

THE EVOLUTION OF RESEARCH IN FORENSIC ACCOUNTING: A BIBLIOMETRIC ANALYSIS

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Abstract: *Research in the field of forensic accounting has become increasingly important in the last two decades, with the increase in the number of financial frauds, the globalization of markets and the development of digital technologies. From the perspective of bibliometric research on the topic of forensic accounting, the purpose of this article is to provide a comprehensive perspective of the evolution of the works in this field, collecting the data from the international database Web of Science, then using the VOSviewer and RStudio applications for bibliometric data analysis. The results of this study show the interest of researchers in this field, especially during the COVID-19 pandemic in 2020, it identified the main countries where forensic research was studied, journals, authors and topics addressed by researchers in this field. The conclusions identified certain gaps and future directions in forensic accounting such as the use of artificial intelligence in this field, focusing research on case studies and interviews with experts in the field, exploring the role of forensic accounting in identifying and preventing fraud.*

Keywords: *forensic accounting, bibliometric analysis, fraud detection, fraud*

JEL: M41, M42

1. Introduction

Against the background of the globalization of the economy, accelerated digitalization and the growth of commercial activities, forensic accounting is becoming an essential tool in detecting and preventing financial fraud. Major financial scandals, such as Enron, WorldCom or Pamflet, the global economic crisis of 2008 and, more recently, the COVID-19 pandemic, have highlighted the vulnerabilities of the business environment and the growing need for financial investigations. With the expansion of the online environment, new types of fraud have emerged, such as cyber scams, phishing, cryptocurrency fraud, and embezzlement through digital platforms, which amplifies academic interest in forensic accounting studies. The reason why I chose this topic is related to my research concerns within my doctoral studies, aiming to analyze and deepen the theoretical and practical aspects in the field of forensic accounting. The objectives of the research are to analyze the evolution of scientific research in the field of forensic accounting, to identify authors, articles, reference journals in this field, to identify gaps in the literature and to formulate proposals for future research directions.

To perform the bibliometric analysis I will use the quantitative method based on data collection from the Web of Science scientific database, by selecting the articles using the keyword "forensic accounting". I will analyze the frequency of publications, the number of citations, the authors and the main journals of publication, the mapping of academic collaborations and geographical distribution, the identification of the main thematic clusters used aiming to identify the main gaps and future directions in research.

The results obtained can be a useful reference point for researchers, as well as for practitioners involved in preventing and combating financial fraud, especially in the digital age.

2. Historical evolution

Since Antiquity, through the code of Hammurabi, aspects related to commercial relations, property and criminal justice are identified, requiring merchants and merchants to keep accurate records of their transactions and businesses. By recognising the value of written evidence and documentation necessary to resolve disputes and establish guilt or innocence, the Code has set a precedent for the existence and retention of financial records, essential documents that underpin the work of forensic accountants, becoming fundamental elements of forensic accounting.

Luca Pacioli, considered the "father of accounting", published in 1494 the work "Summa de arithmetica, geometria, proportioni et proportionalita" which included a section dedicated to accounting through which the concept of double-entry accounting was introduced. The double-entry accounting principles, introduced by Luca Pacioli, continue to underpin forensic accounting, providing a solid framework for tracking financial transactions, identifying misrepresentations, and detecting potential errors or fraud.

At the beginning of the twentieth century, large-scale economic crime cases in the US provided a path for the development of investigative accounting used in the detection of fraudulent financial activities, such as the cases of Charles Ponzi or Al Capone (Ceccar, 2024).

For the first time, the term forensic accounting was found in the accountant Maurice Peloubet in 1946, when he published the article "Forensic accounting – Its place in today's economy". Forensic accountants have been in great demand to investigate financial scandals that began in the 1980s (Crain et. al, 2019).

At the beginning of the twenty-first century, the major financial scandals and the collapse of renowned companies such as Enron, WorldCom or Parmalat, highlighted the need to increase the degree of specialization and development of forensic accounting, in order to cope with the increasing number of frauds, often related to customer relations, cybercrime, asset theft, bribery and corruption, money laundering and tax fraud (PricewaterhouseCoopers, 2022).

3. Literature review

In specialized works, forensic accounting is identified by several definitions.

