

## A Bibliometric Review on Activity-based Costing in Services: Exploring Current and Future Trends

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### Abstract

The aim of this study is to identify the major present and future issues identified in the literature on Activity-Based Costing (ABC) implementation as searched by the Web of Science database, with a focus on papers published between (1991) and (2001). (2022). Furthermore, the purpose of this literature review is to emphasize the most important ideas while also laying the groundwork for future research on Activity-Based Costing (ABC) that employs bibliometric analysis. The analysis identifies some of the most common terms. But also the most significant writers that referenced this topic in their research findings, the journals that are most cited in the articles evaluated, and the nations with the highest efficacy. The VOSviewer tool was used to analyse data for keywords and geographical location based on Activity-Based Costing (ABC). It acquired (1725) Web of Science papers classified. Smart libraries, which enable large-scale networking and sharing, will be the future development paradigm for new libraries. It is people-oriented and has the potential to enhance management and service by explaining the significance and benefits of using Activity-Based Costing (ABC) in services.

**Keywords:** Activity-Based Costing (ABC), Bibliometric Analysis.

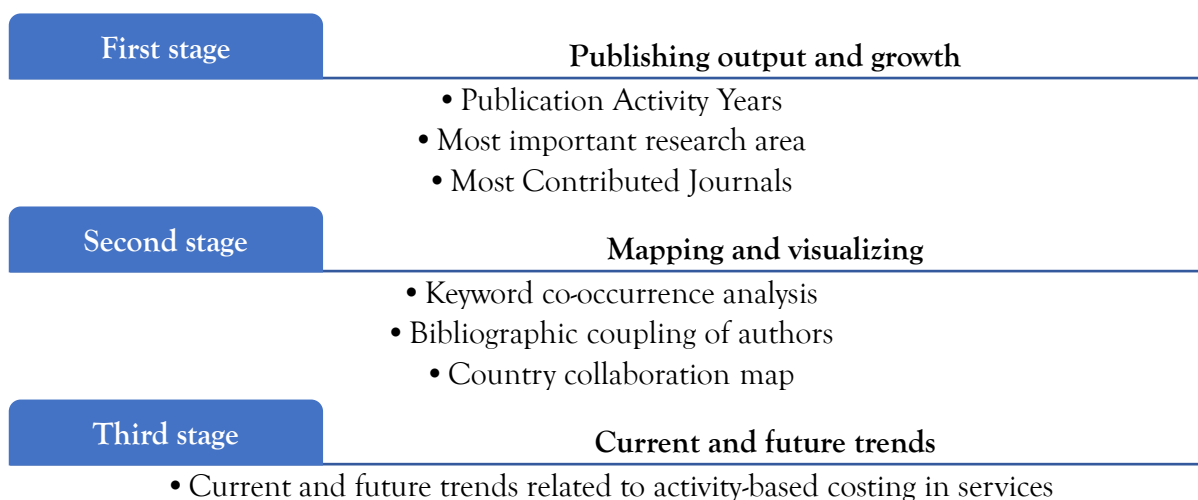
### Introduction

Managers require particular knowledge to enhance the effectiveness of their supervision. They usually lacked responses to two crucial issues: what are the drivers of income, and how could the institution's efficiency be enhanced? Government makes choices without accurate cost analysis, therefore the requirement for calculating service or product costs using Activity-Based Costing (ABC) is underlined. The main feature of the ABC technique is that it seeks to remove errors produced by the random assignment of overhead expenses obtained in previous systems. Nevertheless, ABC is one of the approaches developed and published about its implementation (Ali et al., 2022; Bowser et al., 2021; Jarrar et al., 2021; Jimenez et al., 2020; Madwe et al., 2020; Wang et al., 2019; Elshaer, 2022).

In conjunction with the examination of vendor cost of ownership, the ABC method addresses the client as the goal of cost analysis (Vetchagool et al., 2021; Making, 2020; Aljabr, 2020). The concentration is on becoming more aware of how overhead expenses behave. The ABC method is based on the assumption that goods consume tasks, tasks use resources, and resources spend costs. Therefore, the words tasks, drivers, and resources are critical for comprehending ABC. A task is the outcome of the application of technological, financial, and human resources to the production of goods and services. The cost driver seems to be how costs are allocated to tasks; these are the foundation of ABC and strive to identify the source of the cost and build a reason link (Liu et al., 2021). Materials or inputs are required expenditures resulting from the government institution's daily activities, such as amortization, water, labour, and power. A component of resource consumption is the quantity of each driver linked with the task that you need to cover (Lievens et al., 2003).

