 2024 compared to year 2015**

Source: Owned by author based on information gathered from Master Journal List, <https://mjl.clarivate.com/search-results>

***b) What is the period in which most papers were published regarding the usefulness of cost in decision-making?***

The search for an answer to this question takes into account the statement made earlier regarding the fact that "decision-making has mostly been studied separately from action control, assuming that the former is based on the purpose of the action and not on its execution".

The grouping of the information related to the OpenAlex database and exported to the VoSviewer software (figure no. 2) in the order of their publication, confirms the fact that research on decision-making was not from the beginning coupled with research on the role of costs at the level of enterprise management.







Concerns in the field of using costs in decision-making are not limited only to the picture shown in figure no.5. generated based on the restriction that each author has published at least 5 articles. The reality is variable, there are authors who have published more than 5 articles, while others have published only one article.

## **CONCLUSIONS**

Making strategic decisions within a company requires an in-depth and accurate analysis of financial data. This is where management accounting plays a crucial role, providing detailed information on costs, revenues, margins and the performance of various business segments. This data allows executives to understand where the business is generating value and where it may be vulnerable. However, a major drawback is the complexity and time required to analyze this information, which can sometimes delay decision-making. In addition, management accounting provides a solid foundation for budgetary planning and control, two essential elements of business strategy. It helps identify gaps between actual performance and planned goals, enabling real-time adjustments to achieve set goals. However, it is important to note that the quality of the decisions made is highly dependent on the accuracy of the data and analysis provided. Misinterpretation of data can lead to erroneous strategic decisions, endangering the financial health of the company.

From the scientometric analysis undertaken, the conclusion emerges that research in the field of the use of costs in decision-making developed rapidly after 2014, with the number of journals in the economic field doubling between 2015-2024. However, there is an interconnection between the terms of one cluster and the terms of another cluster, which demonstrates the fact that the issue of costs and decisions cannot be reduced only to the field of management accounting, it requires a holistic vision and cooperation between various fields, the basis remaining however, the level of the economic field.

In the stated context, research on the use of cost in decision-making requires a multidisciplinary approach, with a holistic view and cooperation between various fields, such as accounting in general, management accounting in particular, but also computer science, environmental science, government corporate, sustainable development, finance, etc.

Most of the research belonging to teaching staff, resident PhD students or from other countries and specialists can be found in Great Britain, but equally we can find universities from other countries such as Australia, France, Germany, Sweden, etc. Regarding the United States in the "countries" topic, it does not appear in the foreground because the VoSviewer analysis is carried out on universities belonging to the universities of the component states,

instead the map accumulates them and positions the United States in the foreground. Although, with a small contribution, we also note the contribution of authors from Iraq to research in the field of costs and decisions, an aspect that highlights the interest given to this field of research from around the world.

The contribution that the present research brings is of a theoretical and methodological nature through a systemic approach to the VoSviewer databases, even if some limitations related, on the one hand, to the exact terminology used by the authors who published on the topic of the use of costs in taking decisions and which made documentary research difficult, on the other hand, by the systemic examination method associated with the accessibility of literature sources that led to the possibility that some works (theses, book chapters, books) were not taken into account.

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