In the view of the authors Crain et al. (2019), forensic accounting, at a general level, involves the communication of financial information and involves the application of special skills, such as: accounting, audit procedures, finance, quantitative methods, research and investigations.

In the study conducted by Botes & Saadeh (2018), forensic accounting is defined as "a method of applying financial expertise, investigative skills and legal knowledge to carry out fraudulent examinations, advisory services, disputes and other analyses, the outcome of which could lead to a court appearance".

Kranacher, M.J., Riley, R. (CECCAR Publishing House, 2023) define, in the simplest way possible, forensic accounting: "the intersection between accounting and law". Forensic accounting can involve either an attestation mission or a consultation mission.

The American Institute of Chartered Public Accountants (AICPA) defines forensic accounting as the application of the specialized knowledge and investigative skills of chartered public accountants to collect, analyze, and evaluate evidence, as well as to interpret and communicate findings in a courtroom, boardroom, or other legal or administrative setting.

According to the study conducted by Peterson K., O. (2023), most research has been conducted in America, while in Europe, Asia, and Africa it is in its early stages. The lack of awareness and education in this area makes it difficult for accountants to develop skills that could prevent and detect fraud, before reaching the courts (Kaur et al., 2023).

The practice of forensic accounting plays an important role in identifying vulnerabilities in corporate governance and contributes to improving processes in this area. At the same time, an effective internal control system increases transparency within companies, reducing the risk of fraud (Vlăsceanu, G., E., 2024).

4. Bibliometric analysis

Following the application of the search method in the Web of Science database by the keywords "forensic accounting", then by applying the filters for the type of documents "article" and for the research areas "business economics" and "behavioral sciences", 208 publications related to the subject of forensic accounting were generated, which are presented as follows:

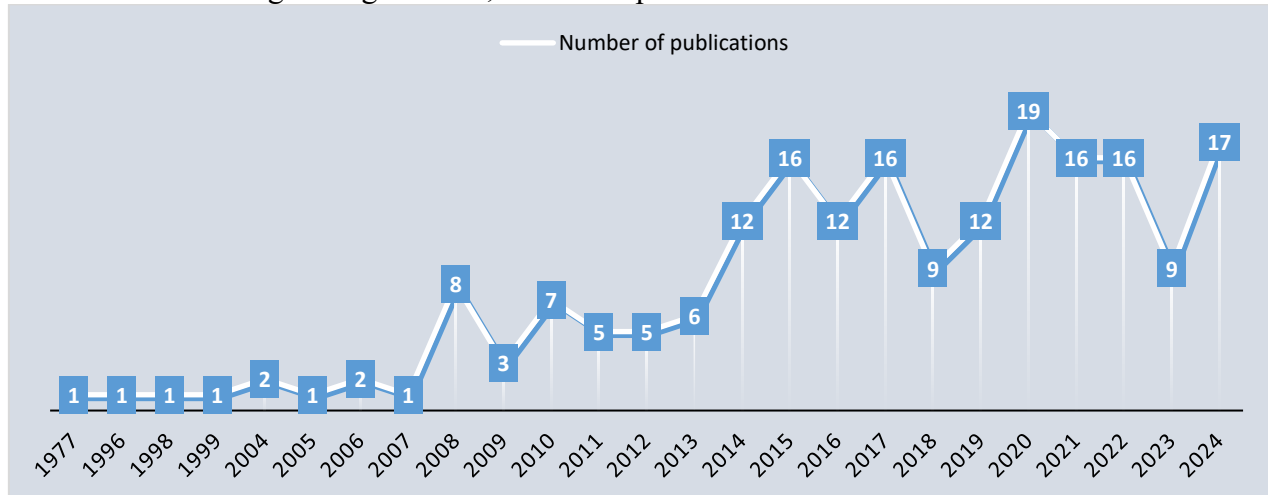


Figure 1. Evolution no. of publications on forensic accounting in the period 1977-2024

Sursa: Authors creation using the Web of Science database

Figure 1 shows the evolution of the works published between 1977-2024, which register the most publications in 2020, respectively a no. of 19 publications, followed by the years 2021 – 2022 with a no. of 16 publications, which demonstrates the increased interest of researchers in forensic accounting. The increase in the number of research in the field of forensic accounting in 2020 can be attributed to several factors, with the COVID-19 pandemic being a significant factor. The pandemic has created a volatile economic environment, which has led to increased fraud risks and the need for increased financial control. As businesses have faced unprecedented challenges, there has been an increased demand for forensic accountants to investigate fraud, assess financial damage, and provide expert information (Nourhene et al., 2024).