To economic expansion and growing competition, the government's services sector decided to search for innovative control techniques in order to monitor the more demanding marketplace. Regarding the many features of the production process (Go and Weng, 2021) sector, it has been pursuing and applying cost-cutting techniques. Because of the present economic situation, service firms perceive the requirement to efficiently identify, monitor, and control their expenses. Therefore, investing in initiatives targeted at lowering production costs is critical. Expenditure that, with a little forethought, might sometimes be easily avoided or at least minimized, frequently turn out to be linked to the overall cost of goods and/or services. In particular, cost controls in service institutions have certain characteristics with those used in industry such as production order (Hasnine and Habib, 2021), contribution margin, and balancing point are examples of such concerns that may be utilized in a variety of service institutions.

Therefore, this article aims to structure a bibliography to check the use of the ABC method in service and explore current and future trends (Khalilpourazari and Doulabi, 2022; Quesado, and Silva, 2021; Cidav et al., 2020; Kissa et al., 2019; Sunil et al., 2022) and contribute to scientific community discussions. A bibliometrics-based literature review was used, as well as qualitative and quantitative analysis of the articles (Quesado and Silva, 2021; Ninerola et al., 2021; Lv and Ma, 2019; Hi et al., 2020; Bertran et al., 2018). The databases used to choose



- Figure 1 Proposed structure for the paper. Source: Author.

the papers were the portal WoS core collection since it is extensive and interdisciplinary (and can be accessed via the portal Capes), and the search period ranged from 1991 to 2022. The method was divided into three stages: publishing output and growth trend, mapping and visualizing, and current and future trends.

## **Methods**

The system mapping research (SMS) literature-based approach was used in this study, along with bibliometric analysis. The use of co-occurrence to identify the most important topics and examine their trends across time. SMS may also classify and display contributor networks and related contributions. For this analysis, the Web of Science (WoS) database was utilized to collect bibliometric data on Activity-based costing literature. Because WoS is the most extensive and oldest citation database, its coverage of academic papers is more comprehensive, covering all top journals published since 1950. Therefore, the bibliographic data on Activity-based costing was collected exclusively from this database. The papers were obtained from the Web of Science in October 2022. (WoS). (Activity-based costing), period (1991-2021), and keywords/terms were the search keywords (Activity-based costing). After filtering by document type (article) and language for English, 1725 documents were selected for further examination. VOSViewer, a program created by van Eck and Waltman (2010), and Microsoft Excel were used to evaluate the papers (Ninglasari, 2021).

## **Results and Discussions**

### *Publication Output and Growth Trend*

The number of papers published by a specified unit (journals, institutions, countries, etc.) over a specific time is used to calculate publication activity. Indicators of publication activity provides us with a quantitative evolution and structure of the topic, as well as the ability to identify the most representative journals and countries publishing in a discipline. We can also determine the subjects addressed during the research period. Microsoft Excel® spreadsheets were utilized in this study to investigate qualitative factors such as activity sector, study dimension (cross-sectional or longitudinal), or methodologies used in different studies (quantitative study, qualitative study, etc.).

### *Top papers, Authors, and Journals*

This section summarizes the key bibliometric analytic findings used to assess the evolution of the literature on activity-based costing during the period of the study (1991-2022). This paper looks at the most relevant and productive countries, and authors, as well as their relationships. According to the findings, in recent years, the literature on activity-based costing has grown at an exponential rate. As seen in Fig. 1, publishing activity in 1996 was quite low, with only 23 papers. Despite this, there has been a decrease in papers in 2002 and 2004. The evolution may be seen to have numerous peaks in 2008 (n = 82) and an ascending trend in 2016 (n = 117). By 2020, the number of papers had grown (n = 131) but in 2021 a light decrease was happened (n = 126). Given that the year isn't through, the number of papers is likely to remain high till the end of 2022 (n = 68). In terms of citations, the 1725 papers have received a total of 14205 citations. The average number of citations per publication is 11.69. Figure 2 shows that the number of citations has increased exponentially with the number of published papers. This increase demonstrates that the cost of government services based on activity is increasing with time, making it a significant aspect of the system in the process of calculating and implementing service charges correctly.