A study published in the Journal of Accountancy highlighted the unique challenges faced by forensic accountants in the economy affected by COVID-19, such as: difficulties in conducting interviews and witness statements physically due to social distancing restrictions, significant increase in fraud, disruptions in the coordination of financial investigations due to remote work, the need to adapt quickly to new conditions to maintain efficiency in fraud detection and prevention (Wiesenfeld, J., 2020).

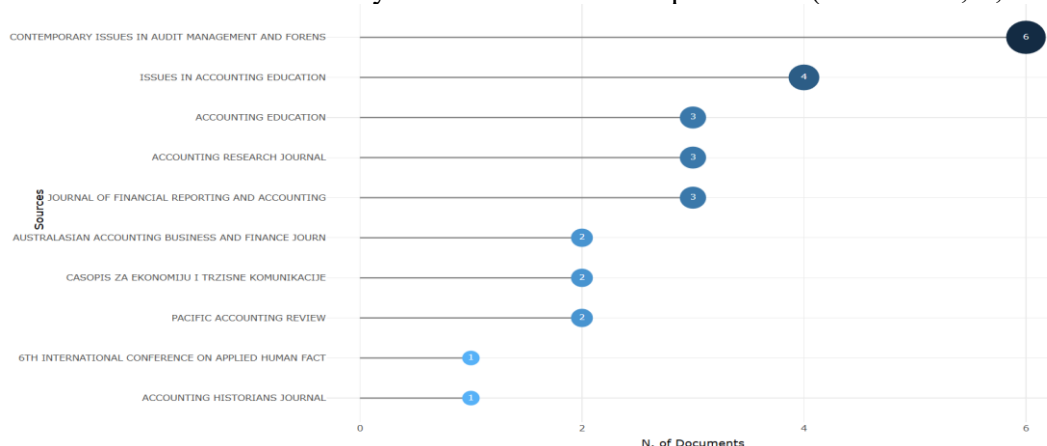


Figure 2 Most relevant source

Source: Authors creation using Bibliometrix (Biblioshiny)

Figure 2 shows the top 10 sources of publication of articles centered on the concept of forensic accounting. On the vertical axis are represented the sources, and on the horizontal axis the no. of documents related to each source. The journal with the most publications in the field of forensic accounting is *Contemporary Issues in Audit Management and Forens*, with no 6 documents, followed by the journal *Issues in Accounting Education*, with 4 documents. In the journals *Accounting Education*, *Accounting Research Journal*, *Journal of Financial Reporting and Accounting* there are a number of 3 documents in each. It can be mentioned that the most productive magazine is focused on auditing and fraud detection, which shows a major interest in transparency, ethics and financial integrity.

In order to capitalize on the main research directions of this topic, using the VOSviewer software, we used a bibliometric analysis of the literature. The analysis was based on the frequency of keywords in the titles and abstracts of scientific articles published between 1977 and 2024 on the Web of Science (WoS) platform. Thus, we have set a threshold of 2 keywords to appear together, and out of the total of 189 keywords, 24 meet the threshold.