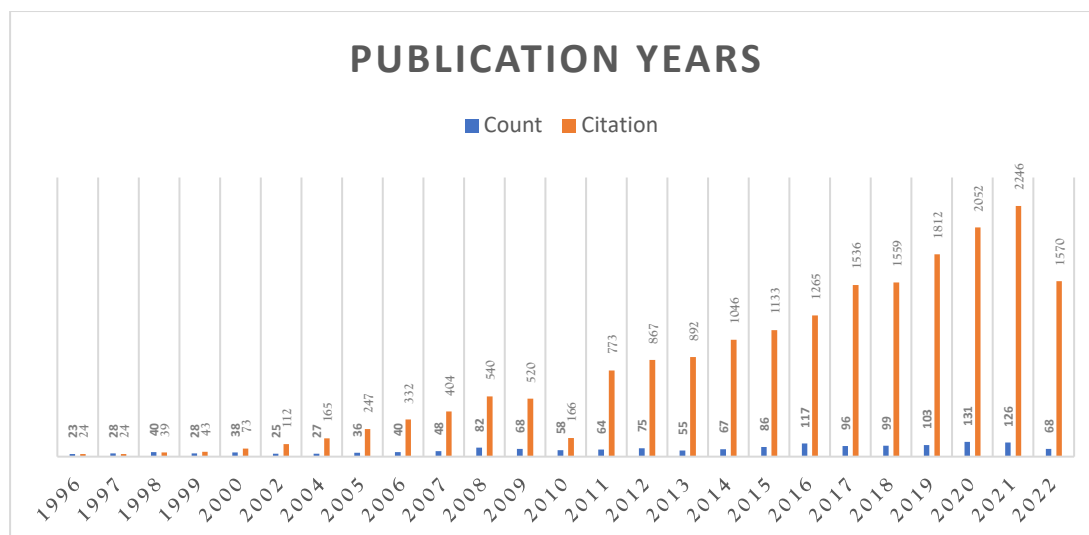


Figure 2 ABC Publication Years from 1996 to 2022

Table 1 presents the most productive research areas of WoS on ABC. Business Economics is the category with a major number of papers (28.87%). Following that, it was discovered that business economics and engineering play an important part in the application of the cost of activity-based services. As a result, the process of creating the computation of service costs is continual and critical.

Table 1  
Most ABC important research area

No.	Research Areas	Count	%
1	Business Economics	498	28.87
2	Engineering	444	25.739
3	Operations Research Management Science	249	14.435
4	Computer Science	220	12.754
5	Health Care Sciences Services	140	8.116
6	Surgery	80	4.638
7	Radiology Nuclear Medicine Medical Imaging	72	4.174
8	Orthopedics	63	3.652
9	Oncology	62	3.594
10	Public Environmental Occupational Health	58	3.362

Figure 3 shows the list of journals with the highest presence of papers related to ABC. The first is International Journal of production economics, which has 50 articles, accounting for 2.9 % of the total. International Journal of production research comes in second with 37 papers, followed by Sustainability (17), BMC health services research (16), International conference on industrial engineering and engineering management (15), and BMG open (15 papers). These six journals account for 8.70% of all papers published. As mentioned above, are mainly specialized in ABC.

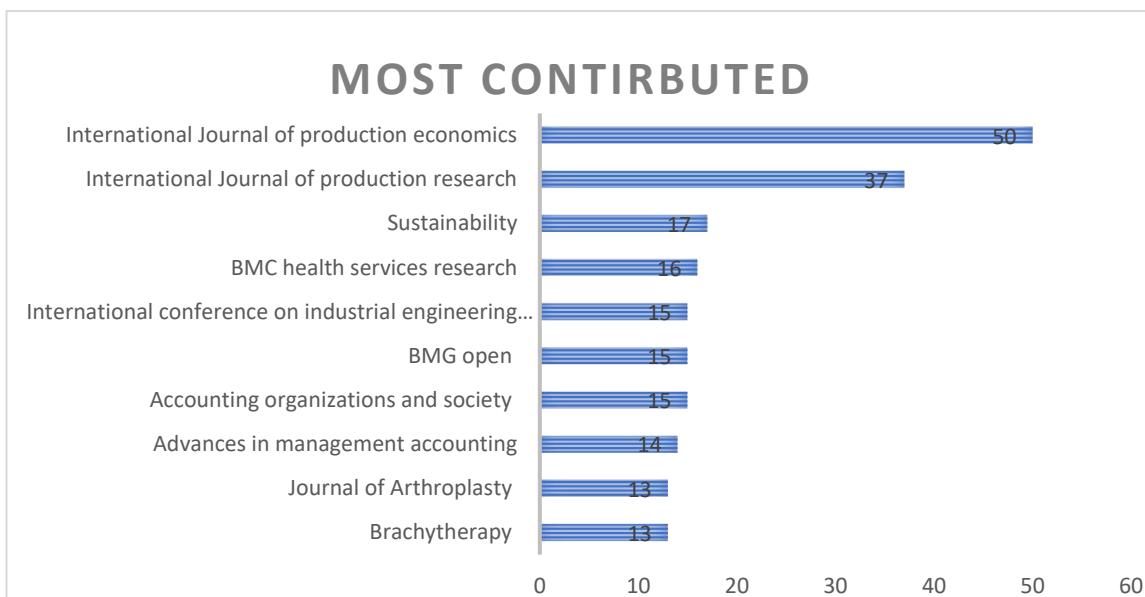


Figure 2 Most ABC Contributed Journal

### **Bibliometric analysis: Mapping and visualizing**

The following subsections investigate the different maps created by VOSviewer, start with a keyword co-occurrence analysis and extending to a bibliographic coupling of authors.