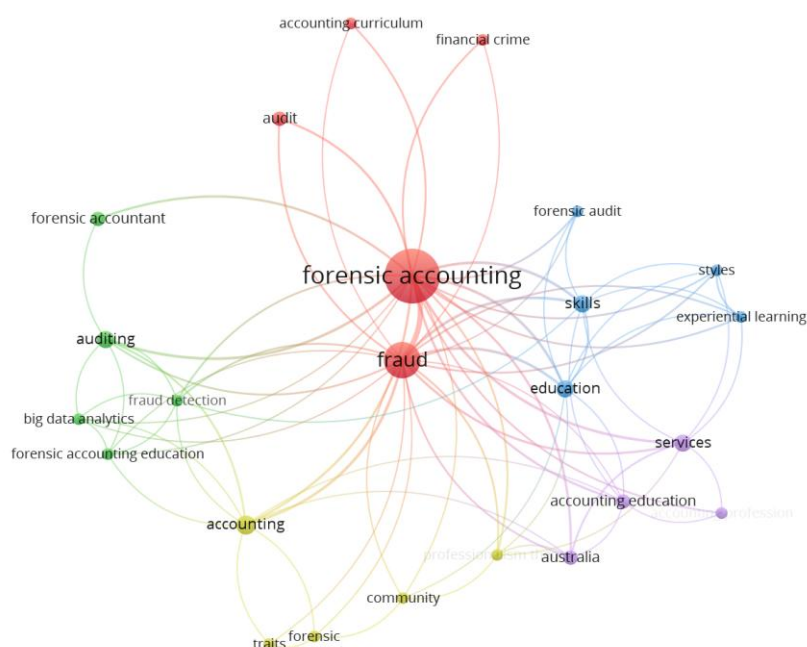


Figure 3. Co-occurrence cluster visualization of all keywords

Source: Authors' projection with VOSviewer

Figure 3 highlights the 5 significant clusters. It can be seen that among the largest circles, which mean the most cited words, there are terms such as "forensic accounting", "fraud", "audit", "accounting". This shows that most of the work focuses on the application of forensic accounting in fraud investigation and branches out towards education (education, accounting education), practice (skills, services, professionalism), technology (big data analytics, fraud detection).

The keywords in the cluster are presented according to the table:

Table 1 Keyword clusters in VOSviewer

Cluster 1 - red	Cluster 2 - green	Cluster 3 - blue	Cluster 4 - yellow	Cluster 5 - purple
accounting curriculum	auditing	education	accounting	accounting education
audit	big data analytics	experiential learning	community	accounting profession
financial crime	forensic accountant	skills	forensic	services
forensic accounting	forensic accountant education	forensic audit	professionalism theory	australia
fraud	fraud detection	styles	traits	

Source: Authors' projection

Table 1 shows the most dominant keywords for each cluster. The red cluster suggests the link between auditing, educational programs and financial crime in the field of forensic accounting. The Green Cluster focuses on advanced methods and technologies for fraud detection. The blue cluster is focused on skills, teaching methods and learning in the field of forensic accounting. The yellow cluster identifies the links between the accounting profession, professional traits and community, and the purple cluster shows interest in vocational training and the specific geographical context (Australia).

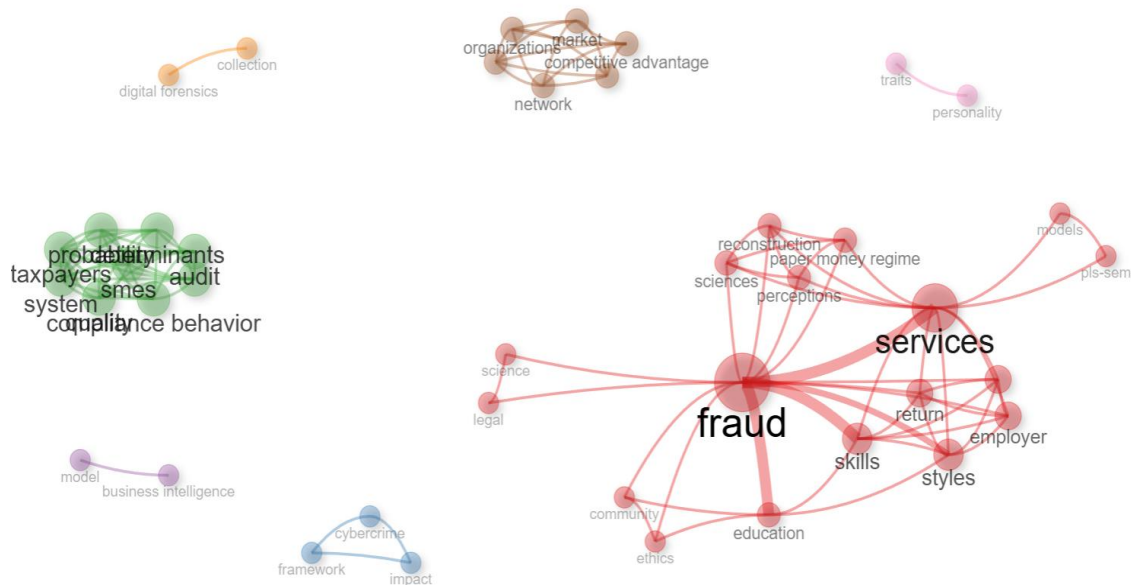


Figure 4. Thematic Map

Source: Authors creation using Bibliometrix (Biblioshiny)

In figure 4, the thematic map suggests the main area of research, namely fraud, related to educational, organizational, behavioral, technological and psychological factors. The red cluster has the most internal links, representing the core of the research. The green cluster is focused on topics related to auditing and taxation. The blue cluster deals with topics related to technological impact, and the brown cluster deals with organizational and psychological aspects.