#### **Keyword co-occurrence Analysis**

Co-occurrence analysis is one of the most effective methods for finding trends and new study ideas on a certain field. It is a multidimensional and relational indicator. The research of co-occurrences, or joint appearances, of two terms in a given text to establish the conceptual and thematic structure of a scientific subject is known as co-word analysis. After the choice of the terms to be analyzed, networks of co-occurrences are built, and similarity metrics are created. These similarity metrics are used in a number of statistical tests, such as clustering and Multidimensional Scaling (MDS). Author affiliations, documents, journals, or keywords can all be displayed on science maps. The number of articles in which keyword maps appear is determined by their co-occurrence in titles, abstracts, and keywords. The goal of mapping and clustering approaches is to provide insight into the structure of a network, and the two methods are frequently used in collaboration in bibliometric and scientometric investigations.

The authors conduct keyword co-occurrence analysis using the application VOSviewer, which generates a representation of a network of elements with the total number of linkages and their link strengths. The size of the circles associated with each item corresponds to the importance of the displayed words. The cluster analysis was performed to discover which areas of activity-based costing research are now more established, as well as possible future trends in activity-based costing research. The application examines bibliometric maps carefully and may display a map in a variety of ways, each emphasizing a distinct component of the map. This study considers all keywords and applies a detailed counting method.

Figure 3 depicts the co-occurrences of keywords, network visualization on activity-based costing in a research subject's semantic structure. It is a very valuable tool for assessing the number of times a keyword is repeated as well as the strength of keyword connections. Keyword clusters are represented by circles, while the connections between these keywords are shown by lines. A short distance, in general, signifies a more committed relationship. We do data cluster analysis based on phrase co-occurrence. Significant research trends are described by six key clusters. The number and strength of their linkages were used to identify and classify these clusters. 6 different clusters, 36 linkages, and 57 total link strengths are represented.

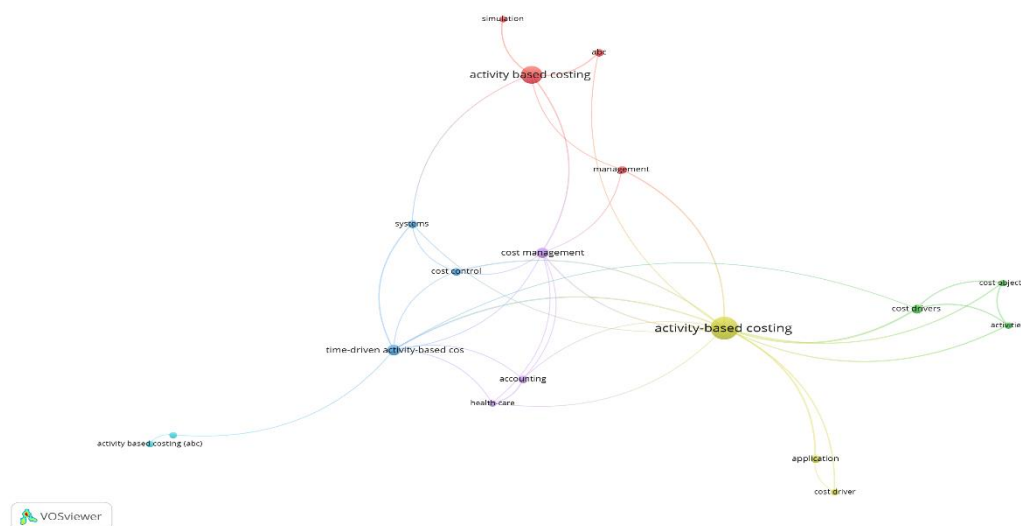


Figure 3 Co-occurrence of ABC keywords

The red cluster contains issues about activity-based costing simulation and management. "ABC" and "management" are two of the keywords with the greatest frequencies and intensities inside this cluster. The red cluster has the strongest interrelationships with the blue and purple clusters, and together they create a typology of research focusing on cost control and cost management. The green and yellow clusters, on the other hand, contain keywords such as "cost drivers," "applications," and "fuzzy logic" that address issues connected to activity-based costing in services. Figure 2 demonstrates that the purple clusters are closest distant from the yellow cluster, indicating that few researches combine their keywords. In the middle of the map emerges the yellow cluster, which is the largest, and includes keywords such as "activity-based costing", "application" and "cost drivers" mostly related to areas of activity-based costing Technique applications and implementation.