As far as scientific evolution is concerned, as we can see in figure 5, the countries with the most papers are: USA with a no. of 16 documents, Turkey with a no. of 12 documents, Jordan with a no.

of 10 documents, Australia with a no. of 9 documents, China with a no. of 5 documents, Indonesia with a no. of 4 documents, Azerbaijan with a no. of 3 documents, India with a no. of 2 documents, Iran with a no. of 2 documents, Malaysia with a no. of 2 documents, Saudi Arabia with a no. of 2 documents, Canada one document.

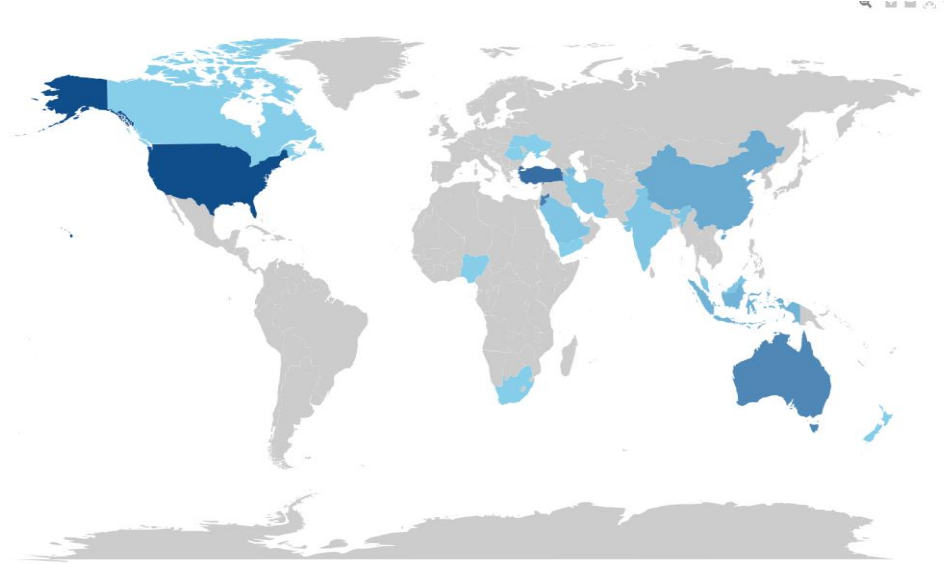


Figure 5. Countries' Scientific Production
Authors creation using Bibliometrix (Biblioshiny)

Figure 6 shows a graph with 3 fields for the first 20 articles with the following parameters: countries, journals to which most articles on forensic accounting belong and keywords.