### Current and future trends related to activity-based costing in services

Using WoS data and the VOSviewer program, the researchers created five co-occurrence networks (www.vosviewer.com; Eck and Waltman, 2010). All keywords (title and abstract) in papers linked to activity-based costing in services research, as well as citation contexts surrounding activity-based costing in services studies, are network-based. Using the text mining component of VOSviewer, keywords were obtained from titles, abstracts, and citation contexts (Eck and Waltman 2011). This software generates a thorough map of a keyword co-occurrence network (adjectives and nouns). When two or more keywords repeat in the same title, abstract, or citation context, this is called to as co-occurrence. The distance



of two keywords is proportional to their similarity (relatedness in terms of co-occurrence). Words having a greater co-occurrence rate are therefore more likely to appear together. The VOSviewer has a clustering feature that groups keywords based on their frequency of occurrence (Eck and Waltman, 2017; Waltman and Eck, 2013; Waltman et al., 2010). We built the map in this research using the same parameters as in the VOSviewer: we included the most significant keywords in the network. The number of clusters in the map was selected for readability. Keywords that were irrelevant to our research were carefully removed.

### Cluster 1: “Service innovation system”

The cluster “Service innovation system” has a total of 4 keywords as a red cluster. Table 2 shows the keywords that correspond to Cluster 1, as well as the number of occurrences and linkages to these terms. Therefore, it is recognized as one of the components of future trends.

Services innovation differs from industrial innovation primarily due services are distinguished by intangible nature, diversity, perishable nature, higher client engagement, and the co - occurrence of consumption and production (Carayannis et al., 2022; Vargas-Canales et al., 2022). Because services are intangible, it is more difficult to create them unique through patent protection (Ortt, and Kamp, 2022) and to quantify their success, which is primarily reliant on user acceptance (Jia et al., 2020). Therefore, instead of using R & D facilities, new service innovations are often evaluated in the real system (Lee, et al, 2020). Because services are heterogeneous, creative activities must be adjusted to varied service settings, necessitating a more flexible approach to structuring innovation in services than others. Some service organizations, such as the public sector, have employed technological improvements at the client interface to minimize variability and methods to improve uniformity. Service innovation comprises technology and methods to effectively manage demand and plan capacities since services are renewable, that is, they neither stay nor rectify as physical things may (Ortt and Kamp, 2022). According to research, creating service systems has a favorable influence on service innovation (Jia et al., 2020).

Table 2

*Keywords in cluster 1 on activity-based costing in services*

Keywords (cluster 1)	Links	Total Links Strength	Occurrences
activity based costing	5	8	15
management	3	4	3
ABC	2	3	3
simulation	1	2	2

### Cluster 2: “Advanced accounting system”

The cluster “Advanced accounting system” has a total of 3 keywords as a green cluster. Table 3 shows the keywords that correspond to Cluster 2, as well as the number of occurrences and linkages to these terms. Therefore, it is recognized as one of the components of future trends.

A sound accounting system established on best practices and accepted accounting principles, as well as worldwide accounting standards (Thioye, 2022). To ensure the availability of an accurate and unambiguous classification of the accounts tree (accounts directory), highlighting all cost centers (accounts directory, cost centers). The accounting system should provide a complete accounting tree that allows employees to easily gather

costs and send them to the appropriate locations (Ortiz-Martinez et al., 2022). Likewise, to have precise cost centers so that calculations do not get confused and that the process of measuring cost centers is established accurately and aids the process of calculating all expenses in the future (Mert, 2022). Furthermore, the cost distribution system should be sound since its inception, since it does not assist the process of selecting the gap between cost accounts, thus there should be consistency in selecting advanced accounting systems (Torrebruno, 2020).

Table 3

*Keywords in cluster 2 on activity-based costing in services*

<b>Keywords (cluster 2)</b>	<b>Links</b>	<b>Total Links Strength</b>	<b>Occurrences</b>
cost drivers	4	9	4
cost objects	3	6	2
activities	3	6	2

### **Cluster 3: “Process design and management system”**

The cluster “Process design and management system” has a total of 3 keywords as a blue cluster. Table 4 shows the keywords that correspond to Cluster 3, as well as the number of occurrences and linkages to these terms. Therefore, it is recognized as one of the components of future trends.