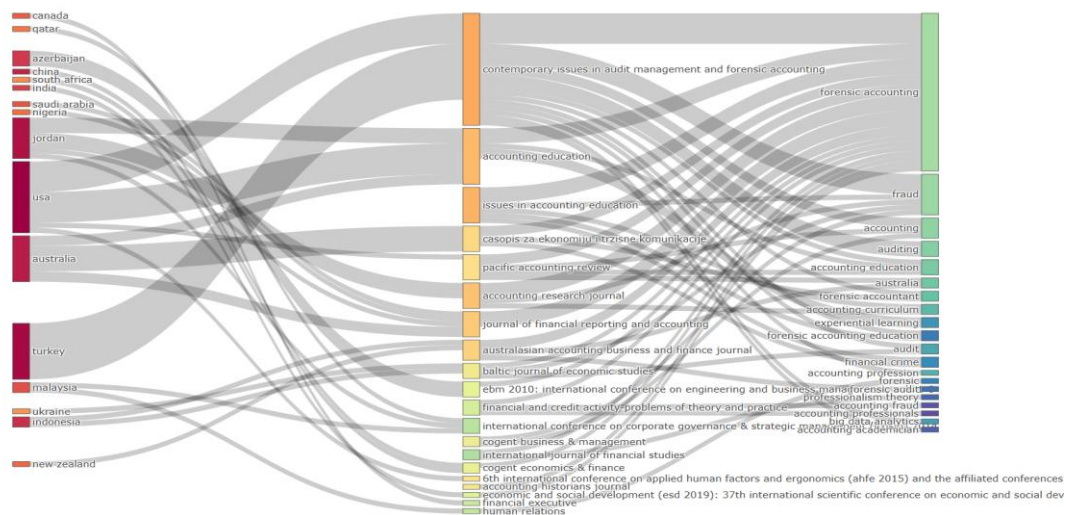


Figure 6. Three-Field Plot
Authors creation using Bibliometrix (Biblioshiny)

We notice among the top 3, the most relevant sources such as Contemporary issues in audit management and forensic accounting, Accounting education, Issues in accounting education. The three-field plot chart highlights the US, Turkey and Australia as the main contributors to the literature, focusing on topics such as forensic accounting, fraud and auditing, frequently published in high-impact journals such as *Contemporary Issues in Audit Management and Forensic Accounting* and *Accounting Education*.

Table 2 Most Global Cited Documents

Authors, year, magazine	DOI	Total citations
Rezaee, Z. and colab., 2019, Managerial Auditing Journal	10.1108/MAJ-08-2017-1633	40
Lawrence T., B., 1998, Human Relation	10.1177/001872679805100901	27
Alshurafat, H., 2020, Accounting Education	10.1080/09639284.2020.1719425	24
Howieson, B., 2018, PAC Accounting Education	10.1108/PAR-01-2017-0005	21
Pearson T., A., 2008, Iss Accounting Education	10.2308/iace.2008.23.4.545	20
Van Akkeren, J., 2013, Pac Account Rev	10.1108/PAR-06-2012-0023	19
Heitger Le, 2008, Iss Accounting Education	10.2308/iace.2008.23.4.561	15
Kramer, B., 2017, Account Research Journal	10.1108/ARJ-06-2015-0082	15
Van Akkenren, J., K., 2022, Account Education	10.1080/09639284.2021.1960573	14
Digabriele, J., A., 2015, Account Research Journal	10.1108/ARJ-08-2014-0071	10

Authors creation using Bibliometrix (Biblioshiny)

Table 2 shows the most cited authors, the year and the journals in which they were published. The authors Rezaee, Z., Wang, J. are the most cited authors with the paper "Relevance of big data to forensic accounting practice and education" (2018), followed by the author Lawrence, T., with the paper "Examining Resources in an Occupational Community: Reputation in Canadian Forensic Accounting" (1998) and the authors Alshurafat, H., Beattie, C., Jones, G. & Sand, J., with the paper "Pereceptions of the usefulness of various teaching methods in forensic accounting education" (2019). These authors have had a significant impact on the literature, outlining the current directions of research in forensic accounting and education in this field.

5. Conclusions

Forensic accounting is a field of research and development in a context marked by the increase in financial fraud, the globalization of markets and the evolution of technology. The bibliometric analysis carried out on the basis of data extracted from the Web of Science, then using the VOSviewer and RStudio tools for data interpretation, aimed to highlight the academic interest in research in this field. The results of the research show a visible acceleration in the number of publications in recent years, especially during the COVID-19 pandemic, reflecting the idea that forensic accounting and fraud concerns have become increasingly in demand during this period. The most relevant keywords used by the authors in the literature were highlighted, such as fraud, forensic accounting, auditing, accounting education and artificial intelligence, reflecting the research directions. Geographically, the countries with the most publications are the United States of America, Australia and Turkey, followed by Canada, China and India, and the most cited authors are Rezaee, Z., Wang, J. with the paper "Relevance of big data to forensic accounting practice and education" (2018) – 40 citations. Studies in the field reflect an interdisciplinary approach, combining perspectives related to accounting with those in the field of education, technology, the internet and the notion of law, which suggests the need for collaboration between specialists from different fields.

At the same time, this study also highlights some important gaps and future directions, including those regarding the integration of artificial intelligence in the field of forensic accounting, the development of case studies and interviews with experts in this field, as well as the exploration of the role of forensic accountants in the prevention and detection of fraud.

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