A clear automated process system that identifies the major and supporting processes, details them, identifies activities and tasks, and connects them all to the accounting system, specifically each process and its elements with the cost center directly related to IT (operations manual) (Tran and Tran, 2022; Yang et al., 2020). Moreover, a list of government services offered by the respective body (Ministry, Department, institution). In order for these services have a solid structure and are classified based on solid bases such as the services classification guide or others to ensure the grouping of each similar category or group of sub-services within one main service and then determine the processes of providing each service based on the approved Operations Guide (Service guide). However, private sector enterprises have a significant advantage in terms of accounting for service costs and success via the redesign of service delivery procedures (Mattetti et al., 2022). Whichever method meets the main purpose of calculating it, which is to re-price these services to ensure market competitiveness and consumer loyalty, such as Amazon, Alibaba, and others, does not necessarily imply the success of the significant sector in this field. Nevertheless, it established a strong motivation for its performance and urged it to offer assistance and interest in accounting for the expenses of services, nailing and paving them, and competing with the private sector in providing services like as rapid delivery services and others. There are some stark examples of this in more than one nation right now (Li et al., 2022).

Table 4

*Keywords in cluster 3 on activity-based costing in services*

<b>Keywords (cluster 3)</b>	<b>Links</b>	<b>Total Links Strength</b>	<b>Occurrences</b>
time-driven activity-based costing	8	11	6
cost control	4	5	3
systems	4	5	3



**Cluster 4: “Efficient Human Resources”**

The cluster “Efficient human resources” has a total of 3 keywords as a yellow cluster. Table 5 shows the keywords that correspond to Cluster 4, as well as the number of occurrences and linkages to these terms. Therefore, it is recognized as one of the components of future trends.

Members of the cost accounting department, members of other accounting departments, members of the operations department, members of the services department, members of the Information Technology Department, and others as needed comprise a qualified human cadre capable of performing the calculation process (Human resources) (Ostanov and Ostanov, 2022; Rashid et al., 2022). The consistency and clarity of the link between the systems and the accounting needs, so that all team members are usually familiar with the ideas of services, calculating their costs, and the accounting process requirements. Therefore, the goal is to have a model implemented to reality as quickly as possible, in accordance with worldwide best practices and capable of meeting all essential standards. Beginning with developed countries, which are distinguished by a distinguished qualified human cadre capable of accepting challenges, finding solutions, and providing real models that will be adopted by other countries as a result of the great respect and credibility that the human cadre enjoys among many countries around the world as one of the best cadres capable of development (Hasnine and Habib, 2021; Etges et al., 2022; Kitsantas et al., 2022).

Table 5

*Keywords in cluster 4 on activity-based costing in services*

<b>Keywords (cluster 4)</b>	<b>Links</b>	<b>Total Links Strength</b>	<b>Occurrences</b>
activity-based costing	13	26	26
application	2	4	3
cost driver	2	3	2

**Cluster 5: “Interconnected data management system”**

The cluster “Interconnected data management system” has a total of 3 keywords as a purple cluster. Table 6 shows the keywords that correspond to Cluster 5, as well as the number of occurrences and linkages to these terms. Therefore, it is recognized as one of the components of future trends.

A networked data management system and program activation, incorporating System applications and products (SAP) and a data management system. System Applications and Products is one of the market's top information systems (SAP). SAP Business One is an integrated enterprise system resource planning software designed to meet the needs of small and medium-sized businesses. CPAC thought that SAP Business One was the greatest option for keeping track of the company's day-to-day operations. Concrete Product Aggregate Corporation (CPAC) is a partnership between France's Lafarge and Thailand's Siam Cement. It is involved in commercial services and distribution (Yarramalli et al., 2020; Lin et al., 2022). A data management system (DMS) combines and controls all of the data that defines a service, from design to manufacturing to end-user support. DMS may be seen of as an integration tool that connects many distinct areas, ensuring that the appropriate information in the right form is available to the right person at the right time. PDM systems, when effectively implemented,

result in speedier service, fewer mistakes, less redundancy, and a smoother workflow for a business (Fichte et al., 2022; Han and Jochum, 2020).

Table 6

*Keywords in cluster 5 on activity-based costing in services*

Keywords (cluster 4)	Links	Total Links Strength	Occurrences
cost management	7	9	5
accounting	4	5	3
health-care	4	5	2

#### **Cluster 6: “activity based costing (ABC)”**

The cluster “activity based costing (ABC)” has a total of 2 keywords as a light blue cluster. Table 7 shows the keywords that correspond to Cluster 6, as well as the number of occurrences and linkages to these terms. Therefore, it is recognized as one of the components of future trends.

The technique of estimating the cost of government services based on activity ABC has been implemented thus far, and most interested government units throughout the world are working on it. Examples include the Australian model for assessing the cost of government services, the New Zealand model, and others throughout the world (Jimenez et al., 2020; Madwe et al., 2020). At the level of the Middle East and North Africa area, especially the Arab region, the government of Dubai has worked to examine and analyze government services in order to minimize the cost of services through a variety of initiatives and introduction programs. Therefore, the Dubai government released initiatives such as the worldwide service rating system (Seven Stars), the Dubai Model Center for service improvement, and others focused at increasing the efficiency of government services and focusing on the consumer. Accordingly, in 2017, a methodology for determining the cost of government services based on the cost accounting system of activities (ABC) was developed and distributed to all government units for study and use (Lievens et al., 2003). However, due to the difficulties of its execution and the long-term requirement for the approach, particularly diversified talents. In terms of the nature of the boring, purpose, organizational structure, and other factors, the financial industry is fundamentally different from the private sector. The government of Dubai worked to collect and review all government agency comments, and then another project was launched in collaboration with one of the world's largest consulting firms to implement and calculate the costs of services for government agencies within a massive project called (Diamond), which is currently being implemented and a large portion of it has been completed (Vetchagool et al., 2021; Making, 2020; Aljabr, 2020).

Table 7

*Keywords in cluster 6 on activity-based costing in services*

Keywords (cluster 4)	Links	Total Links Strength	Occurrences
fuzzy logic	2	2	2
activity based costing (ABC)	1	1	2

### Bibliographic Coupling of Authors

Author bibliographic coupling (ABC) is a subset of bibliographic coupling, which refers to the occurrence in which authors cite the same paper(s) in papers written by the same authors. According to the ABC assumption, the more references authors share throughout their oeuvres, the more comparable their study is. The relevance of document bibliographic linking for research front mining and science mapping has been investigated.

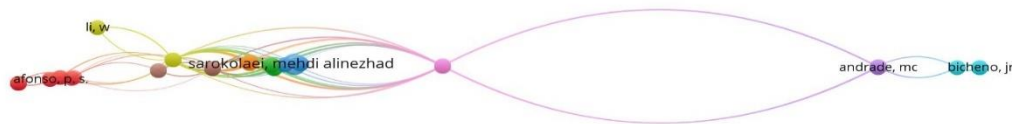


Figure 4 Bibliographic coupling of author's network visualization on ABC

Figure 4 shows the top 52 contributing authors ordered by the number of papers cited. Kesteloot, K and Lievens, Y are the most cited authors in activity-based costing papers, with 115 citations. Then there's Udpa, S, who has 59 papers citations. Each of the top 52 writers has an average of 28 papers citations connected to activity-based costing in services. Kesteloot, K and Lievens, Y are the authors with the most citations among these top authors as well as have written three papers on activity-based costing, which have received 115 citations. Figure 4 shows that the clusters with red, green, and purple hues correspond to authors' names who have research interests centered on the keywords displayed in Figure 3. Furthermore, the yellow cluster in Figure 4 is remote in terms of both authors' involvement and interest in other authors in other clusters. As illustrated in Figure 3, where there is no substantial correlation between the keywords of the yellow cluster and the other clusters. Many governments throughout the world have begun to focus on the efficiency and development of government services. The technique for estimating their expenses, as well as the influence on the trend toward the launch of electronic and smart services. Many government institutions are increasingly competing with the private sector to provide services. Several new government initiatives have been geared toward the process of establishing services and restructuring operations to make them more easy and deliverable through smart and electronic channels. In addition to focusing on E-linking projects to realize the notion of service integration, which unavoidably impacts government service efficiency

and its reflection on the essence of efficiency in government service, which is the cost of government service.

### Country Collaboration Map

The country cooperation map is used to assess the level of a country's international partnership. Poland, the United States, Slovakia, China, and Malaysia, which are represented by the dark blue color, have contributed the most. Figure 5 shows that all countries referenced the most documents with one co-author (Elbaz et al., 2021).

Country Collaboration Map

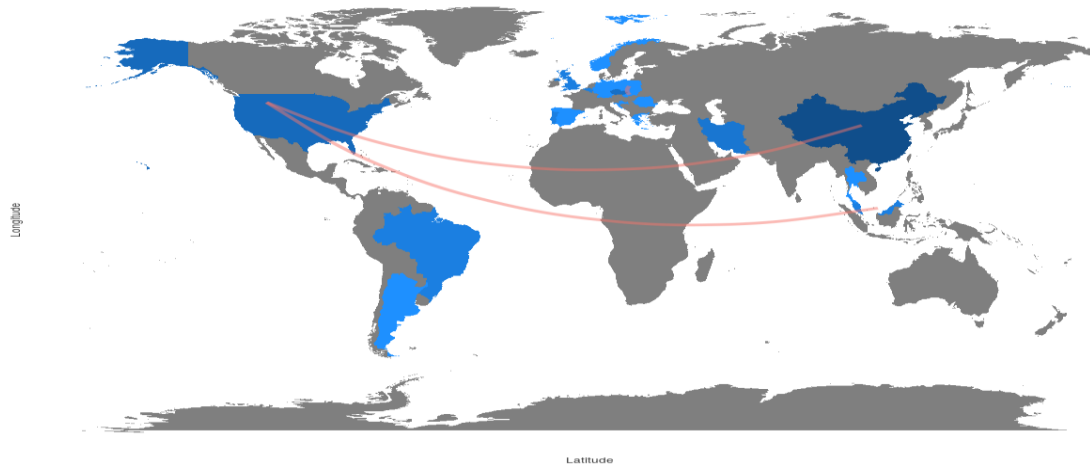


Figure 5 Country collaboration map on ABC keywords literature around the world

### Conclusion

This study contributes to our knowledge of the activity-based costing (ABC) literature by meticulously categorizing articles and researching new research avenues. From the WoS core collection, we selected the most important papers and journals related to activity-based costing (ABC) that may be useful in reflecting on the support innovation process, complex accounting system, procedure management and design system, effective human resources, and facilitate the identification control system. Next we examined six unique clusters. On activity-based costing (ABC), Service innovation system, Advanced accounting system, Process design and management system, Efficient human resources, and Interconnected data management system, performing Co-occurrence of keywords network visualization analysis, and each cluster pertaining to activity-based costing (ABC). Therefore, scholars in the activity-based costing (ABC) sector will be able to investigate numerous assumptions and demonstrate the subject's development by issue, contextual, and measurements in our study.

This bibliometric study, as mentioned in the preceding section's future instructions, supplies critical information to other academics. Furthermore, a text analysis of 1725 papers indicated the assumption that activity-based costing (ABC) is still in its early phases, with just a few qualitative research undertaken. Other academics may want to create a scale to statistically examine activity-based costing (ABC) features, as well as their links with significance co-creation and other new dimensions, although research in this field is limited. Despite the reality that the study of activity-based costing (ABC) remains in its early stages of articles published, as illustrated by our data analysis (since 1998), the content analysis revealed that its impact in accounting and finance and information systems library and information science has been substantially broadening, attempting to make it fascinating.

Nonetheless, its importance in management studies and public management has risen non-significantly.

Six clusters focus on activity-based costing research trends (ABC). The first trend highlights how, service innovation system while services are heterogeneous, creative activities must be tailored to different service environments, demanding a more flexible approach to organizing innovation in services than others. Some service companies, such as the government, have used technology advancements at the client interface to reduce unpredictability and promote consistency. The second cluster emphasizes the significance of an advanced accounting system, which is based on best practices and recognized accounting principles, as well as global accounting standards. To ensure the availability of an accurate and unambiguous classification of the accounts tree (accounts directory), emphasizing all cost centers (accounts directory, cost centers). The third trend is associated with the process design and management system, such as a clear automated process system that identifies and details the major and supporting processes, identifies activities and tasks, and connects them all to the accounting system, specifically each process and its elements with the cost center directly related to IT (operations manual). A list of government services provided by the appropriate entity is also provided (Ministry, Department, institution).

The fourth trend, on the other hand, is related to efficient human resources, which are members of the cost accounting department, members of other accounting departments, members of the operations department, members of the services department, members of the Information Technology Department, and others as needed comprise a qualified human cadre capable of performing the calculation process (Human resources) are obligated because they are one of the leading future trends. The fifth cluster emphasizes the significance of the interconnected data management system." To employ, a networked data management system and program activation, including System applications and products (SAP) and a data management system, must be used. System Applications and Products is a market leader in information systems (SAP). Finally, the sixth trend highlights how, activity-based costing (ABC) services are diverse, and creative activities must be tailored to various service contexts, the service innovation system requires a more flexible approach to organizing innovation in services than others. Some service companies, such as the government, have used technology advancements at the client interface to reduce unpredictability and promote consistency.

Improve prior objective and assessment literature study on activity-based costing (ABC). Enhance the efficacy of interdependent connections and their implications for activity-based costing (ABC). Furthermore, stress organizational culture as a crucial approach through the utilization of services and costs in activity-based costing (ABC) systems. Nonetheless, the paper's limitation is that it only utilized one collection, and the items either from sampling are only available in this database due to the many gaps between the beginning and end of the title, so we began with titles that have already been posted to the Web of Science. Using a single database is preferred since there is no duplication of the number of manuscripts or headlines.

Future study directions can be strengthened by elevating the evaluation to a new accounting level of technology and continuing to develop a technique with the variables "activity-based costing (ABC)" as constant quantitative variables and the most essential keywords derived from the bibliometric analysis carried out in this study as renowned projections.